



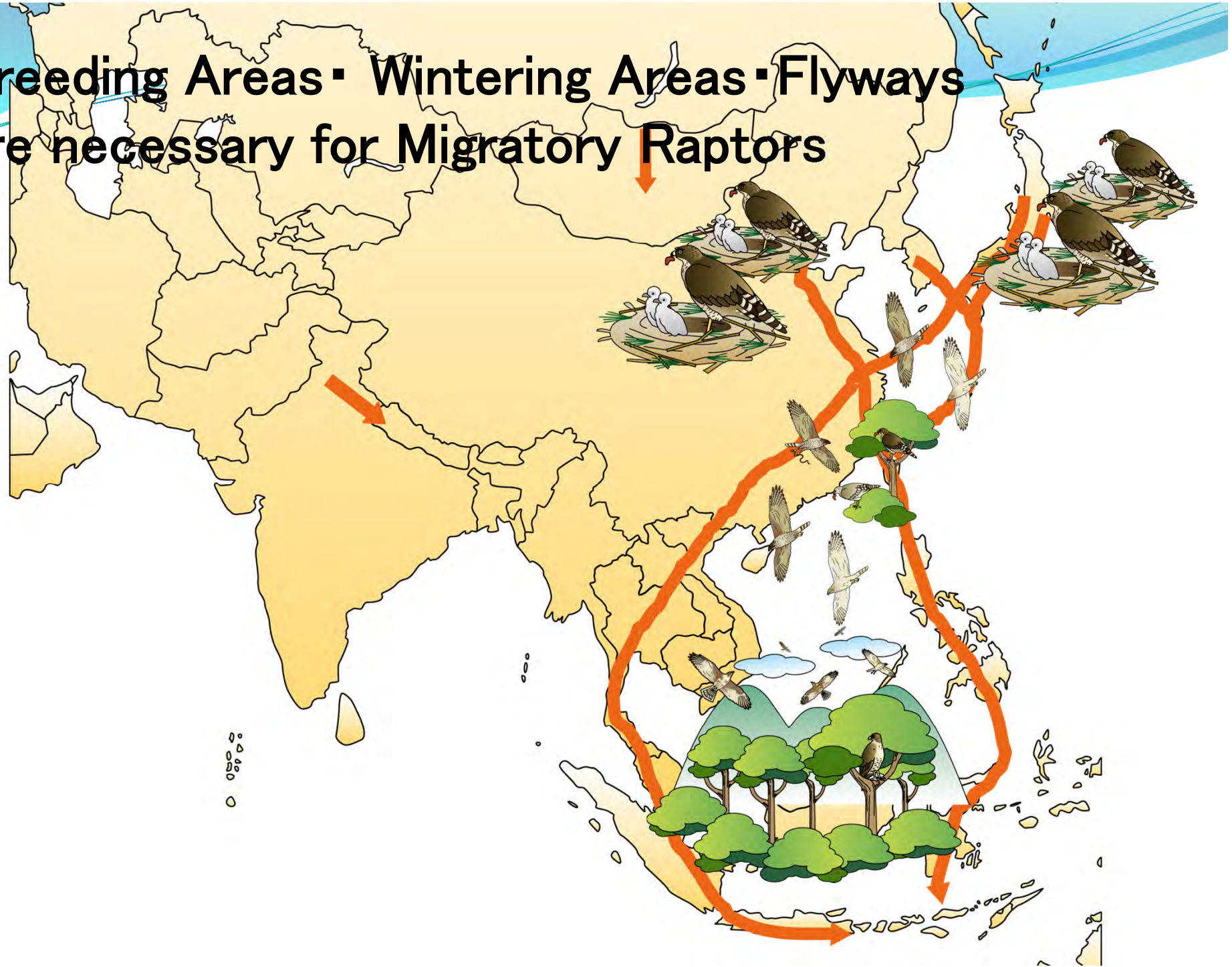
Results of Collaborative Survey of Migratory Raptors in South East Asia

Asian Research and Conservation Network (ARRCN)

Collaborative Survey of Migratory Raptors in South East Asia



**Breeding Areas · Wintering Areas · Flyways
are necessary for Migratory Raptors**



Purpose

To Conserve Nature in Asia through Conservation of Raptors which Migrate beyond Country Borders

Main Contents

- **Collaborative Survey of Raptor Migration along Western and Eastern Routes of Migratory Raptors in South East Asia**
- **Education Citizens and Students through Observation of Migratory Raptors**

Expected Results of the Collaborative Survey of Migratory Raptors



Breeding areas, Wintering areas and Flyways of Migratory Raptors in South–East Asia will be identified.



Necessary information concerning habitats of Migratory Raptors in South East Asia will be compiled.



Prevention of Illegal Poaching and Nature Conservation in Collaboration with Local People will be achieved through Increased Awareness of Raptor Conservation in Citizens.



The skills and techniques of Raptor Researchers will be developed in each country of South–East Asia through Field Surveys and Workshops.

1. Objective

- ◆ Migration of raptors in Asia is only partially known.

- ◆ 2 main flyways are presumed to exist over the Asian region. However, the flyways are still unconnected.

Many other flyways are as yet undocumented, and the wintering areas are not yet known.

- ◆ ARRCN focused on the Western route in autumn in 2012 and the Eastern route in 2013.





Discussing the research in Korea in January of 2012

2. Methods



- ❑ At least two or more observers operated at the survey sites daily approximately **from 0900 hrs to 1700 hrs.**
- ❑ Observers used **binoculars** and **spotting scopes** to locate, identify and count raptors.
- ❑ Raptors were identified using **standard Field Guides** and the species, arrival time, flock size and direction of flights were recorded on the **survey sheets.**

FIELD GUIDE TO RAPTORS OF ASIA

FIELD GUIDE TO RAPTORS OF ASIA

MIGRATORY RAPTORS OF ORIENTAL ASIA VOL.1



TORU YAMAZAKI
YASUNORI NITANI
TATSUYOSHI MURATE
KIM CHYE LIM
CHAIYAN KASORNDORKBUA
ZAINI RAKHMAN
ADAM A. SUPRIATNA
SUNDEV GOMBOAATAR

Black Baza *Aviceda leuphotes*



Adult male © Lim Swee Yan

Other English Name(s)

Black-crested Baza, Black-crested Lizard-hawk

Body Measurements

Total length: 28-35 cm
Wingspan: 64-74 cm
Body weight: 0.17-2.2 kg (Male), 0.14 kg (Male in Thailand)

Habitats and Breeding Ecology

A variety of forest types are used including deciduous dipterocarp, mixed deciduous, moist evergreen forests; on passage recorded in alluvial plains, forest parks, gardens, agricultural fields, palm & rubber plantations, various types of forests, especially along mountain ranges and coasts. Thought to overwinter in lowland evergreen forests. Nests in tall trees in forests. Clutch size is 2-3. Incubation period of the eggs takes 27 days. Nestling period is 29 days. Both parents incubate and share brooding.

Food

Mainly preys on invertebrates (grasshoppers, cicadas, and caterpillars), reptiles, and small birds. Glides or hovers to catch prey from leaves and branches, or hunts aerially among flocks of insects and birds.

Black Baza



Adult female © Corry Chen

Status and Distribution

Breeding

The species is restricted to South-east Asia and the oriental region. It is a breeding resident in the Indian subcontinent (India, Nepal, Bangladesh), and South-west & Southern China. Recent probable breeding recorded in Bhutan. Isolated small breeding populations are found in South-east Asia (Myanmar, Thailand except central and southern, Cambodia, Laos, and Vietnam).

Migratory populations in Southern Asia migrate to South India and Sri Lanka, whereas those in China to South-east Asia (Southern Thailand, peninsular Malaysia, Sumatra and West Java).

On passage

Recorded mainly in Southeast Asia where over 50,000 birds are seasonally counted during autumn migration in southern Thailand each year. Autumn movements at Radar Hill and Khao Dinsor in southern Thailand occur mainly in October which peak number in second half of the month.

Winter

Majority probably winter in Southern Thailand and peninsular Malaysia. Flocks of tens reached Singapore. Wintering birds are also recorded on Sumatra and West Java in small numbers.

Migrating Behavior

Migrates in soaring flocks of hundreds to thousands exclusively by days. Night roosts form in late evening within forests or oil palm plantations.

Threats and Conservation

Poaching and illegal capture for pet trade in wildlife markets. Assessed as Least Concern by IUCN (2011). Listed in Appendix II of CITES.

(Chaiyan Kasorndorkbua)

Outline of the Survey in Western Route 2012

1. Survey sites

- ◆ For the autumn season of 2012, **7 sites** in four participating countries, **Vietnam, Thailand, Malaysia and Indonesia**, were selected for monitoring of **migrating raptors**.



Observation Sites

	Country	Name of Place	September		October			November		
			middle	late	beginning	middle	late	beginning	middle	late
1	Vietnam	Tam Dao Bavi		Yellow	Yellow	Yellow	Yellow			
2	Thailand: site A (North)	Chiang Mai	Green	Green	Green	Green	Green			
3	Thailand: site B (South)	Chumphon		Green	Green	Green	Green	Green		
4	Malaysia: site A (Peninsula)	Bedong		Cyan	Cyan	Cyan	Cyan	Cyan	Cyan	
5	Malaysia: site B (Island)	Tioman Island		Cyan	Cyan	Cyan	Cyan	Cyan	Cyan	
6	Indonesia: Sumatra	Rupat		Orange	Orange	Orange	Orange	Orange	Orange	
7	Indonesia: Sumatra-Kalimantan	Bangka			Orange	Orange	Orange	Orange	Orange	Orange

Collaborative Survey of Migratory Raptors in South East Asia 2012
 Identification of Migratory Routes of Raptors in **Western Route**

3. Results Total Number

No.	Sites	Total Number		Dominant Species Total Number (Peak Date)				
		Species	Number	BB	OH	GB	CS	JS
1	Ba Vi N.P., N. Vietnam	14	10,631	89 10/19	3,891 10/12	3,501 10/16	1,045 10/5	769 10/15
2	Tha Ton, N. Thailand	23	473	83 10/25	140 10/2	11 9/26	41 10/7	23 10/27
3	Khao Dinsor , S. Thailand	26	269,852	119,000 10/27	33,000 10/6	10,000 10/22	83,000 10/2	11,000 10/6
4	Bedong, Malaysia	13	64,268	48,181 10/28	7,903 10/28	340 10/26	2,759 10/14	830 10/8
5	Tioman Is, Malaysia	5	144	0	51 10/30	12 10/28	5 -	0
6	Rupat Is., Indonesia	5	1,606	0	889 10/30	0	30 11/4	70 10/7
7	Bangka Is., Indonesia	4	972	0	823 10/19	0	65 10/13	70 10/13
Total Number		-	327,621	167,353	46,697	13,864	86,945	12,762

BB:Black Baza, OH:Oriental Honey-buzzard, GB:Grey-faced Buzzard
CS: Chinese Sparrowhawk, JS:Japanese Sparrowhawk

2. Results: Species

(1) Black Baza (BB)

■ Total Number of BB is 327,621.

- ✓ The flyways of BB from **Tha Ton** and **Ba Vi** to **Bedong** were confirmed.
- ✓ However, after **Bedong**, the flocks of BB **disappeared**.
- ✓ Also, the **wintering area** of BB is **not yet known**.

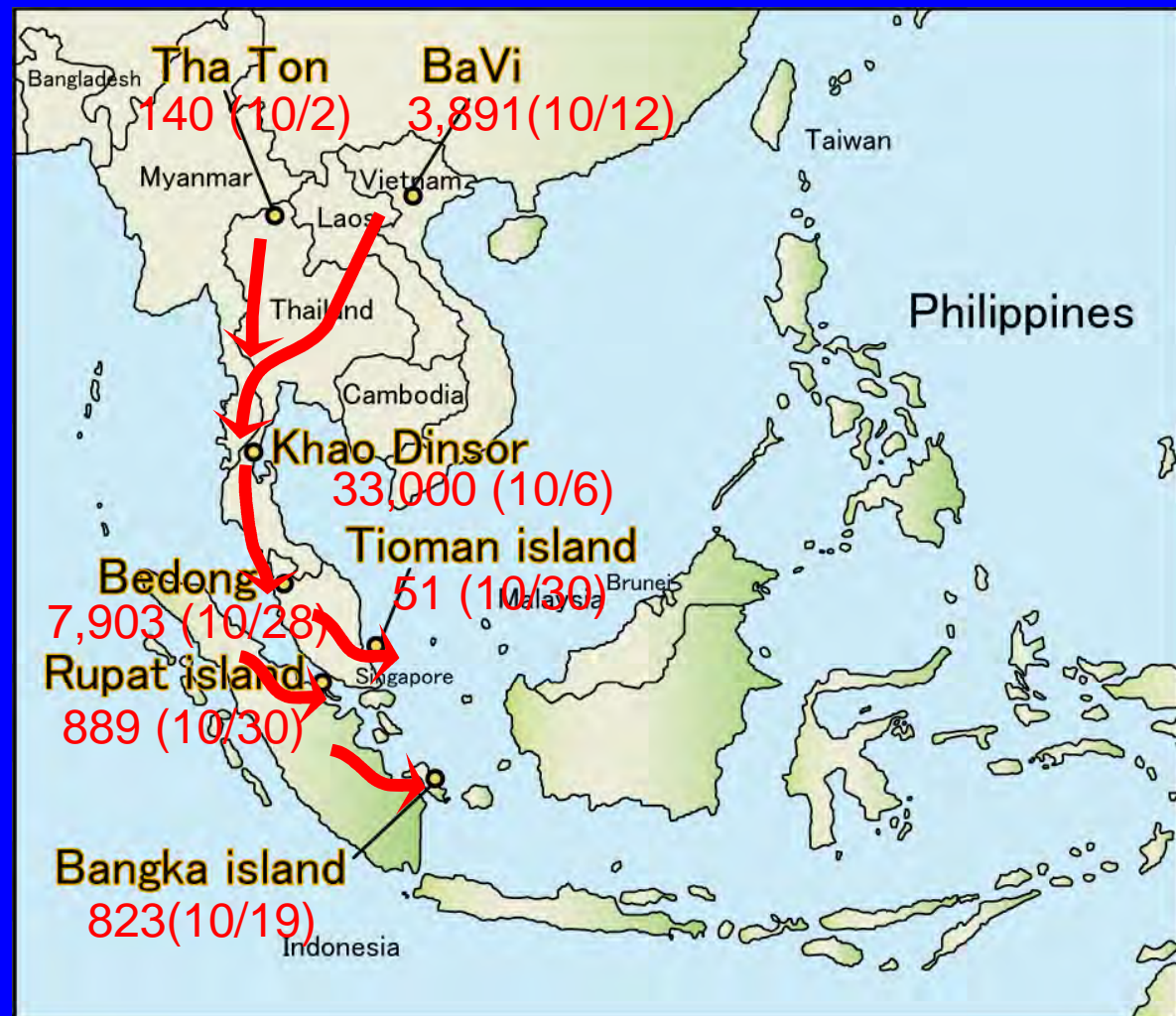


The total numbers of BB individuals

(2) Oriental Honey-buzzard (OH)

■ Total Number of OH is 46,697.

- ✓ The flyways of OH from **Tha Ton** and **Ba Vi** to the **Malay Peninsula** and **Sumatra** were confirmed.
- ✓ Also, we confirmed that OH flew over the sea from the **Malay Peninsula** and **Sumatra** to **Borneo**.
- ✓ However, we do not know where OH arrives in **Borneo**, and where the **main wintering area** of OH is.



The total numbers of OH individuals

(3) Grey-faced Buzzard (GB)

■ Total Number of GB is 13,864.

- ✓ The flyways of GB from **Tha Ton** and **Ba Vi** to the **Malay Peninsula** were confirmed.
- ✓ Most of GB disappeared after **Khao Dinsor**.
- ✓ Also, we confirmed that GB flew over the sea from the **Malay Peninsula** to **Borneo**.
- ✓ However, we do not know whether GB arrives in **Borneo** or not, and where the **wintering area** of GB is.

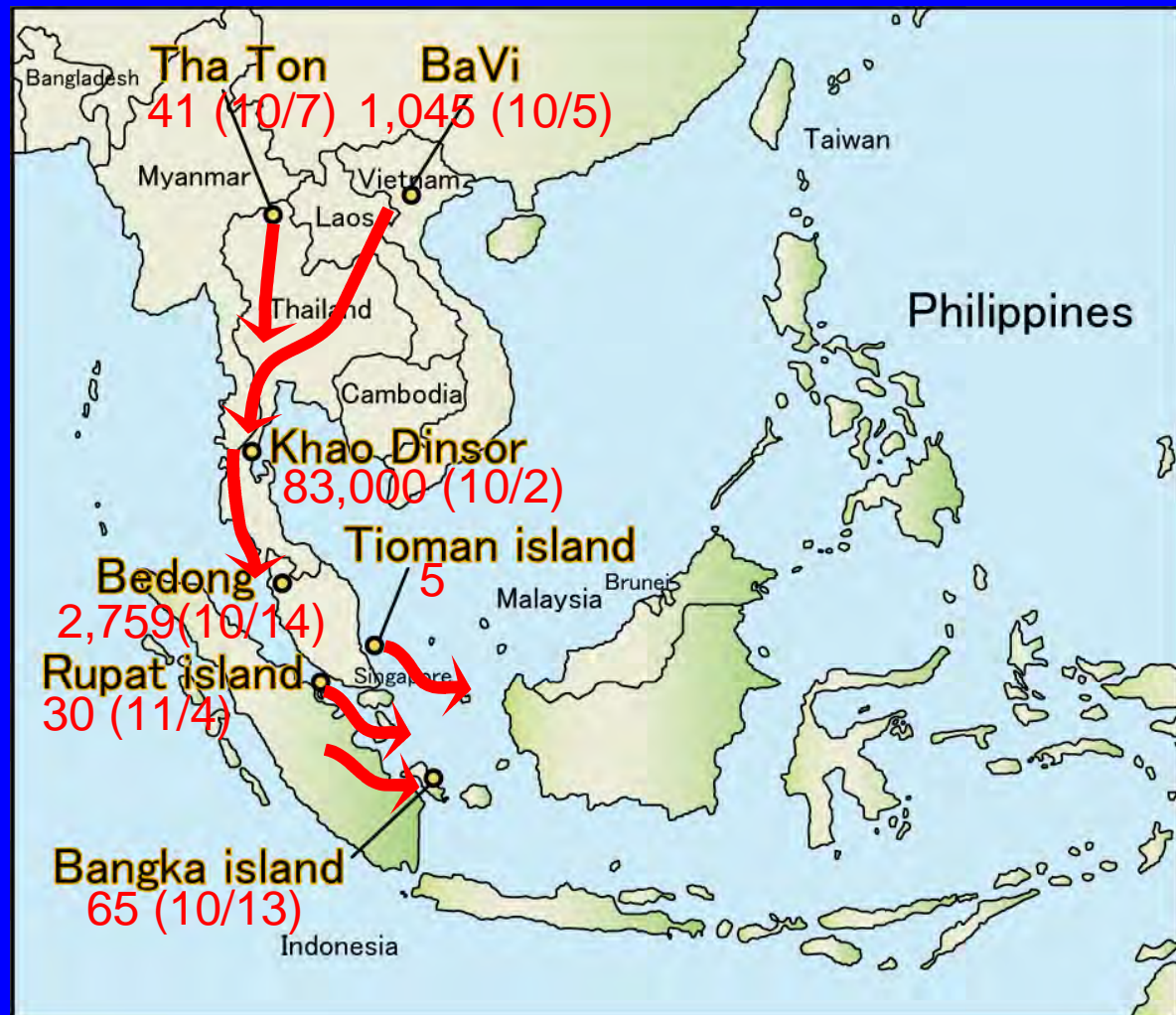


The total numbers of GB individuals

(4) Chinese Sparrowhawk (CS)

■ Total Number of CS is 86,945.

- ✓ The flyways of CS from **Tha Ton** and **Ba Vi** to the **Malay Peninsula** and **Sumatra** were confirmed.
- ✓ Also, we confirmed that CS flew over the sea from **the Malay Peninsula** and **Sumatra** to **Borneo**.
- ✓ However, we do not know where CS **arrives in Borneo**, and where the **main wintering area** of CS is.

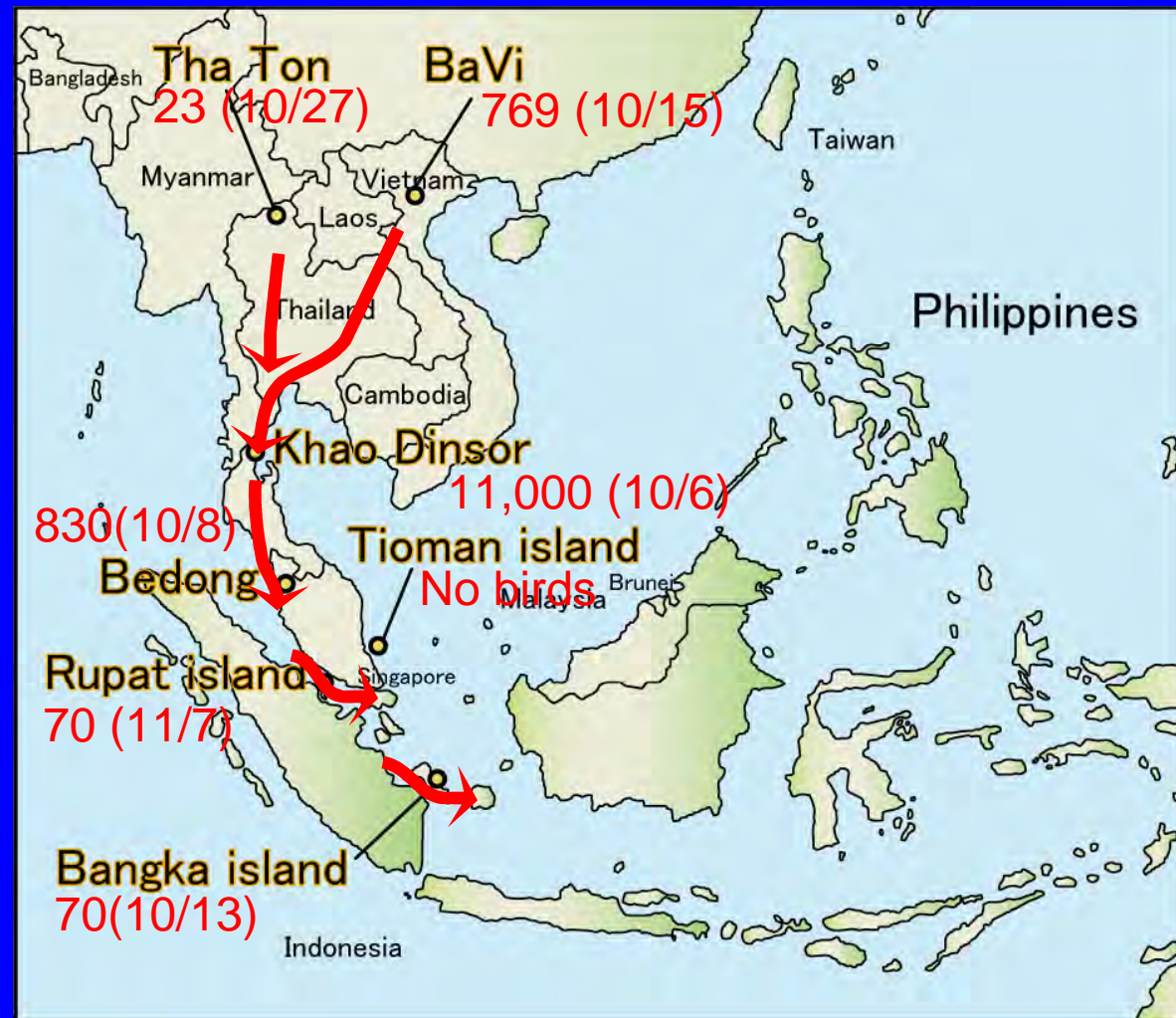


The total numbers of CS individuals

(5) Japanese Sparrowhawk (JS)

■ Total Number of JS is 12,762.

- ✓ The flyways of JS from **Tha Ton** and **Ba Vi** to **Sumatora** via the Malay Peninsula were confirmed.
- ✓ Also, we confirmed that JS flew over the sea from **Sumatra** to **Borneo**.
- ✓ However, we do not know whether JS arrives in **Borneo** or not, and where the wintering area of JS is.



The total number of JS individuals

3. Results: Site

(1) Ba Vi, Northern Vietnam

- Ba Vi National Park in Vietnam is the **northernmost site** on this survey. Ba Vi is on the **mountain** at a height of 600m above sea level.
- **14 species** of migratory raptors with the total number of **10,631 individuals** were recorded.
- The dominant species is **OH (3,891 birds)**, **GB (3,501)**, **CS (1,045)** and **JS (769)**. BB, which predominated in Asia, was recorded with only 89 birds here.
- Also, **Amur Falcon (676 birds)** exists in its largest numbers here.

(2) Tha Ton, Northern Thailand

- Tha Ton in northern Thailand is at a height of 630m above sea level.
- 23 species of migratory raptors with the total number of 473 individuals were recorded.
- The dominant species is OH (140 birds), BB (83), CS (41) and Amur Falcon (42).
- In regards to species which predominated in other areas in Asia, GB (11) and JS (23) were recorded in small numbers.

(3) Khao Dinsor, Southern Thailand

- Khao Dinsor in southern Thailand is at a **narrow area** on the east coast in the **Malay Peninsula**.
- **26 species** of migratory raptors with the total number of **269,852 individuals** were recorded.
- The dominant species is **BB (119,000 birds)**, **CS (83,000)**, **OH (33,000)**, **JS (11,000)** and **GB (10,000)**.
- Also, **Shikra (6,000 birds)** exists in large numbers here.
- The total numbers of the species and the individuals are **largest** in the survey sites. Khao Dinsor may be one of the **most important sites** for migratory raptors, and Khao Dinsor should be in the **main flyway** in the Asian region.

(4) Bedong, Malay Peninsula

- Bedong in southern Malaysia is on the **west coast** in the **Malay Peninsula**.
- **13 species** of migratory raptors with the total number of **64,268 individuals** were recorded.
- The dominant species are **BB (48,181 birds)**, **OH (7,903)**, **CS (2,759)**, **JS (830)** and **GB (340)**.
- The total number of individuals is the **second largest** after Khao Dinsor. Therefore, Bedong may also be in the **main flyway** in the Asian region.

(5) Tioman Island, between Malay Peninsula and Borneo

- Tioman Island in southern Malaysia is a **small island** on the sea **between the Malay Peninsula and Borneo**.
- **5 species** of migratory raptors with the total number of **144 individuals** were recorded.
- The dominant species is **OH (51 birds)**, **JS (22)**, **GB (12)** and **CS (5)**.
- Although the total numbers of the species and the individuals are low, we confirmed that Tioman Island is on the **flyway between the Malay Peninsula and Borneo**.

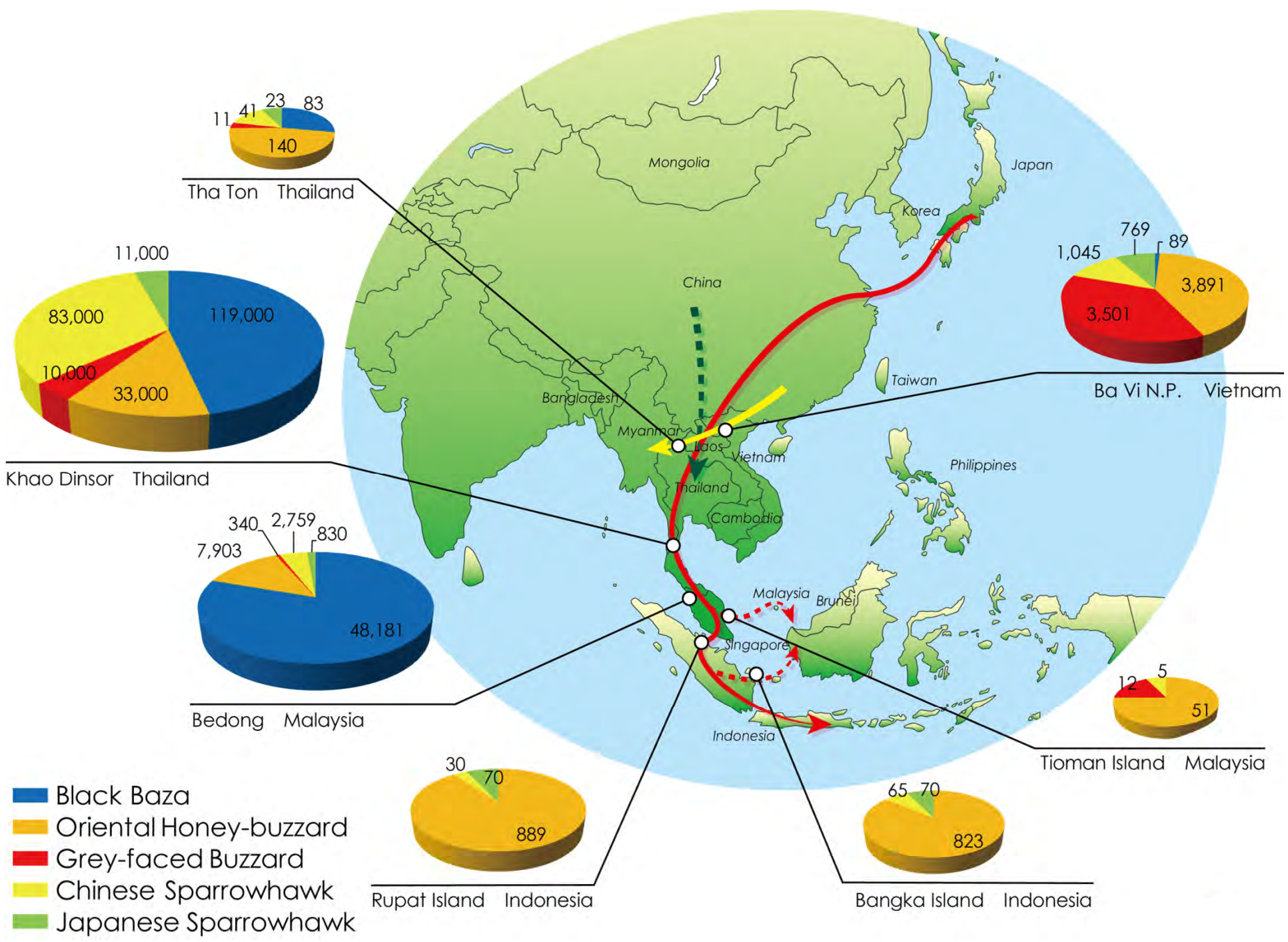
(6) Rupert Island between Sumatra and Malay Peninsula

- Rupert Island in Indonesia is a **small island** on the sea **between Sumatra and the Malay Peninsula**.
- **5 species** of migratory raptors with the total number of **1,606 individuals** were recorded.
- The dominant species are **OH (889 birds)**, **JS (70)**, **Shikra (70)**, and **CS (30)**.
- Rupert Island is confirmed to be on the **flyway between Sumatra and the Malay Peninsula**.

(7) Bangka Island

between Sumatra and Borneo

- Bangka Island in Indonesia is an island on the sea between Sumatra and Borneo.
- 4 species of migratory raptors with the total number of 972 individuals were recorded.
- The dominant species are OH (823 birds), JS (70) and CS (65).
- Bangka Island is confirmed to be on the flyway between Sumatra and Borneo.



4. Conclusions 2012

- ◆ The dominant migratory raptors on the western route were **BB, OH, GB, CS and JS**.
- ◆ The flyways of **BB** from northern Vietnam and Thailand to Malay Peninsula were confirmed. However, BB disappeared after Bedong in Malaysia.
- ◆ **OH, CS and JS** flew in the direction of Borneo via Sumatra and the Malay Peninsula.
- ◆ Although most of **GB** disappeared after Khao Dinsor in the south of Thailand, some of them flew in the direction of Borneo via the Malay Peninsula.
- ◆ Also, the flocks of **Amur Falcon** flew toward the west from northern Vietnam and northern Thailand.
- ◆ Although **Black Kite, Crested Serpent Eagle** and **Shikra** were thought as the resident raptors, migratory birds were observed from Tha Ton and Ba Vi to Khao Dinsor.

Outline of the Survey in Eastern Route 2013

1. Survey sites

- ◆ In autumn of 2013, 11 sites in five participating countries; Mongolia, Korea, Taiwan, the Philippines and Malaysia, were selected for monitoring of migrating raptors.



Observation Sites

2. Period of Survey



- ✓ Observation was made throughout the **entire migrating period** only in **Kenting National Park** (56 days).
- ✓ Observations in the **other 10 sites** were made during the **core migrating periods**, mainly from the end of August to the beginning of November in 2013.

	Country	Name of Place	Days of Survey	August		September			October			November	
				middle	late	beginning	middle	late	beginning	middle	late	beginning	middle
1	Mongolia A	Choir mountain	5days X 4weeks										
2	Mongolia B	Eej Khad	5days X 4weeks										
3	Korea	Busan + Jeju	5days X 4weeks										
4	Taiwan	Kenting	5days X 4weeks										
5	Philippines A	Cagayan Valley Luzon	5days X 3weeks										
6	Philippines B	Tanay Luzon	5days X 3weeks										
7	Philippines C	Saranggani Mindanao	5days X 3weeks										
8	Borneo	Saba	5days X 3weeks										

Collaborative Survey of Migratory Raptors in South East Asia 2013
 Identification of Migratory Routes of Raptors in **Eastern Route**

3. Results: Total Number

No.	Sites	Total Number		Dominant Species Total Number (Peak Date)			
		Species	Number	OH	GB	CS	CV
1	Eej Khad, Mongolia	23	661	8 -	0	0	133 9/29
2	Choir Mt., Mongolia	20	579	6 -	0	0	246 9/16
3	Busan, Korea	13	3,784	14 -	32 9/21	3,486 9/16	0
4	Jeju Is., Korea	10	3,530	3,371 9/24	45 -	1 -	0
5	Kenting N.P., Taiwan	16	199,162	151 -	36,027 10/17	162,696 9/13	0
6	Pagasa Tanay, Philippines	5	436	14 -	0	385 9/28	0

OH: Oriental Honey-buzzard, GB: Grey-faced Buzzard
 CS: Chinese Sparrowhawk, CV: Cinereous Vulture

3. Results: Total Number

No.	Sites	Total Number		Dominant Species Total Number (Peak Date)			
		Species	Number	OH	GB	CS	CV
7	Malinsuno Is., Philippines	1	22	0	0	22 -	0
8	Cape San Agustin, Philippines	5	14,880	2 -	620 10/16	14,255 9/28	0
9	Davao, Philippines	6	1,753	1 -	1,559 10/23	154 10/23	0
10	Semporna, Malaysia	1	3	0	0	0	0
11	Kudat, Malaysia	2	2	0	0	0	0
Total Number		32	224,812	3,567	38,283	180,999	379

OH: Oriental Honey-buzzard, GB: Grey-faced Buzzard
 CS: Chinese Sparrowhawk, CV: Cinereous Vulture

3. Results : Species

(1) Oriental Honey-buzzard (OH)

■ Total Number of OH is 3,567.

- ✓ Although the large number of OH was observed in Jeju Is., the number in Kenting N.P. was dramatically decreased.
- ✓ Therefore, the major flyways of OH from Jeju Is. may directly extend to China.
- ✓ A small number of OH was observed from Kenting N.P. to Cape San Agustin.
- ✓ Therefore, the minor flyways of OH may exist from Kenting N.P. to southern Mindanao (Cape San Agustin).



The total numbers of OH individuals

(2) Grey-faced Buzzard (GB)

■ Total Number of GB is 38,283.

- ✓ Since a large number of GB was observed in **Kenting N.P.**, **Davao** and **Cape San Agustin**, the major flyways of GB may exist from **Kenting N.P.** to **Davao** and **Cape San Agustin**.
- ✓ Since GB was not recorded in **southern Palawan (Malinsuno)** and **northern Borneo (Kudat and Semporna)**, but recorded in **southern Mindanao (Davao and Cape San Agustin)**, the major flyways of GB from **southern Mindanao** may extend to **Sulawesi or Papua**.



The total numbers of GB individuals

(3) Chinese Sparrowhawk (CS)

- Total Number of CS is **180,999**.
- ✓ Since a large number of CS was observed in **Busan**, **Kenting N.P.** and **Cape San Agustin**, the major flyways of CS may exist from **Busan to Cape San Agustin**.
- ✓ The major flyways of CS from **southern Mindanao (Cape San Agustin)** may extend to **Sulawesi or Papua**.
- ✓ Also, since a small number of CS was observed in **southern Palawan (Malinsuno)**, the minor flyways of CS may exist between **southern Palawan and Borneo**.



The total numbers of CS individuals

(4) Cinereous Vulture (CV)

- Total Number of CV is 379.
- ✓ CV was observed in only 2 sites in **Mongolia**.
- ✓ **Mongolia** is known as the major breeding area of CV.
- ✓ Also, **northern Korea** is known as major wintering area of CV.



The total number of CV individuals

3. Results : Site

(1) Choir Mt., Mongolia

- Choir Mt. is another Mongolian site located on the southeastern (1) Eej Khad.
- 20 species of migratory raptors with a total number of 579 individuals were recorded.
- The dominant species is CV (246 birds).

OH, which predominated in Asia, was recorded with only 6 birds here. GB and CS were not recorded.

(2) Busan, Korea

- Busan in Korea is on the **southern tip of the Korean Peninsula**.
- **13 species** of migratory raptors with a total number of **3,784 individuals** were recorded.
- The dominant species is **CS (3,486)**. OH and GB, which predominated in Asia, were recorded respectively with only 14 and 32 birds here.

(3) Jeju Island, Korea

- Jeju Island is located between Korea and Japan.
- 10 species of migratory raptors with a total number of 3,530 individuals were recorded.
- The dominant species are OH (3,371 birds). GB and CS, which predominated in Asia, were recorded respectively with only 45 and 1 birds here.

(4) Kenting National Park, Taiwan

- Kenting National Park is on the **southern tip of Taiwan**.
- **16 species** of migratory raptors with a total number of **199,162 individuals** were recorded.
- The dominant species is **CS (162,696 birds)**, **GB (36,027)** and **OH (151)**.
- The total numbers of the individuals are **largest** in the survey sites. Kenting National Park may be one of the **most important sites** for migratory raptors on the eastern route, while in the west Chumphon is the most important.

(5) Pagasa Tanay, Philippines

- Pagasa Tanay in the Philippines is on the **southern Luzon Island**.
- **5 species** of migratory raptors with a total number of **436 individuals** were recorded.
- The dominant species are **CS (385 birds)**. OH, which predominated in Asia, was recorded with only 14 birds here. GB was not recorded.

(6) Malinsuno Island, the Philippines

- Malinsuno Island in the Philippines is located between Palawan in the Philippines and Borneo in Malaysia.
- Only 22 individuals of CS were recorded.
- Although the numbers of recorded migratory raptors were scarce, Malinsuno Island is confirmed to be on the flyway between Palawan and Borneo.

(7) Cape San Agustin, Philippines

- Cape San Agustin in the Philippines is on the **southern tip of Mindanao island**.
- **5 species** of migratory raptors with a total number of **14,880 individuals** were recorded.
- The dominant species are **CS (14,255 birds)** and **GB (620)**.
- Cape San Agustin is confirmed to be on the **flyway between Mindanao in the Philippines and Sulawesi in Indonesia**.
- The total numbers of individuals are the **second largest** in the survey sites. Cape San Agustin must be in the **major flyway of the eastern route**.

(8) Davao, Philippines

- Davao is on southern Mindanao and located on eastern Cape San Agustin.
- 6 species of migratory raptors with the total number of 1,753 individuals were recorded.
- The dominant species are GB (1,559 birds) and CS (154).
- Davao is also confirmed to be on the flyway between Mindanao and Sulawesi.

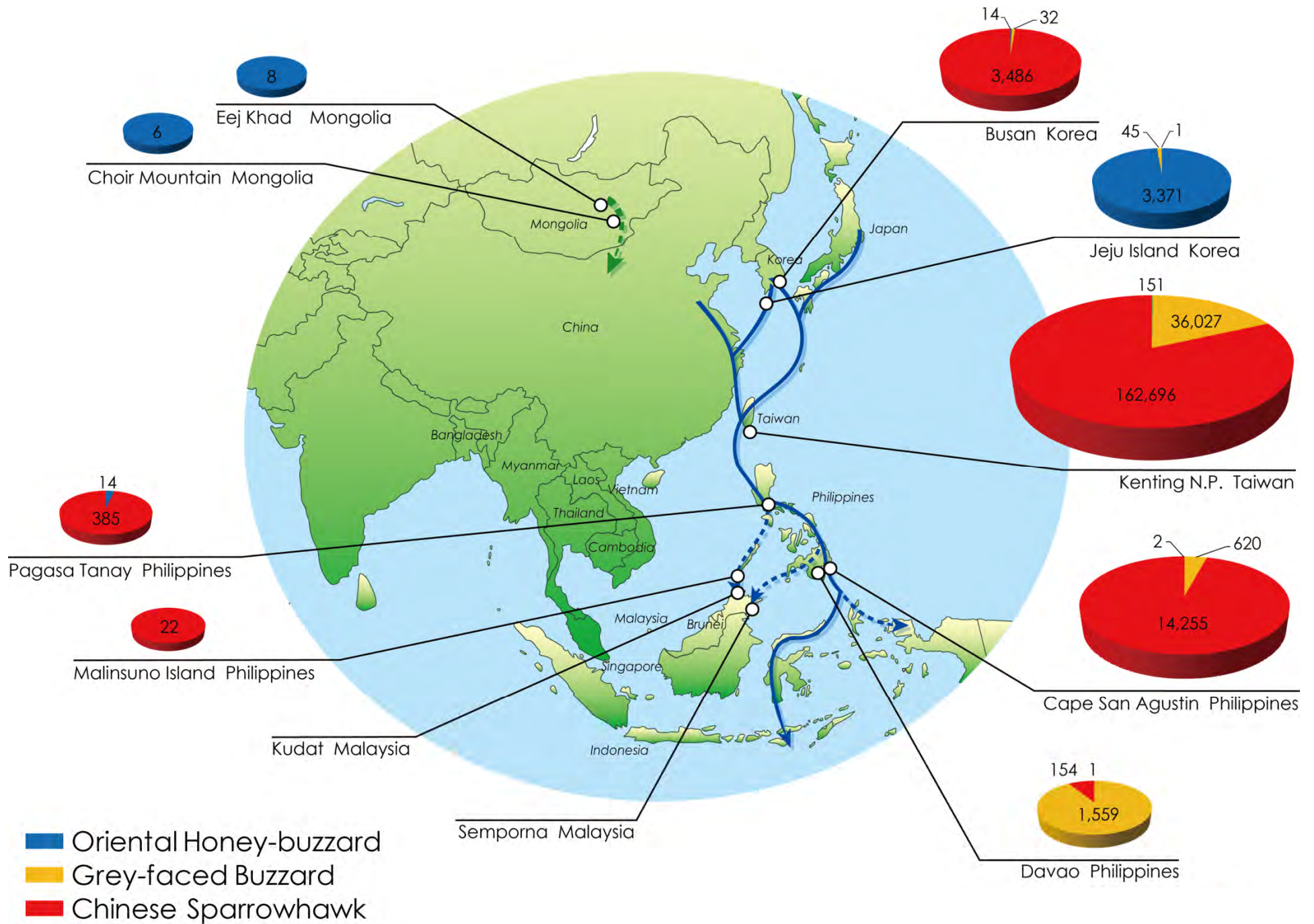
(9) Semporna, Malaysia

(10) Kudat, Malaysia

- Semporna and Kudat in Malaysia are located on northern Borneo.
- 3 unidentified individuals in Semporna and 2 unidentified individuals in Kudat were recorded.
- Another gateway of migratory raptors may exist on northern Borneo.

4. Conclusions 2013

- ◆ The dominant migratory raptors on the eastern route were **OH, GB and CS**.
- ◆ The **major** flyways of **OH** from **southern Korea** (Jeju Is.) may **directly extend to China**.
- ◆ The **minor** flyways of **OH** may exist **from Taiwan** (Kenting N.P.) to **southern Mindanao** (Cape San Agustin).
- ◆ The major flyways of **GB** may exist **from Taiwan** (Kenting N.P.) to **southern Mindanao** (Davao and Cape San Agustin). The major flyways of **GB** from southern Mindanao may **extend to Sulawesi or Papua**.
- ◆ The **major** flyways of **CS** may exist **from southern Korea** (Busan) to **southern Mindanao** (Cape San Agustin). The major flyways of **CS** after southern Mindanao (Cape San Agustin) may **extend to Sulawesi or Papua**.
- ◆ Also, the **minor** flyways of **CS** may exist **between Palawan and Borneo**.
- ◆ **CV** was observed in **only 2 sites in Mongolia**. **CV** was known to breed in Mongolia and winter in northern Korea.



4. Future Subjects

- ✓ It is not known where the **huge flocks of BB** are going.
- ✓ It is not known the main wintering area of **GB**.
- ✓ It is not known where the main flyways and wintering areas of **OH, GB, CS and JS** in Borneo from western route are.
- ✓ It is not known whether **OH, GB, CS** arrive in Borneo or not from eastern route.
- ✓ It is not known where the main wintering areas of **CS and JS** from eastern route are.
- ✓ It is not known the real value as potential habitats as the wintering area for migratory raptors in Asia.
- ✓ Although Borneo and the Philippines have both the flyways and wintering areas, we do not know where the main flyways are and which islands are the wintering areas.

It is necessary to learn Nature for our Future





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