



PHILIPPINE EAGLE
FOUNDATION



TPBPHL
TOURISM PROMOTIONS BOARD PHILIPPINES



10th ARRCN
SYMPOSIUM

"Renewing People-Raptor Ties through Community-Based Initiatives"

October 18–22, 2017
Ateneo de Davao University
Davao City, Philippines

SYMPOSIUM PROGRAM

Nitani



"Renewing People-Raptor Ties through Community-Based Initiatives"

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PROGRAM

WELCOME COCKTAILS

OCTOBER 18, WEDNESDAY 19:00
T'NALAK ROOM SEDA ABREEZA HOTEL

17:00–19:00	Arrival Registration Gathering of symposium materials
19:00–19:05	Welcome Message <i>Mr. Kennedy Kapulong, SEDA Abreeza General Manager</i>
19:05–19:15	Audio Visual Presentation
19:15–ONWARDS	Cocktails & Live Band Entertainment

OPENING PROGRAM

OCTOBER 19, THURSDAY 8:00

11TH FLOOR, COMMUNITY CENTER ADDU, ROXAS AVE.

7:00–8:00

Registration

8:00–8:15

Doxology
National Anthem

8:15–8:25

Messages
Fr. Joel Tabora, Ateneo de Davao University President
Toru YAMAZAKI, ARRCN President

8:25–8:30

AVP: PEF Cornell Community Video

8:30–8:40

Messages
Ms. Felicia H. Atienza, PEF President
Mayor Sara Duterte or representative, Davao City Government

8:40–9:50

COFFEE BREAK
Presscon at ARRCN Room
Poster Presentation

9:50–10:30

Opening of Plenary Presentations
Facilitator: Dr. Munir Virani, Peregrine Fund

Understanding raptor migration in Asia – trends and prospects
Toru YAMAZAKI
Asian Raptor Research and Conservation Network

Open Forum

10:30–11:05

An overview of raptor research and conservation in East Asia
Dr. Lucia Severinghaus
Biodiversity Research Center, Academia Sinica, Taiwan

Open Forum

11:05–12:30

LUNCH

SYMPOSIUM DAY 1

OCTOBER 19, THURSDAY

11TH FLOOR, COMMUNITY CENTER ADDU, ROXAS AVE. DAVAO CITY

12:30–12:42	Status and conservation of diurnal raptors in Indonesia <i>Dr. Adam Supriatna</i>
12:42–12:54	Raptor migration monitoring in Malaysia: development and findings over nearly two decades <i>Dr. Chong Leong Puan</i>
12:54–13:06	Country report - Singapore <i>Gim Cheong Tan</i>
13:06–13:18	Current raptor conservation in Taiwan <i>Dr. Jo-Szu Tsai</i>
13:18–13:30	Country Report - Philippines <i>Alex M. Tiongco and Ma. Teresa A. Cervero</i>
13:30–13:42	Raptor Research and Conservation in Mongolia <i>Dr. Gombobaatar Sunde</i>
13:42–14:32	ARRCN Country Representative reports

DAY 1

CONCURRENT SESSIONS

Forest and Raptors

Moderator: Dr. Carmela Española, University of the Philippines - Diliman

Migration Monitoring and Movement

Moderator: Adrian Constantino, Raptor Watch Network Philippines

Genetics, Diseases and Rehabilitation

Moderator: Prof. Maria Katrina Constantino, Raptor Watch Network Philippines

**FOREST
AND RAPTORS**

**MIGRATION,
MONITORING AND
MOVEMENT**

**GENETICS, DISEASES
AND REHABILITATION**

14:32–14:52

Patch Quality and Connectivity of Endemic Javan Hawk-Eagle's Habitat in West Java, Indonesia
Syartinilia Wijaya

Autumn Migration of Steppe Eagles (*Aquila nipalensis*) Crossing Himalayan Mountains
Han-soo Lee

Rescue operation for injured wild birds of prey in Japan with falconry technique
Dr. Keiya Nakajima

14:52–15:12

Patch Dynamics in Javan Hawk-Eagle Habitat of East Java, Indonesia
Abi Rafdi Pradana Murad

2016 Autumn raptor migration count in Cape San Agustin, Lavigan, Governor Generoso, Davao Oriental, Philippines
Dennis Melanio

PCR-based Sexing of Confiscated Hawk-Eagles in Yogyakarta (Indonesia)
Lince Sitohang

15:12–15:32

Study of Raptor-rodent relationships and their effect on crop produce, with the aim of reintroduction of raptors, in the study area of District Gondia, Maharashtra, Central India
Dr. Sudhanshu Kothe

Radar study on Gray-faced Buzzard migration in Taiwan
Yuan-Hsun Sun

Hematological Value of a Pre-Released Endemic Raptor Species Javan Hawk-Eagles (*Nisaetus bartelsi*) in a Rescue Center in Jogjakarta, Indonesia
Dr. Muhammad Tauhid Nursalim

15:32–15:52

Feed Potential of Javan Hawk-Eagle (*Nisaetus bartelsi*) in Rancabali Area of West Java, Indonesia
Nabila Ghitha Safanah

Migratory Raptor Study in Barangay Rio del Pilar, Glan, Sarangani Province, Philippines
Governor Steve Chiongbian Solon

Trypanosoma corvi and *Trypanosoma avium* in raptors in Thailand
Pornchai Pornpanom

**FOREST
AND RAPTORS**

**MIGRATION,
MONITORING AND
MOVEMENT**

**GENETICS, DISEASES
AND REHABILITATION**

15:52–16:12	Breeding Records of Flores Hawk-Eagle from Wolojita Village Buffer Zone of Kelimutu National Park, Flores, East Nusa Tenggara, Indonesia <i>Aditya Kuspriyanga</i>	Long Range Migration of Black Kites (<i>Milvus migrans</i>) from Mongolia to South Asia <i>Han-soo Lee</i>	Phylogenetic Study of the Javan Hawk-Eagle (<i>Nisaetus bartelsi</i>) Based on Molecular Markers COI, Cyt-b and D-loop as One of the Conservation Efforts in Genetic Diversity <i>Riri Retnaningtyas</i>
16:12–16:32	Behavior of Post Release Javan Hawk-Eagle Based on Radiotelemetry at Patenggang Nature Reserve, West Java, Indonesia <i>Via Sabila Rubiati</i>	Raptors over the edge of the Northwestern Luzon, Philippines: A long term monitoring initiative of the Northwestern University and Raptor Watch Network Philippines <i>Michael Calaramo</i>	The molecular Detection of Avian Malaria in Confiscated Hawk-Eagles in Yogyakarta, Indonesia <i>Febriyanti Vera</i>
16:32–16:52	Preliminary analysis of Philippine Eagle (<i>Pithecophaga jefferyi</i>) home range and movement patterns <i>Dr. Jayson Ibanez</i>	Study on migratory raptors in Bangladesh <i>Mohammad Foysal</i>	Blood lead levels in wintering Pied Harrier <i>Circus melanoleucos</i> from Thailand <i>Dr. Chaiyan Kasorndorkbua</i>
16:52–17:12		Investigating the migration ecology of two Asian sparrowhawks along the East Asian Continental Flyway <i>Dr. Andrew Pierce</i>	
16:30–17:45	Workshop 1: Contribution of falconers to the conservation of birds of prey in Asia <i>Dr. Keiya Nakajima and Kamran Khan Yousafzai, International Association for Falconry and Conservation of Birds of Prey</i>		

CULTURAL NIGHT

OCTOBER 19, THURSDAY 19:00

PAVILION, WATERFRONT INSULAR HOTEL LANANG, DAVAO CITY

18:00–19:00	Arrival & Registration
19:00–19:05	Opening Salvo by Pangkat Silayan
19:05–19:10	Welcome Message <i>Regional Director Roberto Alabado III, DOTXI</i>
19:10–19:40	Neo-ethnic Dance <i>Locsin Dance Workshop</i> Filipiniana Dances <i>Pangkat Silayan</i>
19:40–19:45	DOT AVPs
19:45– ONWARDS	Dinner Ethnic Dance <i>Pangkat Silayan Theatre Collective</i>

SYMPOSIUM DAY 2

OCTOBER 20, FRIDAY 7:00

11th FLOOR COMMUNITY CENTER ADDU, ROXAS AVE., DAVAO CITY

7:00–8:00	Arrival & Attendance
8:00–8:10	Opening of Plenary Presentations <i>Facilitator: Dr. Jayson Ibanez, Philippine Eagle Foundation</i>
8:10–8:40	Conserving raptors using culture-based approaches: The case of the Philippine Eagle Conservation Program <i>Dennis J.I. Salvador Philippine Eagle Foundation</i>
8:40–9:10	From Continental to Global: The African Raptor Data Bank and its potential as a citizen science tool for global raptor conservation <i>Dr. Munir Virani Peregrine Fund</i>
9:10–9:40	Coffee Break and Exhibit

DAY 2

CONCURRENT SESSIONS

Local Perception, threats and Community Based Conservation

Moderator: Dr. Gil dela Rosa, Ateneo de Davao University

Population dynamics

Moderator: Dr. Cristina de las Llagas, Ateneo de Davao University

Raptor Ecology

Moderator: Dr. Doris Montecastro, Ateneo de Davao University

	LOCAL PERCEPTION, THREATS & COMMUNITY BASED CONSERVATION	POPULATION DYNAMICS	RAPTOR ECOLOGY
9:40–10:00	The illicit online trade on live raptors (<i>Accipitridae</i> , <i>Falconidae</i>) in the Philippines <i>Emerson Sy</i>	Dispersal and mortality of rehabilitated juvenile Philippine Eagle <i>Rowell Taraya</i>	Species composition, timing, and weather correlates of autumn open-water crossings by raptors migrating along the East-Asian Oceanic Flyway <i>Dr. Camille Concepcion</i>
10:00–10:20	Saving Vultures and Generating income: Success stories on Sustainable conservation and community involvement in Nepal <i>Aneesha Pokharel</i>	Bangladesh Raptor Research Project <i>Mohammad Foysal</i>	The ecology of the migratory grey faced buzzard (<i>Butastur indicus</i>): assessment of Sanchez Mira as a stopover site <i>Jelaine Gan</i>
10:20–10:40	Human perceptions, values, and attitudes towards Brahminy Kites (<i>Haliastur indus</i>) at Los Amigos, Davao City, Philippines <i>Jhannel Villegas</i>	Home range size of bearded vultures (<i>Gypaetus barbatus</i>) in the Himalaya of Nepal: First study in Asia using GPS telemetry <i>Tulsi Ram Subedi</i>	Human-made pond as foraging ground of Brahminy kite <i>Haliastur indus</i> in South Bali, Indonesia <i>Dra. Luh Eswanti Yuni</i>

	LOCAL PERCEPTION, THREATS & COMMUNITY BASED CONSERVATION	POPULATION DYNAMICS	RAPTOR ECOLOGY
10:40–11:00	Hunting of grey faced buzzards in Sanchez Mira, Cagayan, Philippines <i>Jelaine Gan</i>	Factors affecting habitat selection by breeding Black kite <i>Milvus migrans</i> in Sambhal District, Uttar Pradesh, India <i>Adesh Kumar</i>	Migratory Behavior of Oriental Honey-buzzard based on Sattelite-tracking Data in Eastern Part of Flores Island, Indonesia <i>Risco Noverio Rafael</i>
11:00–11:20	Raptors of Taiwan <i>Scott Pursner</i>	Seasonal variations in occupancy rates of Eastern Grass-Owl in Southern Taiwan <i>Jia-jia Lyu</i>	Interspecific differences in timing and weather correlates of autumn raptor migration at Khao Dinsor, Thailand <i>Patricia Kaye Dumandan</i>
11:20–11:40	Students' perception on Javan Hawk Eagle as Indonesian Cultural identity <i>Ditro Wibisono</i>	The natal dispersal and survival crisis of juvenile Black kite (<i>Milvus migrans</i>) in Taiwan <i>Xin-Yi Wei</i>	Ecological corridor assessment of remnant habitat patches of Javan Hawk-Eagle in central part of Java Island, Indonesia <i>Cici Nurfatimah</i>
11:40–12:00	Developing Collaborative Management of endangered Javan hawk-eagle <i>Nizaetus bartelsi</i> with stakeholders participation at Cibodas Biosphere Reserve, West Java, Indonesia <i>Usep Suparman</i>	Winter distribution of Western Marsh Harrier (<i>Circus aeruginosus</i>) in Abu Dhabi and its population trend at Al Wathba Wetland Reserve in the United Arab Emirates <i>Shakeel Ahmed</i>	The stabilization of the migration route of a young Oriental Honey Buzzard in Taiwan <i>Chien-Hung Yang</i>
12:00–12:20	Through the eyes of children: looking at children's perception about the Great Philippine Eagle, <i>Pithecophaga jefferyi</i> <i>Rai Kristie Salve Gomez</i>		Raptor monitoring and mitigation action plans at wind farms: a case study at Salkhit wind farm, Mongolia <i>Dr. Gombobaatar Sundev</i>
14:00–16:30	PEC Tour/Workshop Workshop 2: Workshop on Ecotourism based on Bird Resources <i>Tatsuyoshi Murate and Toru Yamazaki, Asian Raptor Research and Conservation Network</i>		

FAREWELL DINNER

OCTOBER 20, FRIDAY 19:00

BALLROOM, ROYAL MANDAYA HOTEL, J. PALMA GIL ST., DAVAO CITY

18:00–19:00	Arrival & Registration
19:00–19:05	Doxology & National Anthem
19:05–19:10	Welcome Message by Davao City Mayor <i>Hon. Sara Duterte-Carpio</i>
19:10–19:40	Cultural Performance
19:40–19:50	Turnover Ceremony
19:50–20:10	Intermission Number <i>UP Mindanao Koro Kantahanay</i>
20:10– ONWARDS	Dinner Live Band Entertainment

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Poster Presentations

STUDENT POSTER

The mobbing response of passerine birds to Collared Owlet in Taiwan

Ta-Chih Chen¹, Pei-Tsen Liao², Jo-Szu Tsai³

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Mobbing behavior of passerine birds against some owl species is well documented. However, little is known about how the passerine community responds to diurnal owls. We conducted playback experiments on the mobbing behavior of forest birds by broadcasting the call of Collared Owlet (*Glaucidium brodiei*), a predator of the passerine. We hypothesized that species-specific variations of behavioral response within a community were associated with the risk of predation by the Collared Owlet, namely overlap in activity layers (understory, subcanopy, and canopy) and body mass of passerine birds. We conducted 9-minute point counts survey (5-minute quiet period and subsequent 4-minute playback) at 44 sites in April and May 2017 in lowland forests in Taiwan and quantified the mobbing intensity, comparing behavioral changes before and after broadcasting. Out of 28 species that appeared during the point count, we found that 6 passerine species had a strong reaction to the playback. Among these, Morrison's Fulvetta (*Alcippe morrisonia*) and White-bellied Erpornis (*Erpornis zantholeuca*) were the species with the strongest mobbing behavior. Morrison's Fulvetta and White-bellied Erpornis attended mobbing in 76% (22 out of 29) and 83% (15 out of 18) of the sites, respectively. Subcanopy species had the highest mobbing intensity, followed by canopy and understory species. The mobbing intensity was negatively associated with body mass. The Collared Owlet is mainly active in subcanopy layer and our results supported the hypothesis that subcanopy prey species have a higher risk of predation and are likely to perform more intensive anti-predator behavior than species in other layers. The Collared owl is the smallest owl in Taiwan (body mass = 53~63g) and the prey species weighing less than the owl should have higher risk. We demonstrated the association between predation risk and prey mobbing intensity. Further playback experiments will be conducted in higher altitude and nonbreeding season to obtain the responses in different conditions.

STUDENT POSTER

Estimated Home range size of post-release Javan Hawk-Eagle (*Nisaetus bartelsi*) using radio telemetry at Patenggang Nature Reserve, West Java, Indonesia

Cipta Seutia Nugraha¹, Ruhyat Partasasmita², Teguh Husodo³, Zaini Rakhman⁴

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Javan Hawk-Eagle (*Nisaetus bartelsi*) is an endemic raptor of Java that is now listed as endangered. This is due to the degradation of its habitats and illegal hunting resulting to the decrease their wild population. One method for conserving their population is through reintroduction in the wild. But post-release Javan Hawk-Eagles may have different home range sizes as compared to wild Javan Hawk-Eagles. Therefore, this study aims to observe the home range size of post-release hawk-eagles and determine differences from wild hawk-eagles and estimate home range sizes. This study was conducted for 30 days from April–May 2017 in Patenggang Nature Reserve, West Java, Indonesia using radio telemetry. We calculated the home range data using the grid cells method with 100m x 100m cell size. Our results showed that home range size of post-release Javan Hawk-Eagle is about $\pm 0.51 \text{ km}^2$. This area only ranges 17–26 % of wild Javan Hawk-Eagle based on previous research. We also found that they often used plantation areas and secondary forest areas for hunting and resting.

STUDENT POSTER

Effects of betel nut plantation on densities of two owl species in central Taiwan

Che-Hao Liang¹, Chia-Hao Chang², Jo-Szu Tsai³

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**corresponding author

Betel nut (*Areca catechu*) is one of the most popular crops in Taiwan with high economic value. However, the effects of landscape change, from forest to betel nut plantation, have not been well studied. We conducted nocturnal surveys to investigate the number and distribution of two common owl species: Collared Scops-Owl (*Otus lettia*) and Mountain Scops-Owl (*O. spilocephalus*), to understand the potential effects of betel nut in central Taiwan. We selected 20 plots each in forest and betel nut plantation with altitude ranging from 100 to 1100m. In each plot, we conducted three 200m-radius point counts using playback calls from both species. Each point was surveyed 3 times from March to April 2017. We then used Royle N-Mixture Model in Program PRESENCE to estimate the owl densities and their relationships with environmental variables while accounting for imperfect detection. Our results showed that altitude and habitat type were the most important factors affecting the densities for both species. The density of Mountain Scops-Owl was two-fold higher in forest (0.53 ± 0.18 per ha) than in betel nut plantation (0.22 ± 0.07) while the density of Collared Scops-Owl was higher in betel nut plantation (0.37 ± 0.11) than in forest (0.21 ± 0.06). The contrasting results in relation to habitat type suggested that these two species may have different preferences or adaptive abilities regarding human disturbance. The density of Collared Scops-Owl was negatively related to altitude while the density of Mountain Scops-Owl increased with increasing altitude. The opposing relationships between altitude and densities reflect the altitudinal distribution of both species. Future research will focus on the distribution in non-breeding season and the influence of habitat spatial distribution on owl communities.

REGULAR POSTER

A long Javan Hawk-Eagle's monitoring initiative by local people living near nest sites in Panaruban and Cibulao, West Java, Indonesia

Nakajima Yasuo¹, Cece Sukandar², and (Adam) A. Supriatna³

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Twenty years ago, together with meers of a local environmental NGO, I visited Panaruban and Cibulao in West Java. The purpose of the visit was simply to observe the endangered Javan Hawk-Eagle (*Nisaetus bartelsi*) nesting in the area. During my visit, I met a local resident named Cece Sukandar, who was also very interested in observing the eagle. The same interest has led us to participate in conserving the eagle and the existing tropical rain forest where the eagle and the local people inhabit. Simply, our objectives were to hold a long term monitoring in the nest sites; 1) to understand the breeding biology, and 2) to protect the breeding activities and restore habitat used by the eagles. During our field observation, we took necessary field notes and photographs, shot the eagle's activities, and educated the hunters not to enter the breeding sites. Together with villagers, we also planted a forest corridor connecting a patchy forest where the eagle is nesting with its larger forest block in Cibulao. Our field observations resulted in the knowledge of the breeding biology of the Javan Hawk-Eagle including sexing, prey items, and nest information.

REGULAR POSTER

Satellite tracking of Chinese sparrowhawk (*Accipiter soloensis*)

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Chinese sparrowhawk (*Accipiter soloensis*) is one of the most abundant migratory raptors in East Asia. However, their population is of concern due to habitat loss and degeneration of their breeding and wintering grounds. In addition, little is known regarding their migration ecology. To study the annual cycle of the Chinese sparrowhawk, we trapped Chinese sparrowhawks during Spring and Autumn 2016 with un-baited mist nets in Kenting National Park in Taiwan. We fitted the 5g satellite tags (manufactured by Microwave Telemetry, Inc.) on 6 sparrowhawks and recorded their migratory routes and roosting sites. A first ever satellite-tagged Chinese sparrowhawk (adult female; Kenting No.1) was released on May 10th, 2016. After spending the first two weeks in Taiwan, she crossed the Taiwan Strait to Fujian Province. She then picked up the speed and headed north until she arrived in Shandong Province in China. In the Autumn of 2016, we fitted tags on another 5 individuals (Kenting No.2–6). With Kenting No.1, all 6 individuals arrived in Visayas, Philippines by the end of September. They took various routes through different islands and kept moving southward. Two of the six individuals stopped at Sulawesi, Indonesia, and the rest remained in the Philippines. Wintering areas include farmlands mosaic with fragmented forest, oil palm or coconut plantation, woodland, and forest-edge, with altitude between 60m to 870m. Most of the roosting sites in Taiwan were located in low-altitude secondary forest close to human settlement, and the sites face great pressure of habitat loss and disturbance. We lost signal for all of the trackers after late November, which may be due to damage, signal interference, or simply because the solar panels were shaded for too long so it cannot be recharged. We continue monitoring their locations and intend to deploy more tags to understand their migration ecology and important habitats.

REGULAR POSTER

Study of Japanese Sparrowhawk (*Accipiter gularis*) in Yokohama City in Japan

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Japanese Sparrowhawks (*Accipiter gularis*) were studied during their breeding season between March and October from 2005 to 2017 at two nest sites, a park and site of condominium in Yokohama city, Kanagawa Prefecture in Japan. This research focused on monitoring behavior of individual Japanese Sparrowhawks. We found that they produce two to four chicks and almost all the chicks fledged successfully with some exceptional cases. This high success rate of breeding is thought to be related to small body size, high adaptability, and fertility of the Japanese Sparrowhawk, in addition to the geographical feature and vegetation of the study area. It was observed that they have: 1) wide variations of nesting tree (pain tree, cherry tree, ginkgo, and Japanese Zelkova), 2) wide variations of prey (small birds, insects, and mammals), and 3) breed twice in one season in the same nest by probably the same pair in 2013. Regarding people and raptor relationship, almost all people around the nests do not recognize Japanese Sparrowhawk, even though people see and hear them within a short distance. Some amateur photographers, mainly middle aged and aged ones, stalk Japanese Sparrowhawk very close to their nesting tree in the park. And some residents of the condominium watch over Japanese Sparrowhawk and help them in case of need. In 2016, a chick, which was dropped from the nest tree, was helped by the neighbors and was able to fledge safely.

REGULAR POSTER

Why are Gray-faced buzzards decreasing in Japan?

Atsuki Azuma

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Gray-faced buzzard (*Butastur indicus*) is a typical migratory raptor species in East Asia. It breeds in northeastern China, the Korean Peninsula, and Japan (except Hokkaido Island), while it winters in southwestern Japan and Southeast Asia. The buzzards prefer to breed in SATOYAMA, the traditional rural landscape of Japan that consist of irrigated rice paddies and secondary forests, and nest in mature pines or Japanese cedars. They feed on frogs, snakes, insects, and a variety of other small animals. Since they are listed as Vulnerable in the Red List of Threatened Species published by the Ministry of the Environment of Japan in 2006, its rapid population decline has been a source of concern. There are several reasons why the buzzards are decreasing in Japan. While the paddy field area decreases, farm land consolidation is done in the remaining paddy fields. Also, the abandoned farmlands are increasing year by year. The number of frogs, lizards, and snakes that the buzzards feed on decreased as farmland consolidation and abandoned farmland increased. The buzzards nest on trees overlooking the valley and perch mostly on trees with good sight lines. Consequently, to preserve the habitat of the buzzard, I have 3 proposals, as follows: 1) continue rice farming, even in those valley-floor paddy fields that are less desirable for cultivation; 2) in the process of consolidation of valley-floor paddy fields, adopt structures and construction methods that take into consideration the habitat needs of prey animals such as frogs; and 3) maintain the integrity of the woodlands on the terrace scarps overlooking the valley-floor paddy fields.

REGULAR POSTER

**Nesting ecology of Black Baza *Aviceda leuphotes* in Phetchaburi province,
Thailand**

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Little is known on the breeding ecology of Black Baza *Aviceda leuphotes* in Thailand and South-East Asia. The species is a partial migrant in the region with a resident population breeding in North-West, North-East, and Western Thailand. We monitored a nest in a dry dipterocarp forest in Nonyaplong District, Petchaburri Province, Western Thailand. The nest contained three nestlings and was placed on a *Shorea obtuse* tree (8m in height) and built using small dry sticks with a size of approximately 40cm in diameter. We monitored the nest for 10 days in May 2017. Our observation revealed that Black baza has a nestling period of 27 days wherein the 3 nestlings hatched on 2 May 2017, and successfully fledged in the morning of 29 May. Both parents also exhibited shared brooding behavior. In terms of prey delivery, we recorded 241 delivery attempts by the parents. We identified prey items from 91 attempts out of 241. Prey composition comprised of green-colored caterpillars (68.1%), lizards (16.5%), grasshoppers (8.8%), and frogs (6.6%).

REGULAR POSTER

Amur Falcon (*Falco amurensis*) nest and nest site selection in Central Mongolia

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We studied the nesting ecology of the Amur falcon for four seasons in Hustai National Park in Central Mongolia from June to August of 2011, 2013, 2014, and 2017. Global standard methods were used for our field survey. This species utilizes stick nests built in prior years by the common magpie (*Pica pica*) in birch (*Betula platyphylla*) and elm (*Ulmus pumila*) trees, both of which are declining in the park and in the region as a whole due to a suite of complex and poorly understood factors. Only a fraction of the available former magpie nests (8%) are occupied by Amur falcons in our study site. We examined factors contributing to nest selection on several spatial scales. Amur falcons nested slightly closer to other conspecific pairs than expected under a null model, which likely reflects a preference for areas with certain characteristics. Surprisingly however, Amur falcons nested no farther (or closer) than expected by chance from active nests of magpie (a likely nest predator). A use vs. availability analysis of the nest trees and nest characteristics showed that Amur falcons may select former magpie nests based on distance from forest edge, foliage density, elevation, and closure of nest cavity. Nest fledging success and nestling growth rates were correlated to nest and tree-level factors. Nest mortality prior to fledging was greater than 50%, and successful nests fledged an average of slightly under four chicks.

REGULAR POSTER

Preliminary results of autumn migration survey of raptors in Mongolia

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Odkhuu Biraazana¹, Munkh-Erdene Jamsran¹, and Toru Yamazaki²

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In the framework of the collaborative project on migratory raptors in Oriental Asia, supported by the ARRCN, field surveys were conducted by raptor biologists of the Mongolian Ornithological Society and National University of Mongolia at two study sites in central and south-eastern Mongolia in August–October, 2013. A total of 1,240 individuals belonging to 25 species of raptors were observed. Out of these species, 15 were true migrants and the others were resident and partial migrants including Eurasian kestrel, Saker falcon, Merlin, Golden and Steppe eagles, Upland buzzard, Cinereous, Himalayan and Bearded vultures. According to our field observations, the most common migrating raptors were Eastern buzzard, Eurasian sparrowhawk, Japanese sparrowhawk, and Black kite. In open country, raptors migrate in a wide front or scattered over open steppe. The most migratory activity was reported between 8:30 to 11:00 AM and 2:00–6:00 PM. The direction of the flight was associated with direction and speed of wind. However, this migration pattern of raptors in the country confirms that raptors in Mongolia take the global migration flyways, East-Asian and Australasian Flyways and Central Asian Flyway. There was no significant difference between numbers of individuals of raptor species at the study sites. The most intensive migration period was from 16 to 30 September. From this survey, we make the following recommendations for the future development of raptor monitoring: a) more funding is required, b) more potential raptor watch sites determined, c) a long-term monitoring programme established.

Plenary Presentations

Day 1 - October 19, 2017

Understanding raptor migration in Asia – trends and prospects

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Migratory Raptor Project is one of the collaborative research projects of the ARRCN. Amazing and mysterious facts are discovered alongside Raptor Migration Research. There are so many complicated migratory routes in Asia. We cannot know all of the routes, behaviors, and micro-habitat use during migration without direct observation. In addition, effective and sustainable conservation will be achieved only in collaboration with local people. We are standing on another new stage to promote research and conservation of migratory raptors in collaboration with local people and all countries in Asia.

An overview of Raptor research and conservation in East Asia

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More than two hundred species of diurnal and nocturnal raptors are found in East Asia, the region east of India. This region covers part of four zoogeographical realms (the Palearctic, Sino-Japanese, Oriental, and Oceanic realms). Some of these species are highly restricted in range, while others are found in more than one realm. Examination of the distribution of these raptors showed that there are many more species in the Oriental realm, and a fair number of these are small island endemics, especially for the owls. The basic biology of a sizable portion of the East Asian raptors is poorly known. Modern research on raptors in East Asia barely started 50 years ago, only increased momentum after the formation of ARRCN. Recent works on raptor migration have produced highly valuable information. Attention on the ecology and reproduction of raptor species with restricted distribution needs urgent encouragement.

ARRCN Members' Reports

Status and conservation of diurnal raptors in Indonesia

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In terms of diurnal raptors, there are 72 species reported in Indonesia consisting of sedentary, migratory, and few vagrants (Supriatna, 2014). Regularly, migratory raptors visit Indonesia through the East-Asia Continental Flyways and the East-Asian Oceanic Flyway. The Oriental Honey Buzzard (*Pernis ptilorhynchus orientalis*), Chinese Goshawk (*Accipiter soloensis*) and Japanese Sparrowhawk (*Accipiter gularis*) are among common migrants to Indonesia. In terms of endemism, 18 out of 72 are known as endemic species in Indonesia. Unfortunately, due to habitat loss and illegal hunting, there are currently 12 species in Indonesia that are threatened by extinction. Among notable species are the Flores Hawk Eagle (*Nisaetus floris*) and Bawean Serpent-eagle (*Spilornis cheela baweanus*), which are Critically Endangered and the Javan Hawk-Eagle (*Nisaetus bartelsi*) being Endangered (IUCN 2016). This paper will review the status and conservation of migratory raptors in Indonesia based on direct field observations and published and unpublished literatures.

Raptor migration monitoring in Malaysia: development and findings over nearly two decades

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In Malaysia, observation and documentation of migratory raptors can be traced back to the 1960s during which time only short accounts were reported. In 2000, the inauguration of the Raptor Watch Week festival by the Malaysian Nature Society at Tanjung Tuan (2°24'N, 101°51'E), Melaka, raised public awareness of the importance of this most prominent spring migration site in Peninsular Malaysia. With the establishment of the Raptor Study Group under the Bird Conservation Council of Malaysian Nature Society in 2008, more systematic counts of migratory raptors were initiated. Near full-season spring counts in 2009 and 2010 at Tanjung Tuan indicated that more than 85% of the passage consisted of Oriental Honey-buzzard (*Pernis ptilorhynchus*), with at least 13 other migratory raptor species. Over the past 17 years, Raptor Study Group has established new count sites in its efforts to better understand migration in Malaysia in relation to the East Asian Continental and Oceanic migration flyways. These sites include Scott's Hill (4° 52'N, 100° 44'E), Perak (autumn counts from 2000–2011); Bedong (5°44'N, 100°33'E), Kedah (autumn counts in 2012 and 2013); Rupert Island (2°07'N, 101°41'E) off Sumatra, Indonesia (spring counts in 2006, 2009, and 2015); and Bukit Kepong (2°28'N, 101°55'E), Negri Sembilan (autumn count in 2016). Spring counts at Tanjung Tuan and autumn counts at Scott's Hill and Bedong show comparable seasonal totals (> 55,000 raptors) and species diversity but with differing species composition and magnitude. Fifteen migratory raptor species have been recorded so far at Tanjung Tuan where Oriental Honey-buzzard comprised the main species, in contrast to Scott's Hill (19 species) and Bedong (16 species) where Black Baza (*Aviceda leuphotes*) and Chinese Sparrowhawk (*Accipiter soloensis*) predominated. Raptor migration in East Malaysia is less well-known compared to Peninsular Malaysia. Exploratory trips to Sarawak and Sabah recorded migratory raptors arriving from the open sea at Tanjung Datu (2°07'N, 109°39'E), Sarawak, in 2002 but follow-up visits in 2010 and 2011 did not succeed in locating any significant overland migration. Manpower and financial constraints have resulted in spring counts at Tanjung Tuan to be shortened to two weeks beginning from 2016 and caused the cessation of counts at Scott's Hill. For the next decade, the Raptor Study Group hopes to continue the work in raptor migration monitoring by training young counters; encouraging more support from government agencies and research institutes; expanding research on lesser known resident raptors; disseminating related findings through scientific and non-scientific publications; and promoting more regional and international efforts in raptor protection.

COUNTRY REPORT - SINGAPORE

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36 species of diurnal raptors and ten species of nocturnal raptors are known to occur in Singapore. For the diurnal raptors, ten species are resident, 25 species are migrants, and one species has both sedentary as well as migrant populations. The situation is reversed for the nocturnal raptors, where the majority (seven species) are resident, with only three species occurring as migrants.

This presentation discusses notable observations and changes in the raptors of Singapore, especially from the data gathered in the last ten years of focussed raptor monitoring. These include an encouraging increase in the breeding population of the Crested Goshawk (*Accipiter trivirgatus*) and Spotted Wood Owl (*Strix seloputo*), some of which were located in close proximity to human habitation, as well as the first confirmed record of the Bat Hawk (*Macheiramphus alcinus*) in 58 years. For the migrant raptors, the occurrence of the Northern Boobook (*Ninox japonica*) in Singapore was confirmed through DNA studies, and more records were also obtained through field observations.

Declines have also been observed. The Eastern Marsh Harrier (*Circus spilonotus*) and Pied Harrier (*Circus melanoleucos*) have become more difficult to find due to the loss of habitat to development. Interestingly, Singapore continued to have its share of vagrant raptors, with the Himalayan Vulture (*Gyps himalayensis*) (Jan. 2016), Amur Falcon (*Falco amurensis*) (Dec. 2016) and Eastern Imperial Eagle (*Aquila heliaca*) (Dec. 2016) being the most recent ones.

Current Raptor Conservation in Taiwan

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More than 650 species of birds have been recorded in Taiwan with 33 diurnal and 13 nocturnal raptor species. All raptors are listed as protected species under The Wildlife Conservation Act. This report focuses on the research, outreach, and conservation efforts on raptors in Taiwan from 2015–2017, particularly by Raptor Research Group of Taiwan (RRGT).

Research has been one of the core missions of RRGT, and efforts have been devoted to understanding raptor ecology, including distribution, diet, breeding, and migration, to provide baseline knowledge for conservation and management. Taiwan is situated in the middle of the East Asia Oceanic Flyway and more than 100,000 raptor individuals migrate through Taiwan. The migration count at Kenting National Park on the southern tip of Taiwan has been conducted since 1984 and provided valuable long-term monitoring data. A world first satellite tracking study of Chinese Sparrowhawk was embarked in spring 2016 with the support of Kenting National Park service. In addition to the migration strategy of Oceanic Flyway, we hope to cooperate with other researchers to reveal the migration ecology through Continental Flyway. Several studies have looked into how Crested Goshawk adapts to the urban environment in the recent years. The research utilizes new technology to live stream the nest activities, which not only provide detailed breeding data but also offer opportunities for public education. The population of Black Kite has declined in the past decade. Since 2013 we conducted simultaneous dusk count in fall and winter at 10+ locations in Taiwan to obtain the population trend. The results suggested that the population increased steadily in the past years, however, the threats such as illegal hunting, habitat loss, and secondary poisoning of pesticides and rodenticides still exist. Another study on Black-shouldered Kite in Eastern Taiwan also revealed the importance of raptor to rodent population control in the agricultural ecosystem. The 5th Raptor Ecology Symposium of Taiwan was held in November 2015, which provided a platform for over 300 participants to communicate. Thirty oral and poster reports were presented at the symposium.

For outreach programs, we invited the general public to explore the beauty of raptors, together with experts in our monthly raptor-watching activity “Open Wings.” We also continued to host annual raptor investigation camp to train investigators to participate in various citizen science projects. With the success of the award-winning documentary “Fly, Kite Fly” in the cinema in November 2015, RRGT continued to promote the conservation and the importance of raptors by bringing the film to elementary schools and general public. Several renowned enterprises, foundations, and non-profit organizations sponsored the film tour and it indicated that the impact of the documentary has successfully reached out to different levels of stakeholders. Starting from 2017, RRGT started to provide professional rescue and rehabilitation services for raptors in need. This not only presents opportunities for research but also promotes the environmental education through raptors to the general public.

Country Report: Philippines

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This year yet another raptor species was added to the Philippine list—the Spotted Kestrel (*Falco moluccensis*) which was considered an endemic species of Indonesia until its discovery at Cape San Agustin and Sarangani during the autumn watch season on Mindanao in 2016.

At the moment, the Philippines has 33 species of raptors:

6 endemic raptor species

12 sedentary raptor species

10 purely migratory species

5 species with both migratory and sedentary population.

The study on raptor migration in the Philippines which began in earnest 5 years ago with the strong encouragement of the ARRCN has since established 4 watch sites managed by the local communities and schools. Papers on the studies of all 4 watch sites prepared by the communities and students of each watch site have been accepted for presentation at the 10th ARRCN Raptor Symposium.

These 4 areas are located on the obligatory converging areas as follows:

1) Autumn migration – before the raptors leave the Philippines for Indonesia:

A) Cape San Agustin, Davao Oriental. The watch here is spearheaded by the LGU of Governor Generoso and the students of the GGCAST. This year, the Provincial Government and the students of the State college are also involved in the watch.

B) Glan, Sarangani. The watch here is spearheaded by the Governor of Sarangani, the ECPC and the communities of Barangays Cross and Rio del Pilar.

2) Spring migration – before the raptors leave the Philippines for their breeding areas in the Palearctic.

C) Pagudpud, Ilocos Norte. The watch here is now on its 4th year being conducted by the students and researchers of the Northwestern University and the communities of Pancian and Adams.

D) The Municipalities of Pamplona and Sanchez Mira, Cagayan Valley. This study area presents a more complicated problem since traditional harvesting of raptors is practiced here. After 3 years of educational campaign jointly by the ARRCN, Raptorwatch Network Philippines, Cagayan State University and LGUs of the 2 Municipalities, harvesting was effectively stopped during this year's spring migration. The educational campaign continues.

Patch Quality and Connectivity of Endemic Javan Hawk-Eagle's Habitat in West Java, Indonesia

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The Javan Hawk-Eagle (JHE, *Nisaetus bartelsi*) is an endemic raptor in the natural forests of Java, Indonesia and is categorized as an endangered species. Small population size, severe habitat loss, forest fragmentation, and illegal hunting have contributed to the "endangered" status of this species. The Indonesian government had officially announced the JHE as one of 25 top priority species to increase their population by 10% in the period of 2015 to 2019. Unfortunately, lack of information about the quality of the current remnant habitat patches and particularly about the landscape connectivity among the patches makes the proposing of conservation strategies for the JHE difficult. This study aims to analyze the patch connectivity by applying the probability of connectivity index (PC) in West Java, Indonesia. After that, the quality of each patch related to their connectivity to other patches was determined as the core habitat or isolated habitat. Based on the PC index calculation, three important indices, *i.e.* PC_{intra}, PC_{flux}, and PC_{con}, were obtained. High values of PC_{intra} and PC_{flux} showed that those patches are core habitats. Meanwhile, a PC_{con}=0 value showed which patches were isolated. The results successfully determined four core habitat patches and six isolated habitat patches in West Java. Moreover, the core habitats were overlaid with the existing land cover and protection area boundaries in order to propose landscape corridor planning to increase the survival of the JHE in the natural habitat remnants in West Java.

STUDENT ORAL PRESENTATION

Patch Dynamics in Javan Hawk-Eagle Habitat of East Java, Indonesia

Abi Rafdi Pradana Murad

Javan Hawk-Eagle (JHE, *Nisaetus bartelsi*) is an endemic species in Java Island and is an important biological indicator of ecosystem health. The government has issued regulations to protect this species and increase its population by 10% from 2015 until 2019. East Java has the largest JHE potential habitat in Java Island based on previous study using satellite images from 2002. Therefore, the current habitat distribution of JHEs is really necessary for getting the knowledge about patch dynamics in JHE habitat. The objectives of this study were to analyze patch dynamics of JHE's habitat in 2002 until 2016 and to validate habitat distribution. Previous predicted probability map (2002) of JHEs were updated using Landsat 8 satellite images from 2015 and was validated on the ground with secondary data. Results showed that the distribution of JHE's habitat covered about 4766.26 km². The dynamics that occur in the JHEs patch are one patch lost, five patches decreased area, 13 patches increased area, and four newly-identified patches. After validation, there are six newly identified patches and one patch increased area, and the total coverage area increased by 2156.14 km² or (82.61%) of the total area occupied by JHEs in 2002. About 39.89% of total habitat patches size were located inside the protected area. Based on this fact, we recommend that JHEs habitat should be monitored continuously and proposed conservation activities in each habitat patch dynamics.

REGULAR ORAL PRESENTATION

Study of Raptor-rodent relationships and their effect on crop produce, with the aim of reintroduction of raptors, in the study area of District Gondia, Maharashtra, Central India

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There has been a significant decline in the numbers of Black Shouldered Kite, Shikra, and Black Kite, and Owls in the area of study, i.e, village Paulzola, Taluka Deori, District Gondia, State Maharashtra, India. Farmers mention that they have not seen large raptors in their areas in the last ten years. An estimated 15–20% crop produce is lost to the large number of rodents which are flourishing in the fields and villages. This crop loss was apparently less than 5% when raptors were present in good numbers.

Our organization's work involves the following: 1.) Studying occurrence of raptors in the area, their species, numbers, nesting sites, nest success rates; 2.) Studying causes of reduction in numbers of raptors, actual extent of crop loss to rodents; 3.) Studying species of rodents in the area, rodents as prey species, and raptors that possibly feed on them; 4.) Community participation in understanding the problem and its solutions, along with participation of village panchayat (governing body) in decision making and application of solutions; 5.) Estimating the possibility of reintroduction of raptors in the area, with the aim and hope that they will breed there again, with increase in their numbers, and consequential reduction in the menace of rodents. People's participation is at the forefront in this regard. We present the work we have done in this regard, and the further plan of executing the solutions.

STUDENT ORAL PRESENTATION

Feed Potential of Javan Hawk-Eagle (*Nisaetus bartelsi*) in Rancabali Area of West Java, Indonesia

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Javan Hawk-eagle (*Nisaetus bartelsi*) is an endemic raptor of Java and is categorized as endangered according to IUCN with population decreasing due to habitat destruction and illegal trade. Javan Hawk-eagle has an important role in the ecosystem because it maintains the balance of ecosystem by making other animals as a prey. Food is needed for all living things to survive and regenerate. The availability of prey and presence of other predatory birds will affect the survival of the Javan Hawk-eagle. This study was conducted to determine the availability and abundance of animal species that can be the prey for Javan Hawk-eagle and the possibility of competition in getting prey. The methods that used for sampling are line transect, Visual Encounter Survey (VES), catch per unit effort (CPUE) with small mammal trap and funnel trap, and deep interview with locals. The results of the observation found that the potential species of Javan Hawk-eagle food are Stratiated Grassbird (*Megalurus palustris*), Common Threeshrew (*Tupaia glis*), and Common Sun Skink (*Mabuya multifasciata*) with the highest abundance. Species with the highest density are Stratiated Grassbird and Common Sun Skink. Competition for prey with other predatory birds can occur due to the encounter of species that have similar prey with Javan Hawk-eagle, such as Crested Serpent Eagle (*Spilornis cheela*), Black Eagle (*Ictinaetus malayensis*), and Changeable hawk-eagle (*Nisaetus cirrhatus*).

REGULAR ORAL PRESENTATION

Breeding Records of Flores Hawk-Eagle (*Nisaetus floris*) from Wolojita Village Buffer Zones of Kelimutu National Park, Flores, East Nusa Tenggara, Indonesia

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The Flores Hawk-eagle is one of the IUCN Critically Endangered Raptor, it is Lesser Sundas' endemic species. This study is the first to describe the breeding behavior at Wolojita, Kelimutu National Park buffer zones. The Territory Mapping Method was used in this observation. The aim of this observation is to monitor the breeding behavior at the nesting area. The monitoring was taken 4 times in every year since 2014 to 2017. A breeding pair was monitored at Wolojita since September 2014. At that time, a nest was found at a community farm near Otoseso Customary Forest. The nest was located at a Dita Bark tree (*Alstonia scholaris*). Then, on February 2015 a pair was observed doing a courtship display. In March 2015, a female individual was observed carrying a twig from a Candlenut tree (*Aleurites moluccana*) near the nest. By April 2015, the pair was observed alternately sitting on the nest. Then, on September 2015, a new nest was found on an Albizia tree (*Paraserianthes falcataria*) about 40 meters from the old nest. In the middle of June 2016, one eaglet with estimated age about 2–3 weeks was found at the new nest. This Eaglet is believed to be female because by September 2016, this Eaglet was no longer seen with its mother. It is similar with Javan Hawk-eagle, that the female eaglet has shorter parental care period than the male. In early 2017, the family moved to a Candlenut tree. Our observations indicate that the breeding cycle of Flores Hawk-Eagle was from 5–6 months starting with nest building in October then pair bonding from January until March. Egg-laying and incubation was from April until end of May for about 40–45 days with the eggs hatching in early June. The parental care period lasted from July until August.

STUDENT ORAL PRESENTATION

Behavior of Post Release Javan Hawk-Eagle Based on Radiotelemetry at Patenggang Nature Reserve, West Java, Indonesia

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The Javan Hawk-Eagle (*Nisaetus bartelsi* Stresemann, 1924) is endemic to Java Island and is threatened with extinction due to habitat destruction and poaching or hunting for illegal wildlife trade and for the pet trade. To conserve their population, captured Javan Hawk-Eagles are rehabilitated and released in the wild. Therefore, a rehabilitation program is crucial to ensure released Javan Hawk-Eagles are fit for release. Moreover, to ensure a successful release program, monitoring of post-release Javan Hawk-Eagles are necessary. This includes monitoring their behavior and adaptation ranks of released Javan Hawk-Eagles to new habitats. This research was conducted to determine behavior and behavioral development of Javan Hawk-Eagles that have been released using Radiotelemetry. We monitored and observed tagged Javan Hawk-Eagles for 30 days at Patenggang Nature Reserve, West Java, Indonesia. All occurrences sampling method and focal animal sampling method were used in field observation to record general behavior (perch, fly, feeding). Focal animal sampling combined with all occurrences sampling was used to provide accurate data on behavior frequencies and durations of behavior. The research showed that the behavior of this released eagle are resting, moving, maintaining, defecating, and calling. There was a change in behavior of the Javan Hawk-Eagle, the flight behavior shown by the farthest flight distance of eagle reached ± 2 Km and the nearest flight distance reached ± 500 m.

REGULAR ORAL PRESENTATION

Preliminary analysis of Philippine Eagle (*Pithecophaga jefferyi*) home range and movement patterns

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Very little information on the home range and movement patterns of the Philippine eagle is known. It is a critically endangered species and the national bird of the country, which is found only in the Philippines. Thus, we studied how big an area Philippine eagles on Mindanao Island occupy and looked at certain movement patterns using satellite telemetry in forests where they still occur. Four adult Philippine eagles were attached with the LC4 GPS satellite transmitters that are battery-powered and paired with VH4 (radio) transmitters from 2010 to 2014. Using GPS fixes from the satellite transmitters, home range sizes were estimated for each individual based on Minimum Convex Polygons (MCP) and Kernel Density Estimates (KDE) generated using the open software R package. Using different Utility Distribution (UD) and MCP measures, eagle home range size was measured between 961 ha to over 16,000 ha, depending on the percentage of the total GPS fixes used. Data on two individuals of a territorial pair also showed differences between breeding and non-breeding home ranges. The eagles' movement showed substantial use of forest edges and ecotones, and small forest patches away from forest boundaries. It also appears that eagles do not use forests at higher altitudes. We recommend community-based conservation approaches for territorial pairs nesting at and heavily used forest edges, patches and other habitats that are close to human communities to increase breeding success and prevent eagle shooting and trapping, and further habitat losses. Examples of specific village-based approaches were also described.

Migration, Monitoring, and Movement

Concurrent Sessions

REGULAR ORAL PRESENTATION

Autumn Migration of Steppe Eagles (*Aquila nipalensis*) Crossing Himalayan Mountains

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Steppe Eagles breed from the east of European Russia to Kazakhstan, Kyrgyzstan, China, and Mongolia. This species is migratory and winters in southeast Africa and southern Asia. For tracking Steppe Eagles, WT-300 devices (GPS-Mobile Phone based Telemetry System) were used. We captured 12 Steppe Eagles in Mongolia (Gichgenii Khundii and Eej Khad) and deployed the WT-300 tracking devices from July to September, 2016 for studying their migration. The birds began the southbound migration from late September to early October. The fastest departure time was on September 18, and the last day was October 28. During their migration, they passed Inner Mongolia, and Central China, and Tibet. After crossing a high plateau in Tibet, they quickly crossed over Himalayan Mountains. When they passed the mountains, their flying altitude reached up to 7,000 meters above sea level. They moved at daytime only and had no special stopover site during the migration. The birds reached in wintering sites such as Northern India (6 individuals), Nepal (3 individuals), Northern Pakistan (1 individual), Bangladesh (1 individual) and Southwest China (1 individual). From these studies, we would summarize their wintering areas cover many southern Asian countries. They also arrived individually at wintering areas from November 3 to January 11.

STUDENT ORAL PRESENTATION

2016 Autumn Raptor Migration Count in Cape San Agustin, Lavigan, Governor Generoso, Davao Oriental, Philippines

Fernando Ompad, Elvin Bulalong, Promise Joy Mirafuentes, Johnimar Akmad,
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The Philippines is part of the East-Asian Oceanic flyway where thousands of raptors pass during spring and autumn migration season. Previous study confirmed the passage of migratory raptors through Cape San Agustin, Lavigan in Davao Oriental. In order to determine the number of individuals and species of migrating raptors passing through the Cape, a daily migratory count was conducted from September 19 until October 29, 2016. The count started at 0500H and ended by 1600H. Chinese Sparrowhawk (*Accipiter soloensis*) had the highest count, 9,180 individuals followed by the Grey-Faced Buzzard (*Butastor indicus*) with 291 individuals. Other migratory raptors were also observed but in fewer numbers, namely Crested Honey Buzzard (*Pernis ptilorhyncus*), Japanese Sparrowhawk (*Accipiter gularis*), Peregrine Falcon (*Falco peregrinus*), Osprey (*Pandion haliaetus*) and the first sighting of the Spotted Kestrel (*Falco moluccensis*). Chinese Sparrowhawk migrated in varying flock sizes ranging from 5 to 400 individuals per flock. On the other hand, Grey-Faced Buzzards were observed to migrate alone or in 2 to 5 individuals per flock. Moreover, the flight direction of the raptors was mostly south-west during the observation period with high count numbers during clear weather. Given the number of counts and species of raptors, confirms that Cape San Agustin is an important watch site for long-term monitoring studies. It has the potential for continuous raptor study and conservation.

REGULAR ORAL PRESENTATION

Radar study on Gray-faced Buzzard migration in Taiwan

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The exact number and flight route of gray-faced buzzards (*Butastur indicus*), the second most abundant migratory raptor, have been poorly known in Taiwan. With reference to the ground observation data of big days of the Taiwan Raptor Research Groups Webpage, we examined weather radars to determine the flight routes of the species. We used tens of thousands of radar images from four weather radar stations from 5:30 am to 7 pm in October of 2015 and mid-March-early April of 2016. In October, the buzzard, arriving probably on the northwest coast earlier from China, mainly flew along the Central Mountain Ridge (north/south bearing) and the western side of the ridge southward. Instead a smaller portion of buzzards from mountains between Suao and Nanao (also probably from China) headed south toward the Green Island and Orchid Island and nearby waters in the east. On their return migration in mid-March-early April of 2016, 36.3% of the buzzard flocks took the eastern route, while those took the western route, 5% of them flew off the coast by Budai of Chiayi County of southern Taiwan, 68.4% flew further north and left the coast in the central Taiwan, and the remaining flocks took northbound flight. At the southern tip of Taiwan, the total number of the buzzard estimated by radar was 89,260 birds in October, about 2.6 times of the ground count (34,535 birds). Among those not detected by raptor watchers, 55% flew off west coast and 3% off east coast.

REGULAR ORAL PRESENTATION

Migratory Raptor Study in Barangay Rio del Pilar, Glan, Sarangani Province, Philippines

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Autumn raptor migration study in Sarangani Province was first conducted in 2014 by Alex Tiongco and Maria Teresa Cervero who reported that Sarangani is very likely a major migration route in autumn for raptors crossing from the Philippines to Indonesia. To validate the report, the Provincial Government of Sarangani thru the Environmental Conservation and Protection Center and Raptorwatch Network Philippines conducted the autumn raptor migration study from 15 September to 23 October 2016 in Glan, Sarangani Province. The study aimed to establish database of species, numbers and routes of migrating raptors and locate roosting sites. Raptors' presence were observed from 6:00 am to 3:00 pm daily by scanning the horizon using binoculars. Flying raptors were identified and counted individually or estimated by block if in large numbers. Identification was based on distinct bird features like wing shape, color, size, etc. A total of 78,817 migratory raptors composing of 7 species were counted. *Accipiter soloensis* consists 93% while *Butastur indicus* 6%. The migration of *Accipiter soloensis* peaked on 28 September with 11,612 individuals and on 8 October with 12,233 individuals. The raptors mostly came from Mt. Gulo in the northeast and headed southwest towards the direction of Sangihe, Indonesia. The study proved that Sarangani Province is indeed a major autumn migration route for raptors crossing from the Philippines to Indonesia. Mt. Taltak and Mt. Gulo appear to be raptors' roosting sites, thus the need to protect our forest. The study area (aka Raptor Hill) may be established as eco-tourism site for raptor watch.

REGULAR ORAL PRESENTATION

Long Range Migration of Black Kites (*Milvus migrans*) from Mongolia to South Asia

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Black Kite (*Milvus migrans*) distribution is widespread across Europe, Africa, Asia, and Australia. Among them, the breeding populations in Northern China, Mongolia, and Russian Siberia migrate to India, Nepal, and South Asia in winter. We studied the migration behavior of Black Kites by capturing four individuals using a cannon net on September 5, 2016 in Songino Mountain adjacent to Ulaanbaatar, Mongolia, and deploying Wild-Trackers (WT-300, GPS-Mobile Phone-based Telemetry). The GPS location coordinates were obtained every two hours. As a result, four kites were observed to successfully migrate to their wintering grounds. The birds began their southbound migration soon after the deployment. The first kite left its site of capture on September 7, and the last bird started migration on September 16. During their southbound migration, they were moving at daytime only and rested at night. They passed Gobi desert, Mongolia, Sichuan, and Western Tibet, China. Finally, they settled in Bangladesh (3 individuals) and southern Myanmar (1 individual) for winter. They spent 19 (16–22) days of travel on average to reach their wintering sites.

REGULAR ORAL PRESENTATION

Raptors over the edge of the Northwestern Luzon, Philippines: A long term monitoring initiative of the Northwestern University and Raptor Watch Network Philippines

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East Asia has 2 major raptor migration flyways—the East Asian Continental Flyway and the East Asian Oceanic Flyway. Raptor migration in the Oceanic Flyway involves vast sea crossings and is influenced greatly by monsoon winds: the Northeast Monsoon affecting the Spring migration (March and April) and the Southwest Monsoon involving Autumn migration (September and October). However, the many typhoons which occur during migration seasons could also exert tremendous but yet largely unknown effect on the flight and plight of migrating raptors.

The Philippines is an important link in the East Asian Oceanic Flyway. Every year, thousands of raptors come to winter in the Philippines or simply pass through on their way to their wintering areas further south, but their species, numbers, routes and migration ecology have not been systematically studied.

In efforts to address this dearth of raptor information and study, the Northwestern University and the Raptorwatch Network Philippines with the support of the ARRCN, have for the last 3 years began a long-term migration study and monitoring at Pabaleng Bay, Pabaleng Bay, Ilocos Norte, Philippines.

A major spring exit flyway and minor roosting areas around Pabaleng Bay have been established. A data base for migratory raptor species, numbers, local routes and migration ecology is on its 3rd year of construction.

Eight (8) species of migratory raptors have been monitored leaving the Philippines through the Pabaleng Bay for the last 3 years in large numbers never before recorded in the Philippines; 62,607 in 2015, 75,958 in 2016 and 98,457 in 2017. Four (4) endemic and three (3) resident raptor species have been recorded also within the Kalbario-Patapat National Park.

This paper is a presentation of the summary of our findings over the last 3 years.

REGULAR ORAL PRESENTATION

Study on migratory raptors in Bangladesh

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Migratory raptor study in Bangladesh was initially started to investigate the migration ecology of the passage migrant Amur Falcon (*Falco amurensis*) in 2010. Later, the research was extended to other migratory raptors. Mixed sampling methods and citizen science was used in this study. Amur Falcon was recorded from different parts of the country during migration with two possible routes identified. One route was over Cox's bazaar (south-east) and is identified as significant for migratory raptors and other migratory birds. Seven species of migratory raptors were recorded in Cox's bazaar. These were mostly Amur Falcons (flocking size: 1-200 individuals) and followed by Oriental Honey Buzzards (*Pernis ptilorhynchus*). Autumn migration for Amur falcon was observed from October to December while spring migration was observed from late March to June. Other migratory raptors observed were Jerdon's Baza (*Aviceda jerdoni*) found during autumn and spring migration in Dhaka with occasional sightings of Lesser Kestrel (*Falco naumanni*) reported from the north-east. In the area south of Dhaka, we also observed regularly during the migration the presence of migratory Peregrine falcon (*Falco peregrinus calidus*) (n=8), while we rarely record and in very low numbers in the same area, Indian Peregrine (*Falco peregrinus peregrinator*). Other migratory raptors regularly observed were the Greater Spotted Eagle (*Aquila clanga*) found only close to wetland habitats and the first record of Japanese Sparrowhawk (*Accipiter gularis*) recorded from the north-east of Bangladesh.

REGULAR ORAL PRESENTATION

Investigating the migration ecology of two Asian sparrowhawks along the East Asian Continental Flyway

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Raptors are at the apex of the food chain and are important indicators of the state of the environment. Defining their breeding and wintering grounds and their migration routes is essential for their conservation. At least 0.5 million raptors migrate annually between breeding areas in temperate North and East Asia, to non-breeding areas in Southeast Asia. They use two main routes: the East Asian Oceanic Flyway and the East Asian Continental Flyway. This latter route includes the Thai-Malay Peninsula where annual monitoring takes place at Khao Dinsor, Chumphon. We fitted small 5 g solar-powered satellite transmitters to two female Chinese Sparrowhawks (*Accipiter soloensis*) and three female Japanese Sparrowhawks (*A. gularis*) caught on migration at Khao Dinsor. The Chinese Sparrowhawks continued south to Malaysia, crossing into Sumatra. One spent five months there while the other continued eastwards to Adunara Island near Timor. One Japanese Sparrowhawk flew to extreme southern Malaysia, then eastwards to Kalimantan, continuing to the northern tip of Sabah, Malaysia. The second disappeared in peninsular Malaysia, while the third flew to Bangka Island off Sumatra. The return migrations, starting in March 2017, were similar to their outward routes except that they by-passed Chumphon, following instead the west flank of the peninsula. All continued north into China, following broadly similar routes before their paths diverged. The signal from one Japanese Sparrowhawk was lost in Yunnan province while the other continued into Southeast Russia, covering 7,500 km in 52 days. Both Chinese Sparrowhawks migrated to presumed breeding areas in Hunan and Guangxi provinces, respectively. A ground survey of two sparrowhawks, one of each species, showed that both non-breeding sites were dominated by human-altered habitats: plantations of oil palm, rubber and introduced acacias. This suggests that away from their breeding areas, these raptors are capable of surviving in human-altered habitats.

Genetics, Disease and Rehabilitation

Concurrent Sessions

REGULAR ORAL PRESENTATION

Rescue operation for injured wild birds of prey in Japan with falconry technique

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Falconry is a worldwide culture with a long history of over thousand years. It is one of the oldest relationships between raptors and humans. Falconry is not only using raptors for hunting; the technique and knowledge of falconry is also useful for the management of wild raptors without mal-imprinting to humans, an important technique to the rehabilitation and release of rescued injured birds. Using falconry, flying and hunting abilities are checked during rehabilitation of recovered birds under suitable conditions. This has been found effective to prevent death or further injuries after releases.

Since 1982, The Japan Falconiformes Center (JFC) has rescued injured wild birds of prey using falconry technique with medical support from the Green Animal Hospital. And recently, we work in cooperation with the Department of Wildlife in prefectural government and other related authorities. We also conduct workshops for government officials introducing the different birds of prey and proper handling method for injured raptors. For the last 10 years (2007–2016) a total of 141 birds were taken to the JFC for rescue and rehabilitation. Rescued species were mostly Northern Goshawk (*Accipiter gentilis*), followed by Common Kestrel (*Falco tinnunculus*), Peregrine Falcon (*Falco peregrinus*), Eurasian Sparrowhawk (*Accipiter nisus*), Common Buzzard (*Buteo buteo*), Black Kite (*Milvus migrans*), Osprey (*Pandion haliaetus*), and Japanese Sparrowhawk (*Accipiter gularis*). Conditions of the injured birds were mostly debilitation without injury followed by wing fracture, head bruise, and wing injury without fracture. Of the raptors rescued, 50 birds (35.5 % of total birds) died of severe conditions within 30 days of treatment. But, 51 birds (36.2 % of total birds) were successfully released back into the wild after rehabilitation. Cooperation with authorities contributed to the increase in the released rate of rescued birds.

STUDENT ORAL PRESENTATION

PCR-based Sexing of Confiscated Hawk-eagles in Yogyakarta (Indonesia)

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Even though listed as a protected species, the Javan Hawk-eagle (JHE) and the Changeable Hawk-eagle (CHE) have been traded illegally in Indonesia. Conservation efforts in Indonesia have focused on law enforcement and release of confiscated birds into its natural habitat. For monitoring of the population, it is important to determine the sex of the bird, prior to releasing.

In this study, we used PCR-based methods based on the intronic length polymorphism of the chromo-helicase DNA binding protein (*CHD*), which was used to reliably identify the sex of hawk-eagles. We employed three common primer sets for sexing (P2/P8, 1237/1272, and 2550/2718) and developed new primers (2561/2728) to identify six confiscated Hawk-eagles (2 JHE, 4 CHE). All primer sets were successfully amplified by the samples. However, only two primers sets (2550/2718 and 2561/2728) successfully identified the sex of the unknown confiscated Hawk-eagles. The sex of the JHE were male and female, meanwhile three CHE were female and the other was male. The other primer sets failed to distinguish the sex of Hawk-eagles, all amplified samples showed single bands. Alignment of *CHD* sequences showed that the sequences of *CHD1-W* (425 bp) of JHE and CHE have no variation compare to other Accipitridae *CHD1-W*. Meanwhile the sequences of *CHD1-Z* (661 bp) of CHB showed some variation sites.

REGULAR ORAL PRESENTATION

Hematological Value of a Pre-Released Endemic Raptor Species Javan Hawk Eagles (*Nisaetus bartelsi*) in a Rescue Center in Jogjakarta-Indonesia

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On November 16th 2016, the health status of a Javan Hawk Eagle was checked to ensure its survival after release. Hematological value was used as one of considerations to determine its health status. The result of the hematological examination is mentioned respectively. Hemoglobine (6.8 gr/Dl); Hematocrite (20%); Leukocyte ($13.3 \times 10^3/\text{mm}^3$); Eritrocyte ($2.06 \times 10^6/\text{IU}$); MCV (97.1fL); MCH (33pG); MCHC (34%); Neutrophil ($5.6 \times 10^3/\text{mm}^3$); Basophil ($0.0 \times 10^3/\text{mm}^3$); Eusinophil ($2.1 \times 10^3/\text{mm}^3$); Limphocyte ($4.7 \times 1 \times 10^3/\text{mm}^3$); and Monocyte ($0.9 \times 1 \times 10^3/\text{mm}^3$). Based on the examination both hemoglobin and hematocrit levels are under the normal range. Lower hematocrit levels may indicate that the erythrocyte size is smaller than the normal one. Lower hemoglobin levels indicate that the amount of hemoglobin in red blood cells is less. In general, it can be said that at the time of examination, the Java Eagle had anemia. The low level of MCV, MCH and MCHC measurements also confirmed that at the time of examination the eagle had a hypochromic microcytic type anemia. However, the number of red blood cells is above the normal range. It can be interpreted that the eagle's body is still good to respond to the anemia condition by producing many bands. The number of white blood cells (leukocytes) is in the normal range. It indicates that during examination, the eagle showed good body defense performance. Although the number of neutrophils is under the normal range but not significant less than 700 cells/mm³ so it is not a serious problem. The number of monocytes is almost twice above the normal range. An increase in the number of monocytes is often associated with chronic infection. But physically, there are no symptoms of chronic infection. Based on the examination, the eagle was in good performance.

STUDENT ORAL PRESENTATION

***Trypanosoma corvi* and *Trypanosoma avium* in raptors in Thailand**

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Almost all raptor species in Thailand are protected by law. The protection efforts involve rescuing raptors that have trauma, infection, parasites or other diseases. We looked at avian trypanosomes present in rescued raptors. Avian trypanosomes have low pathogenicity on the avian host but there have been reports of clinical signs in raptors in other countries while these raptor parasites are scarcely reported in Thailand. Our study aims were to observe species of raptor trypanosomes by using a microscopic technique: parasite morphology, and their prevalence. During January 2013 to January 2017, one milliliter of blood sample was collected from each rescued raptor. Two Wright's-stained blood smears were prepared from each sample and parasitemia condition was screened at low power fields (LPF) for 10 minutes/smear. The average parasitemia level was calculated from 10 LPFs of 261 raptors. Consequently, 14 raptors (4 diurnal raptors and 10 nocturnal raptors) were found to have low prevalence of trypanosomes (5.36%). All infected raptors showed low levels of parasitemia (<1 trypomastigote/10 LPFs). And the intensity of trypomastigote single infection was similar to co-infection. *Trypanosoma* sp. co-infected with *Haemoproteus*, *Plasmodium*, and *Leucocytozoon*. *Trypanosoma corvi* were found in 13 out of 14 cases. *Trypanosoma avium* were found only in one Short-eared owl. From the results, the prevalence in raptors and level of parasitemia were very low. This might suggest that these trypanosomes had low pathogenicity or the raptor might die during high level of parasitemia. However, this prevalence may help in monitoring parasite in rescued raptors and can be used as baseline information for future studies. Nevertheless, this is the first report of trypanosomes in nocturnal raptors in Thailand.

STUDENT ORAL PRESENTATION

Phylogenetic Study of the Javan Hawk-Eagle (*Nisaetus bartelsi*) Based on Molecular Markers COI, Cyt-b and D-loop as One of the Conservation Efforts in Genetic Diversity

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The declining population of the Javan Hawk-Eagle (*Nisaetus bartelsi*) contradicts its status as the national bird of Indonesia. Some of the reasons behind this irony are the rapid rates of deforestation that lead to habitat fragmentation and illegal hunting for wildlife trafficking as a result of the rising public awareness of its rarity. Simultaneously, these two factors have become obstacles for researchers wanting to collect as many records as possible of this species especially at the molecular level due to a lack of genetic data for this species. Consequently, a phylogenetic study based on mitochondrial genes *COI*, *Cyt-b* and *D-loop* was conducted. This research obtained the sequences of *COI*, *Cyt-b* and *D-loop* genes from 5 individuals of Javan Hawk-Eagle to construct phylogenetic trees in order to understand the species' genetic diversity and aid in its conservation. The *COI* gene sequence from each of the 5 individuals has been obtained, and the result confirmed that all the 5 individuals of Javan Hawk-Eagle in this research belong to the same species. Meanwhile, efforts at obtaining *Cyt-b* and *D-loop* gene sequences are still in progress.

REGULAR ORAL PRESENTATION

Blood lead levels in wintering Pied Harrier (*Circus melanoleucos*) from Thailand

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Plumbism is a clinical toxicosis of lead accumulated in tissues. It can cause health problems in raptors with high mortality. Raptors, being an apex predator in the food chain, are susceptible to bioaccumulation of lead from their prey. To assess the blood lead level (henceforth BLL) in Pied Harriers (*Circus melanoleucos*) wintering in Thailand, 35 healthy birds were mist-netted at a night-roost at Nonglom Wetlands, Chiang Rai province, Northern Thailand between December and March from 2014 to 2016. Blood was collected from the right jugular vein, and submitted for lead level testing by atomic absorption method. The mean of BLL was 3.86 µg/dl (2 - 15 µg/dl), which was under the normal range from raptors with non-clinical plumbism (n = 100) in Thailand; 4.57 µg/dl (SE = ±0.62 µg/dl). This study provides baseline data for long-term monitoring of lead bioaccumulation in the wintering harriers from Thailand.

WORKSHOP 1

Contribution of falconers to the conservation of birds of prey in Asia

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Falconry and conservation activities for raptors by falconers are typical examples of the symposium theme “Renewing People-Raptor Ties through Community-Based Initiatives.” Falconry has its origin in Central Asia thousand years ago. Currently, it is inscribed in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity with the approval of 18 countries. The technique and knowledge of falconers have been developed in each place of the world as part of the traditional culture that has a basic premise of sustainable use of wild resources and conservation. Suitable management of wild raptors is closely linked to the conservation of nature in the area, because they need habitat with enough prey and good nest sites that are provided by a rich environment. Recently, many raptor species have been recognized as endangered due to human activities. The solution of endangerment is an important matter in a world scale. In this situation, falconers can contribute greatly to various conservation operations for the benefit of the endangered species, using their skill and motivation. Many success cases have been reported such as restoration of Peregrine falcon in North America and the conservation of Saker falcon in Mongolia, etc. There are several examples in Asia as well. This workshop presents a good opportunity to document the cases such as the rescue of injured birds, breeding or restoration projects, and cooperation with related authorities or local communities for the conservation of raptors. Development of falconer’s activities will be also discussed to promote the conservation of birds of prey in Asia.

Plenary Presentations

Day 2 - October 20, 2017

Conserving raptors using culture-based approaches: The case of the Philippine Eagle Conservation Program

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As apex predators, raptors are a keystone species whose conservation is key to maintaining healthy ecosystems. In the Philippines where no large carnivores have survived in its tropical islands, the country's apex predator is a bird-of-prey, the Philippine eagle *Pithecophaga jefferyi*, an IUCN "critically endangered" species, which is also the country's national bird. Philippine Eagle habitats overlap with indigenous ancestral domains. Indigenous ownership and self-governance of ancestral lands are legally recognized through the Indigenous Peoples Rights Act. The same law also bestows upon indigenous communities the role to "preserve, restore and maintain a balanced ecology within ancestral domains." Using a "Culture-based Conservation" approach, we helped combine Indigenous knowledge systems and practices with science-based tools and techniques in the Indigenous people's fulfillment of this national mandate. We review six years of work with five Indigenous groups to develop and test a conservation framework that results not only in clear conservation outcomes, but also in economic and cultural benefits to Indigenous partners. We assisted our Indigenous partners to articulate and to codify their biodiversity conservation and sustainable development aspirations using their own philosophies and knowledge systems. Next, we helped them tap into their own cultural institutions to set up species, habitat, and natural resource policies and management. To put in place deterrents to biodiversity losses, and develop a pool of Indigenous (citizen) scientists, we have assisted with training, government deputation, and employment of Indigenous forest guards who enforce national and customary laws on resources uses, as well as monitor species and threats, respectively. As of this writing, over 60,000 ha of forest territories by seven Philippine eagle pairs have been under various forms of community-managed Indigenous protected areas. This paper will discuss the emerging best practices, lessons learned, and prospects of this raptor and biodiversity conservation approach.

From Continental to Global: The African Raptor Data Bank and its potential as a citizen science tool for global raptor conservation

Munir Z. Virani¹, Darcy Ogada², Richard T. Watson³, Chris J.W. McClure⁴, David L. Anderson⁵, Rob A Davies⁶, Andrew Rayner⁷, Tim C. Wroblewski⁸, Rahman Lutfor⁹, Andre Botha¹⁰, Ralph Buij¹¹, Joost Brouwer¹², Clive R. Barlow¹³, Hichem Azafzaf¹⁴, Corinne J. Kendall¹⁵, Kurt Eckerstrom¹⁶, Nick P. Williams¹⁷

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The African Raptor Databank has grown rapidly since inception at PAOC 13 in Arusha, October 2012. Thanks to the support of hundreds of raptor observers across the continent, coordination by key individuals and critical financial support from a range of sponsors and individual donors. We have now completed a five-year data collection period. A total of >168k records have been assimilated. The ARDB is managed by Habitat Info and makes use of the latest spatial data technologies to acquire, manage, analyze and disseminate distribution data. The project was conceived to address the issue of habitat loss for many species but with the imminent threats facing vultures from poisoning, the purpose and objectives of the ARDB have been brought forward and adapted to enable the ARDB to serve a future role as a monitoring tool. The ARDB model has proven its value to raptor conservation on the continent of Africa: improvement of vulture range maps helped with the IUCN up listing of African vultures and the recent vulture mapping project has informed the international vulture MSAP. We have now adapted the technologies to roll out this model worldwide with a global databank and mobile apps. With the development of environmental datasets for modeling the new data from all regions of the globe this will enable us to greatly refine our assessments of area of occupancy, i.e. accurate measurement of a species' past, current and future habitat space, subject to anthropogenic and climate change influences. Unlike other bird recording systems, the global raptor app and database is a specialized niche product with very accurate placement of records and dedicated design for information relevant to raptor species and subspecies and their conservation and biology. However, these datasets can be combined in collaborative studies. Different language modules will be added over time.

The Illicit Online Trade in Live Raptors (Accipitridae, Falconidae) in the Philippines

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The Philippines is both a mega-biodiverse and biodiversity hotspot country with rich avifaunal assemblage. 239 (ca. 35%) out of 691 birds documented in the Philippines are endemic. The illicit live bird trade is one of the major threats to the survival of several charismatic Philippine birds such as parrots and raptors. Several studies have been conducted on parrot trade, but there is a paucity of information on raptor trade in the country. A six-month online survey from February to July 2017 on 30 Facebook groups was conducted to establish baseline trade data and elucidate the trade dynamics of Accipitrid and Falconid birds in the Philippines.

A total of 51 unique advertisements representing 10 raptor species and a minimum of 104 individuals were posted by 37 online traders in the pre-selected Facebook groups. The minimum potential value of raptors offered for sale was PhP432,000 (USD8,548) based on advertised prices. All raptor individuals were deemed to be procured illegally from the wild since there is no breeding farms or zoological parks in the Philippines that breed raptors for commercial purposes. A key trader was identified for offering 45 raptor individuals or 43% of the total trade volume. The Brahminy Kite *Haliastur indus* (n=35, 34%) and Philippine Falconet *Microhierax erythrogenys* (n=31, 30%) were the most traded raptors during the study period. Preliminary data suggests the lack of proactive monitoring and lax implementation of policies by Facebook allowed the proliferation of individuals and groups involved in the illicit online wildlife trade.

STUDENT ORAL PRESENTATION

Saving Vultures and Generating income: Success stories on Sustainable conservation and community involvement in Nepal

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Nepal is internationally renowned for its high avifaunal diversity. It supports nine vulture species all of which are found in South Asia. Vultures, the only vertebrate obligate scavengers, are facing a catastrophic decline worldwide. To address this widespread decline, the safe feeding sites have been established as an effective conservation tool. Pithauli vulture restaurant is the first community-managed vulture feeding stations in the world. Nepal has seven similar feeding stations and two sites are presented here. Massive awareness campaigns, outreach programs have influenced local communities and with conservation they have generated income. Ecotourism has benefitted the community, empowered them and eventually helped in development and conservation.

REGULAR ORAL PRESENTATION

**Human perceptions, values, and attitudes towards Brahminy Kites
(*Haliastur indus*) at Los Amigos, Davao City, Philippines**

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Brahminy Kite (*Haliastur indus*) is a wide-ranging diurnal raptor resident in the Philippines. Although regarded as IUCN “least concern”, South-East Asia populations of Brahminy Kite are declining because of persecution and habitat losses and degradation due to urban and sub-urban sprawl. This study aims to determine the significance of human perception and values towards conservation attitude. Using both descriptive and correlational design, we interviewed 70 participants to gather data on their ecological knowledge, perception, values, and attitude towards Brahminy Kites. The participants view the Kite as a pest of aquaculture, for it feeds on fingerlings of African Hito (*Siluriformes spp.*) and Tilapia (*Oreochromis spp.*), both sources of livelihood to the local people. Despite this, people support its conservation due to government legislation. This reflects the importance of laws in deterring criminal offenses against wildlife, thereby promoting conservation. In addition, this study reveals that people’s perception and values influence their conservation attitude. As such, an education program should be designed to foster positive perception and values. Education provides an efficient and sustainable approach to accomplish conservation goals.

STUDENT ORAL PRESENTATION

Hunting of Grey-faced Buzzards in Sanchez Mira, Cagayan, Philippines

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Grey-faced Buzzards are common migrants in Sanchez Mira during spring migration on March and April, where 36,006 buzzards pass each year. The vast coconut fields in the town are used by the buzzards as roosting and foraging sites. Due to accessibility and close contact with the bird, local people developed a long-standing hunting tradition around the buzzards. The hunting tradition was observed and investigated during March and April of 2015. A survey questionnaire was also given out to hunters to gather information on their hunting practices, as well as initial information on the ecology of the buzzards while migrating through the Philippines. Only men were engaged in the hunting of buzzards, which happens during the night when raptors are roosting. Hunters use spotlights to search for buzzards and airguns, many of which are homemade, to shoot them down. Out of the 33 initial respondents, only 20 were found to be reliable based on their knowledge on the time of buzzard migration. The reason for hunting was mainly for food and sports along with trade to a lesser extent. Based on reported personal catch and days spent hunting, approximately 1,058 buzzards were hunted from February to May by 16 respondents and their team. Other towns were also known to engage in hunting, but number of catch has not yet been quantified. Unabated, hunting could further decrease their breeding population. The education and strict enforcement of the Wildlife Act of 1991 advocates to stop the hunting practices.

REGULAR ORAL PRESENTATION

Raptors of Taiwan

A Success Story in Community Conservation: The Tale of “Free Buzzard” at Mt. Bagua in Changhua County, Taiwan

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The grey-faced buzzard (*Butastur indicus*), more affectionately known as 小灰 (xiao3 hui1 or ‘little grey’) in Taiwan, is an Asian bird of prey that uses the East Asia Australasian Pacific Flyway for its biannual migration. Every year beginning in late September and lasting through October, one of the two major populations will fly from its breeding grounds in Japan to its wintering grounds in the Philippines. Then beginning in March and lasting through April, they will return to their breeding grounds. Taiwan lies at the heart of this flight route. On their way back north, the preferred staging area for grey-faced buzzards on their way to Japan is at Mt. Bagua in central Taiwan’s Changhua County. This fact has been known for generations in Taiwan and for that reason, the poaching of these magnificent creatures was a booming business during the early to mid-20th century. However, in the latter part of the 20th century, local civic groups fought to stop these activities and later laws were passed in order to protect the species in the 1980s. Another endeavor towards stopping the poaching, in 1991, the Baguashan Bird fair was launched to promote raptor watching in the area. It also aimed to raise awareness and provide environmental education to the general public. Now, 26 years later, the activity known as “Free Buzzard” has taken on a life of its own.

It has become a special festival unlike any other, as promotion of the local community is incorporated into the main goal of raptor conservation. Organizers have also worked hard to incorporate a broader discussion of environmental issues as well. The 2017 event, which took place from March 18–19, saw over 6,000 visitors from Taiwan and abroad come to watch one of nature’s great migrations. This is only made possible with the support of government agencies, environmental groups, and the local community.

STUDENT ORAL PRESENTATION

Student's Perception on Javan Hawk-Eagle as Indonesian Cultural Identity

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Javan cosmology has a term called “Memayu Hayuning Bawana” which means harmonious human and nature relationship. Such cultural philosophy should underline any effort to protect biodiversity including Javan Hawk-Eagle, a species that is considered as the national symbol. Ecologically, Javan Hawk-Eagle plays an important role in maintaining ecosystem balance as a top predator. Unfortunately, these endemic raptor of Java is categorized as endangered due to habitat loss and illegal hunting. Building a sense of pride for the national icon through community-based initiatives can be one of the strongest motivations that will raise a sense of belonging and unite people. University students can be potential leaders to support Javan Hawk-Eagle conservation efforts. The objective of this study was to determine community-based initiatives based on students perception about Javan Hawk-eagle as a cultural identity and its ecological role in biodiversity. Bogor Agricultural University was selected as the research site due to its location in West Java and its status as a Biodiversity Campus. Questionnaires were distributed to 30 respondents. Additionally, unstructured interviews were also conducted. Data was analyzed using Likert scale. The results showed that most of the respondents (96.67%) have a good understanding about the importance of Javan Hawk-Eagle in terms of cultural and ecological value as well as issues on its declining of population. Student involvement in Javan Hawk-eagle conservation effort can be enhanced by creating community-based activities around campus and nearby protected areas.

STUDENT ORAL PRESENTATION

Developing Collaborative Management of endangered Javan hawk-eagle *Nizaetus bartelsi* with stakeholders participation at Cibodas Biosphere Reserve, West Java, Indonesia

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The Javan hawk-eagle *Nizaetus bartelsi* is a globally endangered species which exclusively occupies the last remnant forests of Java islands, Indonesia. Mount Gede Pangrango National Park is one of Indonesia's protected areas and functions as core zones of Cibodas Biosphere Reserve. Protected Areas have contributed significantly to the reduction of poverty and sustainable development. Cibodas Biosphere Reserve has an extremely important role to play in the life of the Javan hawk-eagle, human and the biological life that relies on it. This area do not only function as a direct life support system but also have a variety of ecological functions like flood control and global climate control and are difficult to restore once they are lost. Therefore, to preserve the Javan hawk-eagle at Cibodas biosphere reserve it is necessary to manage them wisely, paying proper attention to ecological equilibrium, for the interest of current and future generation. We present data from 2010 to 2016 on the study of developing collaborative management of endangered Javan hawk-eagle with stakeholder's participation in and around Cibodas biosphere reserve. The objectives of this study was to promote the conservation and sustainable use of Javan hawk-eagle based on a collaborative management system. Specifically, our study aim to strengthen forest law enforcement and governance in the conservation and sustainable use of Javan hawk-eagle rendered by the Cibodas biosphere reserve. The study method used to focus group discussion, trainings, workshop and field simulation. We found that stakeholders' commitment for effective Javan hawk-eagle conservation management has increased through habitat restoration and community empowerment. An integrated management plan of Javan hawk-eagle conservation and sustainable use was developed and there was an increased in community awareness in the conservation and sustainable use to studying raptors to concept nature as a key good governance in integrated and sustainable conservation area.

REGULAR ORAL PRESENTATION

Through the eyes of children: looking at children's perception about the Philippine Eagle (*Pithecophaga jefferyi*)

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Gauging a population's, in this case the students', current perception of the Philippine eagle is a crucial step to determine the scope, type, and level of Information Education Campaigns (IECs) that are to be administered in a certain school or community. It is important that this be determined so that the IEC facilitators can carry out a more effective way of teaching the students and the said execution largely depends on the students' cognitive level and abilities. The said perception and existing knowledge of the Philippine Eagle and biodiversity conservation were determined through a series of questions and illustrations and was carried out in two schools: San Rafael Elementary School (Kindergarten, Grades 2–6) in Taft, Eastern Samar and Binaloan Elementary School (Grades 1–6) in Taft District, Eastern Samar. Aside from the questions, the students were asked to draw how they think the Philippine Eagle looks like, what it eats, and where it lives. The activities showed that the students in both schools have some awareness of the Philippine Eagle and their surroundings. Most of the students from both schools generally have a positive outlook with regard to their perception, often answering with "maupay" or "buotan", both words meaning "Good". However, it is apparent that the students need to further understand the connection between their environment and their daily lives.

Population Dynamics

Concurrent Sessions

REGULAR ORAL PRESENTATION

Dispersal and mortality of rehabilitated juvenile Philippine Eagle

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Between 2008–17, ten immature Philippine Eagles were leg-banded and released with radio and GPS satellite transmitters on Luzon (n=2) and Mindanao (n=8) islands, Philippines to monitor movement patterns and survival in the wild following successful rehabilitation. The eagles were located from 4 km to >100 km from their release sites, and recorded a survival rate of 30%, with one of the tagged birds went missing. The causes of mortality are trapping and shooting. All birds exhibited short distance dispersal on a daily basis (< 2 km per day), with all Mindanao birds showing preference of forest edges as dispersal routes. One bird actively used forest patches away from forest edges as dispersal stepping stones. In contrast, the Luzon birds dispersed along forest interiors and never flew close to forest edges. The study also recorded the first evidence of eagle use of riparian forest remnants connecting two huge forest fragments, which highlighted the importance of forest corridors as dispersal pathways for immature eagles moving away from natal sites. Immature eagle dispersal patterns require a landscape approach to habitat conservation, including approaches that deter persecution of dispersing eagles.

REGULAR ORAL PRESENTATION

Bangladesh Raptor Research Project

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The Bangladesh Raptor Research Project was initially started to investigate the status and breeding ecology of the Red-headed Falcon *Falco chicquera*. Later the research was extended to include the Amur Falcon *Falco amurensis*, Laggar Falcon *Falco jugger*, Peregrine Falcon *Falco peregrinus*, Saker Falcon *Falco cherrug*, Indian Spotted Eagle *Aquila hastata* and other raptor species. Mixed sampling method was used in the study. Ecological observation of Red-headed Falcons (n=17 pairs) in different parts of Bangladesh in urban, suburban and rural areas were conducted. We found them nesting in Palm trees (*Cocos*, *Borassus*), Debdaru tree *Polyalthia sp* and man-made structures (almost all on electric pylons). Extensive use of pylons by Red-headed Falcon for nesting, roosting, hunting and feeding was observed. Studying the breeding biology of Red-headed Falcon revealed an incubation period which is longer than that reported for the closely related African Red-necked Falcon *Falco ruficollis* and larger species of falcons. Female Red-headed Falcons feed the males with chick during the entire breeding period. They mainly feed on small birds and also small bats. In Dhaka, we observed an estimated 4.18 km spacing distance per territory (n=11). Other raptor observations were conducted for the Indian Spotted Eagle wherein the first nest was recorded in 2015 and by 2017 we already recorded six breeding pairs and their nests. Incubation period was estimated at 46 days (n=1). Amphibian, bird and mammal were identified as prey items. We also recorded migratory raptors as part of the project, with increased sightings from 2010–2017. Seven sightings of Indian Peregrine (*Falco peregrinus peregrinator*) was recorded. Laggar Falcon was recorded from the south coast of Bangladesh. The first confirmed record of Oriental Hobby *Falco severus* was recorded from south-east of Bangladesh.

REGULAR ORAL PRESENTATION

Home range size of bearded vultures (*Gypaetus barbatus*) in the Himalaya of Nepal: First study in Asia using GPS telemetry

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High-elevation areas in Asia encompass an important part of the global distribution range and population of the near threatened bearded vulture *Gypaetus barbatus*. We present preliminary results of the first ever study of the movement and home range of this species in Asia. In 2016, we trapped nine individuals (four adults and five juveniles) in the Himalayas of Central Nepal and deployed GPS-GSM transmitters to better understand their movement and foraging patterns. We used Minimum Convex Polygon (MCP) and Kernel Utilization Distribution (KUD) to estimate and compare home range and core area size between individuals and age classes. The combined MCP of all tracked individuals (50 084 km²) included parts of Nepal and China. The mean MCP of adults was 381 km² (SD = 275) and that of juveniles was 14 559 km² (SD = 9 947). Mean home range size (K90) of adults was 148 km² (SD = 102) and of juveniles was 24 250 km² (SD = 27 604). Core areas (K50) were 34 km² (SD = 25) and 7 379 km² (SD = 8 971) for adults and juveniles, respectively. Among adults, the largest MCP was 747 km², the largest home range 287 km² and the largest core area 64 km². For juveniles, the largest MCP, home range and core area were respectively 28 828 km², 64 270 km² and 20 269 km². Differences in size of all home range estimators between adults and juveniles were statistically significant, while taking into account the number of fixes, which did not differ between age groups. These preliminary results on difference in ranges between age classes are consistent with similar studies conducted in South Africa and Europe, and may help in developing science-based management and conservation strategies for bearded vulture in Asia.

STUDENT ORAL PRESENTATION

Factors Affecting Habitat Selection by Breeding Black Kite *Milvus migrans* in Sambhal District, Uttar Pradesh, India

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For breeding raptors, the availability of appropriate breeding sites is considered a limiting factor in their breeding grounds. We analyzed factors that affect breeding site selection of black kites in Sambhal District of Uttar Pradesh from December 2014 to November 2015. We looked at the influence of prey distribution, presence of dumping sites or slaughter houses, nesting trees on habitat selection by the Black Kite *Milvus migrans*, during the breeding season. During the study, we monitored nests of 56 black kite breeding pairs (in a radius of 5 km) and linked them to randomly selected sites. We also compared habitat requirements of probable prey species with the proportion of different prey categories found in the black kites' diet. In contrast to the randomly selected sites, black kites' nests were mostly observed near the edges of roads and human settlements. This may be due to the decreased amount of forested areas as compared to human habitation and agricultural land. Observations on their feeding habits showed that they are opportunistic, and diet was composed mainly of rodents (voles), small birds, fishes, and amphibians. Small prey species (body mass below 50 g) and species indicating preferences for open habitats dominated the diet of black kite (69% and 74% of prey captured respectively). Prey species inhabiting open areas were hunted more frequently than species found in agricultural areas. We also observed an increase in the proportion of fishes and calotes in their diet as black kites move further away from open areas and breeds in agricultural areas. Study concluded that black kites have to breed closer to the agricultural field, slaughter houses and human habitation to minimize energy expenditure and time associated with prey capture, collecting the food stuff and delivery to the nest.

REGULAR ORAL PRESENTATION

Seasonal variations in occupancy rates of Eastern Grass-Owl in Southern Taiwan

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Eastern Grass-Owl (*Tyto longimembris*) is a rare species in Taiwan. Though only listed as Least Concern globally by IUCN, the species is listed as Endangered in Taiwan and is facing serious threats due to habitat loss and human disturbance. However, currently there is no systematic monitoring program, which is the foundation for conservation and management of endangered species. We adapted occupancy modeling framework to evaluate the occupancy rate and distribution of Eastern Grass-Owl in Southern Taiwan while accounting for imperfect detection. We conducted playback surveys at 47 sites in 4 counties in 6 seasons from July 2015 to March 2017, including July to August (non-breeding season), October to November (early breeding season), and February to March (late breeding season). In 840 survey rounds, we encountered Eastern Grass-Owl detections in 18 sites and the numbers of detection varied seasonally. Analyses showed that occupancy rate varied among seasons, and the late breeding season in 2016 had the highest (0.66 ± 0.38) and non-breeding season in 2015 had the lowest occupancy rate (0.07 ± 0.04). The detection rates ranged from 0.15–0.77, and it showed that the playback method was effective given the Eastern Grass-Owl occupies the site. The environmental factors influencing occupancy rate varied seasonally. Overall, the dominance index of landscape was negatively correlated with occupancy rate in all seasons, indicating Eastern Grass-Owl may prefer habitat with diverse land use types. The variation in occupancy rates and the associations with environmental factors among seasons suggested that long-term monitoring is essential in understanding this cryptic species.

REGULAR ORAL PRESENTATION

**The natal dispersal and survival crisis of juvenile Black kite
(*Milvus migrans*) in Taiwan**

Xin-Yi Wei

The Black kite (*Milvus migrans*) has a limited distribution within Taiwan which is due to a dramatic decrease during late 20th century. Prompted by some initial poisoning events of Black kites and other farm land birds, we suggested that Black Kites might at times be victims of secondary poisoning. Most of these events were intentional poisonings of farmers to control so-called pest birds and rats. During 2010 to 2015, 10 individuals of Black kites were found weak or dead, four contained Carbofuran (highly toxic pesticide) residues, and the other three contained residues of anticoagulant rodenticides. Most poisoned cases of Black kites were juveniles (8/10) indicate the important to track dispersal and survival of juveniles. In May and June 2016, we banded four nestlings (3 males and 1 female) with GPS transmitter (Ecotone GPS-GSM, 16 g). The transmitter located per two hours between 04:00–18:00, so we could receive 8 locations per day, included 7 daytime activity locations and 1 night time roosting location. One of the tracking individuals dead in the nest before fledging and poisoned by Carbofuran. The other one tracked 3 months then the transmitter failed. The remaining two received 1,667 and 1,124 locations at the end of 2016. They left their parents breeding territories before late July. The minimum convex polygons (MCP) of these two juveniles were 1,580 km² and 1,638 km², respectively. Next step we will analyze their foraging area and the preference of roosting site and assess the threat of floating stage of juveniles.

REGULAR ORAL PRESENTATION

Winter distribution of Western Marsh Harrier (*Circus aeruginosus*) in Abu Dhabi and its population trend at Al Wathba Wetland Reserve in the United Arab Emirates

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The Western Marsh Harrier is highly migratory or dispersive. It is an abundant passage migrant and winter visitor to UAE. We examined wintering distribution of the raptor on bird monitoring sites in Abu Dhabi Emirate and its population trends in one of the terrestrial protected areas *i.e.* Al Wathba Wetland Reserve between 2002 to 2016. Our results show that the raptor was sighted at 23 monitoring sites of different habitats in 15 years. In Abu Dhabi, 31% of the total sightings were recorded from a coastal area followed by the offshore and nearshore islands with 26% and 13% respectively recorded from inland wetlands. Moreover, records were from the mudflats, coastal sand sheets and deserts. In Al Wathba Wetland Reserve, a total of 193 monthly monitoring visits were carried out in 15 years and the encounter rate was higher for the month of January with 2.64 ± 0.28 (Mean \pm S.E.) individuals recorded per monitoring followed by the month of April with 1.30 ± 0.21 (Mean \pm S.E.) individuals per monitoring. The encounter rate of the raptor varied significantly across months ($df = 8$, $F = 2.18$, $p < 0.05$, One-way ANOVA) and across the years ($df = 14$, $F = 2.22$, $p < 0.05$, One-way ANOVA). It is a winter migrant to UAE, thus no sighting was recorded in June, July, and August from the Wetland Reserve. Our findings indicate that on average a 54% decline in the number of Western Marsh Harrier was recorded during 2015 and 2016 as compared to year 2012 when the numbers reached up to 94 individuals which is the highest recorded number in a year in the Wetland Reserve. The main threats to this species have been habitat loss and human encroachment.

Raptor Ecology

Concurrent Sessions

REGULAR ORAL PRESENTATION

Species composition, timing, and weather correlates of autumn open-water crossings by raptors migrating along the East-Asian Oceanic Flyway

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Raptor migration rarely involves long-distance movements across open oceans. One exception occurs along the East-Asian Oceanic Flyway. We collected migration data at two terrestrial hawkwatch sites along this flyway to better understand open-ocean movements along this largely overwater corridor. At the northern end of the Philippines, at Basco on the island of Batan, we recorded 7,587 migratory raptors in autumn 2014. Near the southern end of the Philippines, at Cape San Agustin on the island of Mindanao, we recorded 27,399 raptors migrating in autumn 2012. Chinese Sparrowhawks (*Accipiter soloensis*) were the most common raptors observed, composing approximately 89% and 92% of total records for Basco and Cape San Agustin, respectively. The Grey-faced Buzzard (*Butastur indicus*) was the second most common migrant, accounting for 8% of the total counts at both watch sites. Migration period was about 1–2 wk earlier at Basco, the more northerly site, than at Cape San Agustin. Overwater flights at Basco peaked in both the morning and late afternoon, whereas at Cape San Agustin there was only a morning peak. Generally, the rate of migration passage at both sites was highest with clear skies when winds were blowing from the northwest. However, we observed interspecific differences in migration behavior at both sites, with Accipiters more likely observed with tailwinds and eastward winds, and Grey-faced Buzzards more likely observed with headwinds. These results help characterize poorly known aspects of raptor biology and identify potential migratory bottlenecks or key sites for raptor conservation in little-studied Philippine tropical ecosystems.

STUDENT ORAL PRESENTATION

The Ecology of the Migratory Grey Faced Buzzard (*Butastur indicus*): Assessment of Sanchez Mira as a Stopover Site

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Stopover sites along migration flyways are important feeding and resting grounds for migratory birds such as the Grey-faced Buzzard, which uses the East-Asian Oceanic flyway connecting wintering grounds in Indonesia and the Philippines to breeding grounds in Japan, and eastern China. No study has been conducted on the status of stopover sites in the Philippines. The importance of Sanchez Mira, Cagayan as stopover site along the East-Asian Oceanic Flyway was assessed through: (1) characterization of foraging habitat using Point-Centered Quarter Method, (2) dietary assessment using stomach content analysis of buzzards killed by local hunters, (3) estimation of prey abundance in association with habitat characteristics, and (4) description of hunting practices based on interviews. The stopover habitats of buzzards in Sanchez Mira during spring migration were a patchy landscape of farmland interspersed with remnant secondary forest. Buzzards prey mainly on skinks and insects based on frequency by occurrence in 14 gut samples, with minor prey being small mammals and spiders. Prey abundance surveys revealed a high abundance of reptiles, which was reflected as the highest biomass contributor in the pooled gut contents. Overstory density, coconut tree density, tree height, and ratio of non-native to native trees were associated with the abundances of amphibians, coleopterans, lepidopterans, odonatans, and small mammals. Sanchez Mira is an important stopover site along the East-Asian Oceanic Flyway for the buzzards as it provides roosting and foraging sites with ample prey. However, they are persecuted by local people for food and sports. The Wildlife Act must be properly enforced by local government of Sanchez Mira to stop the illegal hunting.

REGULAR ORAL PRESENTATION

Human-man pond as foraging ground of Brahminy kite *Haliastur indus* in South of Bali, Indonesia

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The Brahminy Kite is found mainly on the coast and on inland waters where they feed on fishes and other prey. In Bali, the bird was observed to forage on a human-made pond surrounded by mangrove forest in the southern part of Bali Island. This pond is part of the waste treatment plant of ITDC Nusa Dua, in which Tilapia fishes *Oreochromis mossambicus* were released to control the water's toxic level. This study was conducted between April and May 2017. Using continuous recording method, data was collected *ad libitum*. Three birds, consisted of 2 adults and 1 immature, visited the pond around 1100H to 1750H. However, only the adult was observed to forage in the pond. The foraging activity recorded were diving in the air, snatching of the fish, flapping with the fish in its claw, and perching whilst utilizing the fish using its beak and claws. A maximum of 5 attempts in a day to snatch the fishes were recorded, with about 80% success rate. Although it was uncertain whether the whole attempts were made by a single adult, since the birds were not color-banded. Besides foraging, other activities recorded were soaring, gliding, flapping, perching, and preening. The human-made pond provided source of prey for Brahminy Kite in southern part of Bali. Further study on this source is needed, *i.e.* heavy metal content analysis, considering the possible effect of bio-magnification on these birds.

STUDENT ORAL PRESENTATION

Migratory Behavior of Oriental Honey-buzzard based on Satellite-tracking Data in Eastern Part of Flores Island, Indonesia

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Raptor migration is a complex phenomenon of migration which involves millions of individual birds flying hundreds or thousands of kilometers between breeding habitat and non-breeding habitat. Migratory behavior consisted of period, route, and other aspects that affect the ecology of migratory birds. *Pernis ptilorhynchus*, Oriental honey-buzzard (OHB) is one of the migratory raptors which has a satellite tracked by ARGOS since 2003. Eastern part of Flores Islands (23 islands) were identified as OHB's migratory path in reaching their wintering habitats in Kupang and Timor Island. This study has aimed to identify and understand the OHB's migratory behavior in Eastern part of Flores Islands. Four OHB individuals tracked in the period of 2007–2012 were used as main data for analyzing their migratory behavior. There was no particular pattern found on the way of OHBs selected islands for their stopover site. Therefore, all of the islands were potential to be stopover sites on their migration route. Each OHBs has the tendency to choose different route caused by the cluster of stepping stone, which provide alternative routes. The period of OHB migration is constant every year on this site. Stopover period tend to be longer on islands in larger size than the smaller one. Flores Island (Sikka District and East Flores District) and Lembata Island are islands that take longer to be visited than the other islands. This is apparently due to the larger size of the islands that support the existence of OHB food supply more than smaller islands.

REGULAR ORAL PRESENTATION

Interspecific differences in timing and weather correlates of autumn raptor migration at Khao Dinsor, Thailand

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Following standardized migration watchsite protocol, we monitored migrants at a coastal watchsite and at an inland watchsite in Khao Dinsor, Thailand to better understand among-species migration strategies of the most common raptors passing through this corridor. Between 2015 and 2016, a total of 1,188,444 migrants of 22 species were observed in both watchsites. We recorded 732,693 (61.7%) of the raptor migrants at the coastal watchsite and 455,751 (38.3%) at the inland watchsite. Flights peaked early to mid-morning at the coastal watchsite, and mid-morning to mid-day at the inland watchsite. Black Bazas (*Aviceda leuphotes*), Oriental Honey-buzzards (*Pernis ptilorhynchus*) and Chinese Sparrowhawks (*Accipiter soloensis*) were the most common migrants observed. Oriental Honey-buzzards and Chinese Sparrowhawks were more commonly observed in late September to early October, while Black Bazas in mid- to late October. Visible migration at the coastal site was highest in northerly winds and increased air temperature, while at the inland site, in increased air temperature and cloud cover. However, there were among-species differences in weather parameters associated with the likelihood of observing large flocks at either site. At the coastal site, Black Baza passage was associated with increased air temperature, Oriental Honey-buzzard with increased air temperature, and northerly winds, and Chinese Sparrowhawk with northerly winds. At the inland site, Black Baza passage was associated with southerly winds, Oriental Honey-buzzard with increased air temperature and cloud cover, and Chinese Sparrowhawk with northerly and easterly winds and increased cloud cover and air temperature. These demonstrate that weather influences migrants' decisions of using the coast or flying inland. These responses are greatly influenced by the migrant's flight strategies.

STUDENT ORAL PRESENTATION

Ecological corridor assessment of remnant habitat patches of Javan Hawk-Eagle in central part of Java Island, Indonesia

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Javan Hawk-Eagle (*Nisaetus bartelsi*) is an endemic endangered species from Java Island, Indonesia. The government has issued regulations to protect this species and increase the population by 10% from 2015 until 2019. However, this regulation still lacks detailed information on how conservation of this species will be implemented. A possible method for conservation is through an ecological corridor connecting the three different parts of Java Island (West, Central and Eastern). But these different areas also have different habitat conditions for the Javan hawk-eagle with Central Java having the least suitable conditions for the species. But, Central Java also serves as an important corridor connecting the Western and Eastern part of the Java. Our previous study showed that there are only 19 remaining suitable habitat patches for Javan Hawk-Eagle in central part of Java due to severe environment degradation. Our study aimed to analyze the potential landscape structure to act as corridor between remnant habitat patches. We use least-cost analysis as the tools to assess the potential corridor between patches using three environmental variables which are slope, elevation and vegetation indices as resistance factors. We identified some potential dispersal paths across central part of Java that can facilitate Javan Hawk-Eagle dispersal movement. We validated those paths with the minimum home range of Javan Hawk-Eagle to determine the characteristics of land covers and potential corridors. Our data showed 9 potential corridors connecting each remaining patches in central part of Java. Thus, we proposed ecological corridor management as part of the conservation program to improve habitat quality and conservation of this species.

REGULAR ORAL PRESENTATION

The Stabilization of the Migration Route of a Young Oriental Honey Buzzard in Taiwan

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The migration routes of adults and juveniles are known to differ in many species of raptors. Yet, the process how a juvenile shifts to adopt the adult migration route is rarely studied. Taiwan has a recently established breeding population of the Oriental Honey Buzzard (*Pernis ptilorhynchus*). Although they spend the entire year within Taiwan, many continue to make seasonal migration within the island. We satellite tracked the movements of five adults and one young for 2–3 years. These birds spend the breeding season in northern Taiwan, and winter in southern Taiwan. All five adults used the same summer and winter areas each year, following a simple North-South migration route. The young bird although also returned to the same summer and winter areas in all three years, it used circuitous routes that differed every year to move north. The degree of diversion on its way north decreased with age. In the fall, it took a direct route to its winter area in all three years. Our results show that young Oriental Honey Buzzard in Taiwan also displays migration behavior, as well as fidelity to its summer and winter areas like the adults. But a young bird's migration route may take several years to stabilize. The need to locate suitable summer habitat and lacking familiarity with what's available could possibly motivate the widely ranging movement pattern seen in young birds, which is in essence an explorative behavior during migration.

REGULAR ORAL PRESENTATION

Raptor monitoring and mitigation action plans at wind farm: a case study at Salkhit wind farm, Mongolia

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Salkhit Uul wind park is one of the pioneering “Green construction” initiatives in the country, aiming to improve the living standards of the population in some parts of Mongolia by the production of clean electricity. The wind farm/study site is located at 40 km SE of Bogd Khaan Mountain PA. Raptor surveys were conducted by raptor biologists from the Mongolian Ornithological Society (MOS) and the National University of Mongolia (NUM) in 2015–2017. The aim of the surveys is to provide information on potential impacts on raptors from the turbines and take actions for necessary mitigating measures. We used field methods of Bird Injury and Mortality at Transmission Line and wind farm area. During the field work, we observed 11 species of raptors out of a total of 62 different bird species. Highly sensitive species (Steppe eagle, Saker falcon, and Cinereous vulture) tend to often occur near certain turbines due to prey abundance and upwind condition. Our study revealed that these species are observed more frequently between 0900–1400 h and 1700–1900 h during migration periods in April–May and August–September. There were 4 individuals of Upland buzzard, Steppe eagle and Common kestrel have been killed as a result of a wind mill collision during the study period. We did not detect a serious effect on breeding raptors from wind farms at our site, but a careful monitoring programme of the vole population combined with raptor observation is needed in order to evaluate potential mitigation actions. Mitigation measures will involve best practice that minimise habitat loss and conflict for future operation.

WORKSHOP 2

Workshop on Ecotourism based on Bird Resources

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Objective

The ecotourism based on bird Resources (Birding Ecotourism) is conducted in various forms in Asian countries. These activities are contributing to conserve birds and their habitats on a grand scale.

The Birding Ecotourism has an infinite capability. On the other hand, in order to utilize the benefit of the Birding Ecotourism to the greatest possible extent, there are many kinds of issues.

The main objective of the workshop is to maximize the capability of the benefit of the Birding Ecotourism in Asian countries.

Contents

1. Reports of the Birding Ecotourism from Asian countries

Current situation about the ecotourism will be reported from each country.

The participants of the workshop can share and discuss the agenda and the remarkable point about the Birding Ecotourism in each country.

2. Group Discussion about the Birding Ecotourism

Group discussion about the Birding Ecotourism will be hold on the basis of "Reports of the Birding Ecotourism from Asian countries."

At first, we will pick out the benefits and the issues of the Birding Ecotourism.

And, we will discuss how to maximize the capability of the benefit of the Birding Ecotourism.

Acknowledgements

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<i>Dr. Lucia Severinghaus</i>	<i>Dr. Richard Watson</i>
<i>Dr. Adam Supriatna</i>	<i>Dr. Gombobaatar Sundev</i>

Co-organizers:

Davao City Government

Represented by: Elmer Verano, Operations Assistant

City Tourism Operations Office

Represented by: Frenchmel Velasquez, Programs Officer

Department of Tourism-Tourism Promotions Board

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Raptorwatch Network Philippines

Alex Tiongco
Tere Cervero

ARRCN

Asian Raptor Research and Conservation Network

Why was the ARRCN Established ?

Raptors are Umbrella Species and Indicators of Environmental Changes

Protection of Raptors consequently leads to conservation of biodiversity and healthy ecosystems, as well as to the maintenance of the environment indispensable for the survival of humans.

The Asian Strategy for Raptor Conservation based on Culture and Collaboration with Local People in Asia had been urgently needed when ARRCN was established.



The Purposes of ARRCN Activities

- I. To Exchange Information Concerning Raptors among Members
- II. To Compile Data about Raptors, especially about the Status of Raptors Native to Asia
 - Status of Raptors in Asia: distribution, population, habitat, ecology, breeding and all other aspects important to their conservation
 - References on each species
 - Resources important to raptor research and conservation: experts, institutions
- III. To Coordinate the Following Activities for Members
 - Research on migration, common and widespread species in Asia
 - Training programs (hands-on training)
- IV. To Educate the Public and Train People
 - Reaching the public: training local residents
 - Production of movies, films, and documentaries to raise consciousness
 - Offering workshops and laboratories to train interested persons



Symposiums

- 1st December 1998 Japan
230 participants from 13 countries
- 2nd July 2000 Indonesia
160 participants from 13 countries
- 3rd October 2003 Taiwan
250 participants from 19 countries
- 4th October 2005 Malaysia
200 participants from 16 countries
- 5th April 2008 Vietnam
102 participants from 18 countries
- 6th June 2010 Mongolia
150 participants from 23 countries
- 7th January 2012 South Korea
200 participants from 13 countries
- 8th February 2014 India
230 participants from 20 countries
- 9th October 2015 Thailand
200 participants from 18 countries

THE 9TH ASIAN RAPTOR RESEARCH AND CONSERVATION NETWORK (ARRCN) SYMPOSIUM 2015
JOYVOTEL CHUMPHON BEACH RESORT AND GOLF
CHUMPHON, THAILAND
OCTOBER 23-25, 2015



SEA, LAND, SUN AND FUN
SEE YOU AGAIN ON 2017 AT PHILIPPINES

Organization

ARRCN members consist of 260 individuals and 5 organizations in 33 countries (Sep. 2017)

Membership

Member Qualifications

If you have been working on raptor research and/or conservation, you can become a member of ARRCN.

Member Benefits

- Exchanging information among members by e-mail (the ARRCN Mailing List)
- Newsletter and the ARRCN Journal "Asian Raptors"
- Participation in symposiums and special events

Annual Membership Rates

Individual	<input type="checkbox"/> US\$10	Asia (outside of Japan)
	<input type="checkbox"/> US\$30	Japan
	<input type="checkbox"/> US\$30	Outside of Asia
Institution	<input type="checkbox"/> US\$50	Asia
	<input type="checkbox"/> US\$150	Outside of Asia

If you want to become a member of ARRCN, please contact the ARRCN secretariat officer. We will send you payment instructions and more information.

For more information, please contact:
The ARRCN Secretariat officer
E-mail: arrcn_n@mwa.biglobe.ne.jp

Also, please visit our website
<http://www5b.biglobe.ne.jp/~raptor/index.htm>