

Socio-economic Incentives for the Conservation of the Rainforest Habitat of the Philippine Eagle *Pithecophaga jefferyi*

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ABSTRACT

The Philippine Eagle *Pithecophaga jefferyi* is rapidly slipping from endangerment to extinction. Habitat loss is considered to be the primary factor impacting Philippine Eagle populations. Population status of the species is described. The factors contributing to the loss of its rainforest habitat are also explored. But despite current efforts to save the species using conventional management techniques, its population continues to decline. An alternative approach using socio-economic incentives as a tool for habitat management is presented. Information on how funding for the study was obtained, the project area, the species' status, planning, social preparation, training, organisation, production, forest enhancement and protection measures, and phase-out activities are also presented. The impacts of the study on the community in terms of social acceptability, attitudes, income levels and organisation are discussed. The resultant effect on the target species and its habitat is shown in this paper. Evaluation of the project, its potential and recommendations for replication are also presented.

INTRODUCTION

The Philippine Eagle *Pithecophaga jefferyi* is a giant forest raptor endemic to the Philippines. With a wingspan of nearly two metres and a height of about one metre, it is considered to be one of the largest eagles in the world. It also has the dubious distinction of being one of the world's rarest eagles.

First collected in 1896 by John Whitehead, it has since been described by Gonzales (1968), Lovejoy (1973) and Rabor (1965). Even then the paucity of sightings led investigators during the early 1970s to estimate the total population to be between 36 and 60 individuals (Alvarez 1970; Gonzales 1973; Rabor 1971). But Kennedy (1981) revised the estimate to be 300-500 individuals. By the end of the decade, Krupa (1989) figured its population to have declined to between 89 and 222 individuals.

Despite efforts to save the species, Philippine Eagle populations continue to decline. Habitat loss is considered to be the primary factor impacting Philippine Eagle populations. By the

Department of Environment and Natural Resources' own account (1987), our rainforest is being diminished at the rate of 190,000ha annually. USAID (1989) estimates that we now have only 700,000ha of old growth dipterocarp forest remaining. And these will disappear within seven years. Indiscriminate logging practices and slash-and-burn agriculture are considered the primary causes of deforestation, further aggravated by corruption, inadequate law enforcement and an ambiguous state policy towards rainforest conservation (Porter 1988). In addition, there are now some 17 million people in the uplands, considered to be the country's poorest of the poor, threatening to wipe out what is left of the forest cover. And under conditions of large-scale poverty, there is no doubt that human needs will take precedence over conservation of our natural resources base for the long term.

Obviously, responses to the problems of habitat loss and species extinction in the Philippines must address simultaneously the tangled web of development issues. A new approach to endangered species management was needed. Conventional wildlife management techniques were largely limited to education, biological surveys, delineation of sanctuaries and laying down rules and regulations (Kennedy 1985; Lechoncito 1984; Sinha 1984). But after all this, what next? It is inconceivable that the average marginal-income family would discontinue its efforts to survive.

This paper presents the results of a study conducted to determine the viability of providing socio-economic incentives to indigenous upland communities as an approach to habitat management. It aims to find out how such a programme would affect the target species and its habitat. By providing upland communities with sustainable livelihood alternatives, we hypothesised that pressures on the habitat could be eased, the communities' basic needs would be met and permanent survey plots for long-term monitoring could be established.

METHODS

Funding

Right at the outset we realised that the study was not going to be easy. Funding agencies were reluctant to part with precious resources to an organisation which had clearly no track record on social development work. To hurdle this obstacle, the services of two development-oriented NGOs were sought. They provided the guidance needed for the social development aspects of the study. In addition, potential donors could not understand how saving the eagle and its habitat could benefit man. We then packaged our proposal to highlight the species' significance, i.e. its position in the food chain made it an ideal indicator of the health of the forest ecosystem. We also argued that the diminishment of the natural resources base is leading not only to the loss of the target species but also to the Filipino people's capability to survive in the long term. This finally convinced Canada Fund, which decided to underwrite the project. We launched it on 17 May 1990.

Project Area

The study was conducted in Salaysay, Marilog District, in Davao City. This site was selected for the challenge it posed: inaccessibility, absence of basic government services, extreme poverty, and severe habitat degradation due to illegal harvesting of forest products. And because of human disturbance, the eagle had not been sighted here since 1988. We reasoned that if the study succeeded under these conditions, we might be able to replicate it in other areas.

Status of Species

Scientifically acceptable surveys of Philippine Eagle populations have not been conducted, primarily because of financial constraints and secondly because of lack of expertise on raptor survey techniques. Nevertheless, we have developed a method to overcome this obstacle.

We first visited remote areas throughout Mindanao island and conducted an extensive awareness campaign. Included in this was a call to the public to report sightings of the birds. Cash incentives were offered to those who found occupied nests. In this way many of our eagle nests were found. Thereafter, each nest was protected through our adopt-a-nest programme wherein the field trustee was paid when the eagles produced an egg, when this hatched and finally when the

eaglet fledged. Still, pressures on the eagle's habitat continued to persist. Today we can only account for 17 individuals associated with wild nests throughout the island.

The Salaysay nest was found in the manner outlined above in April 1986, among the branches of a lauan tree *Shorea almon* at about 1,070m a.s.l. (Bonnit *et al.* 1986). Although the eagles were not seen at that time, enough evidence such as castings, moulted feathers and vocalisation was obtained. In addition, forest dwellers reportedly observed breeding activities during the past breeding season. Our team suspected that the eaglet may have fledged but this was never confirmed.

In December 1986 another team returned to investigate reports of breeding. This time the eagles were seen and nesting activities were noted (Bonnit *et al.* 1986). However, after the egg was laid, we heard no more from the nest finder. Further investigation showed that the egg had failed to hatch (Garcia 1987). Human disturbance may have accounted for the abandonment of the egg and, indeed, 44 occupied houses were recorded within a 3.5km radius of the nest.

The eagles were seen again in May 1988 but it was not known whether they had bred as the nest was never located (Garcia 1988). By this time the old nest tree had been cut down and the area burned for agricultural use. Although the nest site was originally covered by our adopt-a-nest programme, severe funding shortages in 1987 prevented us from monitoring the area as much as we would have liked. As a result the field trustee, unsure of further rewards for his efforts, abandoned his role in the face of community pressure to convert the land.

Follow-up search efforts in June of the same year failed to locate the eagles (Salvador & Cereno 1988). Since then the birds have not been seen, even by local residents.

Socio-Economic Project

The continuing threat to the Philippine Eagle imposed by a rapidly growing upland population called for drastic measures. An innovative programme addressing the needs of the species as well as that of humans had to be designed. And for habitat management to work it must be undertaken in the context of socio-economic realities.

As an initial step, the community was consulted on the aims of the study and asked to participate in the planning progress. Because of the diverse geographic, edaphic and socio-cultural variations in upland areas, we thought it best not to present the programme in a definite form or "package". Rather, a participatory approach to project design and implementation was encouraged. Resources appraisal and a socio-metric survey were conducted to serve as baseline data. Based on this information, our team and the community jointly drafted a programme consistent with available resources and perceived needs. The resulting plan covered the following concerns: social preparation; training; implementation of livelihood; co-operative formation; reforestation and phase-out.

A project officer was assigned to the target community and charged with facilitating the development process. The immediate preparatory task required use of community organising techniques. Particular emphasis was laid on evaluation of attitudes and assessment of cultural practices.

This phase was followed by education and training. During the course of the study period, training was conducted on participatory research, general conservation, wildlife identification, sloping agricultural land technology, organic farming, cash crop production, principles of co-operative management, business planning, fiscal management and project management. In addition, community members were sent on field trips to observe the operation of different farms in southern Mindanao.

Having organised and trained the community, we proceeded to implement the livelihood scheme. All inputs were provided on credit at an interest rate of 6% per cropping. The idea was to make the farmers feel that the assistance provided was not a dole, and that they were obliged to work if they wanted to increase their incomes.

A grouping system was institutionalised to ensure continued performance. Each member of a 5-man group was responsible to and for each other's performance. The group, in turn, was accountable to the community and to us.

Corn was planted as a monocrop during the first season, selected on account of the farmers' familiarity with it and its relatively rapid growth (90-105 days). This choice was also determined by the need to raise income levels as quickly as possible. The aim was to divert their attention from

harvesting forest products. At the same time, as part of their loan, their food requirements were provided during the period between planting and harvesting.

During the second season, however, mixed patterns replaced monocropping. The farmers were also weaned off their traditional reliance on inorganic fertilisers and pesticides in favour of organic substitutes and biological control measures.

Apart from farming, a co-operative store was established to provide for their basic needs. We loaned them 1/3rd of the amount they needed for capitalisation, while the rest was borne by the community through membership contributions. This co-operative institutionalised the community organisation.

Incorporated into the study were habitat enhancement and protection measures. This was part of the bargain. In return for our assistance, the community was obliged to conduct reforestation and patrol the forest area. Communal and individual tree nurseries were established, and fruit trees were planted along the borders of their farm lots, while dipterocarp species were planted along the forest edges. Patrols were also regularly conducted.

Phase-out involved the turning over of the project officer's duties and functions to the co-operative organisation and capable community leaders. Today, monitoring and inspection are conducted by the community's volunteer extension workers. We still visit the study area, however, to check if programmed activities have been sustained and, more importantly, to boost the community's morale.

RESULTS AND DISCUSSION

Our initial assessment of the community showed a group of people beset by grinding poverty. The average monthly income was \$14 a month or \$168 per annum. Crop production was a meagre 3 cavans (45 kilos/cavan) per season. In addition, they neither had the means nor control over the factors of production. This accounted for their tendency to go for short-term exploitation of natural resources. Practically everyone in the community knew of the destructive consequences of their activities, but acknowledged it as a necessary sacrifice to sustain their daily needs. Already the effects of forest denudation were being felt. We were also concerned by the fact that the Philippine Eagle, whose nest was first discovered in 1986, had not been sighted since 1988.

Our proposal of assistance was welcomed by the community with some reservations. This was because past governmental development assistance programmes had ended in neglect and never really benefited the community. Another reason was persistent rumours that we were out to grab their land. This was solved by tracing and confronting their source. But only after the community was directly involved in the planning process did the project gain widespread social acceptability. They found that with their available resources, their own goals and perceptions agreed with our proposed management techniques and strategies for upland development.

Because the community as a whole aspired to a better future, we had little difficulty in preparing them socially. Through our seminars, they found that their own resignation to their plight was the only real obstacle to development. They also realised that their adoption of lowland farming systems and cultural practices had led to disruption of their own way of life, originally attuned to the needs of the environment. They resolved to uphold the old ways. To reinforce this further, we gave the *datu* or tribal chieftain a major role in policy formulation and decision-making. His participation made it easier to implement the project plans since his word was practically law.

Education and training did not deal wholly on the theoretical but also with the practical aspects of the programme. This allowed them to relate concepts and practice. The field trips to model farm sites also confirmed the practicability of the proposed technology. The enthusiasm with which they welcomed these ideas made it possible for us to accelerate the project schedule.

The results of the first cropping have motivated the community further. Despite the onslaught of a freak typhoon, yields had increased dramatically to an average of 35 cavans per farmer. Some lost all their crops but these losses were covered by insurance. Net income was seen to increase by 30%, whilst loan repayment was at a satisfactory 85%. Bad debts were attributed to those who left their farms and joined the gold rush in an adjoining province. They were quickly replaced by applicants on the waiting list.

By the second cropping, yields had increased substantially so that farmers had quadrupled their

pre-project monthly income. A 80% collection rate on their loans was also achieved. The remaining 20% was attributed to the drought and post-harvest losses.

The most remarkable performance was that of the co-operative store. By the end of the study, this had grown by 400% from the initial capitalization of 260. It has now extended its services from provision of basic commodities to trading and credit assistance to its members.

It is difficult to assess the reforestation component of the project. For one thing, it takes a long time for dipterocarps and fruit trees to grow. It is, at this point, enough to know that the community is maintaining these seedlings and is planning to grow more. But the success of the habitat protection measures may be gauged more objectively. By the second month of project implementation, the community had stopped all illegal logging, harvesting of forest products and slash-and-burn farming. Since then this tract of forest has remained undisturbed. The crowning success is perhaps the sighting of the Philippine Eagle in the study area in September 1991.

The project is now in the hands of the community. Loan applications for farming inputs are all handled by the co-operative, which has its own duly elected screening committee. The co-operative has been registered with the Securities and Exchange Commission and, with its track record, is now eligible for assistance from formal loan institutions. It is noteworthy that they have evolved their own plans in pursuit of project objectives. When we left them, they had already submitted plans for a spring water development project to a funding agency. They were also exploring the possibility of an ecotourism project in the future.

CONCLUSION

It is still too soon to assess accurately the value of socio-economic incentives as a tool for habitat management. Nevertheless, the results clearly show the potential. Within 18 months we were able to meet our project objectives. This allowed us to establish the area as a permanent survey plot. We now restrict ourselves to advising the community and monitoring the resident eagles and their habitat.

Observers were heartened by the success of this pilot project. In 1991, Conservation International provided us with funds to initiate a similar programme on a 5-year time scale in Mt. Kitanglad National Park in Bukidnon. Del Monte Philippines, a private agribusiness firm, has agreed to assist this project in 1992 by sponsoring one of the communities in this 32,000ha park. The Catholic Relief Service has also agreed to help us on a 3-year project in an eagle habitat located in Davao City, beginning in 1992. These projects are expected to provide us with more information for long-term evaluation of socio-economic incentives for rainforest conservation. But more importantly they will allow for the immediate protection of Philippine Eagle populations in the wild and, at the same time, provide for the needs of local inhabitants.

We learned several lessons from this study, and wildlife managers who wish to undertake a similar scheme would be well advised to consider the following points: creation of an institutional mechanism which will perceive, respond and catalyse the process instead of presenting a definite package for upland development; direct involvement of the target community should be encouraged in all phases of the project's implementation; and finally, a mechanism to ensure sustainability for the long term should be institutionalised. The strategy for upland development as suggested here was conceived out of our own experience and realistic perceptions of the problems that lead to the loss of our rainforest.

Deforestation is a time fuse lit by mankind. Unless drastic measures are employed in conjunction with technological solutions, the threat of extinction will persist. In the Third World, where the human population exerts tremendous pressure on the rainforest, such approaches may be the only solution. The loss of our rainforest will not only mean the extinction of a host of biologically important species but, in a very real sense, the dreams and aspirations of millions of marginal-income families as well. While organisations worldwide are already doing their share to save our rainforest, it is only through concerted action that we can achieve results.

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