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WPA News No 53

Editor: Derek Bingham

Contents

Forthcoming Events

1997

5-6 July	Scottish Fair, Scone, Perth, Scotland
25-27 July	CLA Game Fair, Castle Ashby, Northampton
8-14 Sept	Pheasant and PQF Symposium, Melaka, Malaysia
4 October	WPA Annual General Meeting
6-9 Dec	Third International Megapode Symposium, Victoria, Australia

Front cover: Sonnerat's junglefowl *Photo: Jean Howman*
Back cover: Grouse of the World poster (see p. 42)

The **World Pheasant Association** gratefully acknowledges the support of

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A personal message

Keith Howman

After 86 consecutive Council meetings, six years as chairman and an almost equal period as director general, it is time for younger people and new ideas if WPA is to continue to go forward; so Jan Readman, who has served us so well for so long, and I retired on the same day, 30 April 1997. In Jan's case she insists she will be around to help but promises that she will take her first proper holiday since she joined us. We owe her just so much gratitude for all her immensely loyal support over the years.

In my case I will also be around to help when required, will continue to chair the Development Committee and run WPA publications as well as put together material for the **WPA News** and **Annual Review**. The bulk of my work will be taken on by Nicola Chalmers-Watson, to whom I will be available for help, advice and background knowledge. Nicola is the eldest daughter of one of our vice presidents, Keith Chalmers-Watson. She had a trial run with us last autumn, failed to be put off and will become our full-time administrator from 1 May. She will be supported by my long time secretary, Jane Clacey. The average age of the new WPA 'A' (for administration) team is thereby reduced at a stroke by 35 years! This must bode well for the future.

My wife Jean also retires in April as chairman of the Salmon and Trout Association, which will bring considerable extra flexibility into our lives and I hope make it easier to keep contact with all our many friends in WPA and in particular those in Asia. Already we have plans to visit Thailand and Australia in the autumn this year and China and Pakistan in 1998.

It gives me great pleasure to be taking a step backwards at a time when WPA is moving forwards. WPA is undoubtedly in better shape now than it has ever been both in organisation and finance.

It remains only to wish Richard Howard, our new chairman who is recovering well from his recent operation, Nicola Chalmers-Watson and Jane Clacey good luck for the future and to thank all in WPA for their help and support over the years.

Western tragopan winter survey, Palas Valley, December 1996

Robert Whale

During the last decade, Palas Valley, District Kohistan, NWFP has been identified as an area possibly holding the largest remaining population of Western tragopans *Tragopan melanocephalus* and has been the focus of the Himalayan Jungle Project, which should be a familiar name to **WPA News** readers.

Numerous surveys have been conducted within Palas, from tragopans to toads, and a lot of information has been collected over the past few years regarding the wealth of biodiversity within the valley. To continue work on the Western tragopan, winter surveys were initiated in February 1995 in both Palas and Keyal valleys. This was followed up with a three month survey of Palas in the winter 1995/96. This 1996 winter survey was set up almost by chance between WPA and HJP.

All photos: Rob Whale

Survey team at Torband, Palas

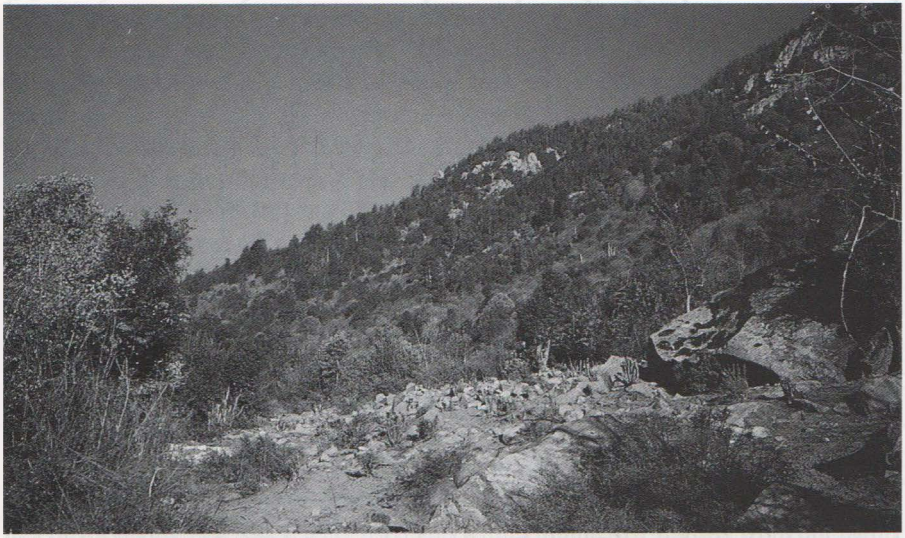
The survey started on 3 December, and after almost non-stop rain during the previous night, our expectations were rather low as we left Pattan. Until we actually entered Palas we did not know how extensively the valley had been concealed with snow. Our initial destination was Ilobek, a small village below the core breeding area of Western tragopans in Bar (upper) Palas. During the three days hiking to Ilobek, the weather constantly threatened to provide us with more snow and the prospect of rendering ourselves stranded was the last thing the team wanted. The north facing slope had received quite an extensive cover but not enough to hinder access to the area and we reached the small village below Ilobek without any problems. The prime objective of the survey was to find out exactly where the tragopans were wintering. Anecdotal evidence suggested that the birds crossed the valley but no hard evidence really supported this and the possibility of the pheasants descending below their breeding habitat could not be ruled out.

Our team consisted of an ornithologist, an HJP representative, two NWFP Wildlife watchers, two shikaris and five porters, with three dogs to flush pheasants, as this in my view is the only practicable method of observing pheasants in winter.

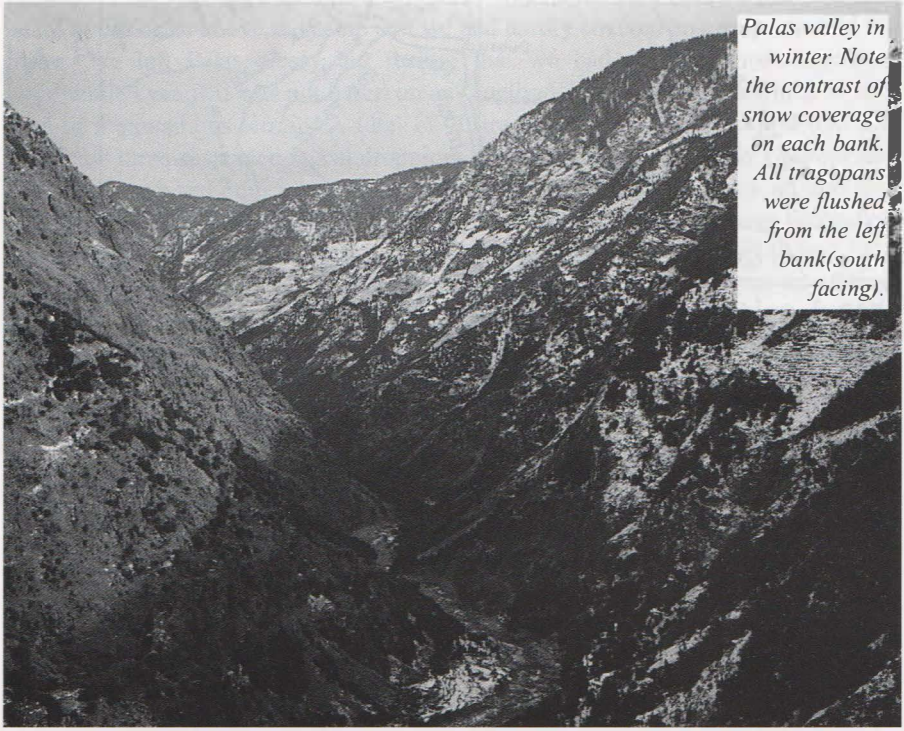
After three days of flushing on the north facing slope, the team came to the conclusion that there was not much pheasant activity. Only one koklass had been recorded along with a highway of fox tracks. The total snow coverage on the ground allowed the team to see all that had been mobile during the previous days and pheasants were mostly absent except for a few tracks. All information gathered from locals strongly hinted that the birds had already migrated across the valley. When asked how they did this, the reply was usually that they flew either early morning or late evening though no one had actually seen a tragopan cross the Musha'ga river.

With new hope the team descended to the valley floor and crossed at Shared where an unused hospital served as accommodation before climbing to a small seasonally occupied village named Chapar. From this point on our luck changed. In the afternoon after reaching Chapar, the team recorded over 30 monal pheasants above Chapar and koklass also seemed quite common. But no tragopan. During the next three days of surveying, a number of monal and koklass were observed but tragopans seemed absent. One of the restricting factors was that some of the habitat that was locally reported to harbour tragopans was only accessible with climbing gear and nothing can be as frustrating as be able to see a virgin thick forest of Deodar and oak but not being able to reach it. The team returned to Shared.

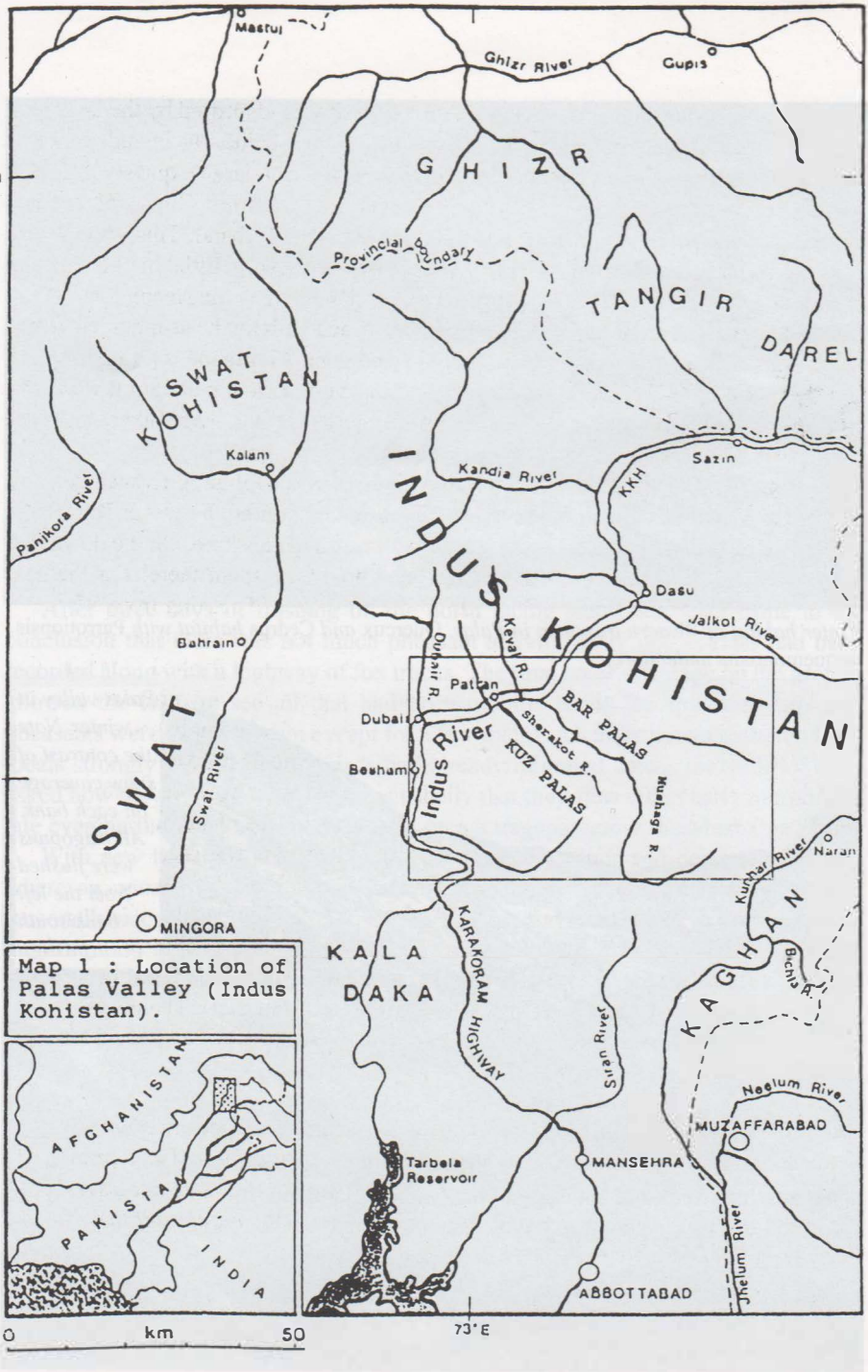
Regarding migration, Rahoof told us that it was in late summer when he thought the birds started to migrate across the valley and then descended with the oncome of snow. He also stated that if we came back in March he could show us 100 tragopans. Now that the team had a good idea of the altitude and habitat where tragopans could be found, our searching became more successful. Above Shared (west of Shambela) we flushed 11. Gidar is a large valley next to Shared but it only produced three birds due to unknown reasons except perhaps for the high amount of human presence.



Winter habitat of Western tragopan in Palas. Quercux *and* Cedrus *habitat with* Parrotiopsis jacquemontiana *understorey.*



Palas valley in winter. Note the contrast of snow coverage on each bank. All tragopans were flushed from the left bank(south facing).



Map 1 : Location of Palas Valley (Indus Kohistan).

The last destination was an area called Karoser. It was identified by the last team as an important area for tragopans. Although it was not initially included in the original plan, local people held the opinion that, as it was a large expanse of forest, it held a good population of wintering pheasants. The team left Gidar and headed towards Karoser, stopping for the night at a place called Torband. This was quite a large forest situated between Gidar and Karoser with very little in the way of settlements except one hut and a small cave which served as the sleeping quarters. Our two hunters went off without their dogs but armed with my head-mounted torch. When they came back they stated that they had counted 25 tragopans going to roost, and were sure they could show us them in the morning. Leaving at 7am it was only a matter of ten or 20 minutes before tragopans started flying. The shikari failed to fulfil his promise of 25 but he did well with 20!

By the time the team reached Karoser, everyone was beginning to become tired of the cold nights and harsh conditions that had to be endured. However Karoser is a nice village and we had a bonus of a few good hours of sunshine. On the downside we found the hut was alive with fleas for the whole time spent there! For the first day of surveying two teams were used and within minutes of starting from our camp tragopans were recorded. In fact it was the most common pheasant species in the area. Over the two days spent at Karoser 29 tragopans were flushed plus one was heard at dusk just above the camp and we had hardly covered any proportion of the forest. We left Palas weary but feeling that we had accomplished something worthwhile even if it was not based on any methodological approach which is very hard in mountainous terrain. A total of 70 tragopans were recorded and one was heard and three suspected faecal droppings. The habitat was primarily *Quercus* and *Cedrus* canopy and quite a mixed variety of shrubs, expanse of grassy nullahs also seemed to be an important part of preferred habitat type. Most birds were flushed off south, south-east and south-west facing slopes between altitudes of 2240 and 2810 meters ASL. The author would like to thank Guy Duke and the HJP team for all their help plus Dr Mumtaz (CF Wildlife), Mohammad Aslam Khan (DFO Wildlife Abbotabad) and Brigadier Mukhtar Ahmed (WPA-P Chairman). Thanks also go to all the team in Palas, especially to Aslam, Kinder Malik, Ashraf and Mukhtasar.

The achievement of Rob Whale and his team, recorded so modestly above, is quite remarkable. It was achieved with totally inadequate equipment and as a result more sheer guts and determination were required than should have been necessary. WPA Council is trying to remedy this but more funds are urgently required if Rob Whale's work in these difficult regions is to continue. Ed.

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Satyr tragopan in the Singhalila National Park, Darjeeling, India

Sarala Khaling

Reproduced with kind permission from Tragopan *Issue 6, February 1997.*

Lying at the north western extremity of the Darjeeling district of West Bengal are the beautiful oak, rhododendron and fir forests of the Singhalila National Park (SNP) - home to the attractive yet little studied Satyr tragopan *Tragopan satyra* and the red panda *Ailurus fulgens*. Satyr tragopan is a 'Vulnerable' species (McGowan 1995) and has the widest distribution range amongst the tragopans in India. It extends from Garhwal through Kumaon, Nepal, Sikkim, the Darjeeling hills and Bhutan to western Arunachal Pradesh at altitudes between 2400 m and 4300 m. In the Darjeeling hills confirmed reports are available from the SNP, while reports from two other protected areas of the district are not confirmed. The satyr tragopan inhabits steep, densely forested slopes with a well developed understorey of *Arundinaria* sp. They are very shy and wary and rapidly retreat for cover when encountered in the forests. Most of the time I found them solitary or in pairs and on one or two occasions a female with chicks.

Photo: Jean Howman

Satyr tragopan.

The 108.77 km2 SNP derives its name from the Singhalila spur which arises abruptly from the Terai plains and runs 100km from south to north separating Darjeeling district from Sikkim and Nepal. The spur culminates at its northern extremity in some of the loftiest peaks of the world including Kanchandzonga (8586m) and others which are above 6000m in height. Wet and moist temperate and alpine forests form the main forest cover of the SNP. Climatically the SNP is considered to be a temperate to subalpine zone. Moist temperate conditions prevail throughout the year. The SNP has a rich diversity of flora and fauna including birds. Most of this rich biodiversity of the Park is yet to be scientifically documented.

The main objectives of my studies on the satyr were to identify the pockets of distribution and see how abundant the species was in the National Park (NP). I chose an intensive study area for detailed studies on other aspects of its ecology and behaviour, such as habitat use, feeding ecology, calling, and social behaviour. The satyr I found to be a very elusive bird and in the ensuing months of study I had to depend a lot on indirect evidence of the bird (droppings, feathers and calls) along with the direct sightings. The forests at the southern and southeastern portion of the NP were found to be the main distribution areas of the satyr tragopan and it was in these sites that the intensive studies were carried out. The wet temperate forests of the SNP comprised the main habitat of the satyr at altitudes between 2600-3100 m. This included *Quercus pachyphylla, Rhododendron spp., Magnolia campbelli, Sorbus cuspidata* and *Acer spp.* as the dominant tree species. Ringal bamboo (*Arundinaria maling* and *Thammocalamus aristata*) formed the dominant understory species along with small sized trees of *Rhododendron spp., Osmanthus sp., Viburnum sp.* and *Symplocos sp.* Dry mixed forests, alpine forests, pure rhododendron forests and some plantation forest were also used by the bird.

Call counts were conducted in the intensive study area during the spring of 1995 and 1996. The male birds began calling by the end of March and continued until May, with the peak of calling in April. Twenty-eight birds were counted in the spring of 1995 and 18 in 1996. The dawn chorus began by 0430 hrs and was completed by 0600 hrs, with the birds calling from their roosts and moving around to guard their territory. Because of the difficult terrain and the very shy behaviour of the species, studies on other aspects of its breeding behaviour could not be carried out in detail.

In spring this year there is a programme to study the satyrs by radiotelemetry which I hope will provide information on many aspects of behaviour and ecology of the species which are hitherto unknown to us.

In order to study the feeding ecology of the satyr tragopan, faecal droppings have been collected and preserved for subsequent faecal analysis. Personally I observed the bird feeding on *Theropogon sp., Pilea sp.* and a fern, and on one occasion we found the seed of *Symplocos sp.* fruit in one of the droppings. Records of the phenophases of different plant species which may turn out to be the species' food have been kept on a monthly basis. Satyr tragopan males were mostly solitary or in

pairs when encountered in the forest and sometimes two females were observed with a single male. Females with chicks were also sighted during the studies but this was very rare.

It would be worthwhile here to mention the threats to the SNP which in turn are threats to the satyr. The western border of the SNP falls on the international border with Nepal and is totally depleted of forest cover due to the establishment of settlements and rampant tree-felling for agriculture. There is not even a single patch of contiguous forest between SNP and Nepal. Along the 42 km border there are eight Nepalese settlements on the border and many other villages barely two to three km away from the NP. On the Indian side the settlements are quite far from the core area of the NP, but the forests on this side are also being depleted due to new settlements and agriculture. Since the forests of the SNP had no protected area status before 1992, they were under tremendous pressures in the form of devastating forest fires, huge logging operations, major construction works, illegal felling and sawing, intense grazing and browsing and large scale poaching. Habitat destruction and poaching are the two main threats to the satyr population in the SNP. All the settlements along the border of the NP have a number of livestock and there are yak stations (pastoral herd stations) which use the SNP forests as their grazing grounds. Settlements totally depend on the SNP forests to meet their fuelwood needs. Collection of forest produce, such as bamboo shoots, medicinal herbs, and bamboo stems for construction work are quite intense. The SNP areas have always been a popular trekking area and there is a large inflow of tourists, both foreign and domestic, which indirectly increases the use of the forest,s resources. These activities all contribute to the loss of good satyr tragopan habitat in the SNP. Satyr poaching was quite common before the SNP forests were given protected area status. Poaching was mainly carried out for recreation, for food and to supply animals to the local zoo. Poaching activities in the NP cannot be ruled out even now. These pheasants are very easy to snare and poachers know exactly where the pheasants occur. Regular monitoring of vulnerable sites, control of yak grazing and tourism, vigilant control of poaching activities, and an overall awareness campaign would all help to lessen the intensity of the threats to the bird.

No other sites of satyr distribution have been explored in the Darjeeling hills, although there are reports of the bird elsewhere. In future surveys will perhaps be conducted in these so far unexplored areas of the satyr distributional range.

This West Bengal Forest Department (Wildlife Circle) sponsored Project is being assisted by the World Pheasant Association.

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Centre of Wildlife and Ornithology, Aligarh Muslim University, Aligarh - 202002, India.

Lophophorus impeyanus - in the eye of the beholder

Kermit Black-Rameson

Monals are special - special in plumage, body shape and wing morphology, special in feeding habits and special in life style. Many of their unique features are the result of adaptation for digging. Their bodies and bills are powerful, permitting them to find food where other species might starve. In the wild, digging for tubers and grubs is a full-time occupation. Kept improperly, monals in aviculture suffer more from boredom than many true pheasant species and are blamed as 'aviary wreckers'. Provided with natural stimuli and occupation, these birds will display fascinating behaviours, as well as noble beauty.

Photo: ©Wildlife Conservation Society, headquartered at the Bronx Zoo

The female Himalayan monal displays a simple beauty. She resembles the immature male, but her crest is shorter and more compact. The young male also has an iridescent stripe behind the eye, and black markings on the throat.

Providing the birds with several sizeable logs, particularly those partially soft from decay, is the solution. These birds like heights, and leaning large logs at a steep angle, against a shelter structure, for instance, gives the birds a chance to climb, using the entire volume of their enclosure. The short legs and large feet easily support the birds as they gouge into the wood; the squared tail props the powerful body nicely, somewhat like a woodpecker.

A review of original source materials indicates that diets of wild galliformes vary much more than most of us expect. Monals are able to utilize a diet which is probably unusully high in fibre. They routinely consume copious amounts of earth, wood pulp and roots, as well as dead leaves and pine needles, especially in winter. In addition to providing behavioural stimulation, opportunities for natural digging may provide material important for proper digestive function.

Onions, garlic, leeks and other alliums are readily available at low cost, all year round. I strongly suggest that these bulbs, relished by monals, be fed on at least a weekly basis, adding fibre and diversity to the diet. Heavy layers of leaf litter will add to the birds' occupation - I bury seed garlic in the leaf litter for treats. Feeders should, ideally, be elevated making it easy to clean the surrounding ground daily. This is important, as spilled and spoiled food items can cause bacterial and fungal infections.

I normally feed one part Blue Seal brand avi-pellets to two parts wild bird seed (equal parts of flax, radish, thistle, poppy, fennel, sesame, hemp, clover). As seeds lose vitamin content with long storage, good quality, fresh supplies are essential. In winter a few raw walnuts are added for extra energy-producing fat. It is essential the water container is scoured daily.

Years ago, a Japanese aviculturist, Mr Iwamiya, taught me a traditional remedy for internal parasites in pheasants. I make a food-processed slurry of four parts allium, one part each carrot, hot peppers, horseradish, pumpkin seed and ginger. This is mixed with enough wild bird seed to make a mixture that holds its shape. This is fed twice a week all year-round, two to four ounces per bird. The birds consume this eagerly and they preen the fine oils into their feathers, making the plumage gleam and shine even more intensly. This may also help rid the birds of feather lice.

All captive birds should be monitored closely for internal parasite loads. Because Monals are constantly eating soil and soil organisms, they are more than usually at risk and should be checked regularly.

The walls of an aviary need be neither open nor bare. I have found that making ledge-like shelves on the walls of an aviary provide areas for the birds to rest and vault from in the display flight. The monal loves to press its mantle up under some dark shadowy bush or log and these should also be present.

Monals are monogamous and both sexes rear the offspring. The male broods half of the chicks under his wings at night. More of us should encourage pairs to rear

their own offspring, because it is fascinating to watch and because parent reared birds learn a complete repertoire of natural behaviours. There are good numbers of Himalayan Monals in captivity at this moment and it is in our own interest to sustain them, as the species is under pressure in the wild. Still more important, the Himalayan Monal can act as a model for the Sclater's and Chinese Monals, both rapidly disappearing. Monal breeders should begin to cooperate, develop a studbook and plans for long-term population management, so these magnificent birds will never be lost.

Note: The writer's views on the mixing of species is very much his own and certainly requires a v ery large aviary. Ed

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Blyth's Update

Rahul Kaul writes 'In January 1997, fieldwork on the Blyth's tragopan project resumed after a long gap. This delay was due to the monsoon break and the lead researcher leaving the team. A suitable replacement could not be found earlier.

The team went straight to the Blue Mountain National Park (Phwangpui National Park) and made preparations for an intensive study. They have now laid a series of transects all over the study area which will be monitored systematically to obtain data on abundance of Blyth's and their habitat use. In addition to these transects, trails already existing inside the park will be utilised. We shall also be studying the feeding ecology for which we will collect Blyth's droppings from their roosts and later analyse them for dietary contents. Availability of both the habitat and the potential food plants will be sampled regularly for comparison later. In 1998 we hope to obtain permission to trap Blyth's for radio tracking and this is expected to facilitate data collection.

A supporting team of six biologists is going to Phwangpui to conduct a call count exercise which should yield an estimate of Blyth's abundance in Phwangpui National Park. In addition to Blyth's we also hope to collect abundance data on Hume's pheasant and the bamboo partridge. A census workshop is also being held in Mizoram for the benefit of Mizoram Forest Department personnel. It is expected that through this workshop, knowledge of simple and easily applicable field techniques is imparted to the Forest personnel so that they are able to generate elementary abundance estimates in future without the need for external help.'

Wildlife Conservation Society surveys for Bornean peacock-pheasant

Craig Robson

The Pheasants: status survey and conservation action plan 1995-1999 (McGowan and Garson 1995), identified the Bornean peacock-pheasant *Polyplectron schleiermacheri* as a galliforme species requiring urgent conservation action. In response, a joint Wildlife Conservation Society (WCS), BirdLife International and Indonesian Department of Forest Protection and Nature Preservation (PHPA) initiative has been conducting surveys in East and Central Kalimantan (Indonesian Borneo) to determine the current status and distribution of the Bornean peacock-pheasant.

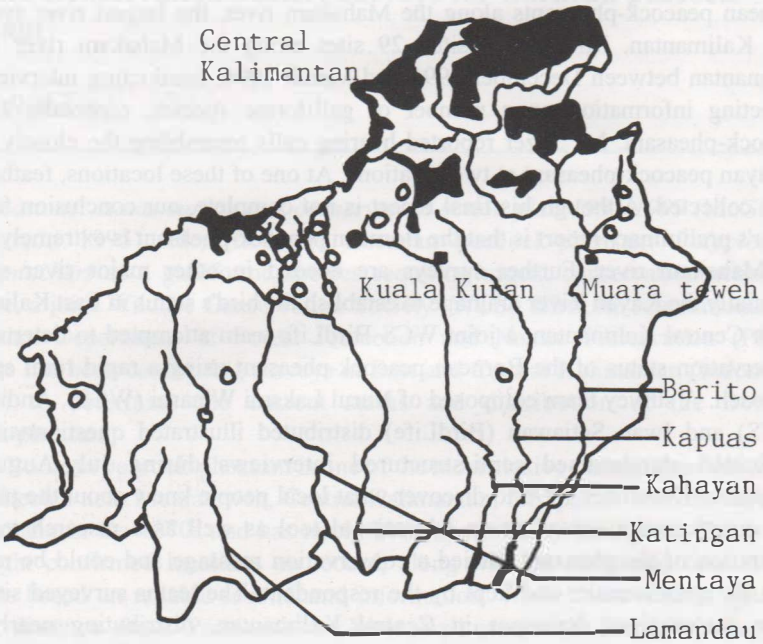
The Bornean peacock-pheasant is one of the most elusive pheasants in the world. First collected near Muarateweh, Central Kalimantan, the species was described by Bruggemann in the 1870s and has rarely been observed by biologists. There were only eight confirmed localities on record, along with an additional four or five locations based on reliable secondhand information. While these records span the 900km distance from Pontianak in West Kalimantan to Samarinda in East Kalimantan, most of the reports come from Central Kalimantan. Recent hunting surveys carried out by the WCS Malaysia Programme in Sabah and Sarawak indicate that local Penan and other Dayak groups had no recent knowledge of Bornean peacock-pheasants at the survey sites (L. Bennett, pers. comm).

Knowledge of the Bornean peacock-pheasant's behaviour and habits is extremely limited and no systematic studies of the species are available. It is believed to be active at dawn, to feed on fruits, seeds and invertebrates, and to make seasonal movements in response to fruit availability. Bornean peacock-pheasants are believed to inhabit lowland rainforest, with a preference for alluvial lowland forest. This forest type is an extremely threatened habitat on Borneo because it is favoured by logging companies and shifting cultivators. The Bornean peacock-pheasant is considered rare or absent from peat and swamp forests that comprise much of the lowland forests of Borneo, and although it occurs above 305m, most records are from lower elevations. Because of the paucity of information, the conservation status of the Bornean peacock-pheasant remains uncertain. Given its low density and presumed preference for a seriously threatened forest type, the belief that Bornean peacock-pheasants are critically endangered may be warranted. With a donation from Richard Olsen to WCS and additional funding from WCS, we initiated surveys to assess the conservation status of Bornean peacock-pheasants, in order to develop recommendations for in situ conservation and possible establishment of a captive

breeding programme. In 1995, WCS awarded a grant to Mr Resit Sözer to survey Bornean peacock-pheasants along the Mahakam river, the largest river system in East Kalimantan. Mr Sözer visited 29 sites along the Mahakam river in East Kalimantan between December 1995 and March 1996, conducting interviews and collecting information on a number of galliforme species, especially Bornean peacock-pheasant. Mr Sözer reported hearing calls resembling the closely related Malayan peacock-pheasant at two locations. At one of these locations, feathers also were collected. Although his final report is not complete, our conclusion from Mr Sözer's preliminary report is that the Bornean peacock-pheasant is extremely rare on the Mahakam river. Further surveys are needed in other major river systems, especially the Kayan River drainage to establish the bird's status in East Kalimantan.

In Central Kalimantan, a joint WCS-BirdLife team attempted to determine the conservation status of the Bornean peacock-pheasant using a rapid rural appraisal approach. A survey team composed of Nurul Laksmi Winarni (WCS), Andi Setiadi (WCS) and Iwan Setiawan (BirdLife) distributed illustrated questionnaires and conducted standardised semi-structured interviews during July-August and November-December 1996 to discover what local people knew about the pheasant. The questionnaire served as an educational tool as well as a research tool. The illustration of the pheasant carried a conservation message and could be removed from the questionnaire and kept by the respondent. The teams surveyed six of the seven major river drainages in Central Kalimantan, distributing nearly 1000 questionnaires and conducting more than 150 interviews in 93 villages. We received responses to 842 of the questionnaires.

Preliminary results confirm some of the speculation regarding habitat preference and distribution. Generally, most of the people in the upper reaches of the rivers were familiar with the Bornean peacock-pheasant whereas people along the lower reaches of the rivers did not recognise the bird. This appears to confirm earlier observations regarding absence from swamp forest habitats. Reports of Bornean peacock-pheasants were confirmed by collection of feathers at four locations (see map). These areas are characterised as undisturbed forests on rich soil. In addition, we received reliable reports that the Bornean peacock-pheasant had been trapped within the past 12 months at an additional 28 locations. Almost all information results from trapping efforts by local people who report that the bird was snared for meat, and rarely survived more than two days in captivity. These initial results suggest that the Bornean peacock-pheasant is more widespread than previously thought. Most records are from 100 to 500m elevation. The distribution of Bornean peacock-pheasant appears to increase from east to west along the foothills of the Schwaner and Müller mountain ranges. We also confirmed the presence of Bornean peacock-pheasants in the Bukit Baka-Bukit Raya National Park. These observations are significant in that they are the first reports of the bird's occurrence in a protected area.



Areas of confirmed (closed circle) and reliable (open circle) reports of Bornean peacock-pheasant. A single circle may include more than one location as the scale of the map causes overlap of locations that are close together.

We plan to continue our surveys during the next 12 months, pending funding. We are preparing a GIS database to plot pheasant locations and overlay forest type, soil type, elevation, presence of logging concessions and other information to better assess the habitat preference and conservation status, and to identify priority areas for future work. Ultimately, this information may be used to determine if the Bornean peacock-pheasant is adequately protected in the existing protected areas of Kalimantan or if additional areas are required.

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Timothy G. O'Brien and Margaret F. Kinnaird, Wildlife Cons. Soc. - Indonesia Program P.O. Box 311, Jl. Ciremei No. 8, Bogor 16003, Indonesia e-mail: wcs-ip@indo.net.id

Project Ortalis 96

Robert G Pople, Ian J Burfield, Robert P Clay, David R Cope, Corinne P Kennedy, Bernabé López-Lanús and Ben Warren

Introduction

From July to September 1996, Project Ortalis 96, a Cambridge University conservation expedition, carried out ornithological fieldwork in two dry forest reserves in south-western Ecuador. At the invitation of the reserve's director, the project conducted six weeks intensive fieldwork at Bosque Protector Cerro Blanco (BPCB), Guayas province, where ornithological inventory work was carried out in a number of areas in and around the reserve, in order to help with an ongoing expansion programme. In mid-August the project moved on to its second site Reserva Ecológica Manglares-Churute (REM-C), also within Guayas province, where four weeks fieldwork was conducted in the forested sectors of the reserve. Here effort was concentrated upon the moist ridge-tops of the major *cerros*, where very little fieldwork had previously been conducted.

Photo: Robert Pople

Dry forest habitat typical of most of Bosque Protector Cerro Blanco.

Background

The Pacific coast forests of Ecuador and Peru are one of the richest biotic habitats on earth, with unusually high numbers of endemic species (Best and Kessler 1995). However, they are also now one of the most threatened of the world's ecosystems, with less than one per cent of the original tropical dry forest cover remaining (Dodson and Gentry 1991). BPCB and REM-C represent two of only a handful of reserves containing fragments of protected dry forest, and as such remain vital to the continued survival of many of the species distinctive to the Tumbesian centre of endemism (Best and Kessler 1995).

The project's name itself comes from the generic name of the Rufous-headed chachalaca *Ortalis erythroptera*, an endemic to Tumbesian Ecuador and Peru, and the sole member of its genus to be considered globally threatened. As with many of the Tumbesian endemics, this species has suffered considerably as a result of widespread deforestation and loss of habitat, and has a modern-day population that is highly fragmented and probably numbers in the low thousands (Best and Krabbe 1994). It is one of nine globally threatened species known to occur at the two reserves visited, and as with many of the cracids, is a poorly-known species. These factors, and that it is a large charismatic bird, seemed to make it an ideal choice as the project's emblem, and indeed as a symbol for conservation efforts in the region as a whole.

Project findings

During our six weeks fieldwork at BPCB we revealed seven species that had not previously been recorded at the reserve, including a female *Acestrura* Woodstar whose identification has yet to be confirmed. All of the nine globally threatened species known from the reserve were also recorded, most in reasonable numbers, reinforcing the importance of BPCB within Ecuador for their continued survival. Regular sightings of up to 40 Saffron siskin *Carduelis siemiradzkii* confirm that the reserve holds a significant population of this rare finch, and we also found a pair of the severely threatened Great green macaw *Ara ambigua guayaquilensis* which appeared to be investigating potential nest sites in an area adjoining the reserve.

O. erythroptera was also seen, with approximately 20 sightings during our visit, mostly of ones and twos, but four together on one occasion. It was recorded in a wide range of habitat types, from dense scrub on the lower slopes of the reserve, through dry deciduous forest, to the taller moister forest of the ridge-tops. Typically, however, the species were observed briefly perching c.3-5m up in bushes or low trees, before gliding or dropping down out of sight into lower vegetation, but on a couple of occasions groups were flushed up off the ground. Overall, our records suggest that the reserve may harbour a population in excess of 30 individuals, with five distinct groups heard calling alternately around one camp, just before dawn one morning. However, generally the birds were fairly quiet, and other workers have

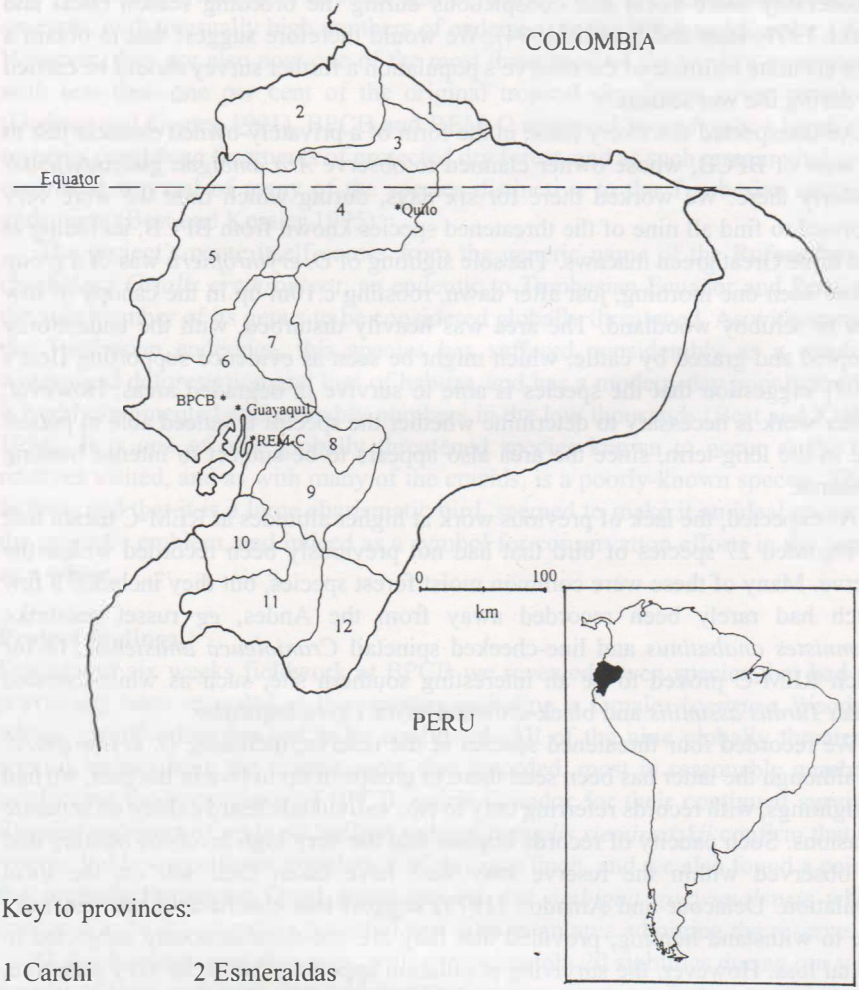
noted that vocalisations can be very sporadic and that *O. erythroptera* is considerably more vocal and conspicuous during the breeding season (Best and Clarke 1991, Best and Krabbe 1994). We would therefore suggest that to obtain a more accurate estimate of the reserve's population a further survey should be carried out during the wet season.

An unexpected discovery came in the form of a privately-owned estancia just to the west of BPCB, whose owner claimed to observe *Ara ambigua guayaquilensis* regularly there. We worked there for six days, during which time we were very surprised to find all nine of the threatened species known from BPCB, including at least three Great green macaws. The sole sighting of *O. erythroptera* was of a group of four seen one morning, just after dawn, roosting c.10m up in the canopy of low trees in scrubby woodland. The area was heavily disturbed, with the understorey trampled and grazed by cattle, which might be seen as evidence supporting Best's (1992) suggestion that the species is able to survive in degraded areas. However, further work is necessary to determine whether the species is indeed able to persist here in the long-term, since the area also appears to be subject to intense hunting pressures.

As expected, the lack of previous work at higher altitudes at REM-C meant that we recorded 27 species of bird that had not previously been recorded within the reserve. Many of these were common moist forest species, but they included a few which had rarely been recorded away from the Andes, *eg* russet antshrike *Thamnistes anabatinus* and line-cheeked spinetail *Cranioleuca antisiensis*, or for which REM-C proved to be an interesting southern site, such as white-throated thrush *Turdus assimilis* and black-crowned tityra *Tityra inquisitor*.

We recorded four threatened species at the reserve, including *O. erythroptera,* but although the latter has been seen there in groups of up to five in the past, we had no sightings, with records referring only to two individuals heard calling on separate occasions. Such paucity of records implies that the very high levels of hunting that we observed within the reserve may well have taken their toll on the local population. Delacour and Amadon (1973) suggest that chachalacas are generally able to withstand hunting, provided that they are not simultaneously subjected to habitat loss. However, the surviving population appears either to be very secretive, or to have retreated to the most inaccessible areas of the forest, and once again a better estimate of the population would be obtained from a wet season survey.

The continued presence within the reserve of great tinamous *Tinamus major* and crested guan *Penelope purpurascens*, two species long since lost from many smaller forest remnants in western Ecuador, is encouraging. However, the only sighting of the latter was of one feeding in the canopy of moist forest on one of the ridge-tops, and it seems likely that high hunting pressures have similarly forced this cracid to seek refuge in the most inaccessible areas of the reserve. If action is not taken to reduce the levels of hunting, then *P. purpurascens* ultimately seems doomed to



Key to provinces:

1 Carchi	2 Esmeraldas
3 Imbabura	4 Pichincha
5 Manabí	6 Guayas
7 Los Ríos	8 Cañar
9 Azuay	10 El Oro
11 Loja	12 Zamora-Chinchipe

Map of Ecuador showing position of Bosque Protector Cerro Blanco (BPCB), Reserva Ecológica Manglares-Churute (REM-C) and selected provinces.

disappear, just as it has at BPCB, and the isolated nature of the cerros at REM-C means that *O. erythroptera* could well follow.

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The Moluccan Megapode: Bird of the Spice Islands

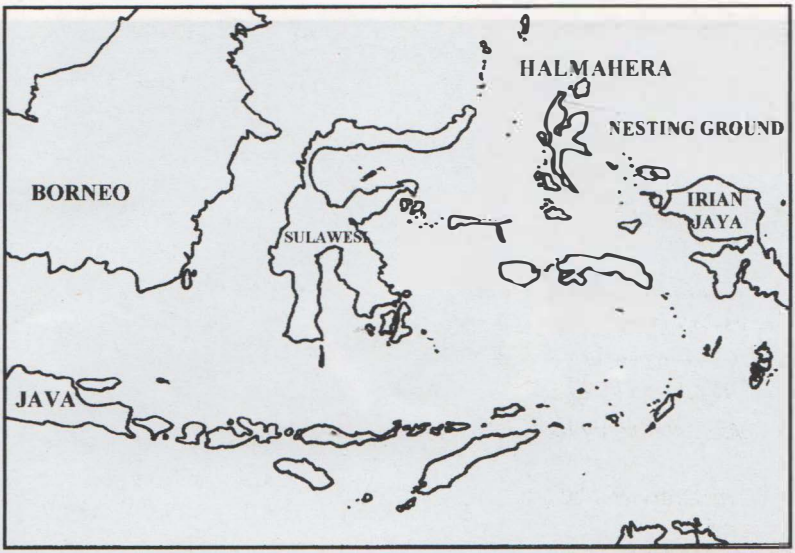
Gillian Baker

Gillian Baker née Stewart, studied the Maleo for her BSc. She took three months off from her MPhil work on frogs to study the rare Moluccan megapode. Ed.

Alfred Russel Wallace wrote in his book the *Malay Archipelago* (1869), of a new species of bird found in the Spice Islands of Indonesia. "I was so fortunate as to discover a new species, which inhabits Gilolo, Ternate and Bouro. It is the handsomest bird of the genus, being richly banded with reddish brown on the back and wings; and it differs from the other species in its habits. It frequents the forests of the interior, and comes down to the sea-beach to deposit its eggs, but instead of making a mound or scratching a hole to receive them, it burrows into the sand to a depth of about three feet obliquely downwards and deposits its eggs at the bottom." The bird so described by Wallace was the Moluccan megapode, a critically endangered species, endemic to the Spice Islands (Moluccas) in Indonesia. This winter I was so fortunate as to visit the Moluccas to study this most handsome of birds.

The Moluccan megapode has a restricted range. It is known to lay its eggs on only a handful of beaches in the Moluccas. These beaches are therefore of huge conservation importance. In 1994, a large nesting beach was rediscovered on the island of Halmahera. Our expedition spent two months on this beach looking into the conservation status of the Moluccan megapode. From afar it sounds rather idyllic, spending winter on a beach in the tropics, but field work is never as romantic as it sounds. The nesting beach is essentially an island sandbank of black volcanic sand surrounded by mangrove swamp. During the day the temperatures reach 45°C on the beach, and the only drinking water was a warm, brown opaque liquid, which remained a health hazard even after boiling!

Megapode nesting grounds are communal areas that attract thousands of birds at a time. This makes them ideal places for studying megapode behaviour, unless of course you are studying the Moluccan megapode - which is nocturnal! Every night



Map of Indonesia indicating the Moluccan megapode nesting ground on the island of Halmahera.

we sat patiently in our hide with infra-red binoculars, staring out at the blackness. Occasionally, a small fuzzy black shape would move around in the fuzzy black distance, and we would hear the disgruntled squeaks of birds within metres of our hide. On nights when the moon was particularly bright, it was possible to make out silhouettes of the birds and collect some kind of data - but nights like these were few and far between.

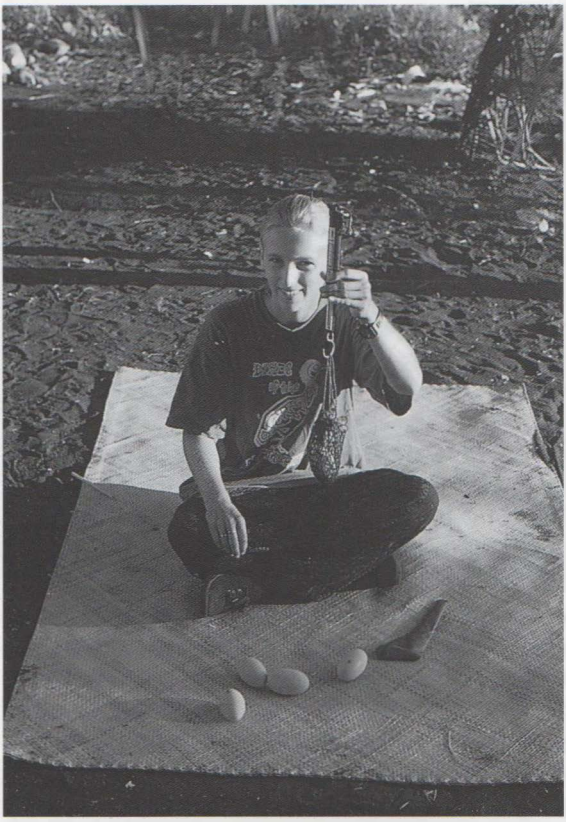
In the morning, the owners of the beach would come and harvest the eggs. Moluccan megapode eggs have been harvested from this site for over 60 years and the population is still thriving. Traditional harvesting techniques play an important role in Moluccan megapode ecology. Egg collectors are highly skilled, and can excavate an egg from one metre underground in less than a minute. Despite this efficiency they always leave at least 10% of the eggs to develop into chicks. If a beach is to be a good nesting ground it needs to be kept free of vegetation. Vegetation cover makes burrow excavation difficult and can shade the soil from sun, thus reducing its incubation temperature. The egg collectors in Halmahera are aware of this, and spend a great deal of their time managing the beach vegetation. Each morning we followed the egg harvesters around the beach collecting eggs, to monitor their harvesting yield and efficiency. Every egg found was measured and its depth and position noted.

The information we collected on the ecology of the Moluccan megapode provides scientific data on which to base conservation management plans. There

All photos: Gillian Baker

An egg collectors legs!

Female Moluccan megapode



Gillian weighing the egg harvest.

was however a much larger threat looming over the Halmahera nesting ground. During our stay we discovered that the area around the nesting ground was proposed as a potential site for development by a banana plantation company. In response to this we submitted an environmental impact assessment report to the local council and gave a talk to the local people about the importance of conserving the mangrove and nesting ground. Following this, the government issued a letter recommending protected status for the area at a local level. To maintain long term protection of the site further action is required. Since receiving our report, Birdlife International Indonesia Programme have been looking into the possibility of buying or renting the Moluccan megapode nesting ground. With any luck, the Halmahera nesting ground may be preserved for the future generations of Moluccan Megapodes to incubate their eggs.

My thanks are due to the sponsors who made this study possible. In particular to Stiftung Avifauna Protecta and the World Pheasant Association who provided my airline ticket through British Airways Assisting Conservation. My thanks are due also to Royal Geographical Society, Ernest Kleinwart Charitable Trust, Pilkington Optronics, UK, Enterprise Unit, Sussex University, Garuda Indonesia, Peglers Expedition Store, Sussex, Wraysbury Tyres, Dr Darryl Jones (Griffith University, Australia), Dr Réne Dekker (Leiden Museum), all the staff at BirdLife International IP, Wendy Swales (Trekforce) and the people of Galela, Indonesia who made this project possible and the Megapode Specialist Group for their help and advice.

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An encounter with pheasants in Riyalli Forests

Surender S Katoch and Jitender S Jandrotia***

Conservation of wildlife which embraces protection as well as preservation of both faunal and floral wealth in an ecosystem constitutes one of the environmental protection programmes that have been gaining momentum recently. The objective can be best achieved only after effective planning and management. These ultimate tasks of planning and management for purposeful conservation of wildlife are enormous and perhaps cannot be best achieved unless a data bank providing solid details about spatial distribution, biogeography and species richness of different animals is readily available.

Chamba district of Himachal Pradesh is situated in the Western Himalaya. It has a significant natural wealth of forests which along with a well developed understory offers an ideal habitat for a number of wild animals including birds and mammals. Pheasants are a group of spectacular birds that are unique in their distribution in many parts of this district. Out of seven species of pheasants common to western Himalaya, as many as four have been documented. Two of these species, western tragopan *Tragopan melanocephalus* and cheer pheasant *Catreus wallichii* are already listed as endangered. Once known to be common in different forests of the district, these pheasants have suffered an enormous onslaught of indiscriminate hunting and poaching in addition to the destruction of their natural habitat. Thanks to environmental conservation initiatives and perception of such measures by the public in general, pheasants though in smaller numbers continue to inhabit the forests. However, pressure of ever increasing human population is so severe that its impact continues to threaten the survival of available stock of these beautiful birds.

We had made a survey of some forests around Saho area in 1994-1995 (Katoch et al. Ann. Rev. WPA 1994/95: 67-74) and had documented the presence of pheasants in some selected sites. Forests around Sara and those of adjoining Riyalli in Gharaatbada of Chamba district of Himachal Pradesh are relatively inaccessible and beyond Government sponsored developmental programmes like construction of roads and laying of other infrastructure facilities leading to deforestation. The only way to reach these forests is to walk uphill on foot, a distance of five to six km from Saho which is located 20 km away from Chamba. However, a reasonably alarming human pressure from Gujjars, a nomadic tribe is noticeable. The wildlife wing (under the forest department) do have a watch and ward staff but their inadequate number can hardly be effective in checking the unfortunate practices of hunting and poaching especially during winter days when there is as much as knee deep or more snow. During peak days of winter, pheasants are forced to leave their habitat and

Photo: Surender S Katoch

A view of the Riyalli forest.

move down in search of food and shelter. This is the long awaited and most cherished period of the year for some professional hunters, who recklessly add to the bird's decimation. During our surveillance study we had convinced ourself that a sizeable population of pheasants was supported by these forests. However, an important question that haunted us was, "will this population of birds continue to survive biotic as well as abiotic pressures that are emerging fast even in these forests?". In our pursuit to monitor the pheasants in selected forests of the district, we chose to check and confirm our earlier data.

The winter period beginning early December and until the last week of February or first week of March is an ideal time to sight pheasants. We undertook the following survey tour for four days beginning 14 February, 1996. Pheasants are a group of shy birds which prefer solitary and isolated habitats beyond any biotic interference especially from human beings. We were reminded of this habit the very first day of our arduous journey on foot from Saho, a suburb of Chamba town, to the Sara forest. A distance of five km took as long as four hours of nonstop uphill climb. We were, however, unfortunate to find the weather suddenly turning cloudy by the time we were in Sara, a lonely village of 10-15 houses located at the base of the Sara forests. The very idea of rediscovering those beautiful pheasants that we had watched last time had aroused considerable thrill. However, we were equally dismayed this time since the mercury had already dropped to near 0°C by the time we reached Sara. This had nearly convinced us that imminent snow during the night

was going to force us to abandon our mission. Our apprehensions proved right when the chowkidar (house keeper) of the forest hut informed us early in the morning of 15 February that 25-30cm of snow had fallen. Would this snow drive the pheasants downwards or had they been caught by surprise by the sudden snow and trapped where they were? We ponderd over and discussed this with each other and agreed to believe in the second possibility! The earliest we could reach Dalli (a site where we had confirmed the presence of pheasants last time), would require at least one hour uphill climb in knee deep snow. Unfortunately, we did not either see or hear any pheasant calls in and around Dalli this time. Every thing was just as calm and quiet as is characteristic of a typical day after snowfall. Even after a three hour uphill walk beyond Dalli in more than two and a half feet of snow, luck did not smile on us. But for a pair of overflying Golden eagles (locally called muriary), we did not see any animal let alone any pheasants.

We decided to abandon our efforts to find pheasants there and instead took to the Sara nullah for the return journey. This nullah, in the shape of a deep gorge, had snow all around. However, a thick understory of shrubs had resulted in fairly large snow-free spaces underneath their protection. We soon were able to identify foot marks of none other than pheasants. The birds, however, could not be seen. Suddenly at 2.40pm, a male monal pheasant was heard calling and within 15 minutes we had a chance encounter with four female monal pheasants while descending from Gathod to Lambi Behi. Sudden flights of these female monal pheasants had not only surprised us but appeared to have scared an unnoticed muriary as well. The poor golden eagle must have been silently watching or pursuing the pheasants and we had spoilt his hunt. At 3.20pm we sighted another group of three female monal pheasants flying from a Rei tree in the same nullah. Since we did not have an alternate path to descend except to walk down along the nullah, no additional sightings could be made. After the limited success of having sighted seven monal pheasants spread over a period of eight hours, we retired to bed. Since there was still more snow higher up in the forests of Bani di Behi (last time we had had success in sighting pheasants there too), we decided not to venture there next day but instead decided to walk to Siyundi, a distance of 2.5 kilometers from Sara and try Riyalli and Gharaatbada forests.

Amongst different pheasant species, Kaleej *Lophura leucomelana* seems to enjoy the closest association with human beings and is a classical example of species that has withstood the human pressure but not before suffering a serious decline in its population. We felt glad therefore when we found a lonely wandering kaleej pheasant in the Sara nullah below the village proper and within 15 minutes of our journey to Siyundi. We had started at 9.30am on 16 February, 1996. After a brief stopover and a hurried lunch at Siyundi, a small village of gujjars (semi nomads), we moved on fast to Gharaatbada so that we could spend a couple of hours in Riyalli forests. We had been regularly visiting the place for the last two years yet Yaakub,

a Gujjar, assured us that there were a lot of pheasants there and offered to accompany us. We had hardly reached the base of Riyalli forest (3.15pm), when we were welcomed by the sudden flight of two male and a female monal pheasants. The birds took refuge on the other side of the nullah. A 10-15 cm thick blanket of snow allowed us a contrasting background to visually follow them and photograph one of these as well. We were trying to hide ourselves at a place where we could have a view of the entire base of Riyalli forest when we saw two monal pheasants (one male and one female) at 4.10pm. A pair of male monal pheasants was again sighted while flying to the other side of Lamma nullah at 4.15pm. Now we realized that we were in the middle of these pheasants. Last time these pheasants were sighted in the main Riyalli forest. The snow had apparently driven these birds downward.

To our surprise this was just a beginning as Yakuub became restless and wanted us to climb a distance of just 50 meters if we were interested in seeing a good population of pheasants. While one of us (SSK) stayed back holding a Nikon FM2, JSJ chose to accompany Yakuub. After reaching the proposed site, Yakuub was busy showing pheasant foot marks and had already alerted JSJ of the presence of pheasants here. What followed had never been imagined by either of us. Within seconds, pheasants, in pairs, started emerging both from the understory as well as from the tops of Rei trees. Two female monal pheasants were sighted while sitting on the broad leaf Rei tree at 4.45pm. Another group of three male and four female monal pheasants was sighted while flying either singly or in pairs. SSK was so delighted to watch these flying pheasants that he actually preferred looking at them rather than trying to shoot them with camera. It was here that sharp calling of kwa... kwa...kwa... alerted us to western tragopan. Immediately we could see the western tragopan sitting on a Rei tree. We were concentrating on this bird when our attention was drawn by another western tragopan which took to flight to the other side of nullah. The whole nullah echoed with pheasant calls for some time. It was already 5.15pm. Therefore we decided to call it a day but not before seeing another male monal pheasant and a lonely wandering kaleej pheasant in Gharaatbada nullah. We returned to Siyundi to share our experiences with the Gujjars and finally moved on to Chamba the next day. We were in a hurry to share this experience with WPA! We lost count of how many birds we saw but were certainly convinced that Riyalli forests have adopted these shy birds. Obviously, these forests offer a suitable habitat for the pheasants.

Their experience is similar to that of Rob Whale and it appears that in winter pheasants come together in certain favoured areas. Ed.

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Breeding Rheinart's crested argus at Saigon Zoo and Botanical Gardens

Phan Viet Lam, Nguyen Quoc Thang and Huynh Thu Loan

Introduction

The Rheinart's crested argus *Rheinartia ocellata ocellata* (Elliot 1871), is one of the nine pheasant species listed as endangered in the Vietnamese Red Book and also included in Appendix 1 of CITES. The range of this species is confined to Vietnam and parts of Laos. According to different authors its range within Vietnam extends from Ha Tinh to Thua Thien-Hue. However the fact that several specimens were newly caught in Tuy Hoa (Phu Yen Province) indicates a much wider distribution area further down in the south.

For a period of more than a half of this century no sighting of this pheasant species had been recorded in Vietnam. In 1992 for the first time ever the Saigon Zoo and Botanical Gardens was able to acquire the first live specimens of the Rheinart's crested argus. Now there is a flock of 22 (9.13) Crested argus housed there.

Saigon Zoo is the first zoo in recent years to breed this endemic pheasant species successfully. Nine chicks of this endangered species have already hatched so far this year.

Photo: Phan Viet Lam

Crested argus hatchlings, 4 March 1996.

History

As mentioned, the first Rheinart's crested argus kept at Saigon Zoo were acquired in 1992 and 1993. From March 1993 to October 1994, 20 individuals (9.11) of this species have been acquired. However only 14 (5.9) of them have survived to date from which we could group five breeding pairs in this year. The Rheinart's crested argus came from southern parts of its range within Vietnam, namely Hoi An, Tuy Hoa (Phu Yen Province) and Nha Trang (Khanh Hoa Province).

Housing

There are two blocks of aviaries where the breeding Rheinart's crested argus are kept. Three pairs are housed in the large aviaries (LA), each pair in a separate aviary with the size of 5m x 7m x 3m. The side and front walls are of 2cm mesh. The roof is covered with 5cm chain-linked wire and up to one third from the back with metal sheets to provide shade. The back wall is of concrete and there is a door to a central passageway. The substrate is sand and grass. The floor of these aviaries is raised to the height of a visitor's waist.

The other two pairs of breeding birds are housed in the new aviaries (NA) which are more spacious than those mentioned above, measuring 8m x 8m x 5m. In the back of the enclosures there is woven bamboo to provide the birds with more privacy. All these aviaries had been blocked off from view with bamboo screens during the breeding season. There are nesting baskets hung on the wall at the height of 1.8 to 2m, and there are also nesting boxes on the floor. Perches, bushes and small trees are available in the aviaries.

Diet

The regular daily diet for all pheasant species at Saigon Zoo consist of:

whole rice	50 gr.
papaya	30 gr.
banana	200 gr.
lettuce	20 gr.
whole green bean	50 gr.
green bean sprouts	50 gr.
chicken bran	
rice sprouts - twice a week	
grasshopper (or shrimps) - twice a week	

Breeding

As mentioned above, this year five male and five female Rheinart's crested argus are paired in separate aviaries. All these birds were wild caught and came to the zoo during 1994. They are thought to be over two years old. The breeding signs such as calling, dancing, displaying were observed from early January through mid-June.

The males in display have often been seen tearing off grass with the beak and throwing it around. With the crest raised the male stretches the head forward while running around the female. It is typically the so called 'lateral display'. The calls have been heard between 6-10 in the morning and then from 3-5 in the evening. When calling they throw back the head and drop the wings. After uttering short calls the males sometimes flap their wings and run a few quick steps forward.

Pair 1 (pen LA6): Female 9 Male 8
The male crested argus began singing, displaying and dancing in early January this year. The female laid a total of nine eggs in five clutches at intervals of about three weeks. The first egg was laid on the 7th and the second one on the 9th February 1996. All the eggs of this pair were laid in the nesting basket on the wall.

Pair 2 (pen NA 5): Female 13 Male 10
The female laid only one egg on the 25th March 1996 which hatched on the 21st April after an incubation period of 24 days. The egg was found on the floor.

Pair 3 (pen NA 2): Female 12 Male 11
This pair laid four eggs in two clutches this year. However only two of them hatched. One was found dead in shell and another one was broken.

Pair 4 (pen LA 1): Female 4 Male 3
The male argus began calling and dancing very early this season. However this pair produced only one egg that had been broken immediatley after laying.

Pair 5 (pen LA 5): Female 19 Male 6
No egg was found in the aviary, although the male argus was observed dancing and displaying around the female very often throughout the season.

So in total, there were 15 eggs laid this year by four pairs of crested argus, only nine of which hatched. One was found dead in shell. The other five were broken, three immediately after laying and two during incubation.

The eggs of Rheinart's crested argus have a bright brown colour, sometimes with reddish brown spots of different sizes in the middle. After laying, all the eggs were collected and placed under broody hens either immediately or after storing at fridge temperature of 20°C for up to five days. During incubation the eggs were weighed every four days giving the following results.

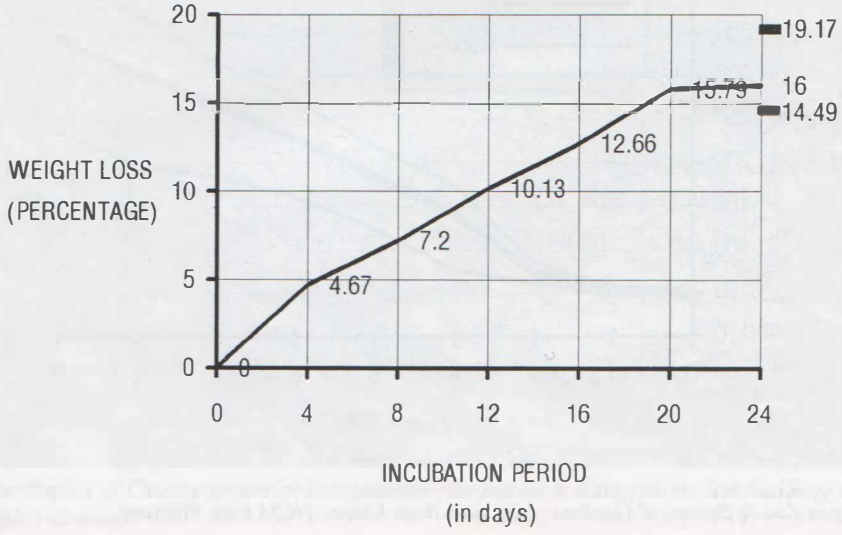
Breeding
All the Rheinart's crested argus chicks that hatched this season at Saigon Zoo have been fostered by the silkie bantam hens. These hens appear to be born to hatch and

Table 1: Incubation data of Rheinart's crested argus (n=9)

	Mean	St.Dev	Min	Max
length of egg (cm)	6.24	0.11	6.05	6.4
width of egg (cm)	4.69	0.15	4.42	4.9
laying weight (gr)	73.28	4.56	65	79
weight on day 4 (gr)	69.86	4.10	62	74
weight on day 8 (gr)	68.00	4.00	61	73
weight on day 12 (gr)	65.86	4.22	59	72
weight on day 16 (gr)	64.00	4.24	57	70
weight on day 20 (gr)	61.71	4.35	55	68
weight on day 24 (gr)	61.56	4.22	54	66
weight of chicks (gr)	51.67	2.78	46	55
incubation duration	24.00	0.71	23	25
weight loss (%)	16.00	1.41	14.49	19.17

The mean weight of the eggs that varied from 65gr to 85.5gr was slightly more than 73gr on the day of collecting and gradually reduced to 61.56gr shortly before hatching. The average weight loss was 16% of laying weights which is higher than that given by Anderson (Anderson 1988).

Chart 1: The weight loss of eggs during incubation (in percentage)



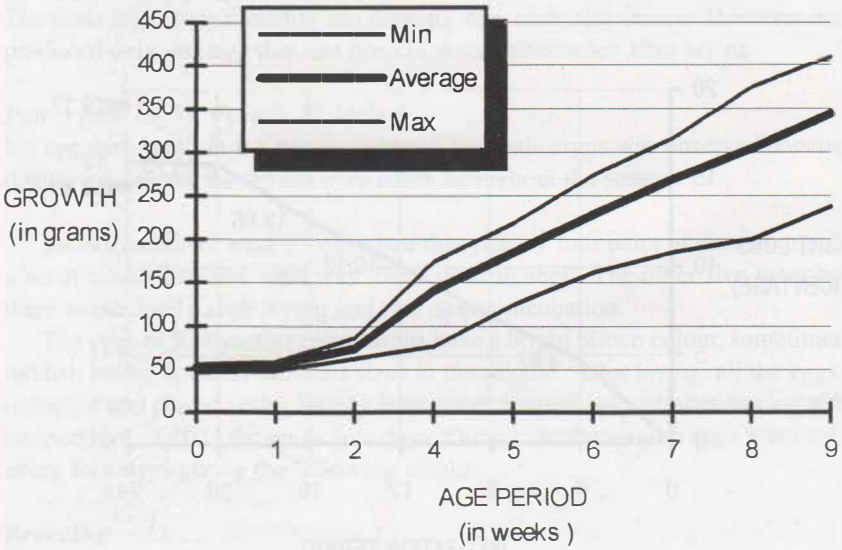
rear the chicks of other pheasant species. We have used the commercial chick bran to feed the chicks and this proved to be a proper food for them.

The chicks have been weighed every week resulting in the following table.

Table 2: Weight growth of Rheinart's crested argus chicks (n=9)

	Mean	St.Dev.	Min	Max
hatch weight	51.67	2.63	46	55
week 1	54.67	3.27	48	58
week 2	73.44	7.82	62	86
week 3	102.33	16.73	79	122
week 4	140.78	28.62	76	174
week 5	184.67	27.43	124	218
week 6	228.33	33.87	162	273
week 7	268.89	37.39	185	316
week 8	303.63	50.39	200	374
week 9	343.75	52.43	237	410

Chart 2: Weight growth of Rheinart's crested argus chicks in the first nine weeks



Saigon Zoo & Botanical Gardens, 2 Nguyen Binh Khiem, HCM City, Vietnam

Recording the mating of Chinese grouse

Fang Yung

Sun Yue-hua and his co-worker Fang Yung were awarded a special Famous Grouse prize for the best paper presented to the 7th International Grouse Symposium given by an Asian scientist. The prize consists of a return air ticket given by British Airways Assisting Conservation and a week in Scotland with field scientists from The Game Conservancy working on Capercaillie, Black grouse and Red grouse.

In 1996 our research on the Chinese grouse *Bonasa sewerzowi* entered its second year with 20 grouse still being radio-tracked. This year Dr Sun Yue-hua and I planned to take video film of the Chinese grouse.

Photo: Fang Yun

The display of Chinese grouse at Lianhuashan (the female is sitting on the left watching the male's display).

When I was a child, I enjoyed watching the animal world programmes and admired the excellent shots of animal behaviour. I had dreamed of taking good video film of animal behaviour when I grew up. although it had always been a dream I now had the chance to realise it. But due to our limited research fund, we could not get a professional video camera, only a Panasonic one.

The spring came to Lianhuashan late in 1996 and the coveys of Chinese grouse broke up around mid-April, half a month later than 1995. In May, when the ice and snow were melting, and the leaves were going green, the Chinese grouse began to display. The males used flutter-jumping to mark their territories and they often fanned their beautiful tails. I followed one of our radioed pair intensively during daytime for several days, but didn't see them mating. I guessed that the grouse might do so in early morning.

On 17 May, I went to the pair early at dawn. The birds had just got up, were on the ground occasionally feeding. The male flutter-jumped several times. This bird had been followed for more than one year and was used to us. I hid behind the big spruce tree, watching and taking notes of the behaviour of the pair. At 7.20am, the cock approached the female, completely fanned his tail in front of her, and swayed his head, the female ran to the shrubs, and the male followed. I could not see the pair clearly. Several minutes later, I saw the male was on the back of the female, only for a very short time. It was a copulation, but as they were sheltered by the shrubs and were far to me, I had no chance to record it on video.

I did not observe their copulation on the second and third day, maybe because of the cold weather. On 20 May, the fourth day I reached the pair around 6 in the early morning, the sky just turning light, but the sun behind the clouds. Around 7.10 the male ran to the female with his tail fanned and wings drooped. At the side of the female, he lay on the ground, swayed his head. I knew the meaning of this action; it was the male asking to mate. But the female ignored him and continued her feeding on the ground. At 7.22, the male ran to the female again and repeated his action, even more excited. The female agreed this time; she lay on the ground and swayed her head too. The male then jumped to the back of the female, for about five seconds, the male holding the neck of the female with his beak. After only about three seconds, the female escaped and the copulation was finished. I recorded this throughout on my video camera.

Although I regretted that my efforts were not up to the requirements of TV stations in China, I was glad that we had taken the first steps on making video programmes on wildlife, and was confident of future achievements. At the end, we would like to express our special thanks to WPA, WCS, Dr J E Swenson, Dr S Klaus, Dr W Scherzinger and the Lianhuashan Natural Reserve for their support, help and kind suggestions. Dr Sun helped with English writing.

Institute of Zoology, Chinese Academy of Sciences, Beijing 100808, China.

The Roberts Aviaries

Many, many visitors to Nepal have visited the pheasant collection in Pokhara of Colonel Jimmy Roberts who became Chairman of WPA's chapter in Nepal in 1980. Colonel Roberts was the founder of Mountain Travel, the first pioneering company for trekking in Nepal. It was largely due to him and the support of Mountain Travel that WPA was able to hold its first international pheasant symposium in Kathmandu in 1978.

In order to maintain the tradition of pheasants in Pokhara, the new and almost completed Dusit Thani Fulbari Resort Hotel is building some superb pheasant aviaries which are being stocked with birds from Colonel Roberts' farm and are being christened 'The Roberts Aviaries'. Pheasant-interested guests, I'm told, will be made particularly welcome.

The new Roberts Aviaries nearing completion at the Dusit Thani Fulbari Resort Hotel. The central mountain peak is Machapuchare below which is Pipar. WPA's Pipar Project has helped to conserve the pheasants in that area since 1978.

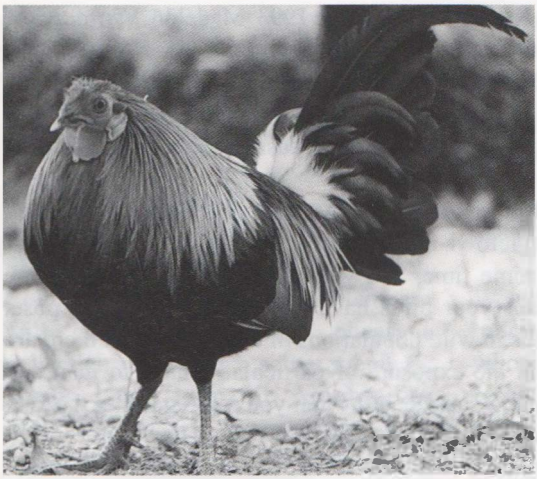
Red junglefowl

The following letter was sent by Colonel Jimmy Roberts to Lehr Brisbin following publication of his article in **WPA News** *50 and makes interesting reading. Ed.*

I was very interested to read your article in **WPA News** 50 on the subject of red junglefowl. I think that we can be fairly certain that the birds brought to the USA in 1960/70 by Dr Gardiner Bump were trapped in the Reserved Forests (Government Forests) in the vicinity of Dehra Dun. I assert this, as I very much doubt by that time there were many junglefowl left in the private forests of the Dun valley. Also the trapping and export of the birds would have only been permitted at quite a high level with the Government of India, which would have turned to Forest Department sources for assistance. This information does not pin -oint the location of the places the birds were trapped, but the event was not so many years ago and was an unique operation (I feel) and apart from reference in old records, there must be forest employees (possibly since retired) who can remember the events: whether such a search would be worthwhile is a different matter as I feel that essentially the same type or strain of *gallus gallus murghi* would be found all through the very extensive forests of the states of Uttar Pradesh and eastward to the Nepal terai.

In further explanation, a reserved forest may range from a mature forest of Sal *Shorea robusta* to a plantation of young trees neither particularly suitable habitat for jungle fowl, but interspersed with areas of bush and jungle scrub undergrowth, thorn forest and the like. The forests (in the UP) received protection nationally against felling and gathering but because many carried a good head of game - wild pig, deer, peafowl and junglefowl - although there were good blocks and some not so good. During the open season in the winter, the blocks could be taken by sportsman for 15 days in the month on payment of licence fees. Hunting/shooting in India was closed some five years ago and, as elsewhere where similar rules are applied, there has probably been an increase in poaching. But four-legged game will be the main target, and hopefully the stock of junglefowl may not be seriously affected. Finally a word on the presence of domestic chickens in these forests in the UP. None but Forest Department employees are permitted to live close to the forests but there may be settlements consisting of a rest house, forest offices, labour lines *etc* at intervals, where some poultry are kept.

Well, you asked for information about where your own flock of red junglefowl may have come from (via Dr Bump) and I think I have provided the correct answer My qualifications, although a complete amateur, are a deep interest in game birds and ducks and 20 years experience of breeding them in Nepal in captivity: at the end of 1948 I spent some three months in Dehra Dun and I have seen and walked in its



Red junglefowl photographed at Colonel Roberts' aviaries in 1982

forests. During the three years 1956-58 I was living many hundreds of kilometres south east of Dehra Dun, in the Gorakhpur terai near the Nepal border. This country is drier and less well favoured than the valley of the Dehra Dun, but the pattern of UP forests is the same, and there were some junglefowl common in at least one forest block.

Perhaps I can offer my cautions comments on some controversial subjects. Everyone, in the UK, Europe and the USA seems agreed that there are very few 'pure' red junglefowl in captivity. In your letter you tend to suggest that these birds were trapped from contaminated communities. I feel it is more likely that there were some sizeable imports in the past but that aviculturists were then just not interested in these - 'bunch of chickens' and they were neglected and allowed to interbreed with domestic stock.

You rightly observe that the world is getting smaller for junglefowl, but on the other hand during the last 40 years or so there has been a dramatic increase in the number of national parks and protected areas along the southern edge of the Himalaya range, one home of our *Gallus gallus murghi*. Just one example lies in the immediate vicinity of Dehra Dun and roughly to the west of the town, where a large area of former Government forest is now known as 'The Rajaji Wildlife Sanctuary' implying a much increased degree of protection.

Regarding 'genetic pollution' as a result of intercourse with domestic stock I am even less qualified to comment as I only heard of the danger when I read your letter. It would occur, of course, if wild birds are penned or kept with domestic stock, or if these are truly feral chicken living in the jungle. I have not the space here to marshal any arguments. The characters of the two sorts of birds are so different. The most likely event might be a particularly bold wild cock visiting a farm yard of domestic hens, but that would not have any effect on the wild blood. Ignorance is bliss. When I decided to put together a flock of red junglefowl in about 1974, we trapped our birds at places about 20km from Pokhara town, and within 1km of crowing range of village houses. The birds had been trapped in the wild. So I claimed they were pure, wild stock, and in about 1976 (perhaps it was a little later) I exported two or three pairs to the Junglefowl working group in the Netherlands, in good faith. In an article

Why keep junglefowls? in **WPA News**, No 40, May 1993 Madelon Van der Lee confirmed, in effect, that my birds were pure (Langeweg 68, NL 4675 RM St Philipsland, Netherlands). We subsequently confirmed that all the cocks did moult. I cannot remember the state of the combs of the hen birds we exported. The few hens we still have do carry very small combs in the breeding season. Can this be the effect of diet?

Finally, what you write about the extreme wildness of your own flock of red junglefowl is interesting. All junglefowl are of course flighty after capture, but normally they settle down after some time, and wild birds born in captivity are normally much more wary. Perhaps your birds have been kept wild on purpose, which may be no bad thing (perhaps in wild populations of a similar strain there are degrees of wildness, depending on the exposure of particular groups to man and other predators in the past?) I absolutely agree with what you say regarding the lack of resistance in these birds to infectious diseases.

OBITUARY

Thomas P Gardiner
11 April 1997

Many members will be saddened to learn of the death of Tom Gardiner just months after the publication of his superb book *Peafowl: their conservation, breeding and management.*

Tom was for many of the early years of WPA our education officer (unpaid) and we still reprint from time to time the simple introduction to the galliformes that he wrote for us during that period. He left the world of wildlife parks and WPA (though never losing touch) for a number of years during which he worked on the production of music tapes before returning to us as a consultant to set up our database and membership programme. He was extremely knowledgeable on computers and it is thanks to him and the models he recommended that we have been able to typeset your newsletters and annual reviews ourselves rather than paying for this service.

He will be remembered with affection by those who worked closely with him. He was always willing to try and help with any problem particularly if it was a computer problem and we will greatly miss his friendly expertise. Our sympathy goes to his wife Lynn and their two daughters. KH

WPA Germany Convention

WPA Germany will hold its convention in 1997 from 29-31 August in Mönchengladbach, situated between Cologne and the Netherlands. Members will gather in the fine pheasant collection of our very active members Dieter and Irmgard Arnolds in Mönchengladbach, from where they will start off for a first highlight of the convention programme, a visit to the excellent collection of cranes, crown pigeons and touracos of René Roosen, Netherlands and to the unique Cracids Breeding and Conservation Centre Lanaken.

Saturday mornings programme will include a tour to the successful breeder of quail and partridges Hub Dijks, Netherlands, and to the collection of the well-known Han Assink and his wife Mariet Vallen. After lunch the convention will meet at Hotel Frambach in Mönchengladbach for a programme of speakers including Dr W Grummt on galliforme diseases, Dr Niklasch on a release project for Hazel grouse, Mr W Brosch on partridge, quail and francolin and Prof Thomas on ethological research.

The AGM will be held on the Sunday morning. For further details and accommodation please contact Heiner Jacken, Maarstr. 61, 41238 Mönchengladbach, Germany. In May 1997 WPA Germany will hold regional meetings in north, south, east and west Germany.

Bird Conservation Nepal

Welcome to our most recent affiliate member, Bird Conservation Nepal, whose president Hem Sagar Baral met recently with our first chairman of WPA Nepal, Colonel Jimmy Roberts. We look forward to a long and fruitful partnership.

Cracids are back in town

Due to the elevation of Stuart Strahl, the chairman of the Cracid Specialist Group, to Executive Director of the National Audubon Society Everglades Ecosystem Restoration Campaign, the group has of necessity had a very quiet time. However Daniel Brooks has now offered to become assistant to the chairman and edit the group's newsletter. In their first issue for over two years he writes:

"In an effort to refuel the Cracid Specialist Group we are continuing a newsletter series for CSG members and others interested in cracids. This first issue will mostly serve as a means of 'priming the pump' to let cracidologists know that there is once again a means of distributing information to other cracidologists. If you have any news

items or other contributions, please send them to the editor. For items exceeding one page, please include disk with the hard text copy. Preferably, in MicroSoft Word for Windows 7.0 (English contri-butions), 2.0 (Spanish contributions), and 5.0 (Portuguese contributions). Daniel M Brooks - Ecotropix@aol.com - (713) 526 1461 (tel/fx) - Ecotropix, 1537 Marshall Suite #1, Houston, Texas 77006, USA.

Spurguard in male pheasants to prevent aggression

Trimming and filing of the spur in male pheasants is one method to manage the growth of the spur in such a way that it does not overgrow and become a deadly weapon when the male pheasant attacks another bird or the keeping staff. One disadvantage of this trimming method is the spur has to be trimmed regularly which requires catching and restraint each time.

By using a spurguard, it eliminates the need for regular trimming. The spurguard can be left on the tarsus for an indefinite period of time provided the pheasants are placed in a dry, shady enclosure.

I came up with the idea of the spurguard when the silver pheasants *Lophura nycthemera* in our collection were observed to be very aggressive to their own mates. Aggression was also noted when the staff enter the enclosures to feed the birds.

The guard should be made of a soft wood stump (a broom handle may be used) and a cable tie to hold it in place.

This method require the minimum staff: one to restrain the bird and another to fit the guard. Measure the length of the spur. The guard should measure at least 2cm longer than the spur length. Cut the wood stump to desired length, then drill a hole into the guard. The Diameter of the hold should be just nice to accommodate the spur. Drill an additional hole about a quarter cm away from the medial aspect of the spur for the cable tie to run through. Insert a cable tie to fix the spurguard in place. Cut off the extra length of the cable tie.

I prefer Mrs Metcalf's 'cork tip', see **WPA News** *52, page 36, but the principle is the same. Ed.*

OBC News

Pheasant sightings recorded in the December issue of the *Oriental Bird Club Bulletin* include the following:

Of great interest in Bhutan was the sighting of a female of the little-known western subspecies of Blyth's tragopan *Tragopan blythii molesworthi* below Narphang (*ca.* 2,500 m), Tashigang-Somdrup Jonkhar road on 6 April; feathers from a male (to be confirmed) had previously been found along the Limithang Road (2,195 m).

In Cambodia a male Green peafowl *Pavo muticus* was seen for sale in Phum Chouay, Taveng District, Ratanakhiri Province in mid-March and a population was reported 10km to the north along the Tabok stream, a

tributary of the Sesan river.

In Laos there are reports of small numbers of green peafowl *Pavo muticus* surviving in the reserve area. A survey in nearby Phou Xiang Thong NBCA, S Laos during 5-30 March recorded 13 calling Green peafowl at six locations.

Palawan peacock pheasant EEP

The Jersey Wildlife Preservation Trust has recently been given approval by the EEP Committee to organise an EEP programme for the Palawan peacock pheasants *Polyplectron emphanum*. As a first step it will be compiling a European Regional Studbook and would be most grateful for assistance. If you have not already been contacted by JWPT and currently keep Palawan peacock pheasants, do please contact Gillian Stewart, Bird Dept, JWPT, Les Augres Manor, Trinity, Jersey JE3 5BP, Channel Islands.

Zoo Animal Behaviour and Welfare

Edinburgh Zoo, in conjunction with the University of Edinburgh, has devised a pioneering course on Zoo Animal Behaviour and Welfare. The aim of the course is to enable students to learn about up-to-date scientific theory in the areas of behaviour and welfare and to show how theory can be used to improve the husbandry, management and welfare of animals in zoos. In addition, students will receive some training in observational techniques which will be used as part of their project work during the course. The course will include study of animal behaviour, animal welfare, environmental enrichment and global context of zoos. For further information please contact: Hamish MacAndrew, UnivEd Training & Conference Centre, UnivEd Technologies Ltd, 11 South College St, Edinburgh EH8 9AA. UK.

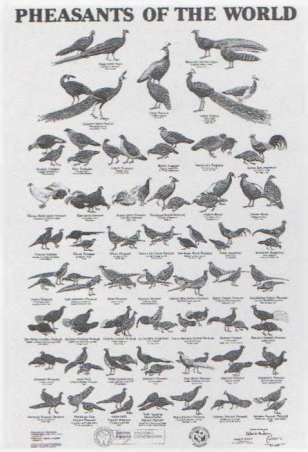
New appointment

Professor John E Cooper, FRCVS, FRCPath, has been appointed Consultant Veterinary Pathologist to Jersey Wildlife Preservation Trust (JWPT). This part-time position will involve regular visits to Jersey in order to provide tuition in diagnostic pathology to staff and trainees, specialist advice on veterinary matters and assistance with research projects.

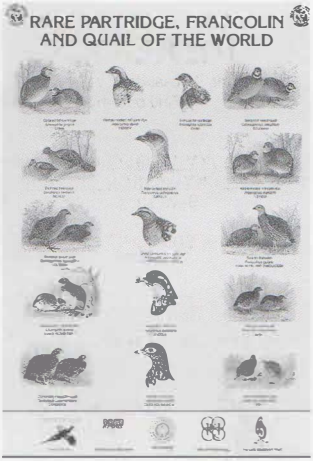
Famous Grouse posters

Matthew Gloag & Sons, the makers of The Famous Grouse, have sponsored two posters of the Grouse of the World. The first, depicting the grouse found on tundra, moorland and prairie was launched at the 7th International Grouse Symposium (see back cover). The poster will be available at the Scone Fair (5-6 July) and Game Fair at Castle Ashby (25-27 July) on the WPA stand which are also sponsored by The Famous Grouse. They are also available from WPA HQ at £2.75 including p&p.

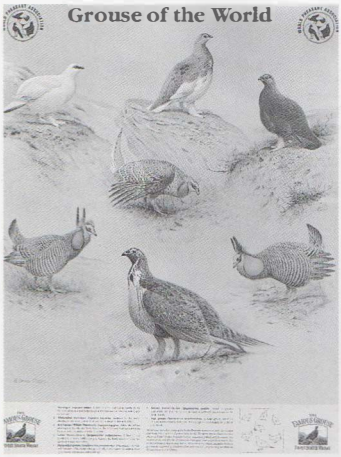
POSTERS



Pheasants of the World
available in three sizes:
545x884mm £4.00
298x420mm £1.50
210x297mm £0.50



Partridge, quail and francolin of the World
298x420mm
£1.50



Grouse of the World
390x500mm
£1.50

Blyth's Tragopan by Timothy Greenwood
313x432mm
£5.00

postage & packing: £1.25 for orders up to five posters
£2.50 for orders of five to ten posters UK and overseas surface mail

Credit card orders welcome

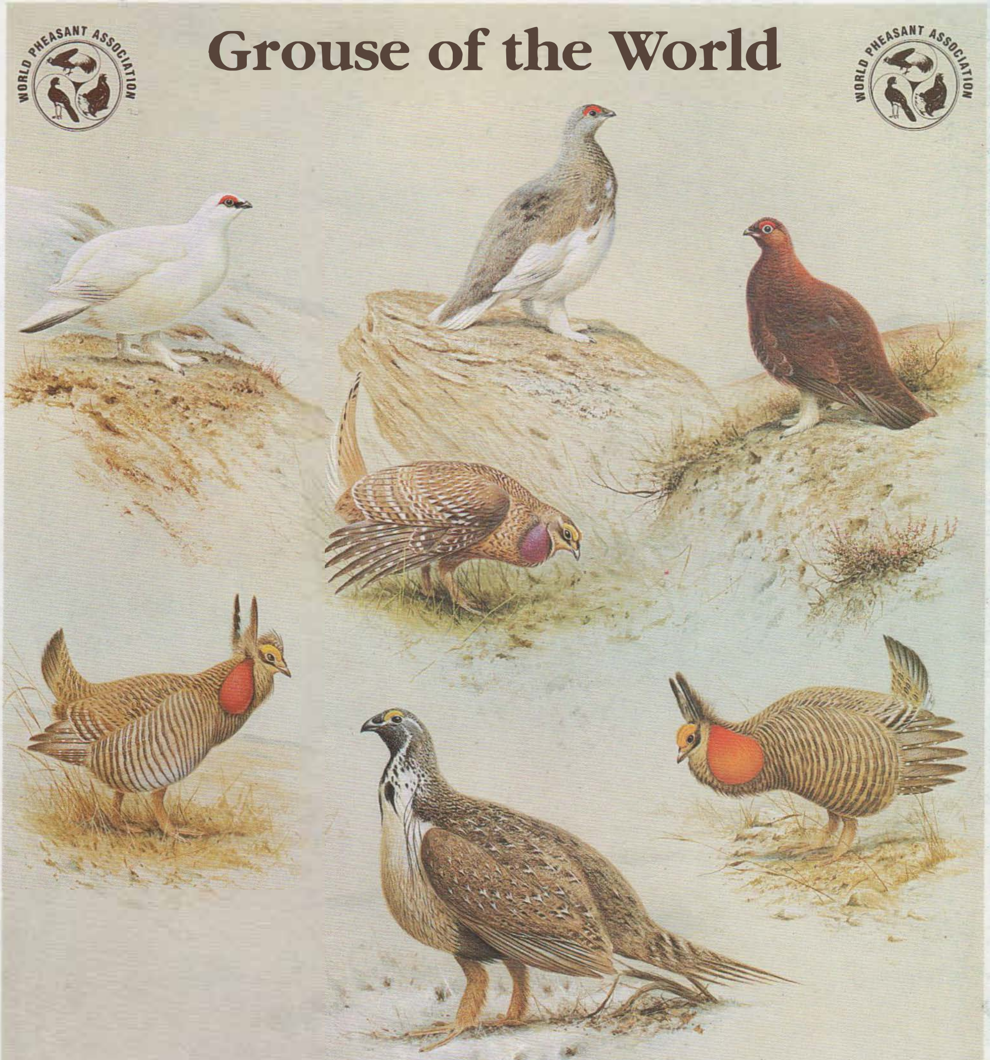
Laminating service available
Please write, giving the description and number of posters required, for a quote.

Available from World Pheasant Association, PO Box 5, Lower Basildon, Reading RG8 9PF, UK. Tel: 01189 845140 Fax: 01189 843369 Email: wpa@gn.apc.org

WORLD PHEASANT ASSOCIATION

Grouse of the World

WORLD PHEASANT ASSOCIATION



1 **Ptarmigan. *Lagopus mutus.*** A bird of arctic and alpine tundra in the far north of Eurasia and North America, the ptarmigan is white in winter, grey in summer.

2 **White-tailed Ptarmigan. *Lagopus leucurus.*** Confined to the Rocky Mountains, this small grouse feeds mostly on dwarf willow and alder.

3 **Red Grouse (Willow Ptarmigan), *Lagopus lagopus.*** Unlike the willow ptarmigan of Eurasia and North America, the British race feed exclusively on heather and does not turn white in winter.

4 **Lesser Prairie-chicken. *Tympanuchus pallidicinctus.*** A bird of dry grasslands in Texas, Oklahoma and Kansas, the lesser prairie-chicken has declined sharply in recent years.

5 **Sharp-tailed grouse. *Tympanuchus phasianellus.*** Widespread in Canada and Northern USA, sharp-tailed grouse adapt to a variety of habitats from open woods to farmland and grassland.

6 **Greater Prairie-chicken. *Tympanuchus cupido.*** Found in prairies and scrub oak, this bird is now reduced to scattered populations in the Great Plains.

7 **Sage grouse. *Centrocercus urophasianus.*** A large grouse noted for its spectacular communal displays, the sage grouse lives largely on a diet of sage brush.

The Grouse Specialist Group of the World Pheasant Association works to conserve and study the 17 species of grouse in the world. The seven species illustrated here are those found in open habitats: tundra, moorland, prairie and farmland. The decline of the two species of prairie-chickens gives most cause for concern, but work continues to rescue these species. The work of the Grouse Specialist Group is generously supported by Matthew Gloag and Son Ltd, proprietors of the Famous Grouse Finest Scotch Whisky.

Drawn to scale and altitude