Figure 1. Distribution of the golden langur in Bhutan and India. This is also its world distribution [from Choudhury, 1992].
PRESENT STATUS OF THE   
GOLDEN LANGUR   
IN ASSAM, INDIA

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Introduction

The golden langur (Trachypithecus geei [=Presbytis geei]) occurs only in northwestern Assam and part of Bhutan according to present knowledge. Field studies of golden langurs were carried out more than two decades ago (Mukherjee, 1974, 1978), but since then few attempts were made to collect fresh information on this species until the past few years. Since 1995, extensive surveys have been conducted in the western part of Assam by the first author, as well as personnel of the Indo-U.S. Primate Project directed by Drs. S.M. Mohnot and A. Srivastava. The authors' surveys have covered the districts of Dhubri, Kokrajhar, Bongaigaon, and Goalpara to obtain current data on the distribution, abundance, social structure, and ecology of the golden langur. The habitats of this langur fall primarily in wildlife sanctuaries, reserve forests, Manas National Park, Biosphere Reserves, and Project Tiger areas. The golden langur is placed under Schedule I of the Indian Wildlife Protection Act (1972) and in Appendix I of Cites. The present survey indicates that the golden langur is probably India's most seriously endangered primate.

Study Areas and Methods

Three census districts of this survey (Dhuri, Kokrajhar, and Bongaigaon) are north of the Brahmaputra river in western Assam, whereas one (Goalpara) is south of the Brahmaputra. Census areas were combed by searching all available roads, forest trails, and game tracks for the presence of langur groups. When langurs were sighted, they were counted and classified as adult male, adult female, infant and juvenile. Sounds of langur activities were also utilized to detect their presence, and then they could usually be found. Local people, including villagers and officers and staff of the forest department, were interrogated about the presence of langurs in their areas.

Distribution and Abundance

The occurrence of golden langurs at Jamduar and Raimona in Assam was reported by Gee (1956), Khajuria (1956), and Mukherjee and Saha (1974). The occurrence of this langur was recorded from the west bank of the Manas river by Gee (1961), Wayre (1968 a and b), and Mukherjee (1978). Choudhury (1992) provides an outline map of golden langur distribution as known in the early '90's (Figure 1). Mukherjee et al. (1993) found new groups in the forests of Chakrasila Reserve of Dhubri district, a place farther south of the type locality on the north side of the Brahmaputra. The latest records of golden langurs form different areas in Assam have been reported by Mukherjee (1995). Golden langurs have not been recorded from the forests of Kuchuraon before the present survey.

Many people have expressed doubts of its occurrence in the Garo Hills of Meghalaya and the foothills of the Khasis Hills, and field surveys conducted in these areas alleged to harbor golden langurs failed to locate any groups (Ghosh and Biswas, 1976). Khajuria (1986) reported golden langurs within India as far south as Raimona, but this has not been confirmed in our surveys. All indications are that golden langurs are confined to southern and central Bhutan and the northwestern part of Assam bordering Bhutan (Figure 1).
In the present survey, spanning three years of field work, a total of only 325 golden langurs was recorded in 37 groups. These were found in the three districts of Kokrajhar, Dhubri, and Bongaigaon (Figure 1). The highest number of groups was recorded from Kokrajhar - 20 groups with a total of 175 individual langurs (Table 1). In Dhubri, 14 groups with 133 individuals were found; and in Bongaigon district, only 3 groups with 17 individuals were found. The smallest group was a solitary individual, and the largest group in the entire survey contained 20 monkeys.

In Kokrajhar district, 65% of the groups contained 10 or less individuals. In Chakrashila forest in Dhubri district, 64.3% of the groups contained 10 or fewer. The average group size of golden langurs from this current survey was only 8.8 individuals.

In Kokrajhar district, 13 groups had only 1 adult male, 6 groups had 2 adult males, and one group had 4 adult males. Thus, 65% of the groups were unimale. Of 14 groups in Dhubri district, 10 groups had one adult male (71.4%), three groups had two adult males, and one group had three adult males. In Bongaigaon district, only three groups were encountered, of which two were bisexual groups with one and two males respectively, and one "group" was a single male.

The adult sex ratios of all groups in this survey was 1 male to 3.7 adult females. The ratio of infants to adult females was only 0.25. Infants represented only 11.7% of the total population, and juveniles were only 13.2% of the total population. Hence, the percentage of immatures in the population surveyed was only 24.9%.

Table One. Group sizes and composition of golden langur groups in Assam, 1995-1997

<table>
<thead>
<tr>
<th>District</th>
<th>Total No. of Groups Found</th>
<th>Total No. of Individuals</th>
<th>Average Group Size</th>
<th>Adult Males</th>
<th>Adult Females</th>
<th>Infants</th>
<th>Juveniles</th>
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<tbody>
<tr>
<td>Kokrajhar</td>
<td>20</td>
<td>175</td>
<td>8.75</td>
<td>29</td>
<td>104</td>
<td>18</td>
<td>24</td>
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<tr>
<td>Dhubri</td>
<td>14</td>
<td>133</td>
<td>9.5</td>
<td>19</td>
<td>79</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Bongaigaon</td>
<td>3</td>
<td>17</td>
<td>5.7</td>
<td>4</td>
<td>9</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>37</strong></td>
<td><strong>325</strong></td>
<td><strong>8.9</strong></td>
<td><strong>52</strong></td>
<td><strong>192</strong></td>
<td><strong>38</strong></td>
<td><strong>43</strong></td>
</tr>
</tbody>
</table>

Discussion

These results indicate an alarming situation for the golden langur population of India. Their distribution has been reduced significantly, and their population status shows very small groups in scattered locations with small percentages of infants and juveniles. The Indo-U.S. Primate Project under the field supervision of Dr. Arun Srivastava has located some other groups of golden langurs in northwestern Assam; but, collectively, we feel the total population of this species in India is probably less than 1500 individuals. A larger population exists in Bhutan, estimated to be as high as 4,340, but this is based on
extrapolation form a 58.5 km² study area in Black Mountain National Park (Wangchuk, 1996). The total known range of the golden langur in both Bhutan and India occupies less than 30,000 km², and much of this is not suitable habitat.

In geographic distribution, the present surveys could not locate any golden langurs in Jamduar and Raimona forests nor in the Garo and Khasi Hills of Meghalaya in areas where they had been reported previously. In western Assam, several new site locations for golden langurs were recorded. These include Kachugaon, Bismuri, Karigaon, Malitugaon, Naykgaon, Desiriri and Utpali in Kokrajhar district, and Chaparaka and Kokarnpala hill ranges in Bongaigaon district. Their occurrence in two other areas, Kakijan and Bhariab hills in Bongaigaon district has also been reported by local people. Their occurrence in Dhuri district had been reported earlier (Mukherjee, 1993). Two groups of golden langurs have been translocated - one to a small island in the Brahmaputra river opposite Guwahati, and another to Sepahijala Wildlife Reserve in Tripura.

**Conclusions**

It can be concluded that golden langurs in the past occurred in the whole of western Assam north of the Brahmaputra and probably in some locations south of the Brahmaputra. Now they are limited in India to isolated areas in just three districts of northwestern Assam. Their habitat in India has deteriorated in recent years due to large scale logging, and the area is now subject to heightened disturbance by an influx of refugees. Rapid deforestation is painfully evident.

The limited distribution of golden langur groups, their scattered isolation and small group sizes, low percentages of infants and juveniles, and seriously deteriorating habitat are all factors indicating that this species is in serious danger in India. Urgent conservation attention is needed, and the golden langur should become the "Flagship Species" for wildlife conservation in northeast India in the same sense that the lion-tailed macaque (*Macaca silenus*) holds this position for south India.

**Acknowledgements**

This field study was supported by grant 5025-94 from the National Geographic Society to Dr. Mukherjee. Dr. Southwick’s field trips to Assam have been supported by Rupee funds from the Indo-U.S. Primate Project. We are indebted to Dr. S.M. Mohnot, Director of the Indo-U.S. Primate Project and Dr. Arun Srivastava, Scientist-in-Charge of the Northeast Centre of the Indo-U.S. Primate Project in Guwahati, Assam, for encouragement and logistic support. We also are grateful to officials of the Forest Department of Assam for permission and cooperation to conduct the field work.

**References**


Figure 1. Map of the Philippines showing location of the field site. The inset shows the location of Mt. Pangasugan on Leyte.
A PRELIMINARY STUDY OF THE PHILIPPINE TARSIER IN LEYTE

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Introduction

Tarsiers (genus Tarsius) are small, nocturnal, frugivorous primates which inhabit the islands of southeast Asia. To date, of the five species that are recognized, three have been the subject of behavioral and ecological research. T. bancanus (Niemitz, 1979; Crompton, 1989; Crompton and Andau, 1986, 1987) lives on Borneo and surrounding islands. T. spectrum (Fogden, 1974; MacKinnon and MacKinnon, 1980; Gursky, 1997), T. diaeae (Tremble et al., 1993), and T. pumilus occur on Sulawesi. T. syrichta (Figure 1) inhabits the islands of the Greater Mindanao faunal region of the Philippines. There are only limited published observations concerning its ecology and behavior, and it has never been the subject of a long-term ecological study. Previous to 1994, T. syrichta was considered endangered according to the IUCN, and under the most strict threat because of extreme habitat destruction (Wright, et al. 1987). It received a "high priority rating" in the Action Plan for Asian Primate Conservation (Eudey, 1987). Heaney and Utzurrum (1991), however, considered it to be locally common. It was removed from the endangered species list (IUCN, 1996; Wildlife Conservation Society of the Phillipines, 1997), and is currently listed as Lower Risk: Conservation Dependent (LR:cd) in the 1996 IUCN Red List of Threatened Mammals (IUCN, 1996).

In May 1997, we initiated a study of the Philippine tarsier on the island of Leyte. The study site is located at Mt. Pangasugan, immediately east of the Visayas State College of Agriculture (Figure 2). This site offers a variety of habitats from an "area of patchwork agricultural land, second growth, and disturbed forest" (Rickart et al., 1993) at the base of the mountain (50-100 m), to undisturbed primary forest at higher elevations (300-1200m). This work was done in the lower elevations (~100 m) in secondary forest. Two male tarsiers (143g, 153g) were captured and radiocollared. We conducted five all-night (dusk-dawn, 17:30-05:00) follows of one tarsier, and four all-night follows of the other. We also spent additional half-nights (dusk to 22:00) following these tarsiers, generating a total of 130 hours of survey time. During each of these follows, we marked the location of the tarsier every 15 minutes in order to determine home range and nightly minimum travel distance. Ad hoc observations also were made on locomotion, substrate use, height, grooming, and feeding.

Results

In the captive setting, T. syrichta forms small groups like T. spectrum (Haring et al., 1985; Hill et al., 1952), although Wharton (1950) reports that males do not tolerate other males well. Field observers also report that T. syrichta often is found in pairs (Cook, 1939; Rickert et al., 1993). The tarsiers we observed, however, were always solitary. Calls of other tarsiers were heard on the edges of the home range. One other tarsier encountered during this study and three other tarsiers observed during a pilot study in 1995 also were alone at their sleep sites.

Home range, as estimated by the 'minimum home range method' [a polygon which encloses all sightings] (Bearder and Martin, 1979), was 0.6 ha for one tarsier and 1.7 ha for the other.
The first tarsier used most of the area within its small home range. The other tarsier's range included cleared and planted areas that were not used during the time of observation. Minimum nightly travel distance was 260 m for one individual (range 156-327 m) and 342 m (range 363-464 m) for the other. The home range size of _T. syrichta_ is smaller than the 4.5-11.25 ha reported for _T. bancanus_ (Crompton and Andau, 1987), but similar to the 0.5-4 ha reported for _T. spectrum_ and _T. diana_ (MacKinnon and MacKinnon, 1980; Niemitz, 1984a; Tremble, _et al._, 1993; Gursky, 1997.) Minimum nightly travel distance also is less than the 1500-2000 m reported for _T. spectrum_ (Gursky, 1997). This difference may, however, be primarily due to method: we recorded location only every 15 minutes, compared to every 5 minutes in the other studies.

Each tarsier used a few (3-4) sleep sites. These areas are characterized by remaining large trees (primarily of _Artocarpus_, _Pterocarpus_, and _Ficus_), surrounded by dense undergrowth consisting of ferns, saplings and bamboo. This undergrowth provided a cool, dark and sheltered sleeping area. The sleep sites of Philippine tarsiers were generally low to the ground (less than 1 meter high). Foraging and traveling took place very low to the ground. Seventy-two percent of observations were at 2 m or less, and 47% less than 1 m. This is similar to reported values of other species (Niemitz, 1984b; MacKinnon and MacKinnon, 1980; Crompton and Andau, 1986).

Positional behavior and substrate use of the Philippine tarsier is very similar to that of other tarsiers (MacKinnon and MacKinnon, 1980; Crompton and Andau, 1986; Crompton, 1989; Tremble, _et al._, 1993). Leaping made up 62% of locomotor bouts (N=345), climbing 25%, and quadrupedalism 11%. Vertical supports were used in 64% of observations, and the majority of supports used were very small (less than 5 cm).

**Conclusion**

The extensive degree of habitat destruction in the Philippines is cause for concern for the continued survival of its endemic fauna (Heaney, 1993; Wildlife Conservation Society of the Philippines, 1997). Given the difficulty of surveying small, nocturnal, arboreal animals, it is hard to arrive at a good estimate of population density or remaining numbers of _T. syrichta_. No detailed survey of Philippine tarsiers has ever been conducted. A brief study conducted in Bohol estimated densities of 1-3 per hectare from transect sampling (Lagapa, 1993). The home ranges calculated here yield a similar estimate of 0.5-2 per hectare. Assuming similar densities in primary forest, and an estimate of 80,000 remaining hectares of primary forest in Leyte (Margraf and Milan, 1996), the contention of Heaney and Utzurrum (19991) that tarsiers may in fact be fairly common is supported. We stress, however, that our data on home range are very preliminary. We do not have data for female home range, or any knowledge of the degree of overlap of home ranges. There is no census data from primary forest. Much of the remaining primary forest is at high elevations on steep slopes, and it is not known if tarsiers even inhabit these areas. There are no collection records from altitudes greater than 800 m, and other observers report tarsiers are more common at low elevations in secondary forest than in primary forest (Fulton, 1939; Wharton, 1948; Hoogstraal, 1951). Unfortunately, no good estimates of secondary forest area exist, and, in any case, all secondary forest is not suitable tarsier habitat. In our study area, large trees (>40cm DBH) always anchor the sleeping and feeding areas and are used as rest areas during the night. Areas of dense undergrowth are the preferred foraging areas. In adjoining areas where most big trees and underbrush were cleared we were unable to locate tarsiers.
Like Leyte, some primary forest remains in Mindanao. Samar also has fairly large tracts of forest (Caldecott, et al., 1997). Bohol, however, has virtually no remaining primary forest, and tarsiers may have become locally extinct in some areas (Evenhouse, pers. comm.). Many smaller islands (e.g., Maripipi, Siargao, Dinagat, Basilan) where tarsiers are known to have existed in the past urgently need to be surveyed. Data Deficient (DD) may be the most appropriate conservation category for this species.

Acknowledgements

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References


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Figure 2. *Tarsius syrichta*, at the study site at Mt. Pangasugan, Philippines.
NEW INFORMATION ABOUT THE DISTRIBUTION OF PREBYTIS ON SUMATRA

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During an extensive trip through Sumatra, some new information was collected about the distribution of Prebytis on this island. Ten different (sub-)species were encountered, and the loud calls of seven taxa were recorded. A publication (Vermeer and Geissmann, in press) about these recordings has been prepared.

Interesting information was collected about the distribution of *P. femoralis paenualata*. A group of this subspecies was encountered 15 km south-west of Prapat (near Lake Toba). We not only saw them but also heard the loud call, which definitely was not the loud call of a *P. melalophos* subspecies.

Wilson and Wilson (1997) report that the probable northern boundary of this subspecies is the Barumun River, although they indicate uncertainty about this. Aimi and Bakar (1992) give this river as the northern boundary, but the location where we observed this subspecies is about 150 km north of the Barumun River. This could mean that there is sympathy between *P. femoralis* and *P. melalophos* (if the subspecies margae, which occurs in this region, is indeed a subspecies of melalophos).

Five kilometers north of Sengeti (near Jambi), north of the Batang Hari river, we observed a whitish colored langur. From the vocalizations the animals made, we could conclude that they did not belong to a subspecies of *Prebytis melalophos*. The animals were white, with a little grey on the back. The tail was bicolored, the ventral side whitish, and the dorsal side dark-grey, darker than the back of the animal. The face of the animals was dark blue, while the crown was white with a black crest.

Wilson and Wilson (1977) suggest that *P. femoralis catemana* might live in this area, but they did not observe them. Aimi and Bakar (1992) report that the area north of the Batang Hari and south of the Indragiri river belongs to *P. melalophos bicolor*, a subspecies with a dark brown dorsum and a white ventrum. We also have observed this subspecies, but farther to the west.

The animals encountered by us are very similar to some skins in the Natural History Museum of Leiden of *P. melalophos fluviatricus* from the neighborhood of Palembang, which also are described by Hooijer (1962). It is, however, not likely that the animals observed by us belong to this subspecies. *Fluviatricus* lives south of the Batang Hari, but this river is wide enough to be a zoogeographic boundary (Whitten et al., 1987). Additionally, *fluviatricus* changes northwards into an orange colored form. We observed orange *P. m. fluviatricus* 80 km south of Jambi.

Further research is needed to establish the taxonomic position of these langurs.

*Prebytis femoralis paenualata* at the Penatangsimlar Zoo. Photo: Jan Vermeer.
Acknowledgments

During this trip I was accompanied and supported by three colleagues of Apenheul Primate Park (NL), Ronald Pen, Henk Penninga and Dito Soenarto.

References


BLACK LANGUR REDISCOVERED

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Introduction

In January 1998, the Endangered Primate Rescue Center (EPRC) in Cuc Phuong National Park, Vietnam received one langur with entirely black coloration. For over 70 years the existence of a black langur in northern Indochina had been assumed, yet this is the first known living specimen. The monkey is a male about two years old. Tourists bought the monkey in Quang Binh Province in central Vietnam, with the misguided intention of releasing him in forest.

Results and Discussion

In conjunction with his analysis of the material from the Kelly-Roosevelt and Delacour expeditions through Indochina and China, Osgood (1932) also examined material collected by F.R. Wulsin (1924) during the National Geographic Central China expedition. Wulsin's data included one skin and skull from a langur with black coloration preserved at the National Museum of Natural History, Smithsonian Institution, Washington, D.C. Osgood only made reference to the specimen and refrained from describing a new form on the basis of insufficient evidence. The location for the langur is identified merely as "French Indo-China."

Brandon-Jones (1995) speculates that the animal originated from the Pan Si Pan area in North Vietnam and hence describes it as a new subspecies of the Indonesian ebony langur (Semnopithecus auratus ebenus). No reliable information exists from earlier sources, observations or museum material about langurs of the francoisi group from northwest Vietnam (Fooden 1996) to justify this claim, nor are there any new observations. Ratajczak (1990) received a dubious tip about francoisi langurs in this region. Previous experience suggests the validity of such data is questionable. Observations of "black langurs" also could quite possibly be of gibbons.

Field observations of completely black langurs in Laos have been reported by Ruggieri and Timmins (1995) and Timmins and Khamkhoun Khounboline (1996). The region implicated is the Hin Namno National Biodiversity Conservation Area (NBCA), close to the border with Vietnam. This limestone area is connected to both Nam Kading NBCA and Khammouane NBCA in Laos, where the white-browed black langur (Trachypithecus francoisi laotum) occurs, and to the Phong Nha Nature Reserve in Vietnam, which coincides with the presence of Hatinh langurs
Figure 1. The distribution of the white-browed black langur (*Trachypithecus francoisi laotum*), black langur (*Trachypithecus francoisi ebenus*) and Hatinh langur (▲ *Trachypithecus francoisi hatinhensis*).
(Trachypithecus francoisi hatinhensis). The distribution of Hatinh langurs extends outside Phong Nha (Lippold and Vu, 1995; MacKinnon, 1992; Nadler, 1996). The taxonomic status of these three forms living in close proximity without perceptible boundaries is not clear (see Figure 1).

It is quite plausible that the animal now kept at the EPRC was caught in Laos and smuggled into Vietnam to sell. Timmins and Khamkhone Khouboline report that there is intensive hunting by Vietnamese in Hin Namno NBCA and the Laotian villagers are afraid of the armed Vietnamese hunters in the forest.

Assuming Wulsin did not personally collect the specimen, but obtained it somewhere during his trip through Laos, the ambiguous locality on the label is more understandable.

Habitat, behavior and vocalization of the black langur at the EPRC show strong affinities to the langurs of the francoisi group. The description by Brandon-Jones of the hair structure, hair direction and coloration of the specimen in the National Museum of Natural History correspond closely to the animal at the EPRC. Brandon-Jones already has remarked that the crest resembles that of the Trachypithecus group and the brow hairs lack the forward curl characteristics of the ebony langur.

The facial skin of the black langur is uniformly black, corresponding to that of langurs of the francoisi group, whereas the ebony langur has a bluish tinge to the facial skin. The eye position of the black langur also differs slightly from that of the ebony langur.

The geographical separation also suggests that the black langur is not a subspecies of the ebony langur, which is distributed on the islands of Java, Bali and Lombok. Undoubtedly, the black langur belongs to the francoisi group, even if its taxonomic position within this group is not yet clear. Until more detailed investigations are conducted, the name suggested for the black langur is Trachypithecus francoisi ebenus (Brandon-Jones, 1995).

Acknowledgments

I wish to express my thanks to Katie Hampson for her help with the English translation.

References


PRELIMINARY SURVEY FOR
HATINH LANGUR IN
NORTH CENTRAL VIETNAM

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Introduction

The Tonkin langur (Trachypithecus francoisi) is indigenous to Vietnam, south China and northeast Laos. Vietnam has four subspecies: T. f. francoisi (Pousargues, 1898), T. f. poliocephalus (Trouessart, 1911), T. f. dalacouri (Osgood, 1932), T. f. hatinhensis (Dao, 1970). The Hatinh langur (T.f. hatinhensis) was described by Dao in 1970.

Subsequently there was no information about the Hatinh langurs in the wild until an animal was photographed by Le Xuan Canh in 1992 (see Le, 1993). In 1993, a specimen was purchased by the Labor Zoo of Hanoi University (Ha, 1995), and another one, from Minhhoa district, Quang Binh province, was received by Xuan Mai Forestry College (Pham, 1995). During 1993-1995, six Hatinh langurs were gathered by the Endangered Primate Rescue Center in Cuc Phuong National Park. Presently, all known specimens of Hatinh langurs come from Ha Tinh (Bourret, 1942) and Quang Binh provinces (Dao, 1964; Pham, 1995; Ha, 1995).

Methods

Three field surveys were conducted in 1995-1996 in five districts in Ha Tinh and Quang Binh provinces to identify distribution, habitat, and the conservation status of the Hatinh langur. We selected eight sites for this work based on previous field experience, provenance of collected specimens, and information obtained from colleagues (see Figure 1). The surveys were carried out over 68 days during three different periods. Additional information was gathered from local people, especially hunters, who were asked to identify different primate species in color photographs.

Results

We obtained some information on the presence of Hatinh langurs in Hoaung, Minhhoa district, Quang Binh province. The people in Hoaluong village quickly recognized photographs of the subspecies. Several langur sleeping impressions were checked. These were old ones, and, we believe, the langurs had changed their sleeping sites. No Hatinh langurs were seen in the field, however.

It was clear that the Hatinh langur occurs in the areas of Thounghoa, Minhhoa district and Phongpha, Botrach district. A long term field study was carried out on 12 groups (nine groups in 1995, three groups in 1996). The data show the langurs' daily activity, including a mid-day rest. Observations on their feeding behavior and food preferences were inadequate, but young leaves and fruit were present in the area during the study. Some ecological and behavioral observations on the langurs are summarized in Table 1.

Hatinh langur (Trachypithecus francoisi hatinhensis) with infant. Photo: Tilo Nadler.
Table 1. Ecological and behavioral observations on Hatinh langurs (Trachypithecus francoisi hatinhensis).

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Cave Elevation</th>
<th>Group size</th>
<th>Adult</th>
<th>Juvenile</th>
<th>Infant</th>
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<td>1</td>
<td>16^50</td>
<td></td>
</tr>
<tr>
<td>18/11/95</td>
<td>Nuitreo</td>
<td>Forest</td>
<td>8</td>
<td>?</td>
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<tr>
<td>10/06/96</td>
<td>Ca</td>
<td>50m</td>
<td>9</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>18^1</td>
<td>5^30</td>
</tr>
<tr>
<td>15/06/96</td>
<td>Tromong</td>
<td>30m</td>
<td>18</td>
<td>13</td>
<td>2</td>
<td>3</td>
<td>17^55</td>
<td>5^05</td>
</tr>
<tr>
<td>18/16/96</td>
<td>Nhang</td>
<td>Forest</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1</td>
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Distribution and Numbers

*T. f. hatinhensis* is endemic to Vietnam, with restricted distribution at present and, probably, historically. A number of records of the taxon remain to be validated, however. We were unable to document the presence of the Hatinh langur in Vuquang area (Vu, 1994, 1995). We rechecked this information by interviewing the local hunters; however, they could not identify the langur in photographs. A field survey was conducted subsequently, but there was no sign of the langurs. Presently, the presence of the langur in Vuquang Reserve remains in doubt; and it is important to take into consideration that the limestone forest habitat apparently preferred by *T. francoisi* does not exist in the area.

The information on Hatinh langurs was very poor in the areas of Baren and Truongson. The subspecies should have become extinct in these places a long time ago.
The presence of Hatinh langurs at Bach Ma National Park is mentioned in the Bach Ma Management Plan (1990). Confirmation was not obtained in 1994. Local interviews should be reliable. Lippold and Vu (1995) report a Hatinh langur in Con Cha Rang National Reserve, in Gialai province. This place is outside our survey sites. Although both Bach Ma and Con Cha Rang remain questionable, Hatinh langurs may be there, in which case they would represent very small relict groups.

Although the Hatinh langur at present is concentrated in Quang Binh province, the information reviewed above suggests that the taxon should have a larger distribution. We estimate the total population to be between 520 and 670 animals, of which 50-70 individuals are in Hoason, 250-350 in Thuonghoa and 200-250 in Phong Ha. There also may be some animals scattered in other places in the far south.

Threats

The principal threats to the Hatinh langur and other primate taxa in Vietnam are hunting and habitat loss; they have lead to the extirpation of primates in Quang Binh and Ha Tinh provinces. Shooting and drying monkeys became a regular way for the people of Hoason, Thuonghoa and Phongnha (Quang Binh province) to earn income during 1978-1991. During this period, hundreds of hunters from these three communities may have gone into the forest to shoot monkeys. In 1991, the Command Board of Quang Binh issued an order requiring the return of all military guns distributed to the People's Army during the American War, but the order was not thoroughly implemented. Poaching has been observed subsequently.

Deforestation is the other cause leading to the decrease in numbers of Hatinh langurs and other primates in Quang Binh province. The habitat within the historical range of Hatinh langurs in Tuyeno ha and north of Minhhoa has been seriously degraded.

Conservation

*T. f. hatinhensis* is likely to become extinct in the next ten years unless a concerted effort is made by the Government of Vietnam and the international conservation community to protect it. We propose that the following actions should be included in any conservation strategy:

(1) Expansion of Phong Nha Nature Reserve At present, Phong Nha Nature Reserve encompasses 41,132 ha, of which 24,861 ha are limestone forest. This limestone forest is the basic habitat of the Hatinh langur. Because the reserve rangers are too few in number and protection is limited, about 8,000 ha of limestone forest have been degraded. In order to effectively protect the Hatinh langur and other primates, about 15,000 ha of Phong Nha Nature Reserve should be upgraded to the status of a national park. This area includes the forest in the northwestern part of Phong Nha; it contains a diverse and rich fauna and flora and distinctive geological features. There are, moreover, no people living inside the area. At least nine different primate populations have been recorded in this region: pygmy loris (*Nycticebus pygmaeus*), slow loris (*N. coucang*), stump-tailed macaque (*Macaca arctoides*), Assamese macaque (*M. assamensis*), pigtail macaque (*M. nemestrina*), rhesus macaque (*M. mulatta*), red-shanked douc langur (*Pygathrix nemaeus nemaeus*), Hatinh langur (*Trachypithecus francoisi hatinhensis*), southern white-cheeked gibbon (*Hylobates leucogenys siki*).

The reserve also harbors many species of globally threatened mammals, birds and reptiles. Preliminary observations indicate the presence of two new ungulates in the Yenhop area: the Vu Quang ox (*Pseudoryx nghetinhensis*) and Vu Quang muntjac...
(Megamuntiacus vuquangensis). Hornbills and pheasants have been sighted in the area. Many local hunters in Yenhop, Tramme, Chay, and Lap described and recognized the Vietnamese pheasant (Lophura hatinhensis), Siamese fireback (L. diardi), and crested argus (Rheinardia ocellata). Observed species of turtles and snakes listed in the Red Data Book of Vietnam (Ministry of Science, Technology and Environment, 1992) include: the Indochinese box turtle (Cuora galbinifrons), Chinese three-striped box turtle (C. trifasciata), big headed-turtle (Platysternon megacephalum) and Indian python (Python molurus).

The Committee of Quang Binh province agrees with, and supports, the proposal to establish Phong Nha as a national park. A feasibility study should be carried out as soon as possible.

Management activities in Phong Nha Nature Reserve must be reinforced by upgrading staff, working conditions and equipment. The law prohibiting the hunting of protected species must be enforced and strengthened, not only in the villages close to the forest but throughout the entire area. Education programs should be designed to alert local people to the consequences of hunting and to minimize conflict between farmers and the Hatinh langur and other primates.

(2) Further surveys for T. f. hatinhensis in south-central Vietnam. The presence of Hatinh langurs in Gialai and Kontum provinces should be rechecked. Further studies on ecology and behavior should be carried out, along with investigations of the preferred limestone forest habitat.

The efforts of Vietnamese conservationists are hampered without adequate financial support. The above activities can be carried out only with a strong and coordinated effort from conservation organizations outside Vietnam.

Acknowledgments

This survey was funded by WWF, Vietnam Country Representative, and Primate Conservation, Inc. (PCI), in collaboration with the Department of Wildlife Management, Forestry College Xuan Mai, Vietnam. We are especially grateful to David Hulse, WWF Vietnam Country Representative, and Noel Rowe, Director of PCI, for providing constant support, advice and encouragement during all stages of planning. Thanks to Mr. Nguyen Mau Tai, Director of the Forest Protection Department; Dr. Nguyen Nhu Phuong, Chief of Special Use Forest and Wildlife Protection Unit; Mr. Tran Dinh Long, Director and Mr. Bui Ngoc Tu, Vice President of Provincial Forest Protection Department; Mr. Cao Xuan Chinh, Director and Mr. Nguyen Van Huyen, Vice Director of Phong Nha Nature Reserve.

References

Figure 1. Region surveyed for Hatinh langurs in 1995-1996. Survey sites are indicated on the map. (Map: Stephen D. Nash, after an original by the authors.)
THE INDO-U.S. PRIMATE PROJECT: A SUMMARY OF RECENT ACTIVITIES

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CUBox 334
University of Colorado
Boulder, CO 80309 USA

The Indo-U.S. Primate Project, a Rupee-supported project directed by Dr. S.M. Mohnot of J.N.V. University in Jodhpur, India, held its third Annual Meeting in Jodhpur, 8-9 October 1997. The meeting reviewed the progress of field research by students, staff, and collaborators of the project in 1997, and also discussed strategies for future work. The meeting included 21 formal scientific presentations, several round table panels, informal discussions, and field trips to view Hanuman langur groups in the Jodhpur area. Eighty to a hundred people attended, from all regions of India. The U.S. was represented by: David Ferguson and Kim McClurg, of the U.S. Fish and Wildlife Service; Alice Pandiya, of the U.S. Embassy in New Delhi; Russell Mittermeier, of Conservation International; Rob Horwich, of Community Conservation Consultants; Charles Southwick and Barry Rosenbaum, of the University of Colorado; and Irwin Bernstein and Matt Cooper, of the University of Georgia.

The meeting was opened by Professor Shyam Lal, Vice Chancellor of J.N.V. University, and Professor A.S. Kapoor, former Vice Chancellor of Rajastan University of Jaipur. A welcoming address was presented by: Dr. S.M. Mohnot, Director of the project and Chairman of the Department of Zoology of J.N.V. University.

The inaugural address was delivered by Russ Mittermeier on global aspects of primate conservation and biodiversity. Keynote lectures on other topics of primate conservation, ecology and social behavior were presented by: P.C. Bhattacharjee, of Gauhati University, C.H. Southwick, Irwin Bernstein and Rob Horwich.

The purpose of the Indo-U.S. Primate Project is field research on the ecology, behavior, and conservation of India's rich primate fauna, with the primary focus of supporting and training Indian students and young investigators in field research. Major projects include the following:

1) Population Studies of Lesser-Known Primates in Northeast India These projects are directed by Dr Arun Srivastava, Scientist-in-Charge of the Northeast Centre in Guwahati, Assam. They include studies by Jayanta Das, on the effects of logging and canopy loss; Dilip Chetry, on the ecology of stump-tail macaques in Northeast India; Kashmira Kakatia, on food selection and ranging in the hoolock gibbon; Farzana Begum, on a socio-economic study of human resource use in Barak Valley; Prabal Sarkar, on social behavior of Assamese macaques; and Arun Srivastava, on population surveys of golden langurs. With support from the National Geographic Society, in collaboration with the Indo-U.S. Primate Project, Matt Cooper and Irwin Berstein conducted field studies on Assamese macaques; R.P. Mukherjee worked on golden langurs, and A.K. Gupta has, recently, completed extensive studies of primate communities in Tripura.

One of the major conclusions of the field work in Assam and other provinces of Northeast India is the urgent need for primate conservation. Population pressures are intense - refugee problems, economic expansion, deforestation and habitat loss are all very evident in many areas. Primates and other wildlife are increasingly scattered and isolated in protected areas.

2) Field Studies on Lion-tailed Macaques in South India Directed by Professor Mewa Singh of Mysore University, this work involves surveys of abundance, distribution, and group structures of LTM's in Karnataka; the
focus is on male migration and mating patterns between groups. It is supported primarily by a separate grant from the San Diego Zoological Society, with cooperative funds in Rupees from the Indo-U.S. Project. Field work directed by Dr. Singh is extended to include Nilgiri langurs and slender lorises. Don Lindburg and John Oates have served as U.S. advisors to this field research in South India. Dr. Singh will host the Fifth International Symposium on the Lion-tailed Macaque, in Mysore, during January of 1999.

(3) Long-Term Studies on Social Behavior and Population Trends of Hanuman Langurs in the Jodhpur Area This work includes regular census studies of approximately 41 groups of langurs, a continuation of the work begun by: Dr. S.M. Mohnot. The Jodhpur langur population has increased in the past year after several years of relative stability. The current population in 82 km² exceeds 1500, with troop sizes ranging from 18 to 128. New langur studies also have begun in Kumbhalgarh Wildlife Sanctuary, 200 km south of Jodhpur, by Anil Chhangani, and in the mountains of Himachal Pradesh on the borders of: Kashmir and Jammu, by Dr. Santosh Sahoo.

(4) Rhesus Monkey Population Studies in Aligarh District Dr. M. Farooq Siddiqi and Dr. Southwick continue regular census studies of rhesus macaques in Aligarh district of western U.P. In July and August 1997, this sample population of rhesus reached its highest level of 651 monkeys since annual censuses were begun in 1959. Some groups in this population are serious crop pests. Growth of this population is attributed to high birth rates, good survivorship, and a lack of trapping for export. The high birth rates and survivorship are apparently related to India's increased agricultural production and more frequent supplemental feeding by people.

Related work by Dr. Iqbal Malik, in the area of Vrindaban and Agra, reveals the need for translocation of large numbers of rhesus from Hindu holy sites; they have become a nuisance and danger to local people at these places. In 4 km² of Vrindaban, a population of over 1,200 rhesus monkeys created many problems for local people; with their encouragement, Dr. Malik supervised relocation of 600 monkeys to distant forest patches and rural areas.

Other Indian scientists participating in the program of the 3rd Annual meeting in Jodhpur are: Dr. Ishwar Prakash, of the Zoological Survey of India, Jodhpur; Dr. Ajith Kumar, of the Salim Ali Centre for Ornithology and Natural History; Professor N.K. Lohiya, of Rajasthan University, Jaipur; Dr. P.K. Seth, of Delhi University; Mr. Lalit Panwar, Divisional Commissioner, Jodhpur; Ms. Rekha Mishra, of Kanpur; Dr. Seema Trivedi, of Jodhpur; and Dr. A.H. Musavi, of Aligarh.

In addition to the 1997 Jodhpur meeting, the Indo-U.S. Primate Project also organized a field technique workshop in Mizoram, Northeast India, to discuss and demonstrate census methods for forest birds and primates. The workshop was attended by over 55 participants from various disciplines. In the past year, staff and students of the Indo-U.S. Primate Project have presented eight papers at international meetings, five at national conferences, and published two full-length scientific papers. Other publications are in preparation. The current goals of the Indo-U.S Primate Project are to: (1) conduct new field studies on the ecology, behavior, and conservation of non-human primates in India, focusing on the least-known species, especially endangered species; (2) develop conservation strategies to benefit primates and other wildlife; (3) continue demographic research on langurs and rhesus monkeys in the context of wildlife biology; (4)
develop a center for primate field biology in India, and train the next generation of primate field biologists.

REPORT ON THE GOLDEN MONKEY RESEARCH AND CONSERVATION WORKSHOP

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19 Zhongguancun Road
Haidian, Beijing 10008 CHINA

A Workshop on Golden Monkey Research and Conservation was held on 28-29 1997, in Ruairou, Beijing, China. The Margot Marsh Biodiversity Fund and the Zoological Society of San Diego contributed to the support of the workshop. The meeting brought together field researchers, government officials, nature reserve managers, representatives of conservation NGO’s and the media to share information about the four endangered species of the genus Rhinopithecus and to discuss their current conservation status. The purpose of the workshop was to draft an action plan for Rhinopithecus. We found the conservation problems differ with each species; the principal factor threatening Rhinopithecus brelichi, for example, is tree cutting by local people, while the major threats to R. bieti are hunting and systematic deforestation on the part of the local government.

The Chinese participants in the workshop were: Wang Sung, Endangered Species Scientific Commission; Lu Xiaoping, Endangered Species of Wild Fauna and Flora, Import and Export Administrative Office; Liang Congjie, Friends of Nature; Xie Yan, Institute of Zoology; Cui Li, Institute of Zoology; Zhang Shuyi, Institute of Zoology; Ren Renmei, Beijing University; Zhang Li, Beijing Normal University; Liu Yunhua, WWF-China; Yu Changqing, WWF-China; Zhao Qikun, Kunming Institute of Zoology; Long Yongcheng, Yunnan Economic Ecology Society; Shao Kaqing, Sichuan Forestry Department; Gu Haijun, Sichuan Forestry Department; Xie Jiahua, Guizhou Normal University; Zhu Zhaocuan, Shennongjia Nature Reserve; Li Baoguo, North-west University; and Shi Lihong, China Daily.

The foreign participants included: Le Xuan Canh, Institute of Ecology and Biological Resources, Hanoi, Vietnam; Ardith Eudey, IUCN/SSC Primate Specialist Group, USA; Mabel Lam, Zoological Society of San Diego, USA; R. Craig Kirkpatrick, Zoological Society of San Diego, USA; and Bill Bleisch, GEF Office, Forestry Ministry of China.

The workshop was one of the rare meetings in China, if not the only one, that brought together different sectors interested in endangered animal species to work on the problems facing conservationists. Following the workshop, project proposals for the Action Plan are to be drafted by different working groups; each will follow the same instructions and criteria.

As suggested by Professor Wang Sung, the Rhinopithecus Action Plan will be included within the Action Plan for China’s Nature Resources, which he plans to compile. Moreover, it was agreed that the new IUCN categories and criteria will be used to classify the degree of threat to the golden monkeys. Additionally, a committee aimed at locating conservation funding for the project within China was set up during the meeting. Friends of Nature contributed 10,000 RMB (US$1,200) shortly after the conclusion of the workshop.
THE FIFTH INTERNATIONAL SYMPOSIUM ON THE LION-TAILED MACAQUE SECOND ANNOUNCEMENT

The lion-tailed macaque (*Macaca silenus*) is an endangered species found only in the few remaining patches of rain forest in the Western Ghats of Southern India. In response to conservation concerns for this species, the First International Symposium was held at the Baltimore Zoo in 1982. Subsequently, three more International Symposia were sponsored by the Woodland Park Zoo, Seattle, WA, USA; the Zoological Society of San Diego, USA; and the Zoo Outreach Organization at Chennai (Madras), India. These international symposia have generated enormous interest in this species - in the wild as well as in captivity.

In recent years, scientists working on LTM's in captivity and in the forests of the Western Ghats have come together to generate research problems with a common interest. One example of this collaborative research is that between scientists at the San Diego Zoo and at the University of Mysore. Therefore, in addition to delivering an update on LTM population status, ecology, behavior, and biology, the Fifth International Symposium will have as its main theme "Issues Based on Collaborative Research between Scientists Working with Captive and Wild Lion-Tailed Macaques".

The University of Mysore is one of the oldest universities in India. The Department of Psychology has been involved in research on primate behavior and ecology for over two decades. Mysore is a princely city with a large number of educational institutions. A number of famous wildlife sanctuaries and national parks including Nagarhole National Park, Bandipur Tiger Reserve, Mudumalai Wildlife Sanctuary, and Wynad Wildlife Sanctuary are just an hour and a half's drive from Mysore. Mysore is linked with railway and bus routes. The nearest airport is in Bangalore, 140 km away.

Symposium Dates: 11-13 January 1999
Deadlines for Registration and Abstract Submission: 15 June 1998
Registration Fee:
Indian Participants: Rs. 500.00;
Guests: Rs. 250
Foreign Participants: US $200.00;
Guests: US $150.00
Fee payable to:
Organizing Secretary
Fifth International Symposium on the Lion-Tailed Macaque
Demand Draft or Banker's Check
Payable at: Mysore, INDIA

The registration application may be made on plain paper, but must accompany the abstract (if presenting a paper) and the registration fee. The application should include: name, institution, address for correspondence, the name of the presenting author, oral/poster session. For information concerning housing, tours, and further questions, please contact:

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MARGOT MARSH BIODIVERSITY FOUNDATION 1997 PROJECTS

The Margot Marsh Biodiversity Fund, a charitable foundation dedicated exclusively to primate conservation, was established in 1996. The mission of the Fund is "to contribute to global biodiversity conservation by providing
strategically targeted, catalytic support for
the conservation of endangered
nonhuman primates and their natural
habitats*.

In 1997, the Primate Action Fund
provided support for 26 projects
promoting action for the conservation of
primates, as well as support for the
IUCN/SSC Primate Specialist Group
newsletters. Of the total, only five
awards, as identified below, were made
to projects for the Asian region.

Study of the Assamese macaque in
Makaulu-Barun Conservation Area, Nepal -
Makesh Kumar Chalise (Natural History Society of
Nepal, Kathmandu, NEPAL)

Community-based conservation program for
the golden langur in Assam, India - Community
Conservation Consultants (Gays Mill, WI, USA)

Indonesian Gibbon Conference - Alan
Mootnick (International Center for Gibbon
Studies, Santa Clarita, CA, USA) and Jatna
Supriatna (Conservation International-Indonesia,
Jakarta, INDONESIA)

Ecology and behavior of the golden langur in
Assam, India - Barry Rosenbaum (University of
Colorado, Boulder, CO, USA)

Chinese Golden Monkey Workshop - R. Craig
Kirkpatrick (Zoological Society of San Diego,
CA, USA)

Project proposal guidelines are outlined in
Asian Primates 5(3-4):15-16
(December 1995/March 1996). Further
information about the Margot Marsh
Biodiversity Fund may be obtained from:

William R. Konstant
Conservation International
2501 M Street NW, Suite 200
Washington D.C. 20037 USA
Fax: 215-402-0469
e-mail:
BKonstant@conservation.org

GOLDMAN
ENVIRONMENTAL PRIZE

On 20 April 1998, an environmental
grassroots hero from each of the six
continental regions received the seventh
annual Goldman Environmental Prize at a
ceremony in San Francisco, CA, USA.
Each of the 1998 winners received an
award of $100,000 from the Goldman
Environmental Foundation. The Asian
recipient, Hirofumi Yamashita, is from
Japan. He has dedicated more than a
quarter of a century to fighting a land
reclamation project slated for Isahaya
Bay, one of the richest wetlands in
the world. While the project was scaled
back due to his efforts, a massive dike,
unfortunately, has been built. Yamashita
now leads a crusade to force a thorough
review of the project, with the aim of
opening the gates to the Bay and restoring
the ecosystem.

The Goldman Prize winners are
selected from nominations submitted
anonymously by a network of 21
environmental organizations worldwide
and a confidential panel of environmental
experts representing more than 30
nations. The prize was established in
1989 by Richard N. Goldman and his
wife, Rhoda H. Goldman. To date, a
total of $3.75 million has been awarded.

NEW RESEARCH
FELLOWSHIP
ORANGUTAN FOUNDATION
INTERNATIONAL

Students planning to conduct wildlife
research on orang-utans may seek
financial assistance from the Orangutan
Foundation International (OFI). The
Lorraine P. Jenkins Memorial Fellowship
for Orangutan and Rain forest Research
(LPJ Memorial Fellowship) was
announced by Dr. Gary Shapiro, Vice
President of OFI, and son of Mrs.
Lorraine Jenkins, who passed away in
November 1997.
The LPJ Memorial Fellowship is a competitive award open to any graduate or undergraduate student planning to conduct orang-utan, other primate or related rain forest field research in either Indonesia or Malaysia. Priority of consideration will be given to students planning to study new populations of orang-utans. Students from orang-utan habitat and other tropical rain forest countries are encouraged to apply. Two inaugural LPJ Memorial Fellowships of $1,000 will be awarded in 1998.

Interested students should apply during the spring of each year in order to be considered for an early summer award. Applications for 1998 are due on 20 April 1998. Recipients of the inaugural LPJ Memorial Fellowships will be notified by phone and a formal announcement will be made at the Third International Conference on Great Apes of the World, 3-6 July 1998, in Kuching, Sarawak, Malaysia.

Application forms may be obtained from:

Orangutan Foundation International (OFI)
attn: LPJ Memorial Fellowship
822 S. Wellesley Ave
Los Angeles, CA 90049 USA
Fax: 310-207-1556
e-mail: redape@ms.net

**WRPC OUTREACH PROGRAMS**

The following Internet-based programs are provided by the Wisconsin Regional Primate Research Center (WRPRC), at the University of Wisconsin - Madison. WRPRC outreach programs are supported by grant number RR00167, Regional Primate Centers Program, National Center for Research Resources, the National Institutes of Health.

**Primate-Talk** A professionally-oriented electronic discussion forum for persons interested in primatology. To subscribe, send e-mail to: *primate-talk-request@primate.wisc.edu*. The subject line of your message should be empty. The body of the message should contain: *subscribe primate-talk*. Further information about this discussion list, including a message archive, is available at: http://www.primate.wisc.edu/prin/prtalk.html.

**Primate Info Net (PIN)** A world wide web information resource; it provides access to documents and links to relevant WWW sites about research, conservation and education in the field of primatology. Connect to PIN at: http://www.primate.wisc.edu/prin/

**Audiovisual Services** An archival collection of primate-related videotapes, slides and audi-tapes may be borrowed for research or educational purposes. Information about access to the collection, including a catalog of videotapes, is available at: http://www.primate.wisc.edu/prin/av.html. For more information, contact Ray Hamel, Special collections Librarian, e-mail: hamel@primate.wisc.edu.

**International Directory of Primatology** This comprehensive Internet directory to the field of primatology includes detailed information about organizations, educational programs, societies, and information resources. Connect at: http://www.primate.wisc.edu/prin/idp.html. For more information, contact Larry Jacobsen, IDP Coordinator, e-mail: Jacobsen@primate.wisc.edu

**Ask Primate** This cooperative Internet reference service is available to the public. To ask a question, or for a referral, use the WWW form at: http://www.primate.wisc.edu/prin/askprim.html. People without WWW access, may send questions, via e-mail, to: askprimate@primate.wisc.edu
Primate-Jobs This job listing service on the WWW includes paid and volunteer positions wanted and available related to work with nonhuman primates. Connect at: http://www.primate.wisc.edu/pin/jobs

World Directory of Primatologists
The Directory is a convenient Internet source of contact information for people in the field of primatology whose career interests involve, or relate, to primate research, conservation, education, or veterinary medicine. Connect at: http://www.primate.wisc.edu/pin/wdp.html For more information, contact Larry Jacobsen, WDP Coordinator, e-mail: Jacobsen@primate.wisc.edu; or Paul DuBois, WDP Administrator, e-mail: ptdadmin@primate.wisc.edu

CROP-RAIDING MONKEY REPELLENT

After years of unsuccessful attempts to keep crop-raiding Japanese macaques (Macaca fuscata) out of fields, a research team at the Tokyo Forestry Experiment Station, in western Tokyo, believes it may have found a way to prevent the damage caused by the marauding primates. Animal raids on crops were successfully prevented by shooting chili powder into the air, irritating the eyes and noses of monkeys that passed in front of sensors.

The monkeys are reported to have pilfered $468,500 worth of produce in 1996 alone. Of these, the monkeys' favorite target foods are identified as young horseradish, potatoes, turnips and carrots. (Source: Associated Press, 29 June 1998; Los Angeles Times, 9 July 1998)

RECENT PUBLICATIONS OF INTEREST


Abstract: This field study investigated the social organization, range use and diet of the Yunnan snub-nosed langur Rhinopithecus bieti (Colobinae). Systematic observations were conducted during 11 months over two years on wild individuals of one band of R. bieti at Wuyapiya, Yunnan Province, the People's Republic of China. Field work included extensive study of lichen ecology. Laboratory analysis investigated the nutritional correlates of food choice.

Rhinopithecus bieti at Wuyapiya had a two-tiered social organization. Reproductive units appeared to consist of one male, several females and associated immatures. Fifteen to eighteen of these reproductive units formed a band which was strongly cohesive. The band had approximately 175 members, and covered 25 km² over the two years of the study. The band stayed at high elevations at all times of the year (mean: 4082 m).

The main food was a lichen of the genus Bryoria (79% of feeding records, n=1229). Compared to the leaves of both angiosperms and gymnosperms at Wuyapiya, lichens were generally high in non-structural carbohydrates and low in protein. Lichens, also, were low in fiber and contained virtually no phenolics. Lichens were common between 3600 and 4400 m. Bryoria (Usneaceae, aff. B. nepalensis and B. trichodes) was found in, virtually, every conifer tree (conifers provided 65.6% basal area at the site), and there was more Bryoria at higher elevations. Based on regression of total lichen volumes to crown sizes for 38 trees in four species (Abies georgei, Quercus pansona, Rhododendron phaeochrysum, Picea likiangensis), there was approximately 200 kg/ha Bryoria in the forests at Wuyapiya. Complete regeneration of lichen, once stripped from a tree, was estimated to take 20 years.

The spatial and temporal dynamics of lichens apparently are key to social organization and range use in R. bieti. Intra-group food competition may be low due to the ubiquitous nature of Bryoria, and the large patches of Bryoria may induce the formation of large groups. The slow regeneration time of Bryoria
requires that a large range be used over the long term.


Summary: This book provides a comprehensive introduction to the biology of the doucs (Pygathrix) and snub-nosed monkeys (Rhinopithecus). These monkeys were virtually unstudied and unknown until 20 years ago. They occupy some of the most remote habitats of eastern Asia and exhibit some of the most unusual adaptations of any non-human primates. Topics covered include evolutionary biology, field and laboratory primatology, systematics, field ecology, and conservation biology. Contents include: N. G. Jablonski, Introduction; Evolution and Systematics: N. G. Jablonski, The evolution of the doucs and snub-nosed monkeys and the question of the phylogenic unity of the odd-nosed monkeys; Y.-X. Wang, et al., Classification and distribution of the extant subspecies of golden snub-nosed monkey (Rhinopithecus roxellana); Y.-P. Zhang and O.A. Ryder, Mitochondrial cytochrome b gene sequences of langurs: evolutionary inference and conservation relevance; Anatomy: G. Chaplin and N. G. Jablonski, The integument of the odd-nosed Colobines; N. G. Jablonski, et al., Mandibular morphology of the doucs and snub-nosed monkeys in relation to diet; J. M. Caton, The morphology of the gastrointestinal tract of Pygathrix nemaeus (Linnaeus, 1771); Ecology and Behavior: R.C. Kirkpatrick, Ecology and behavior in snub-nosed and douc langurs; L.K. Lippold, Natural history of douc langurs; R. Boonratana and X. C. Le, Preliminary observations on the ecology and the behavior of the Tonkin snub-nosed monkey (Rhinopithecus avunculus) in northern Vietnam; W. Bleisch and J.-H. Xie, Ecology and behavior of the Guizhou snub-nosed langur (Rhinopithecus brelichi), with a discussion of the sociobiology in the genus; W. Bleisch, et al., Selected nutrient analysis of plants in the diet of the Guizhou snub-nosed monkey (Rhinopithecus brelichi); Y.-J. Su, et al., Preliminary survey of the home range and ranging behavior of golden monkeys (Rhinopithecus roxellana) in Shennongjia National Natural Reserve, Hubei, China; R.-M. Ren, et al., Preliminary survey of the social organization of Rhinopithecus roxellana in Shennongjia National Natural Reserve, Hubei, China; Conservation: L.K. Lippold and V. N. Thanh, Primate conservation in Vietnam; R.-M. Ren, et al., Conservation status and prospects of the snub-nosed langurs (Colobinae: Rhinopithecus); R. Boonratana & X. C. Le, Conservation of the Tonkin snub-nosed monkeys (Rhinopithecus avunculus) in Vietnam; W.-Z. Ji, et al., Maintenance and breeding of Yunnan snub-nosed monkeys (Rhinopithecus bieti) in captivity; Appendix: R.C. Kirkpatrick, Toward a gazetteer of the snub-nosed and douc langurs.


Editorial summary: The seventeenth issue of the supplement contains 148 entries, of which the vast majority of field studies are current. Of the three main geographical regions, Africa has 51 entries (34%), the Americas 48 (32%) and Asia 36 (24%). Madagascar, predictably due to its size, has the least number of field studies with 13 (10%). Both Asia and Madagascar experienced a slight reduction in the number of projects being carried out since 1996, while primatologists in Africa and the Americas appear to have increased their efforts. This is reflected in the net increase (3.5% since 1994) in the contributions of the two latter regions to the field studies supplement. Overall, conservation and behavioral ecology continue to be the most popular aims of field projects, although the proportion of studies with a conservation objective declined from 37% in 1996 to 27% in 1998. Regional priorities appear to be similar for the three continental regions.

Currently, 52 of 185 endangered primate species (28%), as defined by the new IUCN categories of CR, EN and VU, are the focus of conservation related field work. The Americas seem to be most successful in the variety of endangered species that are targeted compared to the other regions. This may be an artifact of the more detailed entries received from the Americas, however.


Summary: Three species of monkeys currently are reported from Nepal. Up until now most research has been conducted on grey langurs (Semnopithecus entellus [=Presbytis entellus]) primarily in the lowland terai in the south-west and the upland mountain forests. No previous surveys for primates had been conducted in the Makalu-Barun. All three species of
monkeys, specifically the grey langur, rhesus macaque (Macaca mulatta) and Assamese macaque (M. assamensis) are sympatric in this area. The report contains information on the monkeys' physical characteristics, interspecific relations and competition along with their predation on crops in a nearby conservation area.


Summary: This book draws on over 3000 Indonesian, Dutch, and English sources to present a complete summary of our current scientific knowledge about the riverside, rainforest, mountain, and coastal ecosystems of Java and Bali. Using maps, color photographs, and line drawings, it examines these ecosystems and the interrelationships between some of their component species. It also focuses on the people of the islands and their use of natural resources, as a major part of these ecosystems. Discussion of development, conservation, and ecologically sustainable resource management is also incorporated.


Summary: This book presents a complete summary of our current scientific knowledge about the riverine, rainforest, and coastal ecosystems of Kalimantan. Using maps, color photographs, and line drawings, it examines each of the major ecosystems of the island, and the interrelationship between some of their component species. It also focuses on the people of Kalimantan and their use of natural resources, as a major part of these ecosystems.


Introduction: Pingtung Rescue Center for Endangered Wild Animals is a project initiated during 1993 and has been financed by the Republic of China through Taiwan's Council of Agriculture. Its objectives are (i) to provide a decent temporary home to confiscated and abandoned wild animals, (ii) to resocialize singly-housed primates in groups, (iii) to rehabilitate wild animals for eventual release into the wild, (iv) to relocate wild animals to zoological institutions both within Taiwan and overseas which could provide humane care, and (v) to provide long-term care for animals which are handicapped, sick and not suitable for release or zoo breeding programs. Currently, the center houses a total of 186 animals, including carnivores, primates, birds, and reptiles (tables 1 and 2). This paper describes the procedures of rehabilitation and captive management of wild animals held at the rescue center in Taiwan, ROC.


Abstract: The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$16-54 trillion ($10^{12}$) per year, with an average of US$33 trillion per year. Because of the nature of uncertainties, this must be considered a minimum estimate. Global gross national product approximately is US$18 trillion per year.


Summary: This report began as a WWF response to the widespread fires in Indonesia in 1997 and developed into a review of forest fires as a global issue and global crisis. Regional surveys include Indonesia, Papua New Guinea, Brazil, Colombia, and Africa.

For several months, an area of southeast Asia from the Philippines to Australia was enveloped in smog, caused by forest fires in Java, Borneo, Sulawesi, Irian Jaya and Sumatra. About two million hectares of forest and other land were destroyed. More than 40,000 Indonesians became
ill as a result and smog caused shipping accidents. Primary forest and at least 19 protected areas were damaged, along with endangered species such as the orangutan. Business, including tourism, suffered badly. Most fires were set deliberately - often illegally - by commercial interests including plantation owners. Impacts were exacerbated by the El Niño climatic effect, which was itself probably intensified by pollution-related climatic change. The political fall-out is intense.

Fire mismanagement is now one of the most serious problems facing forests in many parts of the world. Deliberate fire-raising appears to be the largest cause of forest fires in many countries and is attributed to a breakdown in the "rule of law" as applied to the environment.


**Summary:** Although there is no reliable survey of wild animal populations in Myanmar, circumstantial evidence suggests a serious decline in certain species from the effects of habitat loss and unregulated hunting, especially in the last two decades. Smuggling is rife, owing to shortages of food, consumer goods and luxury items, and economists believe over half the country's foreign trade is unofficial. The author has undertaken a number of surveys in Myanmar, most recently in December 1995, to determine the availability of wildlife products for sale in the country. His findings indicate that there is a thriving domestic trade in wild animal products aimed at foreign tourists and at the wealthier inhabitants living in the country's towns and cities. Further, a large amount of wildlife is smuggled out of the country, mostly to Thailand and China, where it is sold for consumer items or to finance the armed resistance of ethnic groups in Myanmar fighting for their independence.

In June 1997, the Government of Myanmar announced its accession to CITES (effective September). Not only is it imperative that scientific study be made of Myanmar's wildlife, but further surveys of wildlife markets need to be carried out in the near future in order to establish whether domestic legislation and CITES controls are being implemented.


**Summary:** This book describes the distribution of all the species of mammals in China. It is substantially an atlas of distribution maps, with detailed records at the county level. More than 500 species are classified under 220 genera, 52 families and 14 orders. Additionally, it provides a list of subspecies for species exhibiting geographical diversity. Among them are 19 species of primates, for which the localities of extirpation or protection have been indicated on the distribution maps. Compilation of the book began in the 1960's, with the assistance of faculty at the Institute of Zoology, Chinese Academy of Sciences. The book is written in Chinese and English.


**Summary:** Based on a six-week investigation inside China, the author reports on the country's economic growth and industrialization and the resulting pollution of air, land and water, a development with global implications. The Chinese government is described as being aware of the need for heightened environmental protection, but fears action on their part will result in negative political consequences. A decrease in economic growth, spurred by governmental reforms, would most likely result in a return to the chaos and stagnation typical of the Cultural Revolution. To compound matters, growth, paradoxically, seems to be the only way to finance an environmental cleanup.
IUCN PUBLICATIONS


Summary: The Red List, which was compiled by the World Conservation Monitoring Centre (WCMC), Cambridge, UK, is the result of a 20-year effort by a unique coalition of scientists, conservation organizations, botanical gardens and IUCN—The World Conservation Union. Conservation assessments were provided by numerous scientists and conservationists with major input from the Smithsonian Institution's Department of Botany, The Nature Conservancy, Environment Australia and CSIRO, The National Botanical Institute (South Africa), The Royal Botanical Gardens, Kew and Edinburgh, and the New York Botanical Garden.

Only vascular plants are included in this publication. Of the estimated 270,000 known species of vascular plants, which include ferns, fern allies, gymnosperms (including conifers and cycads), and flowering plants, 33,798, or approximately 12.5 percent, were found to be at risk of extinction.

The Red List shows that 380 species have become extinct in the wild, with an additional 371 species listed as Extinct/Endangered. Over 6,500 species are categorized as Endangered, indicating their numbers have been so drastically reduced to a critical level that they are deemed to be in immediate danger of extinction. Threat assessments are according to the pre-1994 IUCN threat categories.

The introduction to the book details the purpose and history of the project, an explanation of the information and an analysis of the list, including valuable tables on threatened plants in each country by IUCN category and by major taxa and families. The book provides baseline information to measure conservation progress and serves as a primary source of data on plant species. It provides the building blocks on which to base worldwide efforts to conserve plant species and ecosystems they inhabit.

Additional information on the publication is available, electronically or via fax, from:

Maria Sadowski  
SSC-Chicago  
tel: (708) 485-0263, ext. 487  
fax: (708) 583-6320  
e-mail: msadowski@iigc.apc.org

The 1997 IUCN Red List of Threatened Plants is available for US$45 (plus shipping and handling) from:

The New York Botanical Garden  
Scientific Publications  
Bronx, NY 10458-5126, USA,  
Tel: (718) 817-8721  
Fax: (718) 817-8842  
e-mail: sci@nybg.org

or  
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fax: 011-44-1223-277175  
e-mail: iucn-psu@wcmc.org.uk  
(IUCN/SSC members receive one-third off the price of the publication.)

DEVELOPMENTS OF INTEREST

On 10 October 1997, the Nobel Peace Prize was awarded to American activist Jody Williams and the International Campaign to Ban Landmines (ICBL). Tun Channareth, a Cambodian who lost both his legs to mines, accepted the prize on behalf of the ICBL in Oslo, Norway on 10 December 1997: Cambodia is one of the most heavily mined Asian countries. With Williams organizing the effort over a six-year period, the ICBL grew into a global movement backed by more than 1,000 organizations and millions of people that resulted in 125 nations signing a treaty banning the explosives on 3-4 December 1997 in Ottawa, Canada. Those countries refusing to sign the ban include: the United States, Russia, China, India, Pakistan, Turkey, Finland and almost every country in the Middle East.

On 6 November 1997, Chevalier Yongchaityudh resigned as Thailand's prime minister, after less than a year in office, because of his failure to end the country's currency and financial crisis that had prompted a US$17.2-billion reform plan organized by the International Monetary Fund. A coalition organized by the Democratic Party resulted in Chuan
Leekpai succeeding him as prime minister.

On 25 November 1997, the official Xinhua news agency announced that Chinese scientists plan to clone the Yunnan snub-nosed monkey (Rhinopithecus bieti) according to a People's Daily article. According to the announcement scientists at the Kunming Zoological Research Institute, in the southwestern province of Yunnan, "are using advanced technology to research hereditary features of the primate in preparation for the cloning." Researchers at the institute, under the Chinese Academy of Sciences, have bred 13 such monkeys in captivity since 1994 with the aid of reproductive research, as reported by Ji Weizhi, director of the institute. Cloning has again become the subject of international debate since British scientists last year cloned Dolly the sheep from a living adult animal.

On 11 December 1997, the completion of the Global Warming Accord, or Kyoto Protocol, by representatives of 166 nations meeting in Kyoto, Japan established specific goals for reducing emissions of carbon dioxide and five other gases (methane, nitrous oxide, and three halocarbons used as substitutes for ozone-damaging chlorofluorocarbons) that are widely considered responsible for what many scientists believe is an increase in global temperatures. The emissions stem from the burning of coal, oil and natural gas, all of which are carbon-based fossil fuels. Thirty-eight industrialized nations are required to reduce their "greenhouse" gas emissions from 1990 levels between 2008 and 2012. The European Union (EU) would reduce them by eight percent, the United States by seven percent and Japan by six percent. Negotiators were unable to reach agreement on what role would be assigned to developing nations, particularly such budding industrial giants as China and India, which are expected to experience so much growth over coming decades that their gas emissions will surpass those of already industrialized nations. The accord takes effect once it is ratified by 55 nations representing 55 percent of 1990 carbon dioxide emissions. It is binding on individual countries only after their ratification.

On 1 March 1998, Prime Minister Chuan Leekpai ordered the completion of the Yadana pipeline between Thailand and Myanmar (Burma). The US$1.2-billion pipeline, a joint venture among U.S.-based Unocal Corp., France's Total, the Petroleum Authority of Thailand and the State Law and Order Restoration Council (SLORC) in Myanmar, will carry natural gas from the Gulf of Martaban to a power plant in Thailand. The prime minister had halted work on the project after protests that the pipeline will destroy remaining virgin forest and endanger wildlife in Thailand's western border province of Kanchanaburi. Human rights activists in Thailand and abroad have accused the project of using forced labor on the Myanmar side. A government appointed panel headed by former Prime Minister Anand Panyarachun had concluded in February that the Petroleum Authority of Thailand was not transparent in its dealings and recommended that the government act to alleviate the social and environmental effects of the project. Activists have filed a class-action lawsuit against Unocal in California, and there have been protest demonstrations at Total's headquarters in France.

On 15 March 1998, Atal Behari Vajpayee, leader of the Hindu nationalists' Bharatiya Janata Party (BJP), was invited by President K.R. Narayanan to lead the India's fifth government in two years. No party captured a majority in the parliamentary elections that ended earlier in March, but the BJP emerged as the largest single group. On 28 March, the BJP narrowly won its first vote of confidence in the Lok Sabha, the lower house of Parliament, after leaders promised to moderate its religious policies to embrace a broad-based coalition government. Only 21 months earlier, Vajpayee had been forced to resign after 13 days as India's first
Hindu nationalist prime minister when the nationalists found hardly any other party willing to support them.

On 21 May 1998, President Suharto resigned after a 32-year rule and handed over power to his vice-president, B.J. Habibie, to whom the chief of the Armed Forces, General Wiranto, immediately pledged loyalty. Subsequently, on 11 July, the ruling Golkar party, in the first ballot of its kind, elected a new reformist leader, Akbar Tanjung, a member of Habibie’s Cabinet, who immediately terminated Suharto as the party’s chief patron. Suharto had been credited for creating stability in Indonesia and transforming an economy on the brink of ruin into an Asian “Tiger”, but his regime also became marked by corruption and cronyism as segments of the national economy were carved up and given to family and friends. In mid-1997, Suharto’s power had begun to weaken with the collapse of economies across Asia. The value of Indonesia’s currency plummeted more than 70%; the stock market sank; and Suharto reluctantly accepted a US$43-billion rescue package and the stringent International Monetary Fund reforms tied to it. The rollback of fuel subsidies on 4 May triggered riots and popular unrest that gained widespread support after six students were shot to death by security forces on 12 May.

On 21 June 1998, the Forbes list of the world’s wealthiest individuals was released. Only the “working rich” were included; royalty and heads of state already had been excluded in recent lists. If royalty were included, the Sultan of Brunei Darussalam would have ranked third, for the first time, behind Bill Gates (Microsoft) and the Walton family (Wal-Mart Stores, Inc.). Asia’s financial retreat reduced its representation among the top 200 billionaires to 44 from 56 last year. Of the top 100 billionaires, 19 are Asian, with the following breakdown by country: Japan, 6; Hong Kong, 5; Indonesia, 2; Singapore, 2; Taiwan, 2; India, 1; Malaysia, 1. Only one Asian in Hong Kong, China, is included among the top ten. One notable new member of this year’s list is the family of former Indonesian President Suharto, whose assets are listed at about US$4 billion of investments in approximately 3,200 Indonesian companies.

On 30 June 1998, following a landslide victory in May elections, Joseph Estrada, a former B-grade movie star with a legendary reputation as a hedonist, became the thirteenth president of the Philippines and the first to deliver his inaugural address in Tagalog, rather than English, and to eliminate the traditional inaugural ball in order to cut costs. Estrada entered politics in 1967 as the elected mayor of San Juan, metro Manila. In 1992, he became vice president to President Fidel V. Ramos, who reportedly treated him with disdain. Estrada has given priority to helping the poor and improving agriculture, although he intends to continue the policies of Ramos that are credited with bringing economic growth and stability to the Philippines. In September 1997, half a million people opposed to a second term for President Ramos, and the possible return of a dictatorship, had demonstrated in Manila.

On 13 July 1998, Ryutaro Hashimoto resigned as Japanese prime minister, after voter’s angry over Japan’s economic deterioration turned out in unexpected numbers the previous day to vote against his ruling Liberal Democratic Party (LDP). The LDP won only 44 of the 126 seats contested in the upper house of parliament, while the fledgling Democratic Party of Japan and the Communist Party won 30 and 15 seats respectively. Although the LDP retained a comfortable majority in the more powerful lower house, the party acknowledged that passing legislation would be “difficult”. The Japanese economy contracted by 0.7% in 1997, its worst performance in 23 years, raising world concerns that a faltering Japan, which accounts for 70% of Asia’s gross domestic product, could sink the other
ailing economies of the region. The massive investment of Japan in Indonesia's faltering economy already may have contributed to its own financial crisis: with US$21 billion in Japanese investment, Indonesia ranks first among Asian countries as a target for Japan's foreign direct investment, and Japanese banks also have about US$22 billion in outstanding loans to Indonesia.

MEETINGS

1998

The Third International Great Apes World Conference, 3-6 July 1998, Kuching, Sarawak MALAYSIA. Contact: Gary Shapiro, OFI, 822 S. Wellesley Ave., Los Angeles, CA 90049, USA. Fax: 310-207-1556. e-mail: redape@ns.net. http://www.ns.net/orangutan

SOCIETY FOR CONSERVATION BIOLOGY, 13-16 July, 1998, Sydney, AUSTRALIA. Contact: Dr. R. Frankham, School of Biological Sciences, Macquarie University, Sydney, NSW 2109, Australia. Fax: 61-2-850-8245.

The 21st Century: The Century of Anthropology, The 14th International Congress of Anthropological and Ethnological Sciences, 26 July - 1 August 1998, Williamsburg, Virginia, USA. Contact: Dr. Tomoko Hamada, Executive Secretary and Program Chair, Department of Anthropology, College of William and Mary, Williamsburg, VA 23187-8795, USA; Fax: 757-221-1066. e-mail: thamada@facstaff.wm.edu

XVIIth Congress of the International Primatological Society, 9-14 August 1998, Antananarivo, MADAGASCAR. Contact: Secretary of the XVIIth Congress of the International Primatological Society, Faculty of Sciences, Building P, Door 207, B.P. 906, Antananarivo, Madagascar. Fax: 261-2-31398. e-mail: brakoto@syfed.refer.mg


International Congress of Ecology (VII) - New Tasks for Ecologists after RIO 92, 19-25 JULY 1998, Florence, ITALY. Contact: Almo Farina, Vice-President INTERCOL, Secretariat VII International Congress of Ecology, Lunigianiana Museum of Natural History, Fortezza della Brunella, 54011 Aulla, Italy. Fax: 39 187 420727. e-mail: alfarina@tamnet.it

Conservation Breeding Specialist Group (CBSG) Annual Meeting, 8-11 October 1998, Yokohama, JAPAN. Contact: Secretariat of the 1998 CBSG Annual Meeting, c/o ASTHEON Co., Ltd, Room #401, Tornomon Sangyo Building, 1-2-2 Toranomon, Minato-ku, Tokyo, 105-0001 Japan. Fax:81-3-3593-1088. e-mail:atky@tky2.3web.ne.jp

International Conference on Tropical Forests and Climate Change: Status, Issues, and Challenges, 19-22 October 1998, Manila, Philippines. Contact: The Secretariat, International Conference on Tropical Forests and Climate Change, Environmental Forestry Program, UPLB College of Forestry, 4301 College, Laguna, Philippines. e-mail: enfor@laguna.net.

Australasian Primate Society Annual Meeting, 4-6 December, 1998, Perth Zoo, South Perth, Western Australia, AUSTRALIA. Contact: Graeme Crook, ASP, P.O. Box 500, One Tree Hill, South Australia 5114 or Rosmary Markham, Perth Zoo, Labouchere Road, South Perth, Western Australia 6151. Fax: 61 8 82807078. e-mail: crook.graeme@esta.com.au

1999

The Fifth International Symposium on the Lion-Tailed Macaque, 11-13 January 1999, Mysore, INDIA. Contact: Dr. Mewa Singh, Professor of Psychology, University of Mysore, Mysore 570 006, India. Tel/Fax: (residence) 91-821-514239; (office) 91-821-518772. e-mail: ma2singh@giesbga.vsnl.net.in
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Black langur (*Trachypithecus francoisi ebenus*) at the Endangered Primate Rescue Center, Cuc Phuong National Park, Vietnam. Photo: Tilo Nadler
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