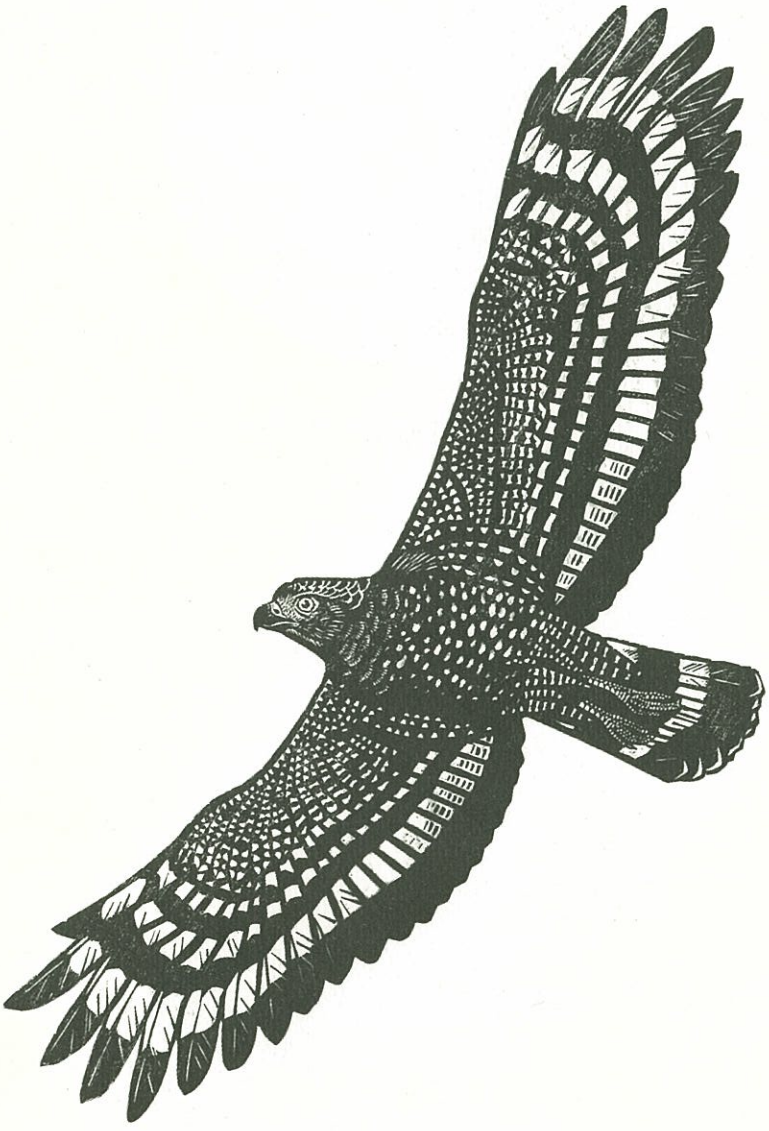
Asian Raptor Research & Conservation Network

# 3rd Symposium on Asian Raptors

## Program & Abstracts



Kenting, Taiwan
October 10 ¡ x13, 2003

RRGT

Asian Raptor Research & Conservation Network

# 3rd Symposium on Asian Raptors

## Program & Abstracts

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RRGT

Raptor Research Group of Taiwan

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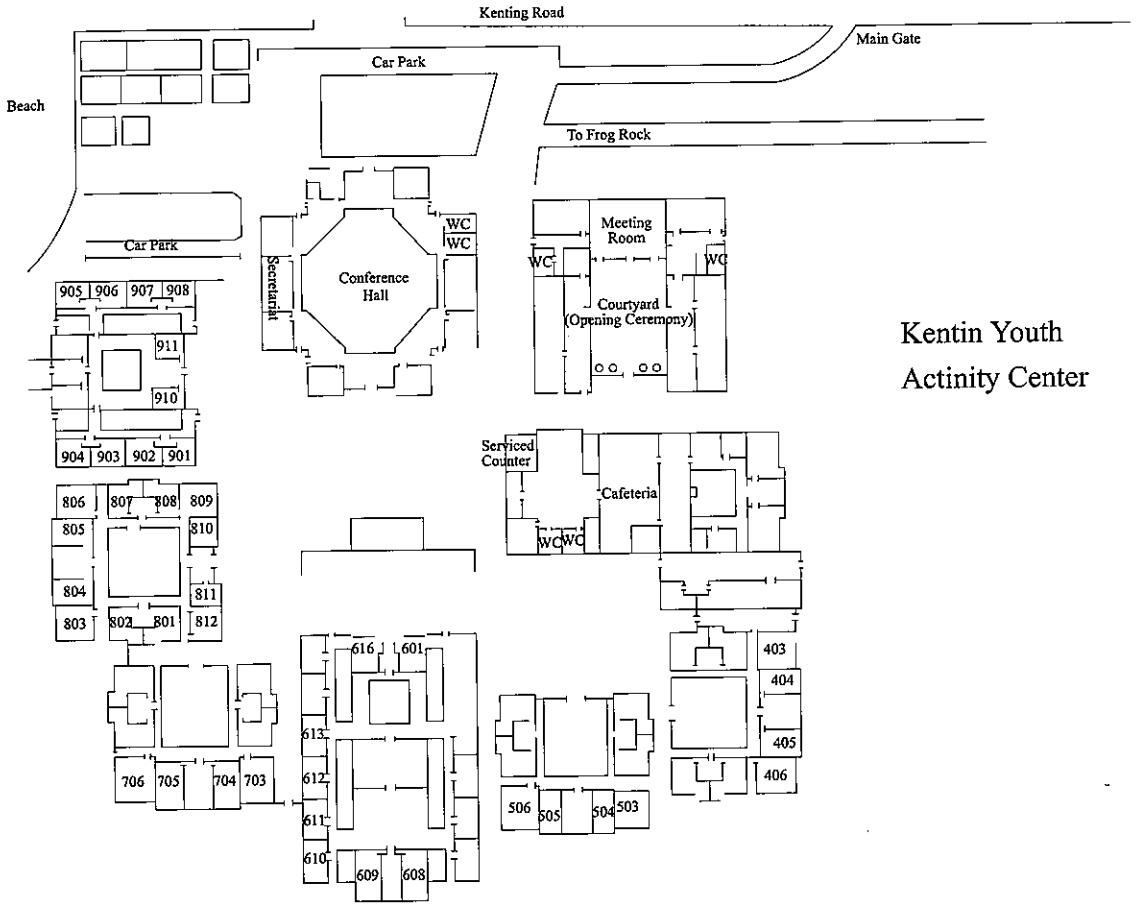
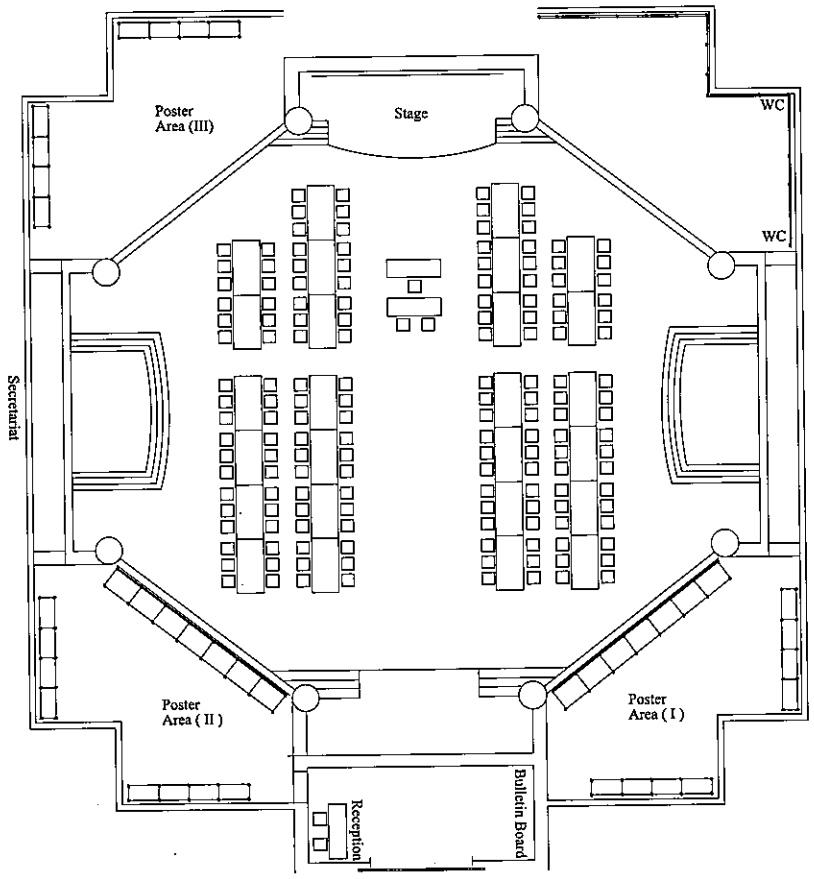
# Floor Plan




Kentin Youth Actinity Center




Conference Hall

# General Information

**Date:**

October 10-13, 2003.

**Venue:**

Kenting Youth Activity Center, No. 17 Kenting Rd., Hengchun City, Pingtung County.

Tel: 886-8-8861221; Fax: 886-8-8861110

**Languages**

Official languages of the symposium are English and Chinese. Simultaneous interpretation between English and Chinese will be available during the oral session. During the poster session and other events, we appreciate it if participants from all countries can help each other communicate and understand what is being presented.

**Registration Desk**

13:30-18:30 October 10, 2003

**Opening Ceremony and Welcoming Reception**

The ceremony and reception will be held in the courtyard. Soft drinks and light food will be provided.

**Lunch**

Lunch boxes will be prepared for all participants during the symposium (field trips included) and can be obtained in the conference hall. Any special food requirements should be mentioned when you register.

**Coffee Break**

Coffee, tea, and water will be available in poster areas I and II.

**Dinner**

Dinner on October 11 will be taken in the cafeteria. Please follow the directions of the volunteers of RRGT.

**Banquet**

The banquet on the evening of October 12 will be served in the conference hall.

**Raptor Watch Shuttle Bus**

On October 11 and 12, a free bus will depart from the venue at 04:30 for Sheting, and then depart from Sheting at 07:00 to return to the venue for breakfast. The bus will leave on schedule, those who miss the bus will need to get back to the venue on their own.

**Field Trip**

On October 13, there are field trips scheduled which will depart from the venue at 04:30, and return to the venue around 18:00. Lunch boxes will be provided during the field trips.

# Scientific Information

All participants for both the oral and poster presentations should contact the Speakers' Desk when registering.

**Speakers' Desk**

All manuscripts (including both oral and poster presentations) will be collected when registering.

**1. Oral Presentation**

The secretariat will collect your materials and confirm the visual equipment requirements for your presentation.

(1) Visual Equipment

LCD, slide, and overhead projectors are all available, and their simultaneous use is possible.

(2) Presentation Duration

Each speaker will have 15 minutes for the presentation (including the discussion). A bell will ring once, indicating that 3 minutes remain. The bell will ring twice when the presentation time has ended. We appreciate your kind cooperation in keeping within your allocated time.

(3) Languages

Simultaneous interpretation between English and Chinese will be provided during the oral presentation.

**2. Poster Presentation**

(1) Location: Poster Areas I, II, and III.

(2) Set-up Time: 13:00-19:30 on Friday, October 10.

(3) Time for Removal: 19:30-21:00 on Sunday, October 12.

(4) All posters will be displayed throughout the symposium. For explanations and discussion, a Discussion Time will be arranged between 18:00 and 19:30 on October 12. All presenters are recommended to stay beside their poster during that time to accept questions.

# Schedule

## October 10 (Friday), 2003

| TIME | EVENTS | PLACE |
|---|---|---|
| 13:30-17:30 | **Registration** | Conference Hall |
| 14:00-17:00 | **Manjhou Raptor Festival** | Manjhou |
| 19:00 | **Opening Ceremony and Welcoming Reception** | Courtyard |

## October 11 (Saturday), 2003

| TIME | EVENTS | PLACE |
|---|---|---|
| 04:30-07:00 | **Raptor Watch** | Sheting |
| 08:30-10:15 | **Session I: Biology (1)**<br>**Chairpersons:**<br>Dr. Yuan-hsun Sun, Dr. Dewi Prawiradilaga<br>**Speaker:**<br>Sabine Schafer<br>Lim Aun Tiah<br>Nyambayar Batbayar<br>Wen-Loung Lin<br>William S. Clark<br>Kuang-Ying Huang | Conference Hall |
| 10:15-10:45 | **Coffe Break** | Poster Area |
| 10:45-12:30 | **Session II Biology (2)**<br>**Chairpersons:**<br>Mr. Takehiko Inoue, Mr. Mike Chong<br>**Speaker:**<br>Tatsuyoshi Murate<br>Nils Rov<br>Nur Faizin<br>Adam A Supriatona<br>Chi Lap Yip<br>Kashif M. Sheikh | Conference Hall |
| 12:30-13:30 | **Lunch** | Conference Hall |
| 13:30-15:30 | **Work Shop I: Habitat Research**<br>**Dr. Mark R. Fuller** | Conference Hall |
| 15:30-16:00 | **Coffe Break** | Poster Area |
| 16:30-18:00 | **Workshop I: Habitat Research**<br>**Dr. Mark R. Fuller** | Conference Hall/<br>outdoor |
| 18:00-19:30 | **Dinner** | Cafeteria |

| | | |
|---|---|---|
| 19:30-21:30 | **Workshop II: Population Research**<br>**Dr. Ian Newton** | Conference Hall |

## October 12 (Sunday), 2003

| TIME | EVENTS | PLACE |
|---|---|---|
| 04:30-07:00 | **Raptor Watch** | Sheting |
| 08:30-10:15 | **Session III: Migration**<br>**Chairpersons:**<br>Mr. Kuang-ying Huang,<br>Mr. Dennis Salvador<br>**Speaker:**<br>Conference Hall<br>Yuan-Hsun Sun<br>Reuven Yosef<br>Yinyin Wu<br>Bo-Shou Lin<br>Kim Chye Lim<br>Mike Chong | Conference Hall |
| 10:15-10:45 | **Coffe Break** | Poster Area |
| 10:45-12:30 | **Session IV: Conservation**<br>**Chairpersons:**<br>Dr. Nguyen Cu, Dr. Toru Yamazaki<br>**Speaker:**<br>Yi-Jung Tsai<br>Dennis J. Salvador<br>Satish A. Pande<br>Le Manh Hung<br>M. Zafar-ul Islam<br>Chen Chung SHEN | Conference Hall |
| 12:30-13:30 | **Lunch** | Conference Hall |
| 13:30-18:00 | **Work Shop III: Raptor Trapping**<br>**Mr. William S. Clark** | Conference Hall/<br>outdoor |
| 18:00-19:00 | **Poster Session** | Poster Area |
| 19:00-21:30 | **Banquet** | Conference Hall |

## October 13 (Monday), 2003

| TIME | EVENTS | PLACE |
|---|---|---|
| 04:30-17:30 | **Excursion** | Kenting National Park |
| 19:00-21:00 | ARRCN Collaborate Porject Meeting | Meeting Room |

**Session I: Biology (1)**
**October 11 (Saturday), 2003**
08:30-10:15

# Investigation on Breeding Ecology of Eastern Red-Footed Falcon (*Falco amurensis Radde, 1863*) in Northern Mongolia

**Sabine Schäfer and Michael Stubbe**

**Martin-Tuther-University Halle / Wittenberg; Institude of Zoology; Department of Animal Ecology; Domplatz 4; 06099 Halle (Saale); Germany.**

There is surprisingly very little research done on the ecology of the Eastern Red-Footed Falcon (*Falco amurensis* Radde, 1863). Therefore, this investigation was iniciated to promote a better understanding of this unique raptor species. During summer-seasons of 2000 - 2002 data were collected. The study area is located in Northern Mongolia (Selenge-Aimag). A loose colony of Amurfalcon had been established in the region between Suchbaatar and Schaamar. The emphasis of this research was determined on breeding ecology. First, all the potential nesting-sides (nests of Magpies and Crows) were registered via GPS-Technology. Then, the actual occupation by the falcons was recorded. One main aspect of this study was to find out the duration of oviposition and the exact beginning of incubation. The development of egg weight of several clutches was recorded; also the hatching time in these nests and the developmental progress in growth of the chicks. Always at the end of fledging time, juveniles were banded (a total of about 300 individuals over the whole period of the study). Another point of investigation contained the catching of adult Amur falcons to obtain concrete data on morphological characteristics and parentship relation. The trapping was accomplished by net catching. Altogether 44 adult falcons (of it: 16 pairs) could be caught, banded and measured. The molting status was registered. Food analysis represented the third important study subject. To achieve some insights into the feeding pattern of the young, pellets and food-rests were collected from the nests and analyzed. There could be detected a wide spectrum of prey: insects (Saltatoria, Coleoptera, Odonata, Hymenoptera), amphibians, passerines and small mammals (generally rodents). There still has to be done more research on this special bird of prey; for instance, further work on parasitology and genetic analyses are in progress.

This study was supported by DAAD / German Academic Exchange Service.

# Notes on the Breeding Behaviour of Bathawk (*Maceiramphus alcinus*) in Ulu Langat, Peninsula Malaysia.

**Lim Aun Tiah**

**No.7, Jalan Taman Seputeh 6,Taman Seputeh,58000 Kuala Lumpur, Malaysia**

The Bathawk (*Macheiramphus alcinus*) is generally considered a rare species of raptor. It has a limited global distribution. It is mainly found in Africa, Malaysia, Indonesia and certain parts of New Guinea. One site in Ulu Langat, Peninsula Malaysia, offers a unique opportunity to study and document this raptor's breeding behaviour and activities because of the ease of access to the nesting site and availability of a good vantage point for observation. Over a period of slightly over two months, a team of volunteers took turns to document the activities of one pair of Bathawk and their single chick. Observations were made using binoculars and telescopes from a distance of about 30 m. Volunteer teams, each spending an average of between three to six hours per visit, documented in detail the behaviour and activities of the birds. Being crepuscular creatures, the Bathawks rested quietly for most part of the daytime, except for occasional, short flights around the nest site. It was during dawn and dusk that these raptors were most active when they were hunting bats to feed themselves and their young.

Forty -three observation visits were made altogether, either just before dawn or in the late afternoon until it was too dark to see the birds. At no time was artificial lighting used during the observation period for fear that lights would disturb the birds, especially when they were hunting. The observation period lasted from the middle of August to early December 2002 when the chick fledged. It took the chick sixty seven days from hatching to fledging. Until late February 2003, the juvenile Bathawk was still seen in the area of its birth. This seems to confirm a widely held view that juvenile Bathawks stay around the nest site for about three months or so before they are driven away by their parents.

# Nesting Success of Cinereous Vultures in Central Mongolia

**Nyambayar Batbayar[1], Mark Fuller[2] and Rick Watson[1]**

**[1]The Peregrine Fund, 5668 West Flying Hawk Lane, Boise, ID 83709,**
**[2]Raptor Research Center, Boise State University, 970 Lusk St. Boise, ID 83706, USA.**
**2USGS Forest and Rangeland Ecosystem Science Center, and Raptor Research Center, Boise State University, 970 Lusk St. Boise, ID 83706, USA.**

The Cinereous Vulture is a globally vulnerable and locally endangered species throughout its range. At present, compared to historically, a much larger portion of the nesting Cinereous Vultures exists in Mongolia than in the rest of its range. In 2002, we initiated a breeding ecology study of Cinereous Vultures (*Aegypius monachus*) in the central part of Mongolia with support from The Peregrine Fund and the Raptor Research Center at Boise State University, Idaho. We studied the nesting density, productivity, nest habitat selection, food habits, habitat use, and annual movements of Cinereous Vultures. We present here the data of nesting success of Cinereous Vultures in Mongolia. The data were collected from two breeding areas with different livestock and wild ungulate numbers, protection status, and topography. We questioned if these differences influence Cinereous Vultures' breeding performance. We monitored over 100 nests in 2002 and 2003. We used a Mayfield's estimator for assessing nesting success. The study result, combined with the data about nesting ecology, will provide a basis for managing the important area and habitat for this species. The data will be the first presented for this species from Asia, and we compare them to the data from European breeding populations.

# Comparisons of the Breeding Biology of Collared Scops Owls (*Otus lettia*) in Two Different Habitats

**Wen-Loung Lin**

**Raptor Research Group of Taiwan, Taiwan, ROC.**

The breeding biology of the Collared Scops Owls (*Otus lettia*) was recorded and compared in different habitats in central Taiwan during 1995~1996 and 1999~2003. Thirty-two pairs of owls that nested in tree holes were found and recorded. Among them, 20 nests were in forests, and 12 nests were in suburban areas. Breeding began in February and ended in July, with most of the owls breeding in March. Average clutch sizes in the forests and suburbs were 4.0±0.8 and 2.9±0.8 eggs, respectively. Clutch size in forests was significantly larger than that in suburbs. The hatching rates in the forests and suburbs were 72.5% and 88.6%, respectively. An average of 2.9±1.4 eggs were hatched in the forests, compared to 2.6±1.0 in the suburbs. The lengths of the hatching period were 27.8±1.8 days in the forests and 28.9±1.6 days in the suburbs. Neither the hatching rate, the average number of individuals fledged, nor hatching periods differed between the two habitats. Thirty-two and 24 fledglings left the forests and suburbs successfully, and leaving rates were 55.2% and 77.4%, respectively. The successful breeding success rates in the forests and suburbs were 65.0% and 83.3%, respectively. The leaving rate and breeding rate in suburban were higher than those in the forest. The length of the fledging period in the forests was 32.1±5.2 days compared to 40.2±6.5 days in the suburbs; fledglings stayed around the nest area longer in the suburbs than in the forests. The major factor affecting failure in the forests was eggs being unfertilized (31.3%), followed by unknown factors (29.2%), natural enemies (18.8%), abandonment (8.3%), and falling from the nest and starvation (6.3%). In the suburbs, falling from the nest was the major factor that caused breeding failure, followed by unknown factors (27.3%), eggs being unfertilized (18.2%), and starvation (9.1%).

# Sequence of Flight Feather Molt in Accipitrid Raptors, and Its Use in Aging Immatures.

**William S. Clark**

**2301 S. Whitehouse Circle, Harlingen, Texas 78550 USA**

All accipitrid raptors replace their primaries and secondaries in a set order, especially in the immature molts. Primaries are replaced beginning with the inner (P1) and proceeding outwards. Secondaries are replaced at three molt centers, S1, S5, and innermost (S13-15). Secondary molt proceeds inward from S1 and S5 and outward from the innermost. Not all flight feathers are replaced annually in the larger accipitrids, especially eagles. Primary molt begins anew each year with P1 and continues where it left off from previous molts, forming 'waves' of molt. Replacement secondaries differ from juveniles' be being a different length and, in some, by having a different pattern. Body plumage and tail differences are also useful in some species for accurate aging of immatures. Large raptors that take more than one year to reach adult plumage can almost always be aged as Juveniles, Second Plumage, and Third Plumage. Fourth and Fifth Plumages can be determined in some species.

# The Diet of Oriental Honey Buzzard (*Pernis ptilohrhynchus*) in Yangmingshan, Taiwan During Breeding Season

**Kuang-Ying Huang[1] and Lucia Liu Severinghaus[2]**

**[1]Yangmingshan Nation Park Headquarters, 1-20, Chutzuhu Rd.**
**Yangmingshan, Taipei 112, Taiwan, ROC.**
**[2]Institute of Zoology,**
**Academia Sinica, Taipei, 115, Taiwan, ROC.**

Birds in the genus *Pernis* are known to specialize on Hymenopteran social insects. Very little is known about the diet of Oriental Honey Buzzard (*Pernis ptilorhynchus*). This species is an uncommon summer visitor in Taiwan and little is known about its ecology and behavior. We have been keeping count of this species since 1993 in Yangmingshan, Taipei, and found one nest in 1994 and one in 1999. Through direct observation and videotaping of the nest in 1999, we recorded the prey items the breeding pair brought back to the nest for 27 days, (for a total time of 204.7 hours, and 123 prey items). Our results revealed that 78.9% of the prey items were wasp hives, 16.2% were frogs, and 4.9% were lizards. Five species of wasps could be identified, namely *Polistes tenebriocosus, P. rothneyi, P. gigas, P. takasagonus and Parapolybia varia.* Among these, *P. gigas* is the largest wasp species in the world and it constitutes 9.76% of the Honey Buzzard's prey items. Frogs and lizards were eaten only between July 11 and August 10, during the early to mid nestling period. The time of day when hives were brought back to the nest most likely was influenced by the daily activity patterns of *P. tenebriocosus,* which constituted 49.3% of nestling's diet. The diet of Honey Buzzards reflected the wasp fauna and the natural history of the wasps in study area. Male and female Honey Buzzards contributed roughly equally to the feeding of their young during early nestling stage, but male's contribution increased greatly at the final stage prior to fledging.

**Session II Biology (2)**
**October 11 (Saturday), 2003**
10:45-12:30

# Defining Core Area of Mountain Hawk Eagle (*Spizaetus nipalensis*) in Japan

**Tatsuyoshi Murate**

**The Project Team for Research and Conservation of the Japanese Mountain Hawk-Eagle**

The Model of Home Range of Raptors has been reported about Golden Eagle (*Aquila chrysaetos*) etc. (MacGrady et al. 2002). About Mountain Hawk Eagle, we suggested that 3 kinds of structure are included within the Home Range (The Project Team for Research and Conservation of the Japanese Mountain Hawk Eagle 2000). The structures separated by their function are (1) Home Range of Fledgling, where is the necessary area for the fledgling during their independence period, (2) Breeding Territory, where the pair occupies during the breeding period and (3) Core Area, where is the high frequent used area for the pair throughout the year. In this study, we defined the Core Area in terms of the function.

The study was conducted in the Suzuka Mountains situated in central parts of Japan. We captured a pair of Mountain Hawk Eagle, attached radio transmitters and tracked them for 1 breeding season. Data was analyzed by Geographical Information System.

The Core Area of Mountain Hawk Eagle included almost all Hunting Areas and Roosts. Therefore we focus on the function to define the Core Area. Also we determine the relationship between the shape of the Core Area and the geographical features.

# Territory Size of the Flores Hawk-Eagle (*Spizaetus floris*) in Flores, Indonesia

**Dewi M. Prawiradilaga, Nils. Rov, Jan Ove Gjershaug, Usep. Suparman and Zaini Rahman**

In order to assess the population size of potentially endangered raptors, information on the area requirement of the breeding pairs is needed. Territory size of Flores Hawk-Eagles was studied by observation of flying birds within a study area in the mountains of Western Flores in the Lesser Sunda Islands. Based on the mapping of neighbouring pairs of eagles, we estimated the average size of an eagle territory to be approximately 40 km². Observations in different parts of Flores indicate that the species inhabit primary and secondary forests. If we relate our results to the remaining forested area within the species' known distribution area, the total size of the breeding population would be less than one hundred pair.

# Javan Hawk-Eagle (*Spizaetus bartelsi*) Research and Monitoring in Cikaniki, Gunung Halimun National Park - Indonesia

**Kuswandono[1,3], Desy Ekawati[1,2,3], Sri Mulyati[2,3] and Noriaki Sakaguchi[4]**

**[1]Gunung Halimun National Park staff/ counterpart for Endangered Species Conservation Program, [2]GHNPstaff/Technician for Biodiversity Conservation, [3]mataELANG, [4]Biodiversity Conservation Project [BCP/JICA] expert for Endangered Species Conservation**

Raptor monitoring is one of the activities in Raptor Conservation in Gunung Halimun National Park. Among the national park in Indonesia, Gunung Halimun is the first national park conducting raptor monitoring, continuously and intensively. This monitoring activities under the collaboration scheme inline with the Biodiversity Conservation Project, collaboration between two countries Indonesian-Japan, involving three institution; JICA (Japan International Cooperation Agency), LIPI (Indonesian Institute for Science)-Research Center for Biology and Ministry of Forestry (Gunung Halimun National Park). The main objectives of this monitoring are; (1) to collect data of ecology and population raptor in GHNP, especially in Cikaniki-Citalahab area (2) to find good conclusion and recommendation to the management and conservation policy, especially in GHNP. In line with the main objectives above, the other purposes also we want to achieve as follows. (1) arising and improving the public awareness for raptor conservation, (2) developing the raptor conservation network in Gunung Halimun area, involving the stakeholders (national park staff and ranger, local community, NGO, research institutions, students and universities, local Government, private company, etc.).

Raptor research and monitoring conducted since January 2002, in Cikaniki and Citalahab area within GHNP. The monitoring every month composed of stakeholders from many different institutions and also individual.

We were using combination methods for this monitoring research. Visual observation we focused on one pair JHE, named Pengkeh to get detailed ecological information. We mapping the distribution and also we used vegetation map to observe the home range, includes "Forest", "Tea Plantation", "Rice Field", "Field" and "Villages. Develop database in order to make data analysis, and for the importance of park management. From one year monitoring we analyze the data, the result including description of JHE pair around Cikaniki-Citalahab area, population size, home

range, habitat use, behavior and breeding periods.

We found five pairs in the observation area covering 70 km². Home range of Pengkeh Family by "Minimum Convex Polygon Methods" is 15.875 km². Estimation number of the JHE pairs in GHNP is 66 on the assumption that "the habitat of JHE is forest (Primary and Secondary) ", "the Range of the forest in GHNP is 26.222 ha. The most large accounted Habitat of JHE in GHNP was "Forest", but "the border between Forest and Tea Plantation", "Tea plantation", "Field" and "Rice Field" were also included as the Habitat. The largest accounted Habitat of Hunting Area was "Forest", but "the border between Forest and Tea Plantation" were also included. We estimate the breeding periods by information of Juvenex (Juvenile of Pengkeh Family). We first observed the Juvenex on October 2001. We estimated that Juvenex just fledged on October 2001. So nest building we predict around April - May 2001. Until now we still observe the Juvenex and the family, Pengkeh Family. We use some results for Recommendations to park management, such as eco-tourism activities, public awareness, and habitat protection.

# Current information on Indian Black Eagle, (*Ictinaetus malayensis malayensis*) in Indonesia

**Adam A. Supriatna**

**[1] National Coordinator for Indonesian Raptor Research and Conservation Network[2]**
**Country Coordinator for Asian Raptor Research and Conservation Network[3]**
**Protected Species Officer (Raptor Species) at Indonesia Environment Information Centre**

This paper presents data and information of Indian Black Eagle (*Ictinaetus malayensis malayensis*) in Indonesia. Actual information made by some field studies; plant communities, flight patterns, chick development and local distribution of Ictinaetus malayensis malayensis in Sewu Mountain (Karst areas) central part of Jawa. Historical data on its presence also presented to enrich the information.

# Population of Black Kite (*Milvus migrans lineatus*) in Hong Kong 2001–2002

**Chi Lap Yip, Tak Hang Lui, Sze Wing Hui, Kar Yan Karin Chan, and Fung Yee Lam**

**Kite Research Group, Hong Kong Bird Watching Society**

Black Kite (*Milvus migrans lineatus*) is the most common raptor in Hong Kong. Although there have been a number of studies of the species on its birdstrike hazard to aircrafts, systematic surveys on their populations are few and far between. This article summarizes the results and findings of monthly kite population surveys done at three sites in Hong Kong in the period from 2001 to 2002. In general, the number of Black Kites was found to peak in winter around November to December, and troughs in summer in April and May. The lower bounds of kite populations in two main roosting sites, namely Stonecutters Island and Magazine Gap, was found to peak at 785 in November 2001, and troughs at 69 in May 2002. A rather stable population of about 30 was also found in Tai O at Lantau Island where the Hong Kong International Airport is located. A three-site coordinated survey in December 2002 recorded at least 796 individuals. We also observed that the number of Black Kites in a site usually peaks at around 30 minutes before sunset.

# Raptors in Northwestern Karakorums: Sightings and Notes from Naltar Valley, Northern Pakistan

**Kashif Sheikh and Renate van den Elzen**

**Zoologisches Forschungsinstitut und Museum Alexander Koenig (ZFMK), Adenaurallee 160, Bonn, Germany.**

Naltar valley, a Wildlife Sanctuary, is located at 36⁰ 07/ N and 740 14 E/ and covers a total area of 27, 206 hectares situated within the Northwestern Karakorums and has an altitude range of 1700 to 5800 meters. It lies 40 km from the town of Gilgit, administrative center for Northern Areas in Pakistan. The valley stands as IUCN Management Category No. IV. Naltar is an alpine plateau with alluvial fans or talus in both sides of the valley and has been occupied by the residents and nomads for growing potatoes and wheat. Juniper grows on the slopes whereas birch is restricted to the upper parts of the valley. The valley is full of incredible beauty and snow-covered peaks and has glacial lakes at the altitudes ranging between 3,150 meters to 3,700 meters. This area holds blue-pine and alpine scrub forest communities that thrive due to good precipitation. The dominant forest communities include Picea, Pinus, Juniperus, Betula, and some remains of Salix. Other noticeable vegetation includes *Hippophae, Myricaria, Polygonum, Fragaria, Lonicera, Artimisia,* and *Haloxylon* species. Naltar has species of mammals such as Indian Wolf (*Canis lupus*), Fox (*Vulpes vulpes montana*), Leopard Cat (*Felis benghlaensis*), Himalayan Otter (*Lutra lutra kutab*), Snow Leopard (*Uncia uncia*), *Moschus chrysogaster,* Markhor (*Capra falconeri falconeri*), Himalayan Ibex (*Capra ibex*), include Common Yellow-bellied Bat (*Scotophilus heathii*), Cape Hare (*Lepus capensis*), Royel's Pika (*Ochotona royeli*) and Chinese Birch Mouse (*Sicista concolor*).

A detailed field research focusing various breeding and migratory birds in the study area was carried out between the year 1996-1998. We came up with a list of 102 species of birds including many passerines, resident, migratory birds and birds of prey. Almost 45 species breed in this landscape during summer months and the area provides excellent refuge for successful breeding. Also a number of important birds of prey were recorded in this extremely difficult terrain of Northern Pakistan. These sightings include some first records from this area as well as few species were found to occur at different altitudes than previously reported. The recorded species include Eurasian Kestrel (*Falco tinnunculus*), Eurasian Sparrowhawk (*Accipter nisus melaschistos*),

Goshawk (*Accipter gentilis*), Central Asian Shikra (*Accipter badius cenchroides*), Marsh Harrier (*Circus aeruginosus*), Booted Eagle (*Hieraaetus pennatus*), Golden Eagle (*Aquila chrysaetus*), Lammergeir or Bearded Vulture (*Gypaetus barbatus*), Himalayan Griffon Vulture (*Gyps himalayensis*) and Lesser Kestrel (*Falco naumanni*). Eurasian Sparrowhawk has been an uncommon sight in the steppic-conifers of the valley especially at 2900-3100 meters between May-August. This bird preferred the wooded habitat of *Pinus wallichiana* forests. Notes on predator-prey encounter were also recorded. Central Asian Shikra (*Accipter badius cenchroides*) was observed in the altitude range of 2400-2600 meters and is the first sight record of the species from this altitude in the western Karakorums. European Kestrel (*Falco tinnunculus*) chiefly appeared at lower altitudes between 2500-2850 meters and very few sightings were recorded in the upper parts of the valley. Its typical habit was hovering over the cultivated areas in the valley. Lesser Kestrel (*Falco naumanni*), a rare bird (declared as threatened species in the IUCN list) was twice observed in the lower parts of the valley. Observations on habitat ecology were recorded and photographs and field notes of these species were compared with skin specimens and identified at the ZFMK, Bonn, Germany. There is need for further in-depth field research on many species of birds of prey in the western Karakorums since they breed here and data on their breeding biology is patchy and incomplete but much needed for conservation aspects. Human impact is growing strongly and rapidly, an alarming feature for these mountain ecosystems and effects on bird distributions are easily to prognose. It is imperative to collect further thorough information on these species so that precise conservation measures can be designed. We have a plan to start a community-based conservation project in the area and involve local university students to focus on the breeding raptors and compile unique scientific data on these important species residing in one of the most geographically intricate physically difficult areas and habitats of the world.

**Work Shop I: Habitat Research**
**Dr. Mark R. Fuller**
**October 11 (Saturday), 2003**
13:30-18:00

**Workshop II: Population Research**
**Dr. Ian Newton**
**October 11 (Saturday), 2003**
19:30-21:30

# Important Questions and Study Techniques in the Study of Raptors

**Ian Newton**

The aim of this workshop is to discuss the main questions to be asked about the population ecology of raptors, and the methods used to answer these questions. The following are the main issues that will be examined.

1. Important features of raptors: general ecology, trends in densities, breeding and mortality rates that are related to body size, mating systems and relationships between the sexes.

2. Studies of habitat, diet and movement patterns.

3. Measurement of densities, dispersion and numbers: finding nests, nest densities and nest spacing, territories and colonies; stable or fluctuating breeding densities; use of observational and radio-tracking data.

4. Monitoring of raptor numbers: breeding densities, occupancy of nesting places, migration counts, roadside counts and other transects; point counts.

5. Density limitation: role or food, nest-sites and other factors.

6. Pesticide effects on reproduction and survival.

7. Measurement of breeding performance: laying date, clutch and brood sizes, nest success; growth of young; nestling sex ratios.

8. Measurement of mortality rates: ring recoveries of dead birds, retraps of live birds; radio-tracking data; causes of mortality.

9. Individual identification and performance: trapping, use of ringing and feather patterns; dispersal of young; territory fidelity, mate fidelity; age-related breeding and mortality rates; lifetime reproductive rates.

# Habitat Workshop in the 3rd Symposium on Asian Raptors Introduction session

**Mark R. Fuller**

**USGS, Forest and Rangeland Ecosystem Science Center,**

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Definitions and concepts

Goals & objectives of raptor habitat studies
- for research or management
- association, use, selection
- quality
- demography

Study planning,
- scale
- what to measure, variables
- sample unit, sample size
- likely analytical procedures
- basic equipment

Field exercise
- map(s), GPS (Nyamba)
- equipment use
- data recording

Analyses (Nyamba)
- types of uses
- description, floristics
- indices
- ranking
- hypothesis test; statistical programs
- prediction; statistical programs

Interpretation and uses of Results

**Session III: Migration**
**October 12 (Sunday), 2003**
08:30-10:15

# Use of Weather Radar in Studying the Migrating Chinese Sparrow Hawk at Kenting

**Yuan-Hsun Sun[1], Cheng-Yu Lan[2], Tsai-Wen Deng[3] and Yi-Jung Tsai[4]**

**[1] Institute of Wildlife Conservation, National Pintung University of Science & Technology, Pintung, Taiwan 912 ROC. [2] Department of Forestry, National Pintung University of Science & Technology, Pintung, Taiwan 912 ROC. [3] Kenting Weather Radar Station, Central Weather Bureau, Kenting, Taiwan 946 ROC. [4] Division of Conservation & Research, Kenting National Park, Kenting, Taiwan 946 ROC.**

Among 20 species of diurnal raptors that passed through Kenting area during fall migration each year, the Chinese Sparrow Hawk (*Accipiter soloensis*) was the most populous one, with the number of often over 100,000 yearly. To examine the bird's offshore flocks and flight patterns in relation to the time of day and wind velocity, and to determine to what extent the numbers not seen by ground counters, we used the images of base reflectivity and base velocity produced by a weather radar installed on the Kenting during the peak migration of September 15-17, 2002. Direct visual records were provided by the Division of Conservation & Research, Kenting National Park. Of 61 flocks detected by reflectivity on the radar, the linear shape of the flocks ranged 0.7 to 21 km in length, with a mean of 3.36±3.89 km, and 0.50 to 1.4 km in width, with a mean of 0.73±0.15 km. The hawks flied with the speed of 19.5±50.25 km/h, averaging 32.1±17.43 km, and with the altitude of 166-409 m above sea level. It seemed that strong wind affected flock size formation. An estimated >20,000 birds were not detected by the ground observers during the 3-day study period. Further analyses are needed to improve the precision in relationship between bird density and reflectivity.

# Raptor Visible-Migration Monitoring,Banding and Conservation at Eilat on the Westernmost Asiatic Flyway

**Reuven Yosef**

**International Birding & Research Center in Eilat, P. O. Box 774, Eilat 88000, Israel**

Israel, the only land bridge between three of the largest Old World continents, is critically located at a junction for birds migrating south from Asia and Europe to sub-Saharan Africa in autumn and north to their breeding grounds in spring. In spring the Red Sea acts as a long deflection barrier diverting many northbound raptors to Eilat. Eilat is situated at the northern edge of almost 2500 km of continuous desert regions of the Sahel, Sahara and Sinai deserts. Hence many birds land here to rest after the arduous crossing of the deserts to the south. Recent studies documented 39 species of raptors during the northbound migration, and Eilat is one of the only two bottlenecks in the world at which more than a million raptors can be visually counted during a season. The largest concentrations in the Eilat region are of Honey Buzzard (*Pernis apivorous;* 360,184±231,062), Steppe Buzzard (*Buteo buteo vulpinus;* 348,656±113,932), Black Kite (*Milvus migrans;* 26,117±7,169), Steppe Eagle (*Aquila nipalensis;* 24,338±20,317), and Levant Sparrowhawk (*Accipiter brevipes;* 20,452±18,394). Monitoring of numbers has allowed us to elucidate the anthropogenic effects on raptor populations, like declines in the absolute numbers of Steppe Eagles (ca. 35,000 pre-1987 to ca. 9,000 post-1989), or the unusual morphs of juvenile Levant Sparrowhawks (probable effect of radioactive exposure on carotenoids), and which are linked to the Chernobyl incident, which occurred on 21 April 1986. Raptor banding at Eilat has allowed us to document previously undocumented hybrids (eg., *Accipiter brevipes* X *A. badius*), sub-species unknown to the region (eg., North African *Buteo rufinus cirtensis*) and to understand the age- and sex-related differences in migratory strategies of Steppe Buzzard and Levant Sparrowhawk. The breeding grounds of the majority of the raptors that migrate through Eilat remain unknown. Band returns of Buzzards (N = 21) are overwhelmingly from Azerbaijan, Belorus, and Georgia (4.8% each), Kazakhastan (9.5%) and Russia (52.4%).

# Asian Raptor Migration Project in Taiwan 2001-2003

**Bo-Shou Lin [1], Yueh-Hsuan Chang [1], Hsiu-Li Lin [1], Shih-Chung Chen [1], Kun-Yi Chien [2], Ya-Fen Fang [3], Mu-Chi Tsai [4], Chih-Yuan Tsai [4], Jing-Hong Lee[5], Fang-Guo Huang[6], Fu-Long Hong [6], Wei-Nung Lin [7], Ke-Hsiou Wang[8], Yi-Jung Tsai [9]**

**[1] Raptor Research Group of Taiwan; [2] Wild Bird Society of Taoyuan; [3] Wild Bird Society of Hualien; [4] Wild Bird Society of Nantou; [5] Wild Bird Society of Changhua; [6] Wild Bird Society of Kaohsiung; [7] Wild Bird Society of Penghu; [8] Wild Bird Society of Taitung; [9] Kenting National Park Headquarters**

Taiwan is one of the most important stops in the main routes of raptor migrations in East Asia. Prolonged surveys had proceeded at Kenting, Taitung, Changhua and Taipei for more than ten years. During 2001-2003 participated in the Asian Raptor Migration Project, the investigated sites added to eight in each migratory season throughout Taiwan, including the sites along the east and west coasts, the Central Range and some off-shore islands. Three families and twenty-four species were recorded, including two species listed in Threatened Birds of Asia: the BirdLife International Red Data Book, Greater Spotted Eagle (*Aquila clanga*) and Imperial Eagle (*Aquila heliaca*). Two main species migrated through this route, Grey-faced Buzzard-hawk (*Butastur indicus,* up to 19,000) and Chinese Sparrowhawk (*Accipiter soloensis,* up to 140,000). In Autumn, there were most raptors recorded at Kenting: 19,584 of Grey-faced Buzzard-hawk (2002) and 144,506 of Chinese Sparrowhawk (2002) respectively. In Spring, most Grey-faced Buzzard-hawks recorded at Changhua of 14,378 (2003), otherwise the most Chinese Sparrowhawk counted at Fengshan Reservoir was 14,462 (2003).

According to the previous conclusions, after flocks of hawks migrated in autumn from Okinawa to Taiwan, they flied along the east coast of Taiwan toward south and aggregated at Kenting to fly further more. In Spring, basically they flied back in opposite direction along the west coast and aggregated with the most amount at Changhua preparing to fly north. Besides, there were most species of migratory raptors recorded at Kuanyinshan. Due to the increase of investigated sites, parts of previous conclusions should be corrected. In Autumn, the main flocks of Chinese Sparrowhawk flied south within Coastal Range along the east coast toward Kenting, others flied along the Central Range, and even some came from Mainland arrived at northwest of Taiwan toward south. But the main route of Grey-faced Buzzard-hawk still could not know well. In spring, the migratory routes of Grey-faced Buzzard-hawk were similar to the previous results. As for Chinese Sparrowhawk, besides the conventional observation at Kuanyinshan, it was the first time to count for a large mount of 14,000 at Kaohsiung and 8,000 at Changhua, both are much more than the amount counted at Kuanyinshan. It was suggested that these migratory hawks might fly away from the west coast of Taiwan toward Mainland, but the exact leaving sites and the ways of leaving are still not clear.

# The Significance of Taiping (Peninsular Malaysia) for Autumn Raptor Migration

**Lim Kim Chye and Lim Swee Yian**

**45 Lorong 25, Taman Lake View, 34000 Taiping, Perak, Malaysia.**

Taiping (4°52' N, 100(44' E), on the west coast of Peninsular Malaysia, lies on the Eastern Inland Corridor of the Eastern Asia Flyway system. Taiping is located on the narrow plain between the coast and the foothills of the Larut Range, which is aligned in a north-south orientation. These topographical features of Taiping form "leading lines" that cause the occurrence of a migration corridor during autumn when many raptors pass along this route on their way south to their wintering areas.

Past raptor migration studies in Peninsular Malaysia have been carried out mainly during spring migration, principally at well-watched Tanjung Tuan (Cape Rachado). Conversely, very few studies on autumn migration have been done, with virtually no comparable site. In this respect, the autumn passage of thousands of raptors over Taiping establishes it as an important raptor migration watch site. Average autumn counts of 18400 raptors here compare favourably with counts at well-known sites such as Hawk Mountain Sanctuary, USA (annual average17000) and Beidaihe, China (11700).

In this paper, we report on observations carried out during the autumns of 2000, 2001 and 2002 when about 7500, 18 000 and 30000 raptors respectively, comprising 14 species, were counted. The three most numerous species were Black Baza (*Aviceda leuphotes*), Chinese Goshawk (*Accipiter soloensis*) and Oriental Honey-Buzzard (*Pernis ptilorhynchus*). Species abundance and diversity, migration patterns and behaviour during migration are also presented. Data is compared with other counts conducted elsewhere to discuss the relationship of raptor migration in Taiping with migration at these sites. The regular and predictable passage of raptors of many species over Taiping in autumn provides opportunities for research, conservation, education and ecotourism. We suggest that Taiping be accorded the status of a raptor migration watch site of regional significance.

# Research on Population and Pass Time of Autumn Migratory Hawks in Kenting Area (1990-2002)

**Yi-Jung Tsai, Hung-Hsuan Tang and Chiung-Yao Lin**

**Kenting National Park, Pingtung, Taiwan 946,R.O.C.**

The research surveys the amount changes and passing period distributions of the autumn migratory raptors in Kenting area, based on data collected from 1990 through 2002. Among these 13 years data, 10 years of them are comprehensive. The average survey duration every year is 59.2 days. The average amounts each year of the major migratory raptors are: 74,392.2 Chinese Goshawks (*Accipiter soloensis*), 13,252.9 Grey-faced Buzzard Eagles (*Butastur indicus*), and 219.9 Oriental Honey Buzzards (*Pernis apivorus*). Among those 10 years with comprehensive survey data, there were more than 100,000 Chinese Goshawks passing through in each year of 1995 and 2002, indicating the possibility of seven-year cycle. The amount has kept stable in mostly other years. There were more Grey-faced Buzzard Eagles passing through during later five years than during earlier five years, indicating the possible increasing trend. There were too few Oriental Honey Buzzards recorded to indicating any changing pattern. The Chinese Goshawks's migratory period is from September 1st through October 31st. They mostly occur during mid and late September (about 79.58%), reaching the peak in mid September (about 55.76%), and decreasing significantly in October (13.12%). Grey-faced Buzzard Eagles pass through almost only in October (99.97%), reaching its peak in mid October (76.55%). The Oriental Honey Buzzards migratory period is during September and October, mostly occurring between late September and late October, reaching its peak in early and mid October (59.57%). November possibly is still its migratory period. There are many days that Chinese Goshawks and Grey-faced Buzzard Eagles would occur in tremendous amount during their respective migratory peak periods. It has become quite an ecological spectacle over there.

# Raptor Migration Surveys in Asia, 1999-2002: Results, Trends and Implication for Conservation of Migratory Raptors

**Mike H. N. Chong[1] and Yasunori Nitani[2]**

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Raptor migration in Asia is a well-known phenomenon but very little has been done to study the full extent of migration between countries. Raptor migration surveys were carried out in eight countries during the Asian Raptor Migration Survey projects in 1999-2002. Observations were conducted in Japan, Taiwan, South Korea, China, Vietnam Thailand, Malaysia (*Peninsular Malaysia*) and Indonesia by various observers at established and new raptor migration sites during the 'autumn' and 'spring' migration seasons, in the first cooperative and systematic migration survey in Asia. In autumn 1999 over 604,000 raptors of six species were observed in Japan, Taiwan, Malaysia and Indonesia, with the majority of raptors observed in Japan (>580,000) and Taiwan (>17,000), and in autumn 2001 over 175,000 raptors of 24 species were observed in Taiwan, China, Vietnam, Malaysia and Indonesia. Among raptor species that were observed in very large numbers were Oriental Honey-Buzzard (*Pernis ptilorhyncus*), Chinese Sparrowhawk (*Accipiter soloensis*) and Grey-faced Buzzard (*Butastur indicus*). Globally threatened species recorded during the surveys include Greater Spotted Eagle (*Aquila clanga*), Imperial Eagle (*A. nipalensis*) and Amur Falcon (*Falco amurensis*). Raptor migration routes were more continuous in Japan, Taiwan and Peninsular Malaysia due to the higher number of observers and raptor observation sites. Although very large numbers of Oriental Honey-Buzzard, Chinese Sparrowhawk and Grey-faced Buzzard migrated from Japan and Taiwan during autumn migration seasons, their migration routes could not be linked to mainland Asia and the Philippines due to lack of observers at key observation sites. The volume of migrating raptors in several Southeast Asian countries increased significantly in 2000-2002 compared with numbers in 1999. Some new and important raptor migration sites were also discovered during the course of surveys. Data gathered shows that raptor migration in Asia occurs on a very large scale from north and East Asia to Southeast Asia. Large numbers of raptors migrating through Thailand and Peninsular Malaysia suggest that most of them winter in the Indonesian Archipelago. Data gathered ca be very important in understanding the migration trends, to protect migration sites and their habitats for the conservation of migratory raptors in Asia.

**Session IV: Conservation**
**October 12 (Sunday), 2003**
10:45-12:30

# Conservation Status of the Great Philippine Eagle

**Dennis J.I. Salvador**

**The Philippine Eagle Foundation**

The Great Philippine Eagle (*Pithecophaga jefferyi*) continues to be classified as critically endangered. Conservation actions to save the species have been limited primarily due to funding constraints. But sustained conservation initiatives over the years have begun to yield significant results. The current population status of the species and threats are outlined in this report. Studies and actions associated with the conservation of wild populations are also presented. With continuing success in the captive propagation of the Philippine Eagle, the program is now in the process of initiating reintroductions. This is anticipated to take Philippine wildlife conservation into its next level. Parallel developments that tend to strengthen the entire species conservation effort are also discussed in this paper.

# A New Technique of the Rehabilitation of Bonelli Eagle Chicks

**Satish A. Pande**

**C-9. Bhosale Park. Sahakarnagar-2, Pune 411009, India**

Molestation of eagle nests by children still prevails. Therefore, the need for rescue and rehabilitation of orphaned eaglets is paramount. Various methods are already described. But few records of rehabilitation & relocation of Bonelli Eagle chicks (*Hieraaetus fasciatus Vieillot*) [Family: Aciipitridae: Aves] exist in the literature.

Till date, the replacement / relocation / rehabilitation of the chicks has been done within a short period of 24 hours of the creation of a contingency, in India and elsewhere. In India, this has been done with Changeable Hawk-Eagle and Bonelli Eagle (Naoroji, 1982, Pande, 2003, respectively ) After finding an orphaned Bonelli Eagle chick, foster nests of the same species occupied by chicks may not always be found, and "Add-on" technique may not be possible. However, in our present method, a combination of Hacking and Fostering, one has a much greater latitude at one disposal for such relocation / rehabilitation. A recently vacated successful nest of a Bonelli Eagle can be used for fostering even after the original chicks have fledged, but till the parents continue to attend the fledged chicks. The increased minimum time latitude to use the empty foster nest now is of at least 9 days after the fledging of the original chicks. An orphaned chick of Bonelli Eagle can be relocated and fostered in such a nest, which has already been successfully used by another pair, within this long period. The longer latitude can give sufficient time, as against the traditional interval of a mere 24 hours, a short period for action. Since the eagles in the same province breed simultaneously, their chicks in different nests are mostly of the same average age, and of the same plumage.

Therefore, as against keeping the orphaned chick in an orphanage, an extremely expensive and not always successful method of rehabilitation and naturalization this new natural method of rehabilitation, will keep the natural instinct of the rehabilitated chick and its knowledge of the surroundings intact, at hardly any cost. The chick shall not face pairing problems in the future and can breed successfully. In short, wildlife will remain wild.

References:

1. Naoroji, Rishad (1985) Notes on some common breeding raptors of the Rajpipla forest, J. Bombay Nat. Hist. Soc. 82(2) : 278-308.
2. Pande, Satish (2003) The mystery of the disappearing eagles, Newsletter for Birdwatchers Vol.43 No.3 May-June 2003, Pages 31-33.

# Raptor Trade in Bird Market of Hanoi, Vietnam.


## Le Manh Hung

**Institute of Ecology and Biological Resources. c/o Zoology Museum Department, Institute of Ecology and Biological Resources, Vietnam**



During 2001 - 2002, thirty four bird shops had been investigated around Hanoi city, Vietnam. Twenty raptor species were recorded including sixteen diurnal and four nocturnal.

A total of 83 birds had been counted, there were 71 diurnal (86%) and 12 nocturnal (14%). Most of the species are common, two of which are rare for Vietnam [Greater Spotted Eagle (*Aquila clanga*) and Jerdon's Baza (*Aviceda jerdoni*)]. Greater Spotted Eagle is listed in the *Threatened Bird of Asia* under the Vulnerable category, there were only four records from Vietnam in the pass of forty years.

Almost diurnal species are migratory, 75% of them are juvenile, the number of birds presented in the market has been increased in migration season, from October to March.

Raptors have been sold for pets, some of them were used for taxidermy. The prices were variable depend on sizes and shape of the birds.

# Raptors and Farmlands in Asia

**Vladimir Galushin**
**Russian Bird Conservation Union, Moscow. Russia**

The great part of lowlands in Asia suitable for cultivation and pasture is almost totally transferred into farmlands. They consists mostly of large cultivated fields or grazed pastures, small pieces of uncultivated open plots with small natural or artificial forest fragments and tiny microfragments. Some of these habitats are abundant with available prey. At the same time all areas are crossed with dense nets of various roads. Permanent presence of people everywhere all day round is very typical for agricultural landscape. Such set of contradictory factors is not easy for raptors therefore farmlands are judged to be unfavorable for majority of them. However some species lives on rodents, lizards, small birds and large insects are provided there with rather rich but unpredictably fluctuating food resources. So, despite of lack of both ground and forest nesting habitats they are capable to adapt themselves to this highly specific environment. To inhabit it raptors have to change their ecology and behavior in specific adaptive ways. The major direction of such adaptations is tolerance to constant but harmless presence of people as well as changing nesting habits.

Over 30 years passed when mass persecution of raptors was ceased in the USSR. People became more harmless to raptors which in their turn demonstrated more tolerance to humans. At present over ten raptor species in agricultural regions of southern Russia show their adaptability to live in tiny forest microfragments, inside tall weeds like stinging nettle close to human settlements or on buildings, powerline poles and other constructions. Formers are kestrels (*Falco tinnunculus*), Amur falcons (*F. amurensis*), Common Buzzards (*Buteo buteo*), Long-legged Buzzards (*B. rufinus*), Imperial Eagles (*Aquila heliaca*), Black Kites (*Milvus migrans*) and Goshawks (*Accipiter gentiles*). The second group includes Montagu's, Marsh and Pied Harriers (*Circus pygargus, C. aeruginosus, C. melanoleucus*) and sometimes Upland Buzzards (*B. hemilasius*). Latters are Lesser Kestrels (*F. naumanni*), Long-legged and Upland Buzzards and even Saker Falcons (*F. cherrug*) which very often successfully nest on poles, bridges, ruins and other constructions amidst Mongolian steppe.

The best example of mutual human and raptor tolerance are farmlands, villages and cities in India. For example, 120-150 thousand breeding pairs of 10 raptor species have been assessed 30 years back upon 50 thousand sq.km of cultivated fields with scarce trees and dense villages in Central-Northern India. White-backed vultures (*Gyps bengalensis*) dominated among them - 70-75 thousand pairs. It would be important to know how many pairs still exist there after crash of vulture population in 1990s. The next in number were Black Kites (20-25 thousand pairs) and Egyptian Vultures (*Neophron percnopterus; 12-15 thousand pairs*). The question is if kites and other raptors are increasing in numbers after the sudden decline of vulture populations?

Some tolerant raptor species in Russia, Mongolia and, most of all, in India successfully occupy agricultural and even urban habitats first of all in response to tolerant human attitude to them. This promising adaptive process is deserved to be thoroughly studied in all Asian countries.

# Raptor Conservation in India through Important Bird Area (IBA) Programme

**M. Zafar-ul Islam and Asad. R. Rahmani**

**Bombay Natural History Society**

The Important Bird Areas program (IBA) started in India in 1999 with objectives to identify, document and protect a network of sites adequately covers all the habitat and species, particularly those, which are under greatest threat.

Conserving raptors is a real challenge, because raptors are widely distributed and identifying specific site for protecting these birds will not be appropriate. The IBAs are identified in such a way that the species range should be covered. Out of 78 globally threatened species, nine species of diurnal and nocturnal raptors are found in India, i.e., *Gyps bengalensis* (33 IBA sites), *Gyps indicus* (13), *Gyps tenuirostris* (9), *Heteroglaux blewitti* (4), *Accipiter butleri* (8) *Haliaeetus leucoryphus* (25), *Aquila clanga* (50+), *Aquila helica* (22), *Falco naumanni* (33), *Otus alius* (3). IBAs are identified on the basis of global standard criteria, that includes a) habitats where globally threatened bird spp. live, b) where large congregations of birds gather, c) representative of distinct habitat types, and d) sites that have bird species with a historic breeding range of up to 50,000 sq. km. These criteria includes most of the raptors including near threatened species *Haliaeetus albicilla, Ichthyophaga humilis, Ichthyophaga ichthyaetus, Aegypius monachus, Sarcogyps calvus, Spilornis minimus, Spilornis elgini, Circus macrourus, Otus balli* and *Ninox affinis,* We have identified around 500 IBAs in India including protected and non protected areas. Around 50% of IBA sites consist of raptor species.

A very strong database has been established for IBA and threatened species. Which is regularly updated through surveys of raptors and other species. The IBA Inventory is to be completed by 2003.

# The First Decade of Black Kite (*Milvus migrans*) Conservation in Taiwan

**Chen-Chung Shen**

**Raptor Research Group of Taiwan**

Black Kites (*Milvus migrans*) have been the most popular raptors over the plains of Taiwan. But their population has been dwindled rapidly due to tremendous environmental changes for the past several decades. This situation urgently requires us to make efforts on its research and conservation. Since 1992, we have been alerted on the Black Kites' habitat deterioration in northern Taiwan, and started the investigation work. We also held Black Kite watching activities to let people pay attention to the situation. After the past decade's investigation, we found roughly that there has about 200 Black Kites in Taiwan, and has been at that level stably. To hopefully find out the reason why Taiwan's Black Kite population has been decreased so rapidly, we started since 2001 visiting other Asian regions which have large Black Kite populations, including Hong Kong, Japan, mainland China, India and Nepal. We will set up a Black Kite Conservation Action Program in the winter of 2003 as our guide to systematically and comprehensively promote this conservation project

**Poster Session**
**October 12 (Sunday), 2003**
18:00-19:00

# Notes on Adult Nest Site Use and Juvenile Movement Patterns of Philippine Eagles at Marilog Forest Reserve, Central Mindanao, Philippines

**Jayson C. Ibanez**

**The Philippine Eagle Foundation, Davao City 8000 Philippines.**

Two Philippine Eagles (*Pithecophaga jefferyi*), an adult male and its juvenile, were radio-tracked in Datu Salumay, Davao City between 2001-2002. The eagles were tracked from at least two permanent stations, out of eight scattered within the nesting territory. The initial results discussed in this paper are part of a long-term study on home range and habitat use among adults and survival rates and dispersal patterns of juvenile eagles. The male eagle prefers forested areas of the nest site to non-forested areas, and dispersed over wide human landscapes to forage in other forest fragments. Juvenile activity area tends to expand with increasing age. Increasing forest fragmentation and hunting are the immediate threats to the breeding pair and its young.

# Preliminary Observations on the Roost and Diet of Wintering Harriers in Akola District of Maharashtra, India


## Ashok Verma

**Sarafa bazar, Rekha Naanga Gali, Bharatpur-321001 Rajasthan (India)**



A communal harrier roost comprising of about 200 harriers mainly of Montagu's (>50%) and Pallid harriers was located during late winter in February 2003 from Akola district of Maharashtra State in western India. Roost-site characteristics and roosting behaviour are described. A total of 105 pellets collected at the roost were analyzed to estimate diet composition of harriers in this region. The diet consisted of Insects (locusts), reptiles (lizards, skinks and snakes), birds (land birds) and small mammals (rodents). More than 80% pellets contained locust remains. The roost is compared to other roosts found in India and Africa. Major threats to the roosting harriers are highlighted.

# Distribution, Population Status and Habitat of Sulawesi Hawk-Eagle (*Spizaetus lanceolatus*) at Lore lindu National Park, Central Sulawesi-Indonesia

**Yulinda Asnita[1] and Dewi M. Prawiradilaga [2]**

**[1]. KPB Nycticorax and Universitas Negeri Jakarta [2]. Research Centre for Biology-LIPI and Fauna & Flora International-Indonesia**

Sulawesi Hawk-eagle (*Spizaetus lanceolatus*) is endemic to Sulawesi Island, Indonesia. Basic data on its ecobiology are still lacking. Intensive study on its distribution, status and habitat has been conducted at Lore Lindu National Park, Central Sulawesi from 600 to 1400 m altitude, between August and November 2001. The results showed that the species was recorded in 14 locations, the number of encountered individuals in each location ranged between one and six. The species occupied plantation area, secondary and primary forests. Based on visual observations, the estimated home range of adults was 1.1 to 3.9 $km^2$ per pair and sub adult was 0.6 $km^2$ per individual. Old nests were found on tree of *Erythrina subumbrans*.

# Early Development of Young Indian Black Eagle (*Ictinaetus malayensis*) at Mt. Mandalawangi, Gede-Pangrango National Park, West Java-Indonesia.

**Usep Suparman[1], Adam A. Supriatna[2] and Dewi M. Prawiradilaga[3]**

**[1].Raptor Conservation Society (RCS); [2].Coordinator of RAIN (Raptor Conservation Groups of Indonesia); [3].Research Centre for Biology-LIPI and Fauna & Flora International-Indonesia.**

The Indian Black eagle (*Ictinaetus malayensis*) has been selected as the priority species for collaborative research and conservation activities of the ARRCN instead of migratory raptors and the Asian Bat hawk. Several countries including Indonesia have involved in this collaboration. This paper presents the results of study on the early development of young Indian Black eagle at Mt. Mandalawangi, Gede-Pangrango National Park (106°51' - 107°2' E and 6°41' - 6° 51' S) conducted in 2002. The incubation period took place 43 days and the fledging period was about 60 days. The observed prey given to the eaglets during nestling period included forest rats (*Rattus sp.*), birds [Orange-spotted Bulbul (*Pycnonotus bimaculatus*) and Oriental White-eye *Zosterops palpebrosus*) and squirrels (*Callosciurus notatus*)]. The morphological changes in the plumage and the behaviour of eaglet will be reported.

# Is Flores Hawk-Eagle (*Spizaetus floris*) a Distinct Species?

**Jan Ove Gjershaug, K. Kvaloy, Nils. Rov, A. Gamauf, E. Haring, Dewi M. Prawiradilaga, Darjono, Usep. Suparman and Zaini Rahman**

*Spizaetus cirrhatus floris* is morphologically very different from S. c. *limnaeetus* and can easily be separated from it by its diagnostic white or light greyish patches on the upperside of the inner parts of the primaries, by its juvenile-like adult plumage, and its much larger size. It is parapatric with *limnaeetus* without any known geographical overlap. The large morphological differences indicate that there are reproductive isolation mechanisms if there were any sympatry between the two taxa. We suggest that *floris* be treated as a distinct species and that the English name be Flores Hawk-eagle

# Foraging Time of Three Sympatric Raptors in Mt. Tilu- Mt. Simpang Nature Reserve, West Java, Indonesia

**Firman Hadi**

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The research on the foraging time of three sympatric species of raptors (Black Eagle *Ictinaetus malayensis*, Crested Serpent Eagle (*Spilornis cheela*) and Javan Hawk-Eagle (*Spizaetus bartelsi*) was conducted on March-May in Mt. Tilu - Mt. Simpang Nature Reserve, West Java, Indonesia.

The research was carried out to analyse the effects of biotic factors (the presence of another species) and abiotic factors (time of the day, wind velocity and weather) on foraging time of these raptors. The category of the foraging behaviour that was included in the analysis was only foraging above the canopy. This research used an assumption that different species which live in the same area will compete for the available resources especially for food.

The ad-libitum method was used to record the raptors behaviours in day-by-day observations which started on 7:00 and lasts until 16:00. Time of the day was divided into three major time, morning (07:00 - 10:00), day (10:00-13) and noon (13:00 - 16:00), wind velocity was ranked ordinally according to Spellerberg (1996), weather conditions was categorized into clear, hazy and rain.

The results show that in Mt. Tilu there is no association between foraging time of three species and time of day ( $\lambda^2 = 1{,}936$), wind velocity ( $\lambda^2 = 6{,}64$) and weather ( $\lambda^2 = 0{,}49$), but there is a statistically highly significant association between foraging time of one species to others ( $\lambda 1^2 = 94{,}73$, $\lambda 2^2 = 32{,}66$, $\lambda 3^2 = 70{,}94$; $df = 2$, $p < 0{,}01$ ). Raptors in Mt. Simpang shows no relationship to wind velocity ( $\lambda^2 = 5{,}99$ ) and weather ( $\lambda^2 = 0{,}16$ ) but statistically highly significant association between foraging time of each species and time of day ( $\lambda^2 = 14{,}74$; $df = 4$ ) and between foraging time within three species ( $\lambda 1^2 = 144{,}53$; $\lambda 2^2 = 52{,}42$, $\lambda 3^2 = 98{,}73$; $df = 4$). The high correlation between foraging time of each species and time of day was happened probably due to the local climate (rain in the afternoon).

This result implies that there is an inter-specific competition between three sympatric raptor species of Mt. Tilu and Mt. Simpang Nature Reserve in allocating the time to forage. It also can be used to predict the presence of raptor species by assuming that one species does not occur in one area if it does not appear during three days survey.

# What Can We Know From Fledglings Attached with Wing Markers and Radio Transmitters?

**Toru Yamazaki**

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From June to July 2000 at the Suzuka Mountains in Japan, we attached wing markers and radio transmitters to 3 nestlings (0002,0003,0004) of the Japanese Mountain Hawk-Eagle which were approximately 60 days old. All of them were determined to be females by DNA analysis. We noticed that the radio pulse of 0003 did not change at the end of February 2001. Through radio tracking, we were able to find 0003 dead 8 months after fledging in March 2001. 0002 and 0004 stayed within approximately 1km of their respective nest sites until December and February, the same as the other 7 fledglings which had been studied from 1987 to 1991. In January 2002, 0002 was observed 14.5km away from her nest site to the south, which is inside the home range of 0004's parent. If 0002 had not been attached with wing markers, we would have mistaken it for 0004. On the other hand, 0004 expanded her home range after March 2003 dramatically. Although we had not been able to receive her radio pulse for 1 month after the middle of May 2003, we found her 17.5km away from her nest site to the north in June through radio tracking by helicopter. Since then, 0004 has continued to behave between this northern point (17.5km away from her nest) and her nest site (July 2003).

Studying the home range of a fledgling before dispersion gives very important data towards the determination of a strict protection area, especially for long-term, parental-care raptors. The home range and the habitat of juvenile or immature raptors before settling into breeding pairs are necessary to establish a conservation program for the local population. The rate of mortality before maturation is also necessary to assess the stability of a local population. However, we cannot get this scientific information if we do not identify individuals; that is, trace raptors live in the forest by radio tracking.

# A Probable Deceiving Behavior by a Golden Eagle in the Breeding Season

**Toshiki Ozawa[1] and Tomoko Ozawa[2]**

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In western Toyama, I observed a probable deceiving behavior of an adult female Golden Eagle in the nestling stage toward a human observer. The nest site of the eagle was 1,900m distant from the observation point. The eagle was vigilant and watching the observer from the top of a cedar on the opposite slope to the nest site and then disappeared from the observer's view. About 2.5 minutes after, the bird appeared again in the air with a fresh branch of red pine in its feet at a distance of 1,200m from the observer. It sometimes watched the observer during its 12-minute soaring. After dropping the branch, the eagle drooped its head and legs with it calling several times as if it feigned injury. The bird slowly circled with this posture and flew away toward the opposite direction to the nest site. This case proved that even remote observations could make sensitive breeding eagles alert. This also implied that Golden Eagles tend to beware of the distant observers rather than the neighbor human residents. Although they are essential for the conservation of Golden Eagles, observations should be made under the circumstances that the birds feel safe and are able to behave normally.

# The Daily Activity Pattern and the Home Range of Japanese Mountain Hawk-Eagle Male

**Hiromichi Ichinose**

**The Project Team for Research and Conservation of The Japanese Mountain Hawk-Eagle.**

The daily activity pattern and home range of the Mountain Hawk-Eagle male were researched in the Suzuka Mountain area of Japan. Wingmarkers and transmitters were attached to the male (9403). 9403 have been radio-tracking from 1994 to 2003. 9403 has paired to female and he does stay at a regular home range. This study used data from the period between April 1998 and March 1999, it was observed on 138 days. The transmitters are Actogram system, we attached in tail-mounted. The tail points downward on resting, and the switch is set for a slow signal pulse: P pulse (1 pulse on 2 second), in flight, and the signal pulse are fast: F pulse (1 pulse on 1 second). Locations were recorded on the map divided into 250m meshes. Average time was 9.3 hours on observe. The fly and perch of daily activity variation, 10 am increase in fly before hours, and high fly ratio was 2 pm, but fly rate was below 10%. The average of home range was 0.56km$^2$, minimum was 0.56km$^2$, maximum 3.0625km$^2$. The daily home range, the male stay at small area when every from 2 or 3 days. The male appeared to have been stay at small area, not large move in one day, such days as eat much or bad weather. Main active behavior about hunting or display, it was considered that day of time of many count records of F pulse. The large forest raptor of daily activity pattern, through the looking the Mountain Hawk-Eagle will be suggested.

# Juvenile Dispersal of the Japanese Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) Tracked by Radio-telemetry

**Inoue Takehiko**

**The Working Group for the Research and Conservation of the Japanese Mountain Hawk-Eagle, 1-25-9 Asahigaoka, Otsu city, Shiga prefecture, 520-0052. Japan.**

We studied the movements of three Japanese Mountain Hawk-Eagles (*Spizaetus nipalensis orientalis*) for 1,086 days from fledging to understand the post-fledging dispersal using Radio-telemetry with wing-wrapped marker at the Suzuka Mountains in June 2000. Three individuals were determined as female by the chromosome check. The A juvenile stayed within 2 km from the nest for 18 months after fledging and thereafter moved to the place at 14km away from the nest. The B juvenile stayed within 1 km from the nest after fledging and found dead near the nest at 10 months after fledging. The C juvenile was tracked for 1086 days (35 months) after fledging. This juvenile stayed within the parent's territory for 66.6% of 1086 days. The counted mesh range was 4.3km$^2$. For 6.0%, the juvenile stayed in outside of the parent territory, and for 27.4% in lost. The C started to disperse from the parent territory at 20 months after fledging and was located staying at "Area I " 17km remote from the nest at 23 months after fledging by the aerial survey using a helicopter. The C stayed at this place five times for 50 days (78% of locations outside nest valley) in all. Through the study period, the C had come back to the nest valley 7 times after dispersion started. We confirmed the C near the nest site at 35 months from fledging again. The juvenile visited three places between the nest and "Area I ", this individual seemed to detour around the high mountains instead of straight line and moved in low mountain area above the sea level 300-500m. These date suggest that the start of dispersion is concerned with the parent's breeding behaviors and juvenile go back and forth between the nest site and the favorite place.

# Breeding Performance of the Goshawk (*Accipter gentils*) in Central Japan over the Last 10 Years

**Koichi Endo**

**Goshawk Protection Fund, Japan**

The Goshawk (*Accipter gentils*) breed in the woodland hills and mountains of central and northern Japan. Breeding density and breeding performance of the Goshawk was studies in Nasunogahara, central Japan, in 1992-2001. 18-25 Goshawk nesting pairs were found within a 220km² study area for a density of 9.5 pairs /100km². Egg-laying took place between the first and forth week of April and fledging occurred between third week of June and second week of July. The clutch size averaged 3.4 with a range of 2-4. The average number of fledgling pre active nest and successful nest was 1.9 and 2.5. Of 209 nests contained eggs, 183 (88%) contained hatchling and 157 (75%) produced fledglings.25% of nests failed to produce fledglings. The causes of failure were predation, breakage of dead branches supporting the nest, poaching, human invasion into the nesting are and so on. However, the great portion of cause of failure was unknown. There were no apparent differences in breeding density, clutch size, fledgling number and nest success between years. This suggests a stable food supply during the study period.

# Introducing a Reliable Way to Identify the Sex of Raptors

**Yu-Cheng Hsu and Lucia Liu Severinghaus**

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It is often necessary to identify the sex of birds in research. However, many species of birds are monomorphic, therefore their sexes cannot be identified by appearance. Even for sexually dimorphic species, the sexes of immature birds can be difficult to differentiate. These difficulties decreased when Griffiths et al. successfully employed the polymerase chain reaction (PCR) to amplify sexually specific DNA fragments. Hörnfeldt et al. (2000) further developed a primer pair useful in sexing Tengmalm's Owl (Aegolius funereus) by amplifying the sex-linked CHD1 genes. Using a less stringent PCR protocol, we tested the utility of this primer pair in 24 species of birds, including 4 species of diurnal and 6 species of nocturnal birds of prey. Our success with all 18 species showed this primer pair to be broadly applicable. In practice, DNA samples can be obtained from either trace amounts of blood or growing feathers, which can be collected during the banding process, or they can be extracted from the muscles or skins of carcasses or museum specimens. Laboratory processing can be completed in 2 days, making this an efficient and reliable method for the identification of avian sex.

# Diet of a Clutch of Breeding Besra (*Accipiter virgatus*) Near Human Environment

**Hsiu-Li Lin**

**Raptor Research Group of Taiwan**

In April to July of 2003, a nest of Besra in a hill forest of Taipei suburb was observed. The nest is only 20 meters to a path connecting to a temple and a nearby community. Thus the nest is very close to human environment. By collecting and analyzing the bird's feathers extracted by Besra before feeding, we got feathers belonging to 67 birds. Excluding 11 uncertain birds, 56 were successfully identified to 6 species: Barn Swallow (*Hirundo rustica*), Chinese Bulbul (*Pycnonotus sinensis*), Tree Sparrow (*Passer montanus*), Red Turtle Dove (*Streptopelia tranquebarica*), Japanese White-eye (*Zosterops japonica*) and Black Bulbul (*Hypsipetes madagascariensis*). All 6 species are very common birds of human environment such as plain and towns. This indicates that the Besra not only breeds near human environment but also use food resource from such ecosystem very well. Barn Swallow is most numerous food species because it has a rapidly increasing breeding population in Taipei area thus their numerous young swallow become easiest prey to Besra. Bat is a new food item record to Besra in Taiwan.

# Observation on the Nesting Ecology of Brown Wood Owl (*Strix leptogrammica*) in Gannoruwa Forest Reserve, Sri Lanka.

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In Sri Lanka, the family Strigidae is represented by eight species of owls belonging to seven genera. Of the eight species Chestnut-Backed Owlet (*Glaucidium castanonotus*) is endemic to the country. The study species, Brown Wood Owl (*Strix leptogrammica*) is a common member of this family. It distinguishes from all other species of owls in the country by having a slight red-brown facial disk surrounded by a wide black border. The upper part of the body is brownish and striped. The throat is white and the rest of the lower part of the body is pale colored with chocolate brown coloured stripes. Eyes are brown.

This study was carried out in a home garden bordering the Gannoruwa forest reserve (7° 18' 01" N, 80° 35' 37" E) in the Kandy district. A Brown Wood Owl nest was found in a tree hole (Jack tree - Artocarpus hetrophyllus), about 10 meters above the ground. The entrance to tree hole was 45cm wide and about 60cm in height. Its depth was about 90cm. Observation on the nest was made during day and night once a week throughout the post breeding season, which was from early December to end of March. Nest observations were carried out for four consecutive years in the same location.

Two pale white-coloured, ellipsoid-shaped eggs were found in the nest which had an average length and width of 48.8 mm and 43.2 mm, respectively. The eggs were laid in two consecutive days and the incubation was done only by the female. The male fed the female during the incubation period which lasted for about 25 - 30 days. The chicks totally depended on the parents for two months. They were fed with a variety of prey items including; 85% small mammals such as Rats (*Ratus spp.*) and Palm Squirrels (*Funambulus palmarum*); 11% birds including Brown-headed Barbet (*Megalaima zeylanica*) and Yellow-fronted Barbet (*Megalaima flavifrons*) and 04% reptiles including Green Garden Lizard (*Calotes calotes*). These food items were identified by surveying and analyzing left-over items containing parts such as feathers, hairs, bones and skulls found in the nest and the ground below the nest.

# General Situations on the Conservation and Banding Research on Migratory Raptors in Qingdao Areas of Shandong Peninsula during the first 3 Years of the New Century

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Qingdao city located on the south part of Shandong peninsula which is a traditional migratory birds "stage" in the eastern coasts of China. A total of 3 provincial bird refuges were established and 1 local regional law was published during the first 3 years of the century. And excessive of illegal raptor hunting, smuggling, domesticating law cases were investigated. A total of 2362 individuals of raptors belong to 2 orders 3 families 13 species were banded in the 3 years. The Japanese Sparrowhawk, Eurasian Sparrowhawk and Scops Owl were the most common species to be banded. Field migration count data indicated that Japanese Sparrowhawk, Eurasian Sparrowhawk, Northern Goshawk, Eurasian Hobby, Common Kestrel, Oriental Honey-buzzard, Upland Buzzard were common species to be counted. While the Chinese Sparrowhawk, Grey-faced Buzzard, Merlin were rare species to be counted. The general population of counted data varied within the 3 years. Lost of raptor habitats, large scales of human constructions and climate warming might be the main factors. With the held of 2008 Olympic game in Qingdao city more suitable habitats will be set by large scales of human reforestation. More connection and collaborative research are needed between our banding research and the ARRCN. More local communities, individuals, organizations are encouraged to participate in the discussion of the protection of our shared Asian migratory raptors.

# About the Raptor Migration Investigation Organization in Japan

**Yasunori Nitani and Noriyuki Kumazaki**

**ARRCN Raptor Migration Project and Hawk Migration Network of Japan**

Until then, individuals or groups separately conducted raptor migration investigation in Japan. Because of the appeal of the meeting Gifu branch of Wild Bird Society of Japan or ARRCN haze influence investigation of the autumn of 1999, we started the network to share the raptor migration information using the Internet. This network was founded formally in November 2001 as the Hawk Migration Network of Japan. National NGOs or individual observers concentrates, the symposium of hawk migration investigation are held twice, and it result in formation. By promoting cooperation between the members of national every place (overseas is included) that are observing the hawk migration, the purpose of this network offers support assistance of the beginner member while aiming at promotion of the hawk migration investigation in Japan. Moreover, information dispatch of the migration situation of the hawk of the Japan whole country is performed, and it aims at grasp of the migration and habitat situation. It consists of about 30 or more NGOs (meeting branch of Wild Bird Society of Japan etc.) or individual observers in autumn of 2002. An observer is necessary to report the results of an investigation to the secretariat with e-mail or a portable telephone promptly, or make it to a rule to public on an own homepage. The data reported is the number of passage for every observation kind on the day, an observation place (latitude, longitude), an observer, observation time, the weather, etc. In the secretariat, those observation results are exhibited for every observation point on the homepage of the network. It enables it to update as quick as possible on the night of the observation day. Such a system is employed from the autumn of 2000 before formal network establishment. "Hiroshima Raptor Migration & Ecology Research" centering on the member of Hiroshima Prefecture besides this network is original, establishes a homepage, collects the information from observers except the network, and exhibits it similarly. All of this information is linked and it can be seen from each homepage. Furthermore, some of these data is reproduced by the raptor migration homepage of ARRCN established in autumn of 2000, and it is combined with the migration information on Asian area, and is exhibited. We think that the network of such raptor migration investigation is very useful to activation of the investigation in Japan.

Hawk Migration Network of Japan URL:http://www.gix.or.jp/~norik/hawknet/hawknet0.html

ARRCN Raptor Migration Homepage URL: ttp://www5b.biglobe.ne.jp/~raptor/

Hiroshima Raptor Migration & Ecology Research URL : http://taka-ken.cool.ne.jp/

# Dissemination of Raptor Monitoring Based on Biodiversity Conservation Information in GHNP through Environmental Education Program

**Sri Mulyati[1,3], Kuswandono[2,3] and Nur Faizin[3,4]**

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GUNUNG Halimun National Park (GHNP) is located in West Java and Banten Province in Java Island, Indonesia. It covers the area of 113.357 hectares, including the extended area, Gunung Salak and surroundings. Most of the area performs the type of mountainous tropical rainforest, the largest remained in Java Island. The distance of GHNP to Jakarta is about 120 Km to South West or 20 Km South West of Bogor, where some universities and research centers are based and where national and regional policies are made or centered. Hence, GHNP is in strategic location for research, ecotourism and environmental education (EE). The natural forest plays an important role to support the life system of the cities and life in surroundings.

The rainforest of GHNP is an important habitat for the huge number of biodiversity. Some of them are endangered and endemic to Java such as Javan Hawk-Eagle (*Spizaetus bartelsi*), Leopard (*Panthera pardus*), Javan Gibbon (*Hylobates moloch*) and many kinds of plants. Researchers recommend that GHNP is the most viable habitat for Javan Hawk-Eagle. Now in GHNP, a raptor monitoring has been conducting. Particularly, it focused on the pairs of Javan Hawk-Eagle in Northern part of GHNP area.

Unfortunately, the information regarding the importance of GHNP is rarely reached or addressed to the community effectively. Some stress and disturbance occurred to GHNP area raise an environmental crises and the decline of the biodiversity. To save the forest as the appropriate habitat for flora and fauna and keep the good-quality ecosystem for human life, it is necessary to create an integrated model of education and community participation, ecological research and biodiversity management, and providing the necessary legislation and ensure that it is applied properly. Through the environmental education program, the information of the biodiversity conservation, which obtained from some research-based conservation activities such as raptor monitoring, would be able to be disseminated to the community.

Environmental education program is one among many strategies that important for the national park management. For instance, based on the raptor monitoring, all the information being the useful source to provide various material for the EE program (flipchart, story-book, card, etc) and helps in delivering the explanation to the local people and student about its ecology and its role to the balance of the ecosystem. The daily activities information of the Javan Hawk-Eagle in Cikaniki area have known and it is used as idle information for the ecotourism activity. Moreover, information about hunting area has known and it is important as a recommendation to manage the habitat. It helps the community to gain better understanding about the importance of raptor conservation, such as keeping the good habitat for raptor, and on the relationships between human and the nature. Although the environmental education not automatically solves all environmental problems occurred in GHNP area, at least it would significantly contribute toward better informing to the local people and community. Hopefully, it will sharpen their awareness and to support raptor conservation in GHNP actively.

# Conservation of Javan Hawk-Eagle (*Spizaetus bartelsi*) in Gunung Halimun National Park - Indonesia

**Desy Ekawati[1,2,3], Kuswandono[1,3], Wardi Septiana[2,3] and Noriaki Sakaguchi[4]**

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It has been known that predations play a key role in keeping a balance of the biodiversity in ecosystems or animal communities. Though those predators that play such a role is called keystone species, therefore their conservation is also important for the biodiversity conservation. Especially top predators have wide home ranges so that their conservation including the habitats would connect to the conservation of the whole ecosystem. Unfortunately most of those species have been threatened by habitat loss and fragmentation because they need large area to acquire enough foods; some of them the populations also threatened by poaching.

The Javan Hawk-Eagle (*Spizaetus bartelsi*) is the one of top predators in Gunung Halimun National Park [GHNP]. The conservation of this species is very important for the management of the GHNP and it is necessary to involving this endangered species as a target among other targets for the conservation activities. The collaboration project between Japanese Government and Indonesian Government trough Biodiversity Conservation Project [BCP] has been conducting many activities to support the conservation program in Indonesia, especially in GHNP. One of the activities is the establishments of action plan for the conservation in each species referring to the information and opinion from local communities, researchers, NGO, governments, and scientific data also important to carry out to ensure the sustainability of the conservation program. Public awareness also has important role to carry out conservation activities successfully. Especially understanding of local communities is essential to do it. Environment education, eco-tourism and other alternative activities for sustainable development should be provided into the important areas for the endangered species conservation.

Research in order to collecting basic information about population, distribution and other ecological data concerning on this target species have been conducting around Cikaniki, Citalahab and some other area within GHNP. Other conservation activities such as discussion and hearing with local communities to improve the awareness and involving them in conservation activities such as prevention from poaching; also improvement of capability of human resources [NP staff, local communities, NGO, students and Research Institution staff] on conducting research and monitoring this endangered species trough field training by expert.

# Networking: For Sustainability Raptor Conservation in Gunung Halimun National Park - Indonesia

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The presence of raptor within ecosystem is very important because of the position as top predator in ecosystem. The disturbance of raptor species will also disturb the food chain and food web in ecosystem directly or indirectly. Condition of the species, age stratum, population size, distribution and other data of raptor are required as indicator for disturbance level of ecosystem and the raptor species itself.

Gunung Halimun National Park [GHNP] is the best and largest natural habitat for Javan Hawk-Eagle (*Spizaetus bartelsi*) and other raptor remaining in Java Island. But, until now has not enough information about species, age stratum, population size, distribution and other data of raptor. This information is needed for management and conservation policy of area and species.

We realize, to conserve the raptor and its habitat is requiring contribution from many parties. The responsibility is not only belonging to National Park [NP], but also responsibility of local communities surrounding NP and other people [local Government, NGOs, Universities, Research Agencies, etc.]. Based on that reason, it will be more powerful and ensure the sustainability of raptor conservation program reach the goal, is empowering the integrated "potential elements" mentioned above to involve actively within participation directly and indirectly in the program. The support from this stakeholder is very important to make a good and right decision for management and conservation.

Collaboration program has been conducting in GHNP was establishment the Raptor Conservation Network; consist of many elements of stakeholder [i.e.: National Park, local communities, NGOs, Universities, Research Agencies, Local Government, private companies, etc.]. Activities conducted by this Network were: evaluation past and present activities, integrated program planning, research, monitoring, and socialization of conservation program to improve the awareness, protection of the habitat and species, eco-tourism, and information exchange.

We also realize that cordination is always needed in order to make efficient Raptor Conservation program to reach the purpose/goal. One of the idea is to make the "information center" for Raptor Conservation in GHNP, that hopefully will have function as: a center all data and information, data and information analysis, distribution of data and information, and coordination for integrated raptor conservation program.

# Raptors Observed in Vietnam During 2002 - 2003

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Total of 21 raptor species were observed in from 11 sites (5 national parks and 6 are protected & unprotected areas) during 2002 - 2003. Among them, there are 11 migrants such as *Circus spilonotus, Accipiter gularis, A. virgatus, Buteo buteo, Falco tinnunculus, F. subbuteo, F. amurensis, Pandion haliatus,* (*included Aviceda leuphotes, Mulvus migrans* and *Pernis ptilorhynhchus* that are both migrant and resident species), and 10 are residents in Vietnam, included *Accipiter trivirgatus, A. badius, Ichthyophaga humilis, Ichthyophaga ichthyaetus, Spilornis cheela, Butastur liventer, Spizaetus cirrhatus, Aegypius calvus, Polihierax insignis, Macrohierax caeulescens.* In addition, there are several unidentified raptors in the field.

The directions of migrants in winter time and habitat status of these raptors are discussed by authors.

# Ecology of Javan Hawk-Eagle (*Spizaetus bartelsi*) and Its Conservation Strategy

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Despite the endemic Javan Hawk-Eagle (*Spizaetus bartelsi*) has been declared as an endangered species and data deficient by Presidential Decree of the Republic of Indonesia in 1993, the species has been the focus of intensive research in the last few years. Currently, the results of intensive research have added ecological data on new localities, estimated home range size and territory, nest tree species and development of fledgling. New localities have been recorded in southern Cianjur district-West Java. The estimated home range size of adults varies between 2.3 and 14 km$^2$ and the breeding territory is about 0.8 km$^2$. The recorded nest tree species are *Altingia excelsa, Castanea javanica, Eugenia clavimyrtus, Eugenia cuprea, Lithocarpus sp., Pinus merkusii and Schima wallichi.* The young has obtained killing ability at the age of 27-30 weeks old. In order to conserve the endangered Javan Hawk-Eagle sustainably, we have proved that the community participation is the most efficient strategy. Therefore, a guide book for monitoring the species in the long term has been available and regular monitoring by involving various stakeholders has been practiced at Gunung Halimun National Park. In addition, the Javan Hawk-Eagle has been used as flagship of conservation activities in Java including an entry point or flagship for environmental education and public awareness.

# Distribution Pattern of Spizaetus spp (*Spizaetus bartelsi, S.lanceolatus and S. cirrhatus floris*) in Indonesia

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Indonesia harbors of about 60 residents raptor and five of these are Spizaetus spp (*Spizaetus cirrhatus, S.alboniger, S.nanus, S.bartelsi and S.lanceolatus*) whilst their status and threatened conditions are various. All five Spizaetus spp are forest dependent, *S. bartelsi is endemic to Java and its status is Vulnerable and S.lanceolatus* is endemic to Sulawesi with Near-threatened status, *S. c. floris,* is issuing to be a new species and if this true then this raptor will be one of the most threatened raptor in the world.

Distribution study by transect method were done for *Spizaetus bartelsi* at Java, which focused at southern part of West Java, S. *lanceolatus* at Sulawesi, focused at South and Central Sulawesi and *S. c. floris* at Flores Island and Komodo Islands. *Spizaetus bartelsi* recorded at 22 locations, 15 of these are new record. While S. *lanceolatus* were found at 11 locations at South Sulawesi and 25 at Central Sulawesi and *S. c. floris* were recorded at 10 locations in Flores and one in Lombok.

Generally, all those hawk-eagle are forest dependent with different grade of dependencies. *Spizaetus bartelsi and S. lanceolatus* are high dependent, *S. c. floris* recorded at 25-50% forest cover at Flores with notes that Flores forest are less dense comparing to Java and Sulawesi forest.

# Promoting Raptors Conservation through Ecological Tourism —Manjhou Raptors Festival as an example

**Roger C. J. Wang**

**Raptor Research Group of Taiwan**

Hengchun Peninsula is the most important raptors migration area in Taiwan. Traditionally there has been raptor hunting for sale and food in that area. After the establishment of the Kenting National Park in 1982 and the pass of the Wild Animals Conservation Act in 1989, those activities have been decreased largely, but still could not be prohibited totally. In the fall of 2002, several organizations held a Manjhou Raptors Festival in one of the township Manjhou in the peninsula, including the Kenting National Park, Manjhou Township, Wild Bird Society of Pingdong and the Raptors Research Group of Taiwan. The festival adopted several innovative methods like hiring ex-hunters as Grey-faced Buzzard rangers, promoting local stores to attract raptor watchers, promoting local products such as tea leaves by raptor-associated marketing. Besides, local school pupils have been organized for plays and invited to perform in Taipei. The main purpose is to put the conservation issue in local communities, and help local people to participate in conservation activities, in order to localize the conservation work.

# Film Session

# A Film Documentary: Javan Hawk-Eagle: The Threathened Living Mythical


## Muhammad Yayat Afianto and Harry Kartiwa

**Telapak, Bogor, Indonesia.**


The Javan Hawks (*Spizaetus bartelsi*) belong to Hawk-Eagle family. They can only be found in Java island. This species is classified as 'endangered' species in Appendix II of CITES, which means that they have to be protected. Original estimates of the population indicated the species could be Critically Endangered (as 'Red Listed' by the International Conservation Union, IUCN) with only individuals thought to be in the wild 300 (the newest estimation is 200 pairs or 400 individuals in the wild - (Javan Hawk-eagle Conservation Working Group, 2000)). Recently this was revised however, to an estimated 600-1000 individuals, or 140-205 pairs and consequently downgraded on the Red List to Endangered. Mount Salak in West Java is one of their habitats. Some 20 pairs is estimated to live in area.

In 1993, the Javan Hawk-Eagle (*Spizaetus bartelsi*) was declared the national bird of Indonesia due to its resemblance to the famous Garuda. The hawk-eagle is striking in appearance, but being confined to forested areas of Java, Indonesia's most populated island, immortality could soon become the most mythical part of the legend. Their habitat is located at the elevation of 500 - 2,500 meter above sea level. They nest in primary forests.

Telapak and local community are studying a nest in Mt. Salak, located on a primary branch of a 29-meter-tall tree at the height of 26 meter above the ground.

The hawks have special features that make them different from other eagles. The most distinctive feature is the crest on their head. They prey on young mammals abundant in secondary forests. Each pair protect their hunting area, which is near their nest, particularly during the mating season. Like other eagles, Javan Hawks do not always succeed in hunting. Only three of 10 attempts are usually successful. They prey mostly on small mammals such as squirrel and jelarang.

Each of the pair assume different role in raising their young. The male hunts for food while the female take care of and feed the young. At the age of 1 month, young hawks start learning to flap their wings and move to other branches. At the age of 2 months, young hawks are able to fly from one tree to another and go preying

This living myth is living under the threat of extinction. The population, not more than 200 pairs in 1997, is decreasing as their habitat is getting narrowed down. Each pair raises one young in 1-2 years. This low regeneration rate is now facing more threat from human's activities.

Illegal hunting, illegal trade and illegal logging are the biggest threats to their existence.

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**Session III: Migration**
**October 12 (Sunday), 2003**
08:30-10:15

# Satellite tracking the migration of Grey-faced Buzzards

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We satellite tracked five Grey-faced Buzzards migrating between the breeding ground of Honshu and the wintering ground of the South-West Islands of Japan in 2002 and 2003. Not all the buzzards were successfully tracked both in spring and fall, but some details on the migration of the buzzards were shown. Transmitters were deployed to the back of buzzards using Teflon-treated ribbon. One transmitter plus harnessing weighed about 20g and was about 4% of a buzzard body weight. In spring, the buzzards migrated north from the South-West Islands through Kyushu and Shikoku to central Honshu, and in fall they migrated down through a similar way back to the South-West Islands. Spring migration was faster than fall migration. The migration route of a particular individual was similar in spring and fall, but was different in some parts of Nagano, Shiga and Ehime Prefectures. In Shiga Prefecture, for example, the buzzard migrated south of Lake Biwa in spring but north of the lake in fall. Migration starts, migration periods, and migration routes were very similar in two successive springs for the same individual. The wintering and breeding sites tended to be strictly fixed in the same individual. By combining satellite locations, field observations and the Geographical Information System, it was shown that the main habitat of the buzzards was paddy fields surrounded by forests in the breeding season, some kinds of forests during migration, and pastures with tree stands in winter.