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A last chance for Kutai National Park – local industry support for conservation

Kathy MacKinnon, Alan Irving and Memet A. Bachruddin

Kutai National Park in East Kalimantan was originally established as a game reserve in 1936 and became a national park in 1982. The park's lowland forests have suffered from logging, agricultural encroachment and extensive fires during the prolonged dry season in 1982 and 1983. During the 1980s a new coal mine opened at Sangatta to exploit rich coal deposits along the northern boundary of the park. The new mine could have been the 'last straw' for Kutai. Instead, industrial development has provided a new and exciting opportunity to strengthen park protection and management.

Introduction

Kutai National Park encompasses 2000 sq km of lowland rain forests, 90 km north of Samarinda in the province of East Kalimantan, Indonesian Borneo. East Kalimantan is the second largest province in Indonesia and covers an area of 202,440 sq km, yet supports a population of only 1.9 million people (Hull, 1991). It might be expected that the low population density would have ensured that the province remained one great wilderness area, untouched by human influence. This is far from the case. East Kalimantan is rich in natural resources, especially oil and gas, timber and coal, all of which are being exploited on a large scale. The province accounts for 25 per cent of the country's timber export revenues (Repetto and Gillis, 1988). Even gazetted protected areas like Kutai have not escaped unscathed from these developments (MacKinnon, 1990).

History of the park

Kutai was the first protected area to be established in Kalimantan (Petocz *et al.*, 1990). Originally proposed as an area of 2 million hectares by the Dutch geologist Witkamp, the Kutai area was declared a game reserve in 1936 by the Sultan of Kutai to protect species such as Sumatran rhino *Dicerorhinus sumatrensis*, banteng* and orang-utan (Cockburn and Sumardja, 1979). The original reserve extended over 3060 sq km but in 1969 1000 sq km in the eastern coastal area were excised for oil exploitation and logging. The logging was stopped in 1971 and the logged-over forest was restored to the reserve. Shortly afterwards another 1060 sq km of pristine rain forest and some previously logged coastal forest were excised from the southern part of the reserve and allocated to the PT Kayu Mas Timber Concession and two natural gas industries, PT Badak and PT Pupuk Kaltim (Wirawan, 1985).

By 1980 the reserve area included logged coastal forest, unlogged forest in the west (which was further disturbed by logging incursions within the southern boundary), and some coastal mangrove. The eastern third of the reserve, along the coast, was already badly disturbed by logging, oil developments, the expansion of Bontang and Sangatta townships and *ladang* (agricultural fields) created by new settlers. To compensate for these areas, proposals were made to realign and enlarge reserve boundaries to include the Banumuda catchment area in the north and the PT Kayu Mas and PT Sylva Duta logging concessions in the south and west (Cockburn and Sumardja, 1979; Wirawan, 1985). These proposals have

* Scientific names of species are found in Table 1.

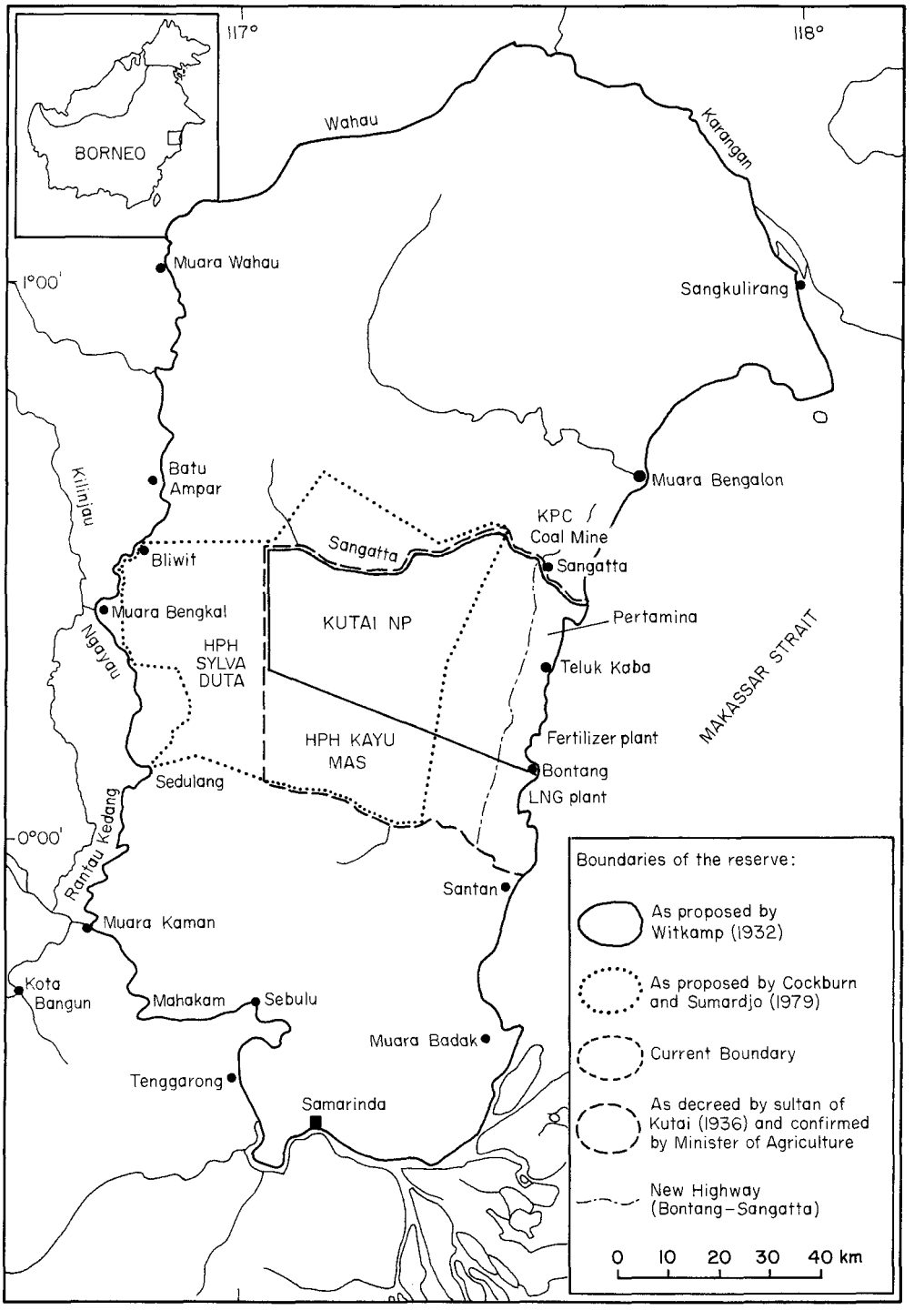

Figure 1. Kutai National Park: historical development

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not yet been implemented. Figure 1 shows the past, proposed and current park boundaries and the location of major industries.

The Government of Indonesia announced that Kutai would become one of Indonesia's first national parks at the Third World National Parks Congress in Bali 1982. The 2000-sq-km park includes part of the original Kutai Wildlife Reserve.

In 1982/83 fire swept through Kutai during an abnormal drought and destroyed large areas of forest (Lennertz and Panzer, 1983; Leighton and Wirawan, 1986). The areas where logging had already occurred were damaged more severely than the undisturbed forest because the advancing fire fed on dead trees and other debris left behind after logging. About half the park, some 1000 sq km of lowland forest in the west, escaped the fire but even here the drought killed many old emergent trees. In 1984 the IUCN (International Union for Conservation of Nature and Natural Resources) included Kutai National Park in its list of most threatened protected areas because of damage caused by fire, logging, mineral exploitation and human settlement (IUCN, 1985). Since that time encroachment and agricultural clearance have continued to degrade the eastern part of the park.

Biological and environmental values of the park

In spite of its unfortunate history Kutai is still an important conservation area and has been recognized as such in several major reviews of conservation in Indonesia (MacKinnon and Artha, 1981; MacKinnon and MacKinnon, 1986; Petocz, 1987; RePPProT, 1990; MoF, 1991; BAPPENAS, 1991). It encompasses the largest remaining tracts of the lowland rain forests and ironwood forests that were once typical of East Kalimantan.

Borneo is a centre of diversity for dipterocarps, with 267 species, 155 of them unique to this island (Ashton, 1988). Kalimantan forests are dominated by dipterocarps, some of the most valuable timber trees in South East Asia, and most lowland forests are given out as logging concessions. Kutai National Park is one of the few areas in Kalimantan where lowland tropical rain forest can still be conserved. These are the most species-rich forests in the world, with as many as 240 different species of trees growing in 1.5 hectares of forest (Kartawinata *et al.*, 1981).

Kutai is recognized as a centre of biodiversity (BAPPENAS, 1991). The park's high biological value is a consequence of the species richness of lowland forests and the fact that the park includes a wide spectrum of lowland forest habitats: alluvial forests, dipterocarp forests, ironwood stands, *kerangas* (heath forest), freshwater swamp forests, mangroves and limestone hills with caves (Cockburn and Sumardja, 1979; Wirawan, 1985). Floristically Kutai is very rich, with more than 500 species of trees, including at least 20 species of dipterocarps, the valuable ironwood *Eusideroxylon zwageri* and wild fruit trees such as durians *Durio* spp., mango *Mangifera* spp. and mangosteen *Garcinia mangostana* (Wirawan, 1985). In addition, Kutai is rich in palms (including spiny rattans), orchids and pitcher plants *Nepenthes* spp.

The park supports a rich fauna. Half of all Bornean mammals are recorded from the reserve, including 16 of the 43 mammal species endemic to the island (MacKinnon, 1990). All but two of the 13 species of primates found in Borneo occur here, including five island endemics: the proboscis monkey, Bornean gibbon, red langur or leaf monkey, grey langur and white-fronted langur. The park also contains viable populations of several endangered species: orang-utan, banteng and clouded leopard (Table 1). Indeed, Kutai is the largest gazetted reserve within the home range of the Bornean subspecies of the orang-utan. Kutai is known to harbour 275 species of birds (Pearson, 1975), more than half the Bornean list (Smythies, 1981), and 3 per cent of the entire world total. The coastal mangrove fringe harbours populations of saltwater crocodiles and false gharials.

In addition to its value for species conservation, the park provides important environmental services to surrounding areas. It protects the natural aquifer that supplies vital

Table 1. Some rare and endangered animal species in Kutai National Park

Species	English name	Endemic	RDB Status
Mammals			
Pongo pygmaeus	Orang-utan	*	E
Hylobates muelleri	Bornean gibbon	*	V
Nasalis larvatus	Proboscis monkey	*	V
Presbytis rubicunda	Red langur	*	
Presbytis hosei	Grey langur	*	
Presbytis frontata	White-fronted langur	*	
Tarsius bancanus	Western tarsier		I
Tupaia splendidula	Ruddy tree shrew	*	
Callosciurus orestes	Black-banded squirrel	*	
Sundasciurus brookei	Brooke's squirrel	*	
Exilisciurus exilis	Plain pigmy squirrel	*	
Aeromys thomasi	Thomas's flying squirrel	*	
Hystrix crassispinis	Thick-spined porcupine	*	
Maxomys ochraceiventer	Spiny rat	*	
Haeromys pusillus	Lesser ranee mouse	*	
Haeromys margarettae	Ranee mouse	*	
Chiropodomys muroides	Grey-bellied pencil-tailed tree mouse	*	
Neofelis nebulosa	Clouded leopard		V
Felis marmorata	Marbled cat		V
Felis planiceps	Flat-headed cat		V
Bos javanicus	Banteng		V
Muntiacus atherodes	Yellow muntjak	*	
Birds			
Lonchura fuscans	Dusky munia	*	
Pityriasis gymnocephala	Bornean bristlehead	*	
Ptilocichla leucogrammica	Bornean wren babbler	*	
Lophura ignita	Crested fireback		V
Aceros corrugatus	Wrinkled hornbill		R
Rhinoplax vigil	Helmeted hornbill		K
Reptiles			
Crocodylus porosus	Saltwater crocodile		V
Tomistoma schlegelii	False gharial		E

Red Data Book Status: E, endangered; V, vulnerable; R, rare; I, indeterminate; K, insufficiently known

Sources: Wirawan, 1985; IUCN, 1990; Indonesian Red Data Book (in prep.)

freshwater supplies for domestic and industrial use to the towns of Bontang and Sangatta and their natural gas and oil industries (Wirawan, 1985). The two natural-gas industries in Bontang require 30,000–40,000 cu. m of ground water daily; the sustainability of this supply depends on maintaining adequate forest cover in the park (MoF/PHPA, 1991). The new Sangatta coal mine to the north of the park is also dependent on park sources for adequate water supplies.

A need for action

Recognizing the important biological and environmental values of Kutai National Park, the World Wide Fund for Nature (WWF)

assisted the park management authority, the Directorate of Forest Protection and Nature Conservation (PHPA), to produce two management plans for the park (Cockburn and Sumardja, 1979; Wirawan, 1985). Unfortunately, even though there was strong provincial support for the plans, neither was implemented due to lack of funds and other resources.

Although the Kutai forests are slowly recovering from the ravages of logging and fire, the park is threatened by other development pressures. East Kalimantan has the highest population growth rate in Indonesia (Hull, 1991) and the expanding towns of Bontang and Sangatta are encroaching on reserve boundaries. Bontang, already one of the fastest growing towns in Indonesia, is set to expand further due to an expansion of PT Badak's natural-gas liquefaction plant. The newly opened coal mine near Sangatta will ultimately have a work-force of 2300 people, plus families and support staff. The Trans-Kalimantan Highway is being extended from Bontang to Sangatta and will cut through the park, opening up new lands to shifting cultivators. Already much of the land in the coastal zone of the park has been settled illegally and converted to agriculture (MacKinnon, 1990; Petocz *et al.*, 1990).

Nevertheless, there is a new mood of optimism for the future of Kutai. The provincial government has long appreciated the value of the park, not only for its role in protecting natural resources, but as a valuable watershed, safeguarding the water supplies essential to the industries of Bontang. Development of the new road has acted as a stimulus to reassess the park's status and provides an opportunity to develop the area's potential for tourism, with visitor facilities and field posts along its route (Petocz *et al.*, 1990). Plans are in preparation for better protection of the unburned western sector of the park and the coastal mangroves. The severely disturbed agricultural lands between the road and the coast will be developed as a buffer zone to the park proper (Petocz *et al.*, 1990; MoF/PHPA, 1991). These activities will require considerable funds and effort but encouragement and support is coming from new quarters. In an exciting new conservation initiative, Kaltim Prima Coal (KPC) and other industrial firms working around the park have expressed an interest in developing a partnership between PHPA and the private sector to conserve Kutai.

Coal mining development: a threat or an opportunity

In the late 1970s the government of Indonesia adopted a policy aimed at substituting coal for oil as fuel for electricity generation. South and East Kalimantan were known to have potentially large Tertiary coal deposits and foreign companies were invited to tender for areas in which to carry out exploration. By late 1982 six companies had signed Coal Co-operation Agreements, covering a total area of 40,000 sq km, with the state mining company.

PT Kaltim Prima Coal, an Indonesian-registered company that is jointly owned by CRA Ltd (Australia) and the British Petroleum Company (UK), was granted a 7900-sq-km concession between Samarinda and Sangkulirang, 200 km to the north. The Kutai Wildlife Reserve, as it then was, and an area to the south between the reserve's southern boundary and the Santan River [part of the extension proposed by Cockburn and Sumardja (1979)] were specifically excluded from the concession because of their high biological and conservation values. Coal exploration by another group has recently been permitted in the Santan area.

KPC's exploration activities resulted in the discovery of high-quality thermal coal in an area just north of the Sangatta River, the northern boundary of the park. A feasibility study found that the resources would support a large-scale export operation and the decision to proceed with the required investment was taken in late 1988. Mining is by conventional open-pit methods and production is scheduled to rise from 2 million tonnes in 1991 to 7 million tonnes per year from 1994 onwards. Resources exist for a 30-year mine life. At full operation a work-force of 2300 people will be directly employed by KPC. Their families, to-

gether with people in the service and retail sectors, are expected to total about 10,000 additional people. KPC houses the large majority of its own employees in planned and fully serviced residential areas within the company's lease but a large number of other newcomers have occupied land between the KPC lease boundary and the park boundary (in an area known as Teluk Lingga). Aware of the increased pressure that development of the mine and increased settlement will put on the park, the KPC management determined to play the role of helpful neighbour to the park.

Local industries as park neighbours and friends

Within their own sphere of operation, the large gas, oil and coal industries can manage their environmental impacts. For example, KPC follows environmental monitoring and environmental management plans designed to minimize the impact of large-scale mining and associated activities. However, the company is fully aware that its activities for many years to come could entail certain risks to the conservation and fauna of the park. KPC manages its own employees, for example by including a clause in labour contracts that enables the dismissal of employees who violate park regulations. Nevertheless, other newcomers in the unplanned communities pose a threat to the park should they turn to hunting, timber-felling or farming activities within the park. Disturbance along the new Bontang–Sangatta road corridor caused by spontaneous immigrants and settlements would be a threat to the park and is incompatible with its status as a protected area.

Given the development surrounding the park, the new internal road, and the inadequate human and material resources of the park management authority, KPC concluded that the park faced a dire future if constructive measures were not taken quickly. Co-ordinated support from some of the park's industrial neighbours seemed essential to provide a sound basis for the long-term management of the protected area. KPC saw scope for an initiative that combined the resources of local industry and the international donor community to help the PHPA attain a high level of managerial capability to run the park successfully.

The KPC's first step was to talk to the Conservation Department authorities (PHPA) in Kutai and Jakarta and relevant regional agencies, such as the Regional Planning Board (BAPPEDA), and gauge their reaction. This was encouraging and KPC funded a preparatory mission (Petocz *et al.*, 1990) and later a formulation mission to work with PHPA to: (i) review existing documentation about Kutai; (ii) prioritize conservation activities and needs for immediate implementation; and (iii) prepare a 5-year development plan and first-year operating plan, as well as a general framework for management and development. These KPC-sponsored teams comprised members from the PHPA, the WWF-Indonesia Programme and Dutch technical expertise from Euroconsult, the Research Institute for Nature Management (the Netherlands) and the Research Institute for Forestry and Urban Ecology (the Netherlands). The Formulation Mission's report (MoF/PHPA, 1991) was endorsed by the Director General of PHPA in September 1991. During the two missions, KPC representatives were also establishing contact with potential international donors. Other local industries neighbouring the park, in particular PNG Bontang (natural gas) and Pupuk Kaltim (fertilizer), also agreed to help, initially by providing a camping ground and other facilities.

The plans

The MoF/PHPA (1991) report contains proposals for 17 projects, which consider the park's needs in the areas of conservation management, estate management, recreation management, training, extension and public relations. Each project is justified and described in terms of duration, objectives, activities, outputs, location, inputs (technical, staffing, material, financial, schedule, monitoring and evaluation, implementing agency and

potential donor). First and foremost are general projects, which together constitute the first-year Operating Plan. Of these, the primary one is the installation of a Steering Committee (SC) and the appointment of an Operating Committee (OC) for the implementation of approved projects. The SC will consist of representatives from PHPA, provincial and regional government, managing directors of local industries, and representatives from other donors. The OC is envisaged as a small group comprising senior PHPA representatives, technical and financial specialists, and major donors. The OC will have authority and responsibility within the budget to implement projects and will make quarterly progress reports to the SC and donors.

The other crucial first-year projects are: (i) provision of management advice; (ii) the analysis of aerial photography of the park and land-use for management planning purposes; (iii) boundary establishment and guard-post construction; and (iv) management of the Bontang road corridor. A senior national parks advisor is required to update the management plan, provide training for park planning and management, and provide advice on work plans, administration, financial management, fund-raising and external relations. Aerial photography is an essential prerequisite for future planning and management purposes and boundary demarcation is essential for protection. If left unchecked, settlement will spontaneously follow the construction of the Bontang–Sangatta road throughout its length. Park resources must be supplemented to be sufficient to mount regular mobile patrols to control encroachment. The costs of implementing the first-year Operating Plan total almost $US700,000. Funds for these initial activities will probably come from industry and international donors.

The 5-year Development Plan is aimed at achieving the following objectives: (i) maintenance of biological values of the park; (ii) restoration of ecological integrity where necessary; (iii) accommodation and control of visitors; and (iv) control of access to the park from public and corporate facilities. Twelve project proposals, which cover conservation management (8), recreation management (2), extension and public awareness programmes (1), and training (1) are described in the Action Plan. Potential donors will have the opportunity to target their assistance to proposals that appeal to them. For example, a buffer zone development project next to a particular industrial activity would be more likely to attract funding and involvement from the industry concerned than a more distant project. Similarly, proposals for extension activities and training may best meet the objectives of potential international donors.

One interesting project proposal is for lowland forest restoration plantings in the zone between the coastal mangrove belt and the undulating hills further inland. This area supported a unique forest type but has been the prime target of agricultural settlers. Some 40 sq km require reforestation in order to stimulate vegetation succession towards a closed dipterocarp-dominated forest. The succession process will be slow, but the restoration of a large area of cleared and degraded forest to a quasi-natural state within this protected area will be highly beneficial from an ecological point of view. A potential donor for this project was identified in 1992 – the Dutch Association of Electricity-producing Companies (SEP) through its Forests Absorbing Carbondioxide Emission (FACE) foundation. The source of funds for FACE is tax on some industrial carbon dioxide producers in the Netherlands. It seemed highly appropriate to direct some of these funds to reforestation inside a protected area in a coal-producing province of Indonesia.

In early 1992 the future looked promising for Kutai. Large sums of money were promised from the Netherlands: a happy ending seemed assured. Then politics intervened. A Dutch minister made one criticism too many. Indonesia declined all further assistance from the Netherlands and terminated ongoing aid projects. Attempts are still being made to identify other international donors for Kutai.

The anticipated cost of the planning and implementation phases of the 12 proposed projects in the 5-year Development Plan is in the

order of $US8.5 million. Whether such funds can be attracted remains to be seen, but progress is not dependent on all projects being fully funded from the outset. It is hoped that once support starts to accumulate it will gather momentum.

Conclusion

Kutai National Park has been recognized both nationally and internationally as a park of high biodiversity and global conservation importance. Nevertheless, with limited resources and increasing pressures on park lands, the future of the park has, at times, looked uncertain. Now the park's neighbours, the firms responsible for much of the province's economic development, are turning their attention to conservation. With friends in industry and local government, Kutai could still reclaim its rightful role as one of the most important conservation areas in Kalimantan. The Kutai initiative was the first example of private industry assisting PHPA with conservation and management, an exciting innovation that is likely to be repeated elsewhere in Indonesia.

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Kathy MacKinnon, former Conservation Advisor, WWF Indonesia Programme. Address for correspondence: Herewake, 86 Aldreth Road, Haddenham, Near Ely, Cambs CB6 3PN, UK.

Alan Irving, Kaltim Prima Coal, PO Box 718 Kby, Jakarta 12001, Indonesia.

Memet A. Bachruddin, D-G PHPA, Jl. H. Juanda 15, Bogor 16001, West Java, Indonesia.