

# *Lake St Lucia and the Eastern Shores*

## *The Natal Parks Board's Role in the Environmental Impact Report*

### ***Introduction***

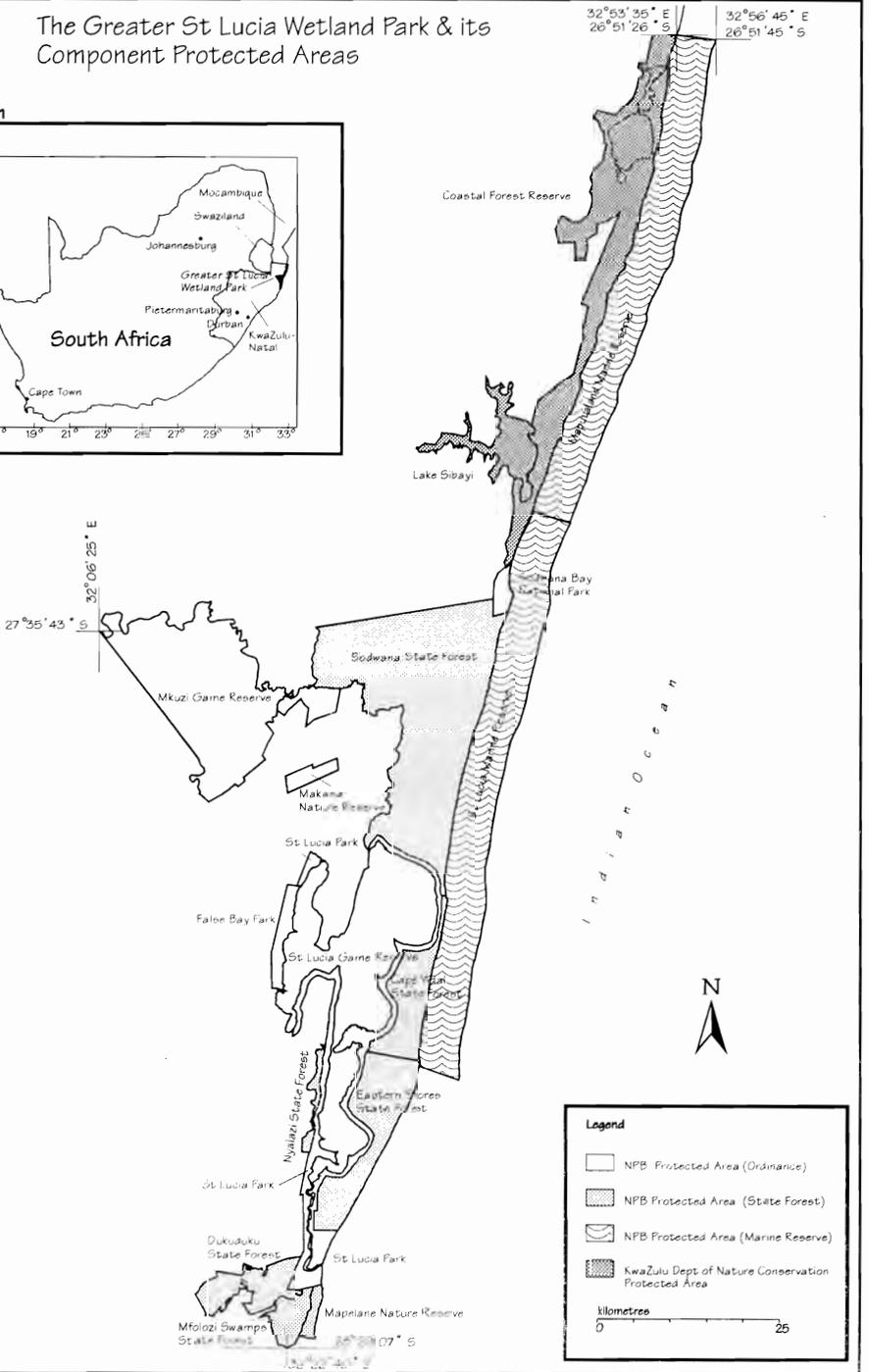
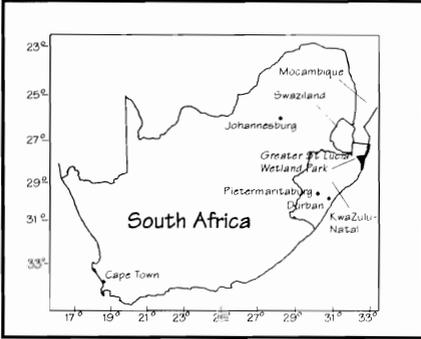
The purpose of this paper is to provide a summary of the considerable role played by the Natal Parks Board (NPB) in the Eastern Shores environmental impact assessment (EIA). Aspects of the history of the area are included to provide an appreciation of the lengthy struggle for recognition of the value of this area as a natural area of national and international importance. The significance of the area for nature conservation and tourism (and ecotourism<sup>1</sup>) are also provided, to place the role of the NPB in perspective. The paper emphasises the value of the nature conservation and tourism land use option as that which is well suited for the long term conservation of the environmentally sensitive Lake St Lucia and its surrounds. Lake St Lucia is located in the Maputaland Plain at the southern extremity of the Mozambique Coastal Plain. The lake lies within an important protected area known as the Greater St Lucia Wetland Park, which is administered by the Natal Parks Board (See Map 1).

### ***Summary of the early history of the Lake St Lucia area***

In pre-Shakan times, the area was occupied by Nguni/Thonga of the Mtethwa Clan.<sup>2</sup> It was from this stock that the Zulu nation emerged and became the dominant political force under the leadership of King Shaka. By 1824, the Zulu domain stretched from the Pongola River in the north, to the Tugela River in the south, including the St Lucia area. The first written accounts of Lake St Lucia were provided by Portuguese navigators who discovered and named Cape St Lucia in the 15th century, and this name was subsequently extended to the lake. However, the first written accounts of the great wildlife resource present in the area were only published about three hundred years later when the hunter and explorer Delegorgue visited Lake St Lucia in 1838 and 1844.<sup>3</sup> The arrival of the first explorers and white hunters initiated the systematic plundering and slaughter of this great resource. By the late 19th century, the wildlife resources of Maputaland had become of major significance to the colonial government of the day, with natural products such as ivory and skins constituting its principal export commodity. The exploitation focused on

# Map 1 The Greater St Lucia Wetland Park & its Component Protected Areas

## Location



Drawn by H. Steynman  
Planning Division



**NATAL PARKS BOARD**

hunting for trading purposes, sport and food. Guns that had been introduced by the white settlers subsequently became available to the indigenous peoples, and the wasteful exploitation rates increased dramatically.<sup>4</sup> Shortly before the turn of the century, the then British Governor of Zululand commented that 'we may be within measurable distance of the total destruction of game in Zululand'. This prompted the notion that the first wildlife reserves in Zululand should be proclaimed.<sup>5</sup>

### *Establishment of the first protected areas*

The colonial Zululand Government proclaimed five reserves in 1895 to protect the dwindling wildlife resource. These included the St Lucia Game Reserve, created to protect Lake St Lucia and its surrounds and its associated wildlife. This was one of the first protected areas to be legally designated on the African continent. These reserves were extended by the Colony of Natal in 1897. Thus, the first official recognition of the need to provide permanent protection for Lake St Lucia and its surrounds was given nearly a century ago.<sup>6</sup> Parts of the original protected areas were subsequently de-proclaimed as game reserve, but maintained as Crown land. These included areas such as the Eastern Shores, which were occupied by Zulu communities.

Following the 1902–5 Lands Delimitation Commission, parts of Zululand were occupied by white settlers. Many of these were cattle farmers, who occupied land near the protected areas initially established in 1895, and which had been avoided by the Zulu people because of the prevalence of tsetse fly within the protected areas, and for other reasons. This led to pressure being placed by the settlers on the government to eradicate the tsetse fly. Attention was also turned to eradication of the game, then thought to be the principal food-source of the fly. Serious attention was given to the de-proclamation of the protected areas to facilitate eradication of both the game and tsetse fly, but fortunately, this was never permitted.<sup>7</sup>

### *The 1964/66 Lake St Lucia Commission of Enquiry*

Frost describes the public outcry that arose in 1961 following an official decision to build a dam on the Hluhluwe river for sugar cane irrigation.<sup>8</sup> The dam would have reduced the flow of fresh water into Lake St Lucia, already under stress because of destabilization of the catchments and water extraction from its feeder rivers.

This was one of the concerns that resulted in the official appointment of the Lake St Lucia Commission of Enquiry.<sup>9</sup> The commission was instructed to investigate alleged threats to the survival of the animal and plant life of the lake, and factors causing high salinity levels in the lake. The commission was also required to recommend 'a solution which would best suit the lake and surrounding agriculture, forestry, domestic and commercial water needs in the total catchment area'.<sup>10</sup>

The published recommendations of the commission were comprehensive and far-reaching and included the following:

- The phasing out of the timber plantations that had been established on the eastern shores in the mid-fifties, and the consolidation of this area with other areas to increase the protected area surrounding the Lake St Lucia system; and
- Placement of the lake and the expanded area under a single management authority.

Regrettably, the recommendations of the commission were largely ignored by the government of the day. Nevertheless, a significant and enduring contribution which has not been lost sight of since by environmentalists, was the suggested need for a single management authority to be made responsible for the entire area.

### ***Involvement of the Natal Parks Board in the St Lucia area***

The NPB was formed in 1947, and has held responsibility for the St Lucia game reserves and other protected areas surrounding Lake St Lucia since its formation. The eastern shores were given into the custody of the then Department of Forestry (subsequently Forestry Branch of the Department of Environment Affairs) in the mid-fifties, when the area was designated and demarcated as the Eastern Shores State Forest (ESSF). The Zulu people, who at that time occupied the State land, were moved from the area, because the government decided to initiate a commercial afforestation programme on the coastal dune cordon and the adjacent well-drained flats. At their greatest extent, the man-made forests were approximately 5 250 ha in area.

In 1976, the NPB was allocated permanent rights for nature conservation and outdoor recreation in terms of the provisions of the Forestry Act over the natural areas of ESSF.<sup>11</sup> Involvement of the NPB in the management of ESSF was considered necessary because approximately 7 600 ha consisted of natural communities of high nature conservation value, and the area was already assuming growing importance for ecotourism.

The importance of the natural component of the ESSF for nature conservation and ecotourism was acknowledged in a joint policy statement for the area, prepared by the NPB and the department, and authorized by the then Minister of Environment Affairs in 1983, and provision made for the legal entrenchment as nature reserve of this area. This entrenchment was, however, never implemented.

### ***St Lucia as a special place***

The area has thus long been seen by many sectors of the community, as a special place, with many significant values. Some of the universally held values which contribute to this special image include the following:

- Its historical importance;
- Its significant natural resources; and
- Its natural beauty.

Apart from the universally-held values, individual sectors of the community attach value to attributes which are very different to those held by other sectors. For example, the Zulu people have valued the area as a part of their ancestral lands and as a burial ground for a number of their ancestors. Environmentalists have long valued the area for its unique attributes, described below, its potential as a major protected area, and one of the two most important ecotourism destinations in Natal and one of the ten most important such destinations in the country.<sup>12</sup>

### ***The issue of prospecting and mining leases on the eastern shores***

Prospecting leases were issued for portions of the State land (i.e. land in public ownership) on the Eastern Shores between 1972 and 1975, and these were



Aerial view of a portion of the Greater St Lucia Wetland Park near Cape Vidal, in the vicinity of the area proposed for mining, showing the undeveloped coastline (marine reserve), the steep coastal dune system, Lake Bhangazi South in the near background, and Lake St Lucia in the far background.

*(Photograph: Natal Parks Board)*



An aerial view of a portion of the coastal strip in the Park showing a wetland maintained in part by seepage from the coastal dune system in the right foreground; savanna on a relict dune in the left foreground, and hydromorphic grasslands surrounding Lake St Lucia in the far left background.

*(Photograph: Natal Parks Board)*

acquired by Richards Bay Minerals (RBM) in 1976, and in 1989, that company applied for a mining lease for the three prospecting leases.<sup>13</sup>

When applications were lodged for prospecting leases in the early seventies, it was not customary for an authority responsible for an area of public land (in that instance the Department of Forestry) to consult public opinion about the need and desirability of a prospecting lease being issued for the area. In terms of the Mining Rights Act No 20 of 1967 that was in force at the time, the issue of a mining permit was a formality should viable mineral deposit be discovered (and certain other basic requirements be satisfied) in a lease area. There was no legislation then (or at present) that makes provision for a mandatory environmental impact assessment to be undertaken for significant development proposal.<sup>14</sup> Consequently, although consultations took place, between the then Department of Mines, the NPB and the Wildlife Society, the prospecting leases were issued, and the event passed virtually unnoticed by the public at large.

### ***Formation of the Greater St Lucia Wetland Park***

The first public announcement that dredge mining on the coastal dune system of the Eastern Shores was being considered was made in 1989. The then Minister of Environment Affairs simultaneously announced the formation of a major protected area, now known as the Greater St Lucia Wetland Park ('the park'), and transfer of custody of the ESSF from the Forestry Branch to the Natal Provincial Administration for management by the Board and incorporation of the area in the park. The new park was to consist of the St Lucia Game Reserve and other adjacent protected areas that had long been in the custody of the Board, together with extensive areas of State forest. In addition, portions of privately-owned land were to be acquired to link Mkuzi Game Reserve to the protected areas surrounding the lake (See Map 1).

These developments realised the dream of many conservationists of establishing a large protected area which would conserve representative ecosystems of the southern Maputaland plain lying between the Lebombo mountains and the sea. Also brought to fruition was the concept of management of the Greater St Lucia area by a single authority, as envisaged by the St Lucia Commission of Enquiry.

### ***Initial appraisal and the decision to undertake the EIA***

RBM decided to apply for a mining lease in 1989, and in the same year the company commissioned an environmental appraisal. The consultants commissioned to undertake the study organized a so-called 'scoping meeting' with representatives of various environmental organizations and the mining company, in July 1989. The draft impact appraisal was completed and circulated to various interested parties in September of the same year. Public meetings were held shortly afterwards to enable the consultants to explain details of the mining proposal. A public uproar ensued, and several petitions opposing the mining were organized. A total of 222 667 signatures was obtained and the results submitted to the then government.

In response to the petitions, the cabinet instructed that a comprehensive EIA should be undertaken, following the principles of 'Integrated Environmental Management' (IEM) as far as possible.<sup>15</sup>

### ***Undertaking the eastern shores EIA***

Originally, the purpose of the procedure initiated at the end of 1989 was to investigate the impacts of the proposed mining on the physical, social and economic environments, following integrated environmental management (IEM) principles. This purpose was subsequently amended in 1990, partly as a result of motivation provided by the NPB, to determine which of two land use options was the most appropriate for the Eastern Shores of Lake St Lucia. The two options were mining, with nature conservation and tourism where feasible ('the mining option'), or nature conservation and tourism without mining ('the non-mining option').<sup>16</sup> The value of the area for settlement was also to be determined at the issues level, but settlement was not considered a potential primary land use. There were several reasons for this, including the official policy of the government of the day (the area is State land), and the assessed low potential of the area for agriculture.<sup>17</sup>

The process continued until the end of 1993, and was claimed to be one of the most comprehensive EIAs ever undertaken, in this country or elsewhere. A co-ordinating committee was established by the DEA to set policy and overall co-ordination of the process, and ensure that the investigation was of appropriate quality and scope. An assessment management committee was appointed to manage the process. An independent review panel, chaired by Mr Justice Ramon Leon, was also appointed to review the process and the final reports, to assess public opinion, and to submit a recommendation to the cabinet as to which land use for the area was considered to be the most appropriate.

The consultants that had been appointed to undertake the initial environmental appraisal were re-commissioned by RBM to undertake the EIA. However, after completion of the specialist reports, new consultants (Environmental Services of the CSIR) were appointed as principal consultants to finalise the procedure. In total, five reports were produced by the consultants.

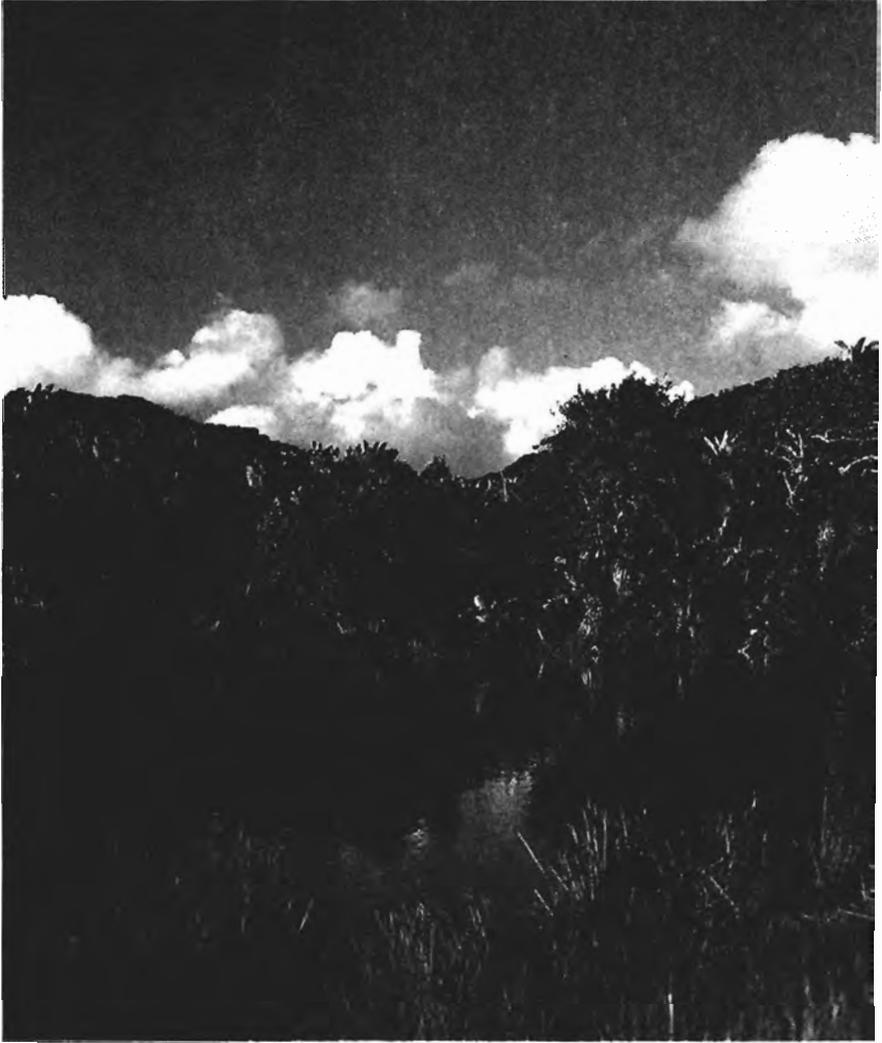
One hundred and twenty interested and affected parties (I & APs) were recognised, from which fourteen Lead I & APs (L I & APs) were appointed, who were considered to reflect the majority of the viewpoints held by the remainder. The Lead I & APs were involved to a considerably greater extent in the process. In order to make provision for local interests, other measures such as a rural liaison programme were implemented.

The mining company which holds the prospecting lease, RBM, and NPB (as custodian of the Greater St Lucia Wetland Park, including the ESSF), were recognised both as L I & APs and as the proponents of the mining and non-mining options respectively.

### ***Summary of the NPB's contribution to the EIA procedure***

The principal objectives of the Board were to endeavour to ensure that the values, advantages and impacts of the nature conservation and tourism land use option were accurately, adequately and equitably represented throughout the procedure. This entailed a number of actions and a great deal of time and expense, involving both board members and staff at all levels, during the four years of the process.

The NPB took a formal policy decision that it was opposed in principle to the proposal to mine on the Eastern Shores, because of the value of the area for nature conservation and tourism and the risks associated with the possibility of



A portion of Lake Bhangazi South, near Cape Vidal, just north of the northern limit of the prospecting lease area. This is one of the freshwater lakes of the Park that occur in depressions in close vicinity to and on the landward side of the coastal dune barrier. These lakes have small catchments, and replenishment is largely from groundwater seepage, some of which is derived from the coastal dune system. These lakes are nutrient-poor because of the predominantly leach sandy nature of the substrate, and are sensitive to eutrophication of any nature.

*(Photograph: Natal Parks Board)*

mining in this sensitive environment. It also committed itself to full participation in the procedure, and agreed to accept the eventual recommendations arising from the procedure.

Emphasis was placed on the formation of the new expanded protected area, to be known as the Greater St Lucia Wetland Park, which was to include the eastern shores, and the many advantages that the new park would bring to the national nature conservation programme, and to the tourism industry. It was emphasized that these advantages would accrue at national and regional as well as at local levels.

The principal actions taken by the NPB throughout the four years duration of the process comprised the following:

#### *Administrative role*

- The Chief Executive and Head of Planning served on the co-ordinating committee.
- Regular monthly reports were made by Head of Planning to the conservation committee of the NPB's board, chaired by the Deputy Chairman, who in turn reported to the full board on progress with the process, and contributions made on behalf of the board.
- Formal submissions were made to the Administrator of Natal and to the government on the stance of the NPB.

#### *Public participation role*

- The issue of formal public statements in opposition to the mining.
- Numerous public addresses were made and articles were published by staff, outlining the position of the Board and the contributions being made by it towards completion of the process.
- NPB staff hosted field visits and made presentations to members of both the co-ordinating committee and the review panel.
- A paper was read at an international symposium, to be published in the proceedings, on the stance of the NPB, and the advantages and disadvantages of the two land use options.

#### *Technical role*

- NPB provided details of all aspects of its existing and planned programmes for the Eastern Shores component of the new park, and the relevance of these to the management of the entire park, to the consultants.
- NPB staff participated in a programme of workshops on a series of specific key issues such as draft mitigation and rehabilitation plans, the economics of ecotourism, dune stratigraphy, the transport of heavy metal concentrate (HMC) and prospects of the mining company acquiring servitudes for HMC transport pipelines over NPB-protected areas outside the prospecting lease areas.
- All reports and publications of the consultants were reviewed in depth, and written comments which were approved by the Board were submitted to the consultants. The reports concerned included the twenty-three Specialist Reports (Vol.1), fourteen Key Issue Reports, the Environmental Impact Report (Vol.3) and the Final Report (Vol.4).
- As a result of the NPB's in-depth reviews, a number of the consultants' reports were found to be inadequate and flawed. The consultants undertook further studies and issued subsequent reports, to remedy deficiencies. Three

in-depth review reports were published by the NPB, namely on the Specialist Reports, the Environmental Impact Report, and the Final Report. These were submitted to the official committees involved, as well as to the Review Panel.

- Finally, both the Board Chairman and the Chief Executive made presentations on behalf of the Board to Mr Justice Leon's Review Panel at the public hearings which lasted for six days in November, 1993.

The overall contribution made by the Board was thus of very substantial proportions, but this was considered to be warranted because of the importance of the area for nature conservation and ecotourism.

### ***The Greater St Lucia Wetland Park's importance for nature conservation and tourism***

It is not the intention of this paper to more than briefly summarise the importance of the park for nature conservation and tourism. In essence, the significance of the park for nature conservation is such that the NPB considers that it is one of only two areas in Natal (and about ten sites in the country, and less than one hundred sites world-wide) that merits consideration for admittance to the World Heritage List.

The World Heritage Convention is administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO). It has not been possible for South Africa to become a signatory to the Convention because of the politics of the past. It is expected, however, that re-admittance to the United Nations, and therefore UNESCO, which followed the April 1994 elections, would result in the country also being invited to become a signatory to the convention.<sup>18</sup>

The International Union for the Conservation of Nature (IUCN – the World Conservation Union) published an inventory of prospective world heritage sites (WHS).<sup>19</sup> The greater St Lucia area was listed then as a potential world heritage site. The World Heritage Convention has specified four criteria for selection as a WHS and, according to the IUCN's inventory, the prospective St Lucia site was expected to qualify under all four criteria. The NPB has completed and submitted a nomination proposal for the park, and it trusts that this would appear to be the case.

One of the criteria requires that the nominated site 'contains the most important and significant natural habitats for *in situ* conservation of biological diversity, including those threatened species of outstanding universal value from the point of view of science or conservation'. Some of the reasons why it is believed that the park meets this criterion are as follows: Maputaland, in which the park occurs, has been described as the centre of endemism. This regional species pool is considered to be both species-rich as well as to contain an unusually large number of endemic species. It is considered to be the centre of one of the most remarkable areas of biodiversity for its size in the world. Not only are the numbers of endemics high, but they are spread over virtually the entire taxonomic spectrum. It is possible that nowhere else in the world are so many rare plants and animals concentrated in such a small area. Part of the reason for the high levels of biodiversity present is the location of the region at the interface between tropical and subtropical and temperate biotas, as well as the complexity of this transition, in a situation where communities occur in mosaics of differing floristic and faunistic affinities. Many species from several taxonomic groups reach the southern or northern limits of their natural distribution within the park.

One of the principal distinguishing features of the park is the great variety of habitat types present in a relatively restricted area. It conserves within this area a representative sample of the habitat types and biota of the centre comprising a complete cross-section of the southern extremity of the Maputaland coastal plain, from the Lebombo mountains to the coast. An extensive section of the coastline itself is included. Two marine reserves protect the entire coast and the continental shelf to a distance of five km out to sea. The plant formations and associations present in the park range from dry savanna on eutrophic soils to swamp forests on dystrophic sands, freshwater swamp communities comprising *Phragmites* and *Papyrus* swamps, riparian forest to saline mangrove forests, dry forest on sands to moist forest on recent coastal dune systems.<sup>20</sup>

The shallows of Lake St Lucia and the offshore marine reefs sustain huge concentrations of larval and juvenile marine life, including fish, prawns, crabs and other life forms.<sup>21</sup> The lake and other estuaries of the park play a vital role in the provision of shelter and feeding grounds for some adults and these juvenile life forms. Lake St Lucia, by virtue of its size, is the most significant nursery area on the entire east coast of South Africa.<sup>22</sup> It is also visited by a greater proportion of large adult fish for both breeding and feeding purposes, including a number of economically-important species, than any other estuarine system in Natal.

The park is large by South African standards (approximately 260 000 ha in extent). It is the third largest protected area in the country and is nearly two and a half times the minimum size considered to be necessary for the long-term conservation of natural communities.

**Table 1 Notes on the status of the selected taxonomic groups present in the Greater St Lucia Wetland Park**

Groups		Status						
Taxonomic groups	Number of species recorded	CITES Appendix I or II	Red data book rating		Natal importance rating		Endemicity	
			Intl.	SA	Cons	Use	SA	Natal
Terrestrial flowering plants	c.1 000	3	–	3	2	2	8	8
Terrestrial mammals	95	15	1	22	33	8	3	1
Marine mammals	5	1	5	–	–	–	–	–
Birds	521	72	–	59	42	–	4	–
Reptiles	109	–	9	17	16	3	20	2
Amphibia	50	–	–	2	9	–	10	5
Freshwater fish	51	–	6	14	17	6	5	4
Totals	1 831	91	21	117	119	19	50	20

Table 1 provides a summary of selected taxonomic groups present in the park, the number of species present in the park for each group, the number of species listed in the CITES Convention Appendices I or II, the number of species listed as threatened on the International and South African Red Data Books, and the number of endemic species. As indicated, of a total of the estimated 2 000 species present in seven groups, 91 are listed in CITES appendices, 21 species are listed as threatened in International Red Data Books and 114 species on SA Red Data Books, while 50 species are listed as South African species and no less than 20 are listed as Natal endemic species.

In summary, it is contended that the park is a protected area of international importance. Its significance is, however, not restricted to nature conservation considerations. The area has also been identified as one of the most important tourism and ecotourism destinations in Natal, and one of the ten most important ecotourism destinations in the country.<sup>23</sup>

It is also contended that the ESSF forms a natural component of the park, by virtue of its geographical position, as the southern gateway to the park, as well as the unique natural communities present.

A draft ecotourism development plan for the ESSF has been approved by the NPB.<sup>24</sup> This plan identifies nineteen new potential development nodes for the area. The ESSF is considered to have a high potential for the provision of ecotourism facilities, because of the high quality of the resource base.

The central sector of the park has never been subjected to any intensive form of occupatory use, and largely retains its primitive wild character. This is the only remaining wilderness on the entire east coast of the country. This wilderness is thus considered to have considerable rarity value.

### ***Summary of conclusions and recommendations***

#### ***Conclusions***

These reports concluded that the proposed mining would cause international, national, regional and local impacts. A summary of the predicted impacts is provided in Table 2.

The conclusions and recommendations of the report appear to be based on two assumptions, the first being that the mineral resources of the Kingsa/Tojan Lease Area were not substitutable, and the second that the ecotourism development planned for the Eastern Shores could take place elsewhere in the park, or Natal.

The authors concluded that while the mining operation would have negative impacts, damage to the environment would not be irreparable (i.e. mitigation would be possible) except in the relatively narrow confines of the lease area. Most significantly, they considered the economic benefits of the mining operation carried out in conjunction with nature conservation and tourism, would be significantly greater than that of nature conservation and tourism without the mining. The question was posed : 'Would South Africans be willing to pay (in other words forego by not mining) between R66 million and R247 million in order to avoid the predicted impacts on the environment?'

The authors also concluded that it is highly likely that land rights will be restored to previous occupants (black rural communities) of at least part of the Eastern Shores, which may or may not involve resettlement.

**Table 2 Summary of predicted impacts of the proposed dune mining: Eastern Shores Environmental Impact Assessment**

Scale of Impact	Summary of Predicted Impact
International scale	<ul style="list-style-type: none"> <li>• Economic impacts on feedstock supply to a major global market.</li> <li>• Negative impacts on perceptions of the St Lucia sub-region as a wild place or wilderness.</li> </ul>
National scale	<ul style="list-style-type: none"> <li>• Negative impacts on people's sense of place.</li> <li>• Positive impact of the additional contribution of mining to the economy, heightened by a five year increase in life of the smelter plant.</li> </ul>
Regional scale	<ul style="list-style-type: none"> <li>• High economic benefit.</li> </ul>
Local scale	<ul style="list-style-type: none"> <li>• High negative (irreversible) impacts on the dune topography.</li> <li>• Moderately negative impacts on certain animal species in the mine path, which would affect overall population sizes on the ESSF.</li> <li>• Moderately negative impacts on tourists visiting the area in the short term.</li> <li>• Very high negative visual impacts caused by mining plant during the period of mining.</li> </ul>

*CSIR, After Eastern Shores Environmental Impact Report.*

### *Recommendations*

The reports make recommendations in respect of both the two land use options, but the tenor of these are that there are no strong reasons, other than sentiment, why the government should prevent the mining. It is clear that the authors of the report consider that it was feasible that the mining and the nature conservation and tourism programme could continue in parallel. This recommendation stems partly from the finding that the St Lucia environment will not suffer irreparable or unacceptable damage, other than in the narrow confines of the mine path. It also stems from the assessment of the economics of the two land-use options, which purport to show that the economic benefits of the mining are of such a magnitude that they should not be ignored. Doubts are cast on the viability of the ecotourism programme of the Natal Parks Board, specifically on the overall scale of the development proposed, and on the ability of the Board to attract the necessary capital to undertake the development proposed.

There is acknowledgement that the mining company lacks the technology to recreate the dune topography, and to re-establish the diversity of vegetation types present in the mining path, but these are not seen by the authors as potential causes of 'irreparable damage', should the rehabilitation programme not prove to be successful.

### ***The NPB's reaction***

#### *Criticisms of the EIR and final reports*

The NPB rejected the findings and conclusions of the EIR and Final Report. It considered that the authors were biased in favour of the mining. Some of the principal criticisms of the Board were the following:

- There were critical omissions and shortcomings in the study.
- The assessments that were made of a number of impacts, were considered unacceptable.
- Levels of certainty and risks had been omitted, or not given due attention.
- The analysis of land use alternatives was considered to require revision, by, inter alia the employment of social welfare criteria.
- The definitions of 'irreparable damage' were unacceptable.
- The potential impacts of mining on biodiversity and the significance of these had not been addressed.
- The diversity and functioning of wetland systems, and the potential impacts of mining thereon, and their significance, were not adequately addressed.
- Rehabilitation requirements, uncertainties, and associated risks were not adequately addressed.
- The economic analysis of the two land use options (especially that of the nature conservation-tourism land use option) required revision.

It was considered that the question of need and desirability, especially in respect of the mining proposal, had not been adequately addressed. In respect of need, it was noted that alternative ore bodies do exist (e.g. in the Port Durnford State Forest, which lies closer to the processing plant than the ESSF). It was also pointed out that the company has ore reserves to last it for an estimated two further decades, and that it is not imperative in the national interest that the mining lease be granted now.

It was noted that the reports had found that there is an urgent need for ecotourism development within the region, acceptance that the park has an important role to play in providing a highly desirable resource base to support a regional ecotourism industry, and that extensive ecotourism development should take place there. However, the NPB was critical that the reports had found that the proposed mining would have no impact on ecotourism at a national level, and that alternative development sites within the region (or the park) are available. The NPB objected strongly to the suggestion that an alternative location for ecotourism development within the park was the central Ozabeni wilderness zone north of Cape Vidal.

The NPB was also critical of the fact that the reports make no mention of the eligibility of the park for World Heritage Site status.

The NPB considered that the benefits of the mining had been exaggerated in the economic analysis of the Reports.

One of the major criticisms of the overall environmental impact report was that the authors had failed to qualify their recommendations by providing a comprehensive list of uncertainties and risks on the impacts of the proposed mining.

Finally, it was contended that the need and desirability to mine on the Eastern Shores has not been demonstrated, and that no mining in this special place should be contemplated. It was considered that the conservative approach, which is appropriate when considering the introduction of a radical land use such as mining in ecosystems as sensitive and important as those of

St Lucia, would be for the numerous uncertainties and risks first to be more comprehensively investigated and assessed than has so far been possible. Included in such investigations would be the capacity of the company to restore the mined area, the availability of alternative mining sites, the relative economic benefits of mining and ecotourism, questions of the water supplies and water economy of the mining proposal, the attitude of the international community to a mine located within a Ramsar site, and others. These critical issues had not been addressed in the report.

### Conclusions

There are good grounds for the contention that the nature conservation and tourism (non-mining) land use option is appropriate in all respects for the long term conservation of Lake St Lucia and its surrounds. The benefits of this land use are many, and the few negative impacts can be fully mitigated.

The nature conservation and tourism land use option will provide sustainable benefits at international, national and regional levels — the benefits at regional level are at least comparable to competitive land use options. The many benefits, including employment opportunities, will largely accrue at the level of the subregion.

The recommendation of the review panel that no mining should be permitted on the eastern shores, should be strongly supported.

### Acknowledgements

I acknowledge with thanks comments and suggestions made by Mr R Porter of the Planning Division of NPB.

### NOTES

1. Ecotourism is the particular form of tourism related to the enjoyment and appreciation of natural areas. Ceballos-Lascurain defines ecotourism as 'travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas'. Cited in E. Boo, *Ecotourism: the potentials and pitfalls* (World Wildlife Fund, 1990).
2. G. Dominy, 'History of Lake St Lucia eastern shores', in: *Environmental impact assessment. Eastern Shores of Lake St Lucia*, Vol. 1, Pt. 1, Specialist reports (Grahamstown, Coastal and Environmental Services, 1992), pp. 424–45. [Hereafter *EIA*]
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