

## CHAPTER 10

### CONCLUSIONS

Sustainable use can be defined, in the context of the reed beds in the Muzi Swamp, as the use of the resource (*Phragmites australis*) at a rate within its capacity for renewal; maintaining the ecological integrity of the natural system (Muzi Swamp) which produces the resource; minimising or avoiding the risk of irreversible change induced by humans (reed harvesters); and adequate investments (management systems) being made to ensure the conservation and sustainable use of biodiversity (URL: <http://www.gov.za/whitepaper/1997/conservation>). For a resource to be considered sustainable it must have the ability to recover to its previously recorded environmental potential after the use thereof. In the case of the Muzi Swamp and its current management, the resource is being managed sustainably only in the sense that at the current harvesting intensity it is unlikely that the resource will disappear. The Muzi Swamp could however be managed more effectively in order to improve the overall condition and structure of the reed beds.

Pro-active adaptive management systems need to be put into place as soon as possible to ensure the integrity of the reed beds. The adaptive management systems should meet with the goals and standards of both the Tembe Elephant Park and the neighbouring rural communities. The adaptive management systems should include continual monitoring of the resource over set time intervals. The monitoring of a living resource is essential because environmental conditions invariably fluctuate causing the maximum sustainable yield to fluctuate (Becker & Ostrom 1995). The proper adjustment of harvesting quotas following the analysis of monitoring data will ensure that current management strategies will not have to change due to over-harvesting of a certain sector within the reed beds. It must be understood by all concerned that

harvesting quotas will be set according to the results of a yearly monitoring programme. Should environmental conditions vary from year to year, so too will the harvesting quotas. That is the basis of sustainable utilisation of any natural resource. Resources sustained naturally are more affected by climatic conditions than man-made crops; their productivity cannot be altered and augmented by the application of additional nutrients and water. Catastrophic events such as drought and flooding can temporarily reduce the productivity and stored resources in the reed beds in the Muzi Swamp. These events, coupled with unadjusted harvesting quotas, might very well cause irreparable damage to the standing crop as well as limit the next season's production potential.

One could also argue that a resource is only considered sustainable when people derive direct benefit from it, whether it is for subsistence use or financial gain (Branch 2000; Sanderson *et al.* 2002). This argument is associated with the paradigm shift towards managing our environmental and wildlife resources to the benefit of the country's human population, rather than continuing with the present theory of how we manage the country's human population so as to benefit our environmental and wildlife resources (Els & Bothma 2000). There is no doubt that increased pressure will be placed on protected natural areas, and the authorities that govern them, for access to natural resources within their boundaries (Sanderson *et al.* 2002). A positive population growth rate combined with a negative economic growth rate (Stauth & Baskind 1994) has left no other option but for local rural communities to derive direct benefit from a wealth of resources within protected areas. Whether access is controlled and supported by the governing bodies involved in the protection of the natural areas or not, the use of resources will still take place.

Protected natural areas such as Tembe Elephant Park and Ndumo Game Reserve, both in Maputaland, are experiencing ever increasing incidences of illegal harvesting

of natural resources. Poaching of small game in Ndumo Game Reserve has increased by about 350 % over the last few years. A lack of financial resources and a reduction in manpower in this reserve has led to the inability to cover all the terrain as regularly as reserve management would like to. The Tembe Elephant Park also experiences, but to a lesser degree, the poaching of small game, the illegal harvesting of medicinal plants and honey. The poaching of small game in these protected areas is mainly for the pot and small-scale commercial endeavours. The lack of economic development in rural areas surrounding the protected areas is partly to blame for the increase in illegal harvesting. Community members neighbouring Tembe Elephant Park and Ndumo Game Reserve see these game reserves as the only form of economic growth and “industry” in the region. The game reserves, however, cannot meet all the economic growth needs, such as job creation, in the area (Mostert & Rynard 2003 *pers. comm*<sup>2,3</sup>).

The onus however is not placed fully on the game reserve managers to “supply” local rural communities with resources and additional income. A working relationship has to exist between heads of local rural communities and game reserve managers. Understanding of the goals and objectives of both parties should be properly communicated at regular meetings. One of the greatest flaws in natural resource management has been the widespread neglect of understanding the complex relationship that African rural poor have with their natural environment. The tradition in natural resource management has been to train managers in the biological understanding of fauna and flora, yet once involved as managers they realise that they are increasingly drawn into situations where they are required to manage people rather than the actual resources (Hilborn, Walters & Ludwig 1995). There needs to be a greater understanding of, and cooperation with, rural communal communities by

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game reserve managers. Training future and current protected area managers in effectively dealing and communicating with people from communities bordering reserves is essential for the future of conservation in South Africa. Educating people in, and the transfer of basic ecological principles should not be a one-way stream of information. Game reserve managers must realise that final decisions regarding the management of natural resources should be discussed with the end users of the resource. Autocratic decisions on such management steps, however scientifically and ecologically sound, excludes and marginalizes community members (Fuggle 1994). People who have lived closely with the environment for generations should be accredited with having some knowledge of the workings thereof. Similarly, community leaders in rural South African communities that rely on natural resources for survival should appreciate what conservation authorities have done to ensure that resources such as reeds are still available in areas such as the Tembe Elephant Park. Were it not for the Tembe Elephant Park the Muzi Swamp might not exist today. Large-scale conversion of pans and wetlands to exotic forest plantations in the northern Maputaland region is commonplace. Affording protection to an area in the name of conserving elephants and sand forest has ensured that the Muzi Swamp has remained a productive natural resource base from which local communities can derive financial benefit. The use of indigenous knowledge coupled with adaptive management techniques and a sound scientific background will result in achieving not only environmental aims and goals but also uplift and empower local rural communities by giving them the opportunity to make informed decisions about the environment they live in.

There is a solution to the current problem of reed harvesting in the Tembe Elephant Park that need not be to the detriment of any of the concerned parties. Working as a team to find solutions and common ground upon which sound scientific and indigenous knowledge can be implemented in a management strategy will bode well

for the future of the Tembe Elephant Park and the Sibonisweni community. The potential for *Phragmites australis* to be utilised sustainably in the Muzi Swamp does not seem to be in question. There seem to be far greater concerns that have to do with the levels of communication and cooperation between the Tembe Elephant Park and the Sibonisweni Community that need to be resolved first in order to achieve this.

## References

- BECKER, C. D. & OSTROM, E. 1995. Human ecology and resource sustainability: The importance of institutional diversity. *Annu. Rev. Ecol. Syst.* 26: 113-133.
- BRANCH, B. 2000. Bushmeat: Slaughter or survival? *Africa Environment and Wildlife* 8: 33-40.
- ELS, H. & BOTHMA, J. DU P. 2000. Developing partnerships in a paradigm shift to achieve conservation reality in South Africa. *Koedoe* 43: 19-26.
- FUGGLE, R.F. 1994. Environmental management: an introduction. In: R. F. Fuggle & M. A. Rabie (Eds), *Environmental Management in South Africa*. Juta & Co. Ltd, Cape Town.
- HILBORN, R., WALTERS, C.J. & LUDWIG, D. 1995. Sustainable exploitation of renewable resources. *Ann. Rev. Ecol. Syst.* 26: 45-67.
- SANDERSON, E.W., REDFORD, K.H., VEDDER, A., COPPOLILLO, P.B. & WARD, S.E. 2002. A conceptual model for conservation planning based on landscape species requirements. *Landscape Urban Plan.* 58: 41-56.

STAUTH, R.B. & BASKIND, P.H. 1994. Resource Economics. In: R.F. Fuggle & M.A. Rabie (Eds), Environmental Management in South Africa. Juta & Co. Ltd, Cape Town.

Web pages:

URL: <http://www.gov.za/whitepaper/1997/conservation>