

MANAGEMENT TECHNIQUES AND RECOMMENDATIONS

The study area now included as an extension of the Moremi Wildlife Reserve should not be developed in any way whatsoever, but retained as a pure wilderness area with the following management techniques applied.

TOURISM

Initially tourism of the area should be handled by licenced tourist operators working under a representative of the Department of Wildlife and National Parks. The latter will serve as an armed guide and representative to ensure that regulations are adhered to. Self-equipped parties of tourists may also enter the area in the presence of a similar representative from the Department.

No motorised vehicle transport (excluding motor boats) should be allowed into the area except for members of the Department of Wildlife and National Parks conducting routine work. Other exceptions provided with a Departmental permit would include bona fide Government or Tribal officials and research workers conducting duties which require their presence in the above area.

Tourists, either on their own or under a licenced operator would enter the area either by aircraft, motor boat or mekoro. All tourist operators' base camps are to be established outside the gazetted area or are to work from their annual existing base camps in the Moremi Wildlife Reserve. None of these camps should be established as permanent structures. Tours may then be conducted by motor boat, mekoro and foot anywhere throughout the new gazetted area allowing the tourists to camp anywhere within it. The government representative would be the only armed member of the party and would ensure that no littering, uncontrolled fires, provocation, defacing or removal of any fauna or flora occurs. An exception here would be the rights of fishing under licence to provide parties with fresh meat should they so desire. Both Departmental officials and tourist operators should be conversant with the basic ecology of the area, to enable them to conduct such a tour safely and to make it educational and interesting to the participants.

Whether the party be private or under a tourist operator, either the former or the latter is responsible for all food and medical supplies; and an indemnity must be signed absolving

the Department of any death, injury, loss or illness which may be the result of such a tour.

Numerous such tours could be conducted through the area making use of the local baYei population as guides, boat drivers, mekoro ponters or those more responsible even appointed as the Departmental representative, since these people are conversant with the waterways, the area and its ecology. Sufficient villages of baYei exist in peripheral reserve areas to provide the male population with a good income by utilising their skills and knowledge of the area. They would only have to be made more conversant with the wildlife ordinances to become successful Departmental officials and Wardens of a reserve which hereditarily has been theirs for over a century. As the scheme progresses, more refinements can be made to ultimately allow for complete Departmental control.

CONTROL OF EXOTIC VEGETATION AND BURNING PROGRAMMES

The possibility of certain exotic aquatic vegetation plants establishing themselves within the study area or any part of the Delta is a real and significant threat to the whole water ecology of the Delta. Thompson (1975) has elaborated on the threat of *Pistia*, *Salvinia* or *Eichornia crassipes* entering and establishing themselves on the system. Already foreign boats entering these waterways are required to be sprayed by law. This and a continual watch for any of these plants entering the system will have to be maintained.

Burning of some Primary and Secondary Floodplain Communities will have to be carried out, to open up certain heavily vegetated floodplains and enhance water flow (Fig. 31). In the case of Secondary Floodplain Communities this will bring about mammalian utilisation on some otherwise poorly-utilised floodplains. Downgrading open Secondary Floodplain Community should on no account be burnt until such time as marked recovery has taken place in these communities. The decision of burning will have to be taken by inspection and conducted shortly prior to flooding inundation and on the basis of good floodwater quantity arriving and ensuring subsequent flooding.

No Closed Riverine Woodland Communities should be subjected to fire. Marginal and dry-land vegetation types should also not be subjected to fire, but some isolated overgrown communities should be burnt in November or December shortly after commencement of first local seasonal rainfall. Isolated aquatic vegetation types may also have to be burnt to enhance water flow. All burning should only take place after inspection of the areas concerned.



FIGURE 31 – Burnt Primary Floodplain Community to enhance increased water velocity can be advantageously conducted just prior to floodwater arrival. However no floodwaters reached this injudiciously burnt Primary Floodplain Community, Okavango Delta, Botswana during 1973.

WATER DEMAND AND POSSIBLE MANIPULATIONS

Present average waterflow down any of the distributaries has been calculated, and on the basis of any year's input at Mohembo a reasonable supply to be delivered down any part of the system can be calculated with some degree of accuracy. In the event of any man-made manipulations in any part of the Delta, the reserve's distributaries are entitled to their present mean water discharge to ensure maintenance of the aquatic and floodplain vegetation types and their fauna densities. In the absence of this water demand the marginal and dry-land vegetation types will encroach and expand in the reserves at the expense of the wetland fauna and flora component.

The Boro River, where enhanced flow is likely to be the result of manipulation, presents little problem unless flooding becomes excessive. However, no bunding should be resorted to on the mid-Boro System's primary floodplain off-takes. Likewise, no dam development should be allowed in the vicinity of Xakue. The demand for the upper M'borogha River system should be in the vicinity of mean annual flow of $8,0 \text{ m}^3/\text{s}$ dropping to $7,5 \text{ m}^3/\text{s}$ in its lower reaches. Monitoring of this system below KS2 will have to be carried out to ensure water distribution down each of the Mogohelo, Gomoti and Santantadibe River systems, rather than any river system here losing water. This is necessary to ensure retention of prime lechwe habitat in the middle sections of the Gomoti and Mogohelo floodplains of southern Moremi Wildlife Reserve.

Likewise the demand at KQ1 and KQ2 should be in the vicinity of mean annual flow rates of $20 \text{ m}^3/\text{s}$ and $3 \text{ m}^3/\text{s}$ respectively to maintain the Moanashira and Khwai floodplain systems.

In the event of 'natural' flow changes no demand can be made on anybody, and the only solution is expansion of Delta areas allocated under wildlife management areas, where control from displacement of water distribution and thus floodplain communities can still fall under the jurisdiction of the Department of Wildlife and National Parks.

CROPPING

Certain wildlife populations under strict protection will increase beyond the carrying capacity of the reserve area, without expanding naturally due to physical water barriers. Other species

may remain in the area due to the protection offered. In either case overutilisation will result, causing far worse effects on the vegetation status and consequently mammalian condition than the controlled removal of mammals within a reserve.

Impala will have to be controlled eventually as in the absence of drastic water level drops they will be unable to expand out of certain areas. Baboon populations appear excessive in parts and are likely to become human dependent and small numbers should be shot to maintain the populations wild and natural via a fear of human dependence.

Limited elephant and buffalo cropping may in the future also have to be resorted to if monitoring of the populations reveals estimated numbers to exceed the determined carrying capacity. Most other of the common species are not yet near their peak densities for available carrying capacity but will have to be monitored to assess the position in the future.

Mammals such as bushbuck, waterbuck, roan antelope, steenbok and duiker should receive strict protection to attempt to enhance increases in their populations. At present only limited impala cropping should be conducted and this done to feed Departmental staff working in the area and the baYei employed there in tourism. At a later date sale of meat can be initiated to tourist operators to feed clients. The cropping, however, should be strictly controlled by responsible officials of the Department, after scientific study warrants it.

TSETSE FLY CONTROL

Under present circumstances the area involved (as does most of the Delta) enjoys natural pristine conditions supporting healthy wildlife populations due basically to the presence of tsetse fly (*Glossina morsitans*), and thus the lack of large-scale human habitation and domestic stock. Pressure for increased grazing areas for cattle and other domestic stock are in operation with the necessary precondition of tsetse fly eradication from the area. In the event of attempts at total tsetse fly eradication (which cannot be condoned in the interests of wildlife reserves or management via hunting, both safari, recreational or subsistence) and in the absence of strict control only the wildlife can suffer.

In an area as vast as the Delta with its problems of effective wildlife control being carried out by a relatively new and small Department, tsetse fly eradication can only spell out large-scale wildlife eradication. If the Deltas reserves and hunting at all levels are to be maintained,

tsetse-fly eradication must not take place. Surely it is better to look into more sophisticated methods of stock production on the existing land, than to expand into and eradicate wildlife from a unique moTswana heritage area, as once this area is raped the problem of sufficient land for stock leading to necessity of refined stock production methods will re-occur. When this happens it will be too late to restore this valuable heritage.

The uncertainty of the effect of the chemical endosulphan (or Thiodan), an organochlorine compound to be used in attempted eradication on the fish fauna and aquatic invertebrates (Russell-Smith, 1976) and its effect on surface waters, (Greve, 1971) which in turn will disrupt another segment of the ecosystem must leave the advisability of tsetse fly eradication in doubt.

WILDLIFE MANAGEMENT AREAS

At present 21 per cent of the Delta is conserved as a Wildlife Reserve with large tracts of surrounding areas forming controlled hunting blocks. It is ideally necessary to maintain the areas surrounding the reserve as buffer zones between conserved wildlife and other forms of land utilisation. In the absence of such buffer zones, conflict between predators and crop raiders takes place with domestic stock and agriculture, causing problems. Hunting in an intermediate buffer zone tends to eliminate some of those problems and is thus desirable.

It is therefore proposed to maintain part or all of the peripheral controlled hunting blocks under wildlife management areas where the Department of Wildlife and National Parks can exercise direct jurisdiction according to prevailing conditions. Should game ranching become feasible in the future such areas would already naturally be stocked to form the basis for meat production potential and continued trophy hunting. The blocks involved would be Jao, lower Kwando, Khwai, Maxwee, Chitabe Khuranxaragha and Matsebe, with the possibility of distal parts of some of these areas falling away to another form of land use. Trophy and recreational hunting brings significant income, both foreign and local to Government and Tribal authorities, as well as supplying local employment and should thus not be phased out.

CONCLUSIONS

The addition of the Chief's Island complex onto the Moremi Wildlife Reserve is a significant move in providing a larger and more representative part of the middle-Delta as conserved area. Every effort must be made to legislate this complex under national park status and thus more safely secure a portion of the Okavango Delta for posterity. To enable time to provide for success in managing and maintaining this complex it is necessary that the tsetse fly is not eradicated from it or the peripheral hunting areas in the immediate future. Likewise the controlled hunting blocks surrounding the area must be maintained to prevent conflicting land-use interests, provide employment and capital and serve as the nucleus of an area to possibly be used for game-ranching and trophy hunting. This will possibly provide the best economic return from the area as well as to preserve its pristine conditions and maintain the only attraction for foreign visitors to visit Ngamiland. To ensure the viability of the major portion of the Delta, it is necessary that surrounding blocks be declared wildlife management areas so that the Department of Wildlife and National Parks can effectively prevent other doubtfully viable land use forms from irreversibly altering the present status quo. This in turn will ensure potential for continued tourism and hunting providing foreign exchange. It also provides for possible extension onto the conserved complex of small areas which beneficially should be included viz. Xho Flats, part of the Old Sandenberg Concession and part of Maxwee.

Any man-made manipulations must be constructed in such a way that the reserve areas receive their mean annual water discharge and that none of this water is banded from the floodplains it is destined to maintain.

Tourism and trophy hunting must be encouraged to bring a return for maintaining this unique Delta and advertising the world interest in further retaining it in its pristine condition. Only sections of the western and lower Delta must be opened if necessary for other forms of land utilisation.

Uncontrolled veld fires which are virtually a daily occurrence in the Delta will have to be advertised as an offence in an attempt to curb this malpractice and especially so within the reserve areas.

Monitoring of flooding patterns and the expansion and depression of the plant communities will have to be conducted as well as large mammal population densities to effectively manage the area.

Unfortunately the general attitude prevailing is rather one of eliminating the tsetse fly and providing more new areas to be opened up to provide more grazing for cattle. This every cattle owner sees as potential income to himself, whereas wildlife is looked more upon as cheap meat to provide his sustenance. Until the average man can see financial benefit from retaining the wildlife he can hardly be expected to vote for its retention when he can rather start cattle farming and derive direct income from it. Most Government Departments with the exception of the Department of Wildlife and National Parks favour the tsetse fly removal as they are likewise able to further their aims and ambitions. Either the wildlife must pay beneficially to the average man or there remains little hope of retaining anything but a small proportion of Delta land in its pristine condition.

SUMMARY

The locality of the study area in the central Okavango Delta, Ngamiland, Botswana, is described. The area comprises 1 812 km² of the 16 200 km² Delta. Detailed historical settlement in the area is described, Lake Ngami's discovery, followed by twentieth century schemes, attempted blockage removal and present human utilisation of this area.

Both the solid and surface geology of the area are described. Isolated outcrops mark portions of the rim of a once vast, shallow, internal drainage basin, the Mkgadikgadi-Okavango Basin covering most of northern Botswana. The oldest rocks are granitoid gneisses of the Archean Basement Complex overlain by quartz schists, quartzites and dolomitic marbles of late Pre-Cambrian age. Almost completely overlying the solid geology are Kalahari sands of various thickness having been deposited by both wind and water.

Some existing geomorphological formations attest to ancient prevailing conditions, viz. numerous seif dunes of wind-born origin and ancient strandlines of the fossil lakes established by wind action from waves. Sands of the Delta illustrate the more recent importance of waterborne deposition.

In recent years Ngamiland has been found to be tectonically active. Older seismicity and faulting have directly given rise to the formation of the Delta along the Thamalakane fault

line. More recent seismic activity has probably been the major initiating factor in causing redistributed flooding patterns over the Delta. The outlet channel providing main Delta water discharge has changed three or four times over the last century.

Soils of the area fall within the Okavango Complex and comprise five series, the Molapo series, the Boteti series, the Shrobc series, the Motopi series and the Mababe series. Most have a high sand content and only the Molapo and Motopi series have some limited cultivation value.

Two fairly long-term weather recording stations, Maun and Shakawe lying to the south and north of the study area respectively were chosen to represent mean climatic conditions. Comparative tables of rainfall, temperature, relative humidity and evaporation are presented for the two stations. Evapotranspiration from the area is high. The occurrence of mist, dew, frost, wind and cloud cover are briefly discussed.

Five main vegetation types, based on water availability, are recognised. These are further subdivided into 20 plant communities.

Each plant community's composition is described in detail, as well as its distribution, and present status and possible future trend in accordance with altered flood regimes. The importance of each plant community for maintaining the diversified fauna is discussed. Those plant communities most subject to alteration via excess of/or insufficient water availability, excessive fire damage and over-utilisation are dealt with in greater detail.

Surface and consolidated blockage formation, termitaria establishment and evolution and seismicity are the prime factors leading to alteration of flooding patterns and thus plant community distribution.

A total of 63 large and small mammals were recorded from observation and trapping. Each species is dealt with independently giving distribution, movement patterns, habitat requirements, feeding records, social organisation and status. More detailed data are presented for more common species with respect to breeding biology, condition, mass and measurements and parasites. For the larger mammals reasonable seasonal population estimates are provided from four-monthly random aerial strip surveys over fixed grids.

From the aerial surveys results population estimates of larger mammals are provided for the various seasons and in accordance with floodwater level. Emigration and immigration as

well as local movement are discussed and the ability of each species to cope with altered water levels. Those species in low population numbers and in need of strict protection are given.

The ancient postulated flood regime of a vast inundated shallow depression is presented from old landform occurrence and vegetation distribution. A large portion of northern Botswana and Ngamiland was shallowly flooded and several large water bodies terminated the drainage of the northern Kalahari, after drainage to the Limpopo River was disrupted. Past water regime since 1850 has showed further dessication and large scale alteration of water distribution pattern with variation in major outlet channel, delivering bulk discharge at the base of the Delta.

Present water regime shows a marked increase in the Boro River output at the expense of the other systems. The situation is by no means stable and any alteration could take place in water distribution and flooding pattern in the future. The initiating agents in order of importance as deemed by this author are:

1. Seismicity causing faulting and rifting and alteration in local base levels.
2. Vegetation blockages and their consolidation under sedimentation when water velocity is decreased.
3. The low density by reduction of large aquatic mobile animals viz. hippopotamus and large crocodiles.
4. Surface blockages of outlet channels mainly initiated by *Rotala myriophylloides* are a direct result of insufficient large aquatic animal movement.
5. Termitarium establishment and their evolution to raised dryland bases and link up for future island formation. In conjunction with formation of levees or sand banks, sand bars and deltaic fans.
6. Water nutrient change or sustained decreases in water velocity favouring proliferation of certain aquatic or semi-aquatic vegetation species.

Local heavy Delta rainfall is most important in causing a “previous degree of saturation factor” which depending on the particular amount of seasonal precipitation will either manifest itself in an excessive flood during that or the following season.

All the above factors have and will always retain a dynamic Delta showing no two similar flood patterns.

The long-term stability of the system cannot be accurately predicted. Major channel improvement and internal Delta dams are discarded, as is bunding in any central or lower conserved area due to floodplain degradation. The only scheme which could be ecologically condoned is the slight improvement of the Boro channel with only bunding in the far lower reaches provided significant water loss does not take place to other prime wildlife areas in the Delta.

The establishment of ex-Delta Dams can be condoned provided a small Lake Ngami is kept alive and human populations living downstream of the Boteti still receive water in any expected flow year for that river. The removal of the present Lake or Nghabe River bund is imperative to restore past flow down the Lake River and discharge into Lake Ngami from this source.

A pipeline from the base of the Delta's sleeve, although prohibitively expensive initially is still deemed to be the long-term solution since internal Delta changes cannot affect its output.

Management techniques for the conserved area involve tourism on foot, boat and mekoro, with no permanent camps established within it. Possible encroachment of exotic aquatic vegetation is stressed, and some early winter burning programmes are advocated for floodplain vegetation types with limited early summer burning of some dryland vegetation types.

A reasonable water demand is made in an effort to maintain the floodplain systems of the conserved areas, as well as other present prime hunting wildlife habitats, all of which it is advocated should fall under Wildlife management areas to preserve the Delta should radically altered water distribution take place. The initiation of a limited cropping scheme is suggested with the wildlife management areas eventually forming the nucleus for continued trophy hunting and meat production from game ranching. The early attempts at tsetse fly eradication is not condoned and nor is it until such time as proper and sensible land utilisation apportionment has been made and can be controlled.

OPSOMMING

Die lokaliteit van die studiegebied in die sentrale Okavango-delta, Ngamiland, Botswana word beskryf. Die studiegebied sluit 1 812 km² van die 16 200 km² van die Delta in. 'n Gedetailleerde historiese oorsig van die gebied word gegee met verwysing na die ontdekking van die Ngami-meer, gevolg deur skemas van die twintigste eeu, pogings wat aangewend is om blokkerings te verwyder en die hedendaagse menslike gebruik van die gebied.

'n Kort geologiese en grond beskrywing word gegee. Geïsoleerde dagsome verteenwoordig die rand van die eens uitgestrekte, vlak binnelandse dreineringskom, bekend as die Mkgadikgadi-Okavangokom, wat die grootste gedeelte van noordelike Botswana beslaan. Die oudste gesteentes is die granitiese ngeisse van die Argaiëse Vloerkompleks oordek deur kwartsokiste, kwartsiete en dolomitiese marmer van die voor Kambriese tydperk. Die geologiese formasies word feitlik geheel en al deur verskillende diktes Kalaharisand wat deur water en wind afgesit is, bedek.

Sommige van die bestaande geomorfologiese formasies is 'n produk van vroeëre omgewings-toestande byvoorbeeld verskeie eoliese lengte duine en ou standlyne van die fossiele mere wat 'n produk van die windaksie van die branders is. Die deltasand is daarteenoor 'n produk van meer resente waterafsettings.

In resente jare is gevind dat Ngamiland tektonies aktief is. Ouer seismisiteit en foutvorming het aanleiding gegee tot die ontstaan van die Delta langs die Thamalakane-fout. Meer resente seismiese aktiwiteit was moontlik verantwoordelik vir die veranderde vloedpatrone van die Delta. Die uitlaatkanaal wat die hoof uitvoerkanaal van water uit die Delta is, het drie of vier keer gedurende die afgelope eeu van posisie verander.

Die gronde van die gebied resorteer onder die Okavangokompleks en sluit vyf series in naamlik: die Molopo-, Boteti-, Shrobe-, Motopi- en Mababeseries. Die meeste van die series het 'n hoë sandinhoud en slegs die Molopo- en Motopiseries het 'n beperkte akkerbou potensiaal.

Die gemiddelde redelike langtermyn weergegewens is afkomstig van die weerstasies by Maun en Shakawe onderskeidelik suid en noord van die studiegebied. Vergelykende tabelle vir reënval, temperatuur, relatiewe vogtigheid en verdamping word vir die twee weerstasies gegee. Evapotranspirasie in die gebied is hoog. Die voorkoms van mis, dou, ryp, wind en wolkbedekking word kortliks bespreek.

Vyf hoofplantegroeitipes, gebaseer op beskikbaarheid van water is onderskei en word in 20 plantgemeenskappe onderverdeel. Die verspreiding van elkeen van die plantgemeenskappe word gegee en floristies in detail bespreek. Die huidige status sowel as die moontlike toekomstige verandering in die plantgemeenskappe as gevolg van veranderde vloedpatrone word bespreek. Die belang van elke gemeenskap vir die handhawing van die diversiteit in die fauna word bespreek. Daardie gemeenskappe wat die meeste aan veranderings blootgestel word deur te veel en/of te min beskikbare water, vuurbeskadiging en oorbenutting word in meer besonderhede beskryf.

Die vorming van oppervlak en gekonsolideerde versperrings, termitariumvestiging en evolusie en seismisiteit is die primêre faktore wat aanleiding tot veranderinge in die vloedpatrone gee en gevolglik veranderinge in die verspreiding van plantgemeenskappe.

Deur middel van waarneming en vangste is daar 63 groot en klein soogdiersoorte vir die gebied aangeteken. Elke spesie word afsonderlik behandel en daar word aandag aan verspreiding, bewegingspatrone, habitatvereistes, voedingsrekords, sosiale organisasie en getalle status gegee. Vir die meer algemene soorte word meer gedetailleerde data ten opsigte van voortplantingsbiologie, kondisie, massa en afmetings en parasiete gegee. Seisoenale bevolkingskattings van die groter soogdiersoorte en soos verkry vanaf viermaandelikse lugsensusse langs 'n vaste ruitsistiem word verskaf.

Met behulp van die resultate wat met die lugsensusse verkry was, is die bevolkingsdigtheid van die groter soogdiere in die verskillende seisoene geskat en in verband met die heersende vloedwatervlak gebring. Die emigrasie en immigrasie asook lokale rondbeweging van die verskillende diere asook hulle vermoë om aan te pas by die verskillende watervlakke word bespreek. Daardie spesies wat in klein getalle voorkom en wat streng beskerm moet word, word gelys.

Die vervloë voorgestelde vloedregime van 'n uitgestrekte oorstroomde laagliggende gebied word aan die hand van ou landvorme en die verspreiding en voorkoms van plantegroei bespreek. 'n Groot gedeelte van noordelike Botswana en Ngamiland was in die verlede baie vlak gevloed en verskeie groot watermassas het die dreinerings van noordelike Botswana, na die ontwrigting van die dreinasie na die Limpoporivier, beëindig.

Die waterregime vanaf 1850 dui op uitdorrings en grootskaalse veranderinge in die waterver spreidingspatroon met 'n verandering in die hoof uitlaatkanaal wat die meeste water by die eindpunt van die Delta uitlaat.

Die huidige waterregime dui op 'n aansienlike toename in die lewering van water deur die Bororivier, ten koste van die ander sisteme. Die toestand is egter nie stabiel nie en enige verandering in die verspreiding van water en die vloedpatroon kan in die toekoms voorkom. Die oorsaaklike faktore in dié verband, in orde van belangrikheid soos deur die outeur gesien is:

1. Seismisiteit wat fout- en rifvorming asook afwisseling in lokale grondvlakke tot gevolg het.
2. Plantegroei-versperrings en die konsolidering daarvan as gevolg van sedimentasie, met die afname in die spoed van watervloei.
3. Die lae digtheid as gevolg van die vermindering van diere soos seekoeie en krokodille.
4. Oppervlak-versperrings van uitlaatkanale deur *Rotala myriophylloides* wat 'n direkte gevolg is van onvoldoende beweging van groot akwatiese diere.
5. Die vestiging van termitariums en ontwikkeling van droëlandplatforms wat later sydelings aanmekaar sluit om eilande te vorm. Gepaard hiermee gaan die vorming van opgeboude rivieroewers of sandbanke, sandwalle en deltawaaiers.

6. Verandering in die inkrement van voedingstowwe in die water of 'n afname in die vloeï van water wat die vermeerdering van bepaalde akwatiese of semi-akwatiese plantsoorte bevoordeel.

Lokale swaar reënval in die Deltagebied kan 'n vooraf versadigde toestand tot gevolg hê wat uiteindelik gemanifesteer word in 'n abnormale hoë vloed gedurende daardie of daaropvolgende seisoen.

Al bogenoemde faktore het en sal altyd 'n dinamiese Delta wat nooit twee eenderse vloedpatrone het nie, tot gevolg hê.

Die stabiliteit van die sisteem oor 'n lang tydperk kan nie akkuraat voorspel word nie.

Hoofkanaal verbeteringe en interne Deltadamme word verwerp so ook “bundings” in enige sentrale of laer beskermde gebied as gevolg van die agteruitgang van die vloedvlaktes. Die enigste skema wat ekologies verantwoord kan word is 'n mate van verbetering aan die Borokanaal en “bundings” slegs in die benede gedeeltes, met die voorbehoud dat dit nie betekenisvolle waterverlies in ander goeie wildlewe gebiede in die Delta tot gevolg het nie.

Die aanbring van damme buite die Deltagebied kan toegelaat word mits die klein Ngami-meer lewenskragtig gebou word en dat die inwoners stroomaf van Boteti water sal ontvang in enige jaar wat daardie rivier onder normale omstandighede sou gevloei het. Die verwydering van die “bund” in die Lake- en Nghaberiviere is noodsaaklik ten einde die vloeï van die Lakerivier en die watertoevoer in die Ngami-meer weer te normaliseer.

Alhoewel interne veranderinge in die Delta waarskynlik nie die beskikbaarheid van water in die benede Deltagebied sal verander nie is 'n waterpyplyn uit die gebied, alhoewel aanvanklik baie duur, waarskynlik die enigste oplossing.

Voorgestelde bestuurspraktyke vir die beskermde gebied sluit toerisme per voet, boot en “mekoro” in, terwyl geen permanente kampe binne die gebied toegelaat moet word nie. Die moontlike indringing en vermeerdering van uitheemse waterplante word beklemtoon en vroeë winterbrandprogramme vir vloedvlakte plantegroei tipes en vroeë somerbrandprogramme vir droëlandplantegroei tipes kan voorgestel word.

'n Redelike hoeveelheid water word benodig ten einde die vloedvlakte sisteme binne die beskermde gebied, sowel as ander bestaande primêre wildlewe habitats vir jagdoeleindes te verseker.

Hierdie gebiede moet onder Natuurbestuursgebiede resorteer vir beskerming, vir ingeval radikale veranderinge in die waterverspreiding voorkom. Die daarstelling van 'n beperkte jagskema word voorgestel met dien verstande dat die natuurbestuursgebiede uiteindelik die kern vir voorgestelde trofeejag en vleisproduksie deur middel van wildboerdery sal vorm. Die vroeëre pogings om tsetsevlieë te bekamp moet voortgesit word tot tyd en wyl voldoende en korrekte landverdeling vir benutting gemaak is en gekontroleer kan word.