

AN EXERCISE IN PROTECTED AREA MANAGEMENT EVALUATION

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Editor's Note: From last issue of the Newsletter (Vol. 4 Nos. 1, 2 & 3) onwards, we are serialising K.Rao's comments on the management of 2-3 protected areas. This is second in the series. The serialisation will continue in the next issue also.

Kalakad Sanctuary

The Committee visited Kalakad Sanctuary in the Western Ghats of Tamil Nadu from 20-22 March 1989. This 224 Square kilometres sanctuary is the southern most P.A. on mainland India and also represents the southern most range of the tiger in the country. Together with the contiguous Mundanthurai sanctuary it constitutes the 17th tiger reserve under Project Tiger. Although the sanctuary was not part of a tiger reserve during the period for which the present assessment is being done, any future effort of this nature must consider the Kalakad-Mundanthurai conservation complex as a whole because of the existing ecological continuity and because of largely similar objects of management. There are proposals to increase the area of the sanctuary by about 86 square kilometres by adding the Veerapulli R.F. and other smaller areas.

Although the P.A. has only sanctuary status it goes to the credit of the management to have stopped all forestry operations and to have suspended minor forest produce and grazing concessions.

The only existing sources of disturbance are in the form of four privately-owned enclosures covering a total area of about 140 hectares and seven blocks covering about 70 hectares which had been leased for cardamom cultivation prior to the area being made into a sanctuary. Under the project tiger scheme, Rs.80 lakhs have been sanctioned for acquiring the 4 private holdings, while the leases of all the cardamom blocks would expire by 1995. Vacated estates are seen to be quickly invaded with weeds, chiefly lantana, and management will have to contend with this problem.

Potential sources of disturbance include proposals for construction of a total of some 13 dams in the Kalakad-Mundanthurai reserve. Within Kalakad the proposed dam on the Pachyar river near Thalaiyanai would submerge about 110 acres of the sanctuary, including the entire visitor complex which has been constructed there. The other proposal is for a dam on the Kodimudiar river which too would submerge a part of the sanctuary area. The value of these forests in sustaining agriculture in the surrounding flat lands is obvious as one heads towards Kalakad. Numerous

streams which originate in these forested hills support lush green crops of paddy, sugarcane and banana. The Pachyar dam is intended to stabilize flow to 15 irrigation tanks which the river feeds. Hence, the tangible benefits of protecting catchment forests can be readily demonstrated in this area. However, at the same time it must be ensured that such developmental projects do not jeopardize the very values that are sought to be protected. Hence, all such project proposals need to be jointly inter-departmentally reviewed to assess likely adverse impacts on conservation objectives. For example, stabilization of stream flow into the 15 irrigation tanks can perhaps even be achieved by desilting them instead of constructing the Pachyar dam.

Although zoned into the three traditional management zones, there appears to be some difficulty in limiting intended management to their respective zones. In other words, field staff were not quite clear about the distinction between these zones and about the differences in management approaches. Although a tourism zone (13 Square kilometres) has been identified, the network of trekking routes and trails (10 routes; distances ranging from 4-15 kilometres) pass through both the core and buffer zones. These routes have been well laid out but must be watched to ensure that the overall volume of use does not cross acceptable limits. There should also be no question of widening some of these trails into motorable roads.

Greater management effort needs to be directed toward managing the Nambikoil area in the southern part of the sanctuary. This area is heavily visited due to the presence of a temple, and the incidence of illicit grazing and cutting is also reportedly high in this region. Additional field staff and a better

communication system in the form of a wireless network would make protection enforcement more effective. Considering that the area does not have an extensive network of roads, procurement of Mules for patrolling duties should be seriously considered. This would facilitate movement into presently inaccessible areas as well.

Other management efforts include fire protection and habitat management. As part of the latter check dams and wiers have been constructed to check erosion and create water bodies. Regeneration of native vegetation is also being aided by clearing weeds and preventing them from overtopping the seedlings. Contour walls have been built over more than 2 kilometres distance in the sanctuary. The only reason for taking up this work appears to be the availability of funds under the drought relief scheme! Apart from acting as barriers to the free movement of animals these walls are also a gross eye-sore. In this context, an artificial water hole recently constructed is also worthy of note. It resembles a swimming pool more than anything else and has high walls on 3 sides (at least 2 feet high!) and a slope on only one side. It offers an excellent example of how not to develop artificial sources of water for wild animals. However, the last 2 mentioned works do not relate to the assessment period and were executed in subsequent years.

Research and monitoring aspects need to be given greater attention by the management authorities. Considering that the sanctuary has several endemic species, particularly of plants, management ought to know what is happening to them. A vegetation monitoring system requires to be put into place as soon as possible. Presumably, these will now get initiated under the Project Tiger scheme but during the

assessment period or before there have been no efforts in this direction. Some students are doing independent research on the fauna and flora in Kalakad and it goes to the credit of the sanctuary authorities to provide them with some facilities (accommodation in the form of log houses and rest sheds) for this purpose. Some studies have been conducted in the past on the Lion tailed Macaque (as part of a larger study) and on the Nilgiri Langur (in the Mundanthurai area) both endangered primates of great value to the sanctuary, but there is little evidence of management recommendations of such studies having been incorporated into the new management plan.

Tourism facilities have been quite well developed. There is a Museum, a well-stocked Library, an Orchidarium, a dormitory and a watch tower at the tourist complex at Thalayanai. There are well described trekking routes and trails with details given in a brochure for the information of tourists wishing to undertake this activity. The development of a small group of well-informed guides should be considered who can interpret the faunal and floral values of the tropical evergreen forests and the other features of the sanctuary.

Protection and habitat management efforts are reportedly suffering owing to inadequate field staff. Staff numbers must therefore be augmented urgently.

Namdapha National Park

The Committee visited Namdapha National Park (and tiger reserve) from 10 - 13 February, 1989. The park, with an area of 1985 square kilometres, is one of the most outstanding wilderness areas in the country which can still boast of vast

expanses of virgin forests. The scenery is spectacular and the diversity of plants and animals truly mind boggling. This high level of biodiversity corresponds to an amazing range of altitudinal variation within the park from 200 to 4500 metres above M.S.L. Of the total area, 177 square kilometres is the buffer zone which was earlier excluded from the park as it had two settlements. These settlements -- Haldibari village and a camp of Assam Rifles at Firmbase -- have since been moved out of the area. The buffer zone also corresponds to the tourism zone of the park. The addition of the buffer zone has greatly strengthened the boundary constitution of the park on the western side (north of the Noa Dihing River), and the Deban River now forms the boundary on this side. The other boundaries too have been very soundly constituted.

The management plan for the park has been drawn up but is yet to receive Government approval. However, management actions conform to prescriptions contained in the plan. Approval of the management plan should be expedited and adequate resources provided for its implementation. Traditional habitat management/development works are not prescribed in the plan nor are they required in an area which is intrinsically very rich and largely free of biotic disturbances. There are no forestry operations, grazing or other rights of collecting timber or MFP within the park. Small areas which were erstwhile settlements and clearfelled in the past have been rehabilitated by protection and planting up with indigenous species. Water is not a limiting factor and in addition to the many rivers and streams there are some natural pools as well. Fire is also not a problem as the area is predominantly a wet evergreen forest. The few patches of grassland that may be susceptible to

fires are protected by cutting fire lines and by fire watchers during the dry winter months.

Enforcement of protection measures is not a problem. The field staff (86 Nos.) are considered adequate for the next 4-5 years. However, facilities for staff are grossly inadequate. The field staff in this park perhaps work in one of the most inhospitable and remote forest areas and hence, deserve appropriate compensation. Some of the measures which can be taken in this regard are: provision of special pay, free family accommodation in Miao or elsewhere to keep their families, permanent structures as camp quarters (in place of the present bamboo-walled thatch huts), and some means of increased mobility, particularly for periodic transportation of supplies and rations.

The Committee strongly supports and endorses the proposal of the Field Director to acquire Mules for patrolling duties and for transportation of materials inside the park as there are no roads linking the 15 camps. The Project Tiger Directorate in the G.O.I. is urged to allocate funds on a priority basis for purchase of mules and construction of permanent patrolling camps.

Although during the assessment period (1985-86) the wireless communication system consisting of 7 fixed stations and 15 mobile sets is reported to have been operational, the system was out of order at the time of the Committee's visit. A proper wireless communication system is critical to an area where other means of communication are lacking. Urgent steps should therefore be taken to make the system functional as early as possible.

The authorities have put up a successful conservation defence against two development projects (a hydel project

and another dam) inside the national park. As a result, both these project proposals have now been shelved. The only other disturbing factor which remains is the PWD camp and gangs of workers for making and maintaining the only road which exists inside the park -- the Miao to Vijaynagar (M-V) road. This fairweather road is presently motorable only up to a certain distance beyond which it is prone to severe landslides. This road provides a link to three villages (Gandhigram, Ramnagar and Vijaynagar; total population about 6,000) at the eastern end of the park on the Burma border. However, owing to the poor condition of the M-V road, a regular air drop of essential supplies is made to these villages. Hence, there seems to be little value in investing so much time and effort on building and maintaining the M-V road. This activity is also a source of constant disturbance in an otherwise tranquil ecosystem.

Regulation of tourism is not a management problem as the number of visitors to the area is very low owing to its relative inaccessibility and because entry into the state itself is restricted due to inner line regulations. The area open to tourists is in the buffer zone and follows the road from Deban to Haldibari to Bulbulia. It is proposed to maintain a bridle path from Bulbulia to Ranjijheel to firm base and then to the 34 mile point on the M-V road. Most visitors venture out only up to Deban and very few undertake the trek to Bulbulia. Access to this tourism zone is further restricted to the times when the Noa Dihing river is fordable. Hence, tourism as presently organised cannot pose any threat to the park.

There is a proposal for a second tourism zone, which is much before Deban (at the 10 mile point) with provision of some basic accommodation and elephant rides

to take tourists up to a natural pool where it is possible to sight animals. The Committee supports this idea as it would satisfy the bulk of the casual visitors who come to Namdapha and also because even going up to Deban at times is not possible due to the frequent landslides. The interpretation and information centre (with a mini zoo) at Miao is well organised and managed.

A research officer is in position and some basic research has been undertaken. However, there is no long term research programme nor any periodic monitoring of the vegetation dynamics. Hence, research effort needs to be better focused. The captive breeding programme and facility for the endangered White Winged Wood Duck at Miao has achieved noteworthy success. The programme which has been undertaken in collaboration with the Wildfowl Trust (U.K), WWF India and the Assam Valley Wildlife Society is being managed very well and offers a model for other similar captive breeding efforts. The programme should now progress to its next logical phase i.e., rehabilitation of the captive-bred birds into the wild. There are 20 ducks in captivity at present.

Surveys for birds and small mammals have been conducted in the park by scientists from the Smithsonian Institution (USA), U.S. Fish & Wildlife Service, and the Z.S.I. Hence, lists of birds, mammals and snakes found in the area have been prepared. A reasonably good herbarium collection is being maintained. A study on the ecology of the Hoolock Gibbon has been initiated.

Relations with local people are reported to be by and large good. 80% of the workers have been employed from the local villages.

Palamau National Park

Palamau National Park and Tiger Reserve was visited from 23-26 May 1989. Palamau has not yet been declared a National Park even though the preliminary notification declaring intention to do so was issued as long back as September 10, 1986 and the prescribed procedure for investigation and determination of claims has long been completed. The matter is said to be pending with the District Collector, Daltongunj. Only an area of about 232 square kilometres (out of the total reserve area of 1026 square kilometres) is proposed to be declared as the "Betla national park", the final notification for which needs to be expedited. Although listed under the "national park" category in the nominations for the IBWL award, but in view of the "proposed" park status and that too for only a part of the sanctuary, the Committee considers it appropriate to evaluate Palamau under the "sanctuary" category.

Although as mentioned above, Palamau Tiger Reserve has a total area of 1026 square kilometres, only 213 square kilometres is the core zone and the remaining 813 square kilometres is the buffer zone. Almost the entire buffer zone area is outside the administrative control of the Field Director, Project Tiger and is controlled by the respective territorial DFOs. The buffer zone in the west falls under the Garhwa South division, in the east under Latehar division, and in the central and southern sides under Daltongunj South division. These 3 DFOs are responsible for forest protection, minor forest produce collection, bamboo and timber extraction, grazing and maintenance of roads in the buffer zone. The Field Director cannot

influence any of these activities in the buffer zone and is responsible only for wildlife protection and water development. All areas of the buffer zone, with the existing staff, should be therefore brought under the control of the Field Director, Project Tiger. Only the DFO of South Daltongunj division is presently under the control of the Field Director.

A large number of villages "pepper-pot" the buffer forests. Impacts of grazing, fire and forestry working are clearly visible. Most of these forests are degraded, open and infested with weeds in the undergrowth. However, some pockets away from the villages are still in fairly good condition. There is very little evidence of wildlife in these areas. Bamboo and timber coupes are being worked at 4 and 30 years rotation respectively. The rotation for selection fellings of miscellaneous and sal forests is however higher. In some parts, gap planting and underplanting with bamboo and *Gmelina* spp. constitute the other forestry operations in the buffer zone.

Grazing regulations prescribed in the working plans for the buffer forests (compartments closed for 3 years and opened for grazing in the 4th year) are no longer being followed and grazing takes place throughout the buffer. In fact, we came across a herd of 25 cows grazing inside the core area as well. Buffer zone forests are also subjected to intensive MFP collections, such as sal seeds, lac, tendu leaves, mahua and *Bauhinia vahlii* leaves. During our travels inside the sanctuary we encountered a tribal family gathering tendu leaves inside the core area. On interrogation they confessed that they knew they were inside the core but continued to collect as the quality of the forest was better here.

There is no doubt that the forest of the core zone are in excellent condition but in addition to the occasional cases of illicit grazing, cutting and poaching, the major problem is that of fires. Extensive areas in the buffer and core zone forest were found burnt. However, records of the last few years show the total area burnt annually as averaging only between 10 to 15 square kilometres. If this be so it may not be a cause for worry. But having covered almost all major parts of the reserve during our 4-day stay we felt that the area damaged by fire was much greater than that. We were informed that most fires resulted from acts of incendiarism by the local people. One day, during our stay we saw two villagers fleeing after setting fire to the forest by the side of the road close to Betla. Although there exists a fairly good system for fire detection--consisting of 14 fire watch towers located on vantage points, a light signalling system, and fire patrolling parties consisting of about 100 seasonal labourers employed during the fire season-- there is practically no equipment provided for fire fighting. This aspect needs to be given priority attention if the response to a fire incident is to be quick and effective.

The first management plan written for the reserve expired in 1978-79. The second plan has only now been prepared covering the period 1987-88 to 1996-97. There was no plan for the intervening period which also includes the period of the present assessment. However, prescriptions of the first plan were reportedly being followed during this period.

Poaching is another problem with which the reserve management has to contend. Being predominantly a tribal area, the local people are habituated to killing wild animals for the pot. Young tribal boys moving around the sanctuary with

catapults for hunting birds is a common sight. Water holes are vulnerable points for poaching. Hides are built (from local rocks and boulders) overlooking these water holes and country-made weapons used to shoot deer and pigs. We were witness to one such hide being demolished near a water hole in the core zone. Piggery, poultry, duckery and pisciculture schemes if started in the buffer zone villages will greatly contribute to meeting the protein needs of the tribals and ease the pressure on the wild resource.

Incendiarism and poaching (including illicit grazing & MFP collections) are symptomatic of the growing antagonism of the local people to the tiger reserve. They view the proposed national park status as an attempt to further curtail their activities and think that the existing grazing and fuelwood concessions in the buffer zone will be withdrawn. This, we were told, has been clarified to them as not being true. At the same time, cases of crop damage by wild animals, chiefly elephants, and loss of livestock to wild predators, are on the increase. The compensation given for crop damage is only Rs.100/- per hectare, for cattle killed it is 50% of the market value and for the loss of human life it is Rs.10,000/-. Some ecodevelopment measures initiated in the seventies have not been sustained. Eventhough the project employs a sizeable number of local villagers every year for fire and crop protection work, the villagers largely view it as not being of any benefit to them. This is a situation which cries out for ecodevelopment measures. However, for any such project to be planned and implemented, a prerequisite is that the buffer areas are also brought under the administrative control of the Field Director of Palamau.

The present F.D. bears out the soundness of this approach as he has spoken to several villagers to get their feedback on the kind of development they foresee for their areas. Based on these consultations he has proposed the construction of a small dam and irrigation channels for the *Mundu* group of villages at a cost of Rs. 2.5 lakhs. In return, the villagers have assured that no grazing will be done in the forest areas and some have already started harvesting fodder to stall feed their cattle. It is such projects which need to be given priority financial and administrative support if the prevailing interface problems are to be resolved.

There are three forest villages (*Kujrum, Ramandagand Latoo*) in the core area of Palamau. In all, there are 58 households with a total human population of about 550 and an equal number of cattle. The villagers of these three villages are willing to move out of the reserve and have given their consent in writing as well. The total cost of the relocation scheme is Rs.23 lakhs and funding for this purpose has been extended under the Project Tiger scheme by Government of India for the last two years. The resettlement site has been selected in the Saryu Range of Pailapathar Protected Forest (P.F) where each family is proposed to be given a house site and garden, a house constructed and 2 hectares of developed agriculture land. A perennial water source is also proposed to be dammed for irrigation, a tubewell and school building provided and grazing allowed in the nearby P.F. However, the state government has not sanctioned the scheme so far as a result of which funds have lapsed in the last two financial years. It is learnt that the matter is pending within the Forest Department for no apparent reason, even

though the people are willing to move, they have seen and agreed to the rehabilitation area, and the local revenue authorities have assured their full cooperation in this effort.

There is a good network of roads which facilitates patrolling work. However, the wireless communication system is outdated and needs to be replaced. Only 5 or 6 fixed stations (out of a total 10) are in working order and there are frequent breakdowns. None of the mobile sets (5) are at present functional. As spare parts are no longer being manufactured for this old model equipment by B.E.L. maintenance is becoming a major problem. The F.D. mentioned that since the last 2 years they are trying to get a new frequency allotted from the Wireless Advisor (Govt. of India) but with no success. Requests to the Director (P.T.) G.O.I. to intervene and expedite this have also proved infructuous. As a result protection work is seriously hampered and the reserve HQ is not in easy contact with the interior camps. Likewise, vehicular and arms support are proposed to be provided to the field staff to make them more effective.

A dam is proposed to be constructed on the Auranga River close to Betla which is part of the proposed national park. About 800 hectares of the park area (and 3 or 4 villages) will be submerged as a result of this dam and adversely impact the resident elephant population's movement pattern. The submergence area includes a "chicken's neck" of about 2-3 kilometres width through which the elephants move seasonally between Betla in the north and Baresand area in the south. Already, this corridor is very narrow and the elephants move out into the adjacent crop lands and cause damage. Further attrition of the "chicken's neck" area as a result of the

dam construction and consequent submergence will greatly aggravate the problem of depredation by elephants on human life and property in the adjacent villages, leading to calls for capture/culling of the elephants. The dam is being opposed but no final decision has yet been taken. The Committee strongly recommends that alternative sites for locating the dam should be carefully investigated and a complete assessment done of the likely adverse environmental and social impacts before a final decision is taken in this matter.

Noteworthy resource management work has been done in Palamau. In particular, water conservation and development efforts have proved very successful. Contour trenching and check-damming have undoubtedly contributed to improving the water regime and raising the water table. As a result, dry season availability of water is prolonged and with some desilting and deepening, most of the water holes now retain water almost the year round. Water sources are well dispersed through, with atleast one for every 5 to 10 square kilometres of the area.

Bamboo has recovered in many areas due to protection from fire and grazing. *Lantana* control efforts are very cost effective and yielding good results. Uprooting and cutting back for 3 successive years has succeeded in clearing up dense growth of *lantana*. The average cost per hectare is reported to be only Rs.500/- which is much lower than in similar efforts in other PAs.

Palamau is perhaps the only protected area which still allows tourists to view wild animals by spotlight at night. Although the tourism regulation says visitors will be allowed into the reserve between sunrise and sunset, a large

number of tourists arrive only after sunset and they are taken into the park for viewing animals with spotlights. The park authorities should stop this practice forthwith. There are no group vehicles for the use of tourists but limited elephants are available. Visitors can move around in their own vehicles but must be accompanied by a 'guide'. The tourism zone is well demarcated and travel routes well laid out. However, it may become necessary in the near future to regulate the movement of tourist vehicles, by limiting the numbers allowed in at a given point of time and/or by making some routes one-way, so as to avoid overcrowding and minimise impacts.

Palamau offers an excellent opportunity for cultural resource interpretation which is a sadly neglected aspect in our wildlife reserves, although many are rich in such resources. The Palamau Fort which has a fascinating history remains completely neglected and in a state of disrepair being fast overrun by vegetation. At present it is not being looked after by either the tiger reserve authorities or the archaeology or any other department. Considering the history associated with it and the fact that it lies within the sanctuary area, the wildlife authorities would do well to promote it as an attraction for the visitors, put up interpretive signs and exhibits and detail some staff who could interpret the remains and the history to tourists. This could also form one of the themes for the visitor centre which is under construction at a cost of Rs.9 lakhs. Yet another cultural theme could revolve around the tribals of the area, their arts and crafts and their way of life. A proper and well trained education and extension wing needs to be developed under the charge of an education/interpretation officer which can handle various visitor information services as

well as handle village extension/ ecodevelopment/nature education work.

Despite being one of the first areas to be included under Project Tiger, Palamau does not have a research programme or any research staff in position. Even the posts are yet to be created. There are also no facilities for outside researchers to conduct studies nor has any effort been made to involve them in such an effort in spite of the fact that there are colleges at nearby Daltongunj and universities at Ranchi with Botany and Zoology Departments.

What is the answer to the great question of life, the Universe, and Everything? This is the question that was assigned to the super computer Deep Thought in Douglas Adam's book *The Hitchhikers Guide to the Galaxy*. After researching and contemplating the question for 7,500,000 years Deep Thought finally come up with the answer. the answer to the ultimate question was 42!

This answer had very little relevance to the question and created quite a stir among those that posed it. The *researchers* challenged Deep Thought but the computer responded with assured confidence*that (42) quite definitely is the answer. I think the problem, to be quite honest with you, is that you're never actually sure what the question is.*

The pursuit of knowledge about wildlife resources is a commendable, and necessary, profession if mankind is to live in harmony with the natural world. So far we have not fared very well and have caused the demise of more creatures than we have preserved. *Nature was a million years, or more, in developing a species..... Man, with all his wisdom, has not evolved so much as a ground squirrel, a sparrow, or a clam* wrote Aldo Leopold in the 1915 United States Forest Service Game and Fish Handbook.

One of the tasks for wildlife researchers should be to attempt to unlock the puzzle of wildlife populations: what makes them tick, how many are there, what habitats do they use, what do they eat, what eats them, how do they reproduce, and on and on. To be more efficient in this task, the trek into the

field should be paved with specific and definite question that can be answered from sound hypothesis formulation. If not, at the end of 1-4 years of research the answer could be 42!

Looking back I often think the most difficult task was in knowing the right question to ask.

Paraphrased from some great philosopher whose name eludes me at the moment.

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