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## **BIBLIOGRAPHY OF REFERENCES ON THE BIODIVERSITY OF ZAMBEZI BASIN WETLANDS**

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### **1 INTRODUCTION**

One of the major requirements for the assessment of existing knowledge on the biodiversity of the Zambezi Basin wetlands is the compilation of a bibliography of published or unpublished ("grey") literature. Such information, across a range of taxonomic groups and disciplines, is very scattered in the region and not readily available.

Apart from the annotated bibliography produced by Timberlake (1998), on which the present bibliography is based, there has been no comprehensive multidisciplinary listing of publications for the basin. A comprehensive bibliography of wetlands references, but without annotations, is available for South Africa (van der Walt *et al.* 1995), and annotated or descriptive bibliographies are available for certain wetland areas, such as the Kafue Flats (Nefdt 1993), Lower Shire (Chimpamba 1997), Lake Kariba (Coche 1971) and Lake Chivero (Thornton 1982). The various chapters in the review of biogeography and ecology of southern Africa, which however only extends up to the Zambezi River (Werger 1978), and White's Vegetation of Africa (White 1983), cite much of the formally-published material up to these dates, but not in an annotated or readily accessible format. Some other publications contain detailed bibliographies, but only for certain aspects or biological groups, such as wetland plants and vegetation (Gibbs-Russell 1975, Thompson *et al.* 1985), mammals (Skinner & Smithers 1991), fish (Skelton 1994), fish and freshwater invertebrates of Malawi (Tweddle & Mkoko 1985), freshwater invertebrates of Namibia (Curtis 1991) and invertebrates of Malawi (Dudley 1998).

The IUCN Zambezi Basin Wetlands Project felt there was a need for an annotated bibliography covering all published and unpublished literature on, or directly relevant to, the wetland biodiversity and ecology of the Zambezi Basin. This was presented as Appendix XI in Timberlake (1998). Since then, in particular in the course of preparation of technical reviews on taxonomic groups carried out in Phase 2 of the study, a number of further references have been noted, and others not seen during Phase 1 have since been located and annotated. The system of keywords used in the original bibliography was found to be rather cumbersome and needed to be revised.

### **2 PREPARATION OF BIBLIOGRAPHY**

References on wetland biodiversity were searched for using libraries, existing publications and regional and national specialists. Particular attention was paid to the four IUCN sub-project sites: the Barotse floodplains, the Chobe/Caprivi wetlands, the swamps of the Lower Shire and the Zambezi Delta. A further 350 or so references were added to the 1250 on the electronic database developed during Phase 1 of the project, bringing the total number to almost 1600. (Unfortunately, many of the references cited in the review on aquatic invertebrates (Vol II, Chapter 11) came in too late to be incorporated in the bibliography or analysis.) All records were captured and held in the bibliographic program ProCite 4. These references were then reduced to the present total of 965 by the use of strict criteria for inclusion:

- (a) only references covering distribution, checklists, etc. of wetland groups were included,
- (b) only references covering wetland species from within the (palaeo-)Zambezi Basin were included (books covering southern Africa up the Zambezi River were generally included),
- (c) references on the biology, ecology or biological aspects of conservation of the (palaeo-) Zambezi Basin wetlands were included,
- (d) references on taxonomy, individual records or behaviour have mostly been omitted,
- (e) references on geomorphology, soils, agriculture, fisheries, history, etc are not included, unless the contain specific biodiversity information.

Each of the cited references was located, if possible, and annotated. A total of 170 are labelled as not seen (N/S), thus have not been fully annotated. The annotation covers (a) the range or scope of the paper, and (b) brings out the major findings or information relevant to wetland biodiversity in the Zambezi Basin.

A system of 38 keywords was used, listed below. There are two (SAfrica, Zbasin) covering publications with a regional focus, and seven for each of the basin countries (excluding Tanzania) for those publications primarily with a national focus. Many publications concern only a relatively small part of the basin, and 15 such sections containing wetlands were used as keywords. The subject matter covered under biodiversity is quite wide, and six keywords were used to highlight publications on important applied aspects. Finally, eight keywords were used to indicate which taxonomic group/s were being covered – that used for invertebrates was very wide, covering insects, crustacea, molluscs and others.

### **3 RESULTS**

A total of 965 references are listed. A break-down of subject and area coverage using the keywords is shown in Table 1. From this it can be seen that almost half of the references focus on Zambia or Zimbabwe. The best covered geographical areas are Chobe/E Caprivi, Kafue and Lake Kariba. The Zambezi Delta is not particularly well covered at all.

Conservation and human use (including direct human impacts and fisheries) are comparatively well-covered topics, followed by hydrology and water quality. This figure probably reflects the criteria used for inclusion in the bibliography as much as anything else.

Of the taxonomic groups, fish and birds are the best covered, as would be expected, followed by invertebrates, mammals, vegetation and plants. The invertebrates category is disproportionately high as it covers a multitude of groups from molluscs to crustacea to the many insect orders, and a special effort was made to include these references. Plankton (phytoplankton and zooplankton) is particularly poorly covered.

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#### 4 REFERENCES

- Chimphamba, J. (1997). Bibliography of the Lower Shire. Unpublished report prepared for the IUCN Zambezi Basin Wetlands Project. IUCN-ROSA, Harare.
- Coche, A.G. (1977). Lake Kariba Basin: a multidisciplinary bibliography, annotated and indexed, 1954-1968. *Fisheries Research Bulletin, Zambia* **5**: 11-87.
- Curtis, B.A. (1991). Freshwater macro-invertebrates of Namibia. *Madoqua* **17**(2): 163-187.
- Dudley, C.O. (1998). An inventory and bibliography of the invertebrate biodiversity of Malawi. Indigenous Animals: invertebrates. Malawi Biodiversity Country Study. Museums of Malawi, Blantyre.
- Gibbs-Russell, G.E. (1975). Taxonomic bibliography of vascular aquatic plants in southern Africa. *J. Limnol. Soc. S. Africa* **1**(1): 53-65.
- Nefdt, R.J.C. [compiler] (1993). Kafue Basin Bibliography. Kafue Basin Research Committee, Lusaka.
- Skelton, P. H. (1994). Diversity and distribution of freshwater fishes in east and southern Africa. *Ann. Musée Roy. l'Afr. Cent., Zool.* **275**: 95-131.
- Skinner, J.D. & Smithers, R.H.N. (1991). *Mammals of the Southern African Subregion* (revised edition). University of Pretoria, Pretoria.
- Thompson, K., Howard-Williams, C. & Mitchell, D.S. (1985). A cross-indexed bibliography of African wetland plants and vegetation. In: *The Ecology and Management of African Wetland Vegetation: a botanical account of African swamps and shallow waterbodies* (editor P. Denny), pp. 237-316. W. Junk, Dordrecht.
- Thornton, J.A. [editor] (1982). *Lake Mchilwane: the eutrophication and recovery of a tropical African lake*. W. Junk, The Hague.
- Timberlake, J.R. (1998). Biodiversity of the Zambezi Basin wetlands: review and preliminary assessment of available information. Phase 1 Final Report. Biodiversity Foundation for Africa/Zambezi Society, Harare.
- Tweddle, D. & Mkoko, B.J. (1986). Limnological bibliography of Malawi. CIFA Occasional Paper 13. FAO Fisheries Department, Rome.
- Van der Walt, M.M., Cowan, G.I., Erasmus, A. & Marneweck, G.C. (1995). Listing of wetlands references for South Africa. Unpublished computer printout. Department of Environmental Affairs and Tourism, South Africa.
- Wenger, M.J.A. [editor] (1978). *Biogeography and Ecology of Southern Africa*. W. Junk, The Hague.
- White, F. (1983). *The Vegetation of Africa: a descriptive memoir to accompany the UNESCO/AETFAT/UNSO vegetation map*. UNESCO, Paris.
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[Back to Contents](#)**Table 1** Numbers of references in Zambezi Basin wetlands bibliography in different categories (total number of references listed is 965).

<b>Subject</b>	<b>no. refs</b>	<b>% total</b>	<b>Subject</b>	<b>no. refs</b>	<b>% total</b>
Regional	101	10.5	Agriculture/soils	27	2.8
Angola	18	1.9	Biogeography	57	5.9
Botswana	102	10.6	Conservation	139	14.4
Malawi	185	19.2	Human use/impact/fisheries	119	12.3
Mozambique	90	9.3	Problem/weed species	48	9.1
Namibia	74	7.7	Hydrology/water quality	88	9.1
Zambia	270	28.0			
Zimbabwe	180	18.7	Mammals	155	16.1
Zambezi headwaters	7	0.7	Birds	195	20.2
Bangweulu swamps	39	4.0	Reptiles/amphibians	63	6.5
Barotse floodplains	52	5.4	Fish	223	23.1
Chobe/E Caprivi	100	10.4	Invertebrates (all groups)	153	15.9
Okavango	52	5.4	Plants	115	11.9
Kafue Flats	102	10.6	Vegetation	140	14.5
Lake Kariba	116	12.0	Phytoplankton/zooplankton	52	5.4
Lake Chivero	21	2.2			
Mana Pools/mid Zambezi	18	1.9			
Luangwa Valley	7	0.7			
Cabora Bassa	28	2.9			
Lake Malawi	63	6.5			
Middle Shire/Lake Chilwa	33	3.4			
Lower Shire	72	7.5			
Zambezi Delta	39	4.0			

**5 ANNOTATED BIBLIOGRAPHY****Keywords for Bibliographic Database**Geographical scope

SAfrica [Southern Africa/Africa]  
 Zbasin [Zambezi Basin (or significant part)]  
 Angola  
 Botswana  
 Malawi  
 Mozambique  
 Namibia  
 Zambia  
 Zimbabwe  
 Headwater [i.e. Mwinilunga]  
 Bangweulu  
 Barotse [Barotseland]  
 Chobe [Chobe/Linyanti/E Caprivi]  
 Okavango  
 Kafue [Kafue R./Kafue N.P./Kafue Flats]  
 Kariba  
 Chivero [Lake Chivero]  
 Mana [Mana floodplain, Chirundu-Kanyemba]  
 Luangwa [N & S Luangwa valley]  
 Cabora [Cabora Bassa]  
 LMalawi [Lake Malawi]  
 MShire [Upper/Middle Shire, Lake Chilwa]  
 LShire [Lower Shire]  
 Delta [Zambezi Delta]

Subject

Agriculture [crops/livestock/soils/  
 land evaluation]  
 Biogeography  
 Conservation [biological conservation  
 actions/concerns]  
 Human [human use/impact/fisheries]  
 Probspp [problem species/weeds]  
 Water [water quality/hydrology]

Biological group

Mammals  
 Birds  
 Herps [reptiles/amphibians]  
 Fish  
 Inverts [molluscs/crustacea/  
 other invertebrates]  
 Plants [flowering plants]  
 Vegetation  
 Plankton [phytoplankton/  
 zooplankton, including algae]

1. Addy, J. (199?). *Impact of elephant-induced vegetation change in the status of the bushbuck *Tragelaphus scriptus ornatus* along the Chobe River in northern Botswana*. MSc thesis, University of Witwatersrand, Johannesburg, South Africa.

N/S  
 Botswana, Chobe, vegetation, mammals

2. Alexander, B. (1899). An ornithological expedition to the Zambesi River (1). *Ibis* **1899**: 549-583.

N/S  
 birds

3. Alexander, B. (1900). An ornithological expedition to the Zambesi River (2). *Ibis* **1900**: 70-109, 424-458.

N/S  
 birds

4. Alexander, W.J.R. (1996). Possible ecological consequences of the diversion of water from the Zambezi River upstream of Victoria Falls. In: *Proceedings of the Victoria Falls Conference on Aquatic Systems and International Symposium on Exploring the Great Lakes of the World: Food-Web Dynamics, Health and Integrity*. Southern African Society of Aquatic Scientists.

N/S  
 Zbasin, conservation, water

5. Allen, G.M. & Loveridge, A. (1933). Reports on scientific results of an expedition to the southern highlands of Tanganyika Territory: II - Mammals. *Bulletin of Museum of Comparative Zoology, Harvard* **75**: 47-140.  
Includes fauna which occurs on watersheds feeding Lake Malawi. Nothing on Zambezi wetlands.  
SAfrica, mammals
6. Allen, G.M. & Loveridge, A. (1942). Scientific results of a fourth expedition to forested areas in East and Central Africa: I - Mammals. *Bulletin of Museum of Comparative Zoology, Harvard* **89**: 147-213.  
Includes fauna which occurs on watersheds feeding Lake Malawi; nothing on Zambezi wetlands.  
SAfrica, mammals
7. Allen, L.D.C. (1963). The lechwe (*Kobus leche smithemani*) of the Bangweulu Swamps. *The Puku* **1**: 1-8.  
General account of the biology and status of black lechwe. Notes that the subspecies is almost extinct from the upper Chambeshi in NE Zambia.  
Zambia, Bangweulu, mammals
8. Allison, E.H., Ngatunga, B.P. & Thompson, A.B. (1995). Identification of the pelagic fish. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 159-178.  
Account of open water fish species of Lake Malawi, with descriptions and keys.  
Malawi, LMalawi, fish
9. Almeida, F.S. (1972). Problema de vegetação aquática do Lago Kariba. Informações Técnicas No. 57. Instituto da Investigação de Agronómica de Moçambique, Maputo, Mozambique. 57 pp.  
N/S. Account of *Salvinia* infestation on Lake Kariba.  
Zimbabwe, Kariba, probspp, plants
10. Alvord, G.I., Bidi, S. & Gutsa, R. (1982). A study of the vegetation types at the confluence of the Sapi/Zambezi rivers. *Zimbabwe Science News* **16**(4): 76-78.  
Botanical study of the composition and structure of vegetation at the Sapi/Zambezi river confluence in N Zimbabwe. Five vegetation types are described, including grassland on sandbanks. *Vetiveria* grass is dominant, and *Faidherbia albida* woodland is found at a higher level, only occasionally flooded. The sequence of succession is described.  
Mana, Zimbabwe, vegetation, plants
11. Anderson, J., Dutton, P., Goodman, P.S. & Souto, B. (1990). Evaluation of the wildlife resource in the Marrromeu complex with recommendations for its future use. LOMACO, Maputo, Mozambique. 52 pp.  
Consultants' report giving results of a survey of the Marrromeu complex in September 1990 to determine numbers and distribution of the major wildlife species. There has been a drastic decline in numbers since 1978 - 91% reduction for buffalo, 90% for waterbuck and 83% for hippo; elephant numbers appear similar. Total number of buffalo counted was 3696. The conservation importance of the area is pointed out, along with the detrimental effects from reduced flooding and increased burning. Various recommendations are given, including registering the area as World Heritage and Ramsar sites.  
Delta, Mozambique, conservation, mammals
12. Anon. (1975). What's happening to the Zambezi? *African Wildlife* **29**(2): 18-21.  
Popular account of the environmental damage Cabora Bassa dam might do. The lack of biological knowledge of the area and of the lower Zambezi valley is emphasised.  
Mozambique, Cabora, conservation
13. Anon. (1995). African Pike discovered in Middle Zambezi. *Zimbabwe Fisherman* **7**(2): 17.  
N/S. Report of the occurrence of the African Pike in Lake Kariba.  
Zimbabwe, fish
14. Anon. (1995). Are there cranes in the Marrromeu wetland - delta of the great Zambezi? *The Crane* **6**(1): 13-14.  
Popular article on the Zambezi Delta. 156 Wattled and 25 Crowned Cranes were seen in an aerial census in March 1995, along with pelicans, storks and Goliath Herons.  
Mozambique, Delta, birds
15. Anon. (1996). New species discovered - a Zimbabwe record. *Zimbabwe Fisherman* **8**(2): 43.  
N/S. Note recording the catch of an upper Zambezi species, *Serranochromis thunbergi*, from a reservoir in the middle Zambezi system.  
Zimbabwe, fish
16. Anon. (n.d.). The Lower Shire Valley Irrigation Project Study: the fisheries component. Unpublished report, Malawi. 10 pp.  
Useful general account of the fisheries and related ecology of the lower Shire, including the problems of water hyacinth and pollution.  
Malawi, LShire, human, probspp, water
17. Ansell, W.F.H. (1955). The declining red lechwe. *Oryx* **3**: 15-18.  
Account of the lechwe in Zambia; the Kafue lechwe is here included under the red lechwe. Threats to its numbers and conservation are outlined.  
Zambia, Kafue, conservation, mammals



18. Ansell, W.F.H. (1957). The declining red lechwe. *Black Lechwe* **1**(2): 17-20.  
Popular article on the decline of Kafue lechwe from 250,000 in 1930s to 26,000 in late 1950s.  
Zambia, Kafue, conservation, mammals
19. Ansell, W.F.H. (1960). Contributions to the mammalogy of Northern Rhodesia. *Occasional Papers of the Museum of Southern Rhodesia* **3**: 351-398.  
Details on new specimens collected from Zambia covering 20 species.  
Zambia, mammals
20. Ansell, W.F.H. (1960). *Mammals of Northern Rhodesia*. Government Printer, Lusaka, Zambia. 155 pp.  
Guide to the mammals of Zambia, with keys. A few species are illustrated; notes are given on distribution, diet and breeding.  
Zambia, mammals
21. Ansell, W.F.H. (1964). The Kafue flats lechwe. *The Puku* **2**: 10-13.  
Type description of *Kobus leche grandicornis* from the Kafue Flats.  
Zambia, Kafue, mammals
22. Ansell, W.F.H. (1965). Hippo census on the Luangwa river 1963-1964. *The Puku* **3**: 15-27.  
Survey of hippo numbers (following on Attwell 1963) along the southern Luangwa river showing an increase in density and possible over-population.  
Luangwa, Zambia, mammals
23. Ansell, W.F.H. (1968). The black lechwe antelope. *Black Lechwe* **7**(1): 13-15.  
Popular account of the black lechwe taxonomy and distribution.  
Zambia, Bangweulu, mammals
24. Ansell, W.F.H. (1978). *The Mammals of Zambia*. Department of National Parks, Chilanga, Zambia.  
Definitive and authoritative review of Zambian mammals. Collates much earlier literature and summarises known distributions of all species based on specimens.  
Zambia, mammals
25. Ansell, W.F.H. (1982). "The Mammals of Zambia": addenda and corrigenda, No. 1. *Black Lechwe (new series)* **3**: 17-28.  
New distribution records since Ansell 1978 for Zambian mammals.  
Zambia, mammals
26. Ansell, W.F.H. (1989). Mammals from Malawi, Part II. *Nyala* **13**(1/2): 41-65.  
Detailed taxonomic account on 16 species of mammal in Malawi, including records from the lower Shire.  
LShire, Malawi, mammals
27. Ansell, W.F.H. & Banfield, C.F. (1979). The subspecies of *Kobus leche* Gray, 1850 (Bovidae). *Säugetierkunde Mitt.* **40**: 168-176.  
Detailed account of skull measurements and taxonomy of the lechwe antelope. Four subspecies are recognised: *K. l. leche* (widespread), *K. l. smithemaniai* (Bangweulu & Chambeshi River), *K. l. kafuensis* (Kafue Flats) and *K. l. robertsi* (Luongo/Kalungwishi).  
Zambia, mammals
28. Ansell, W.F.H. & Dowsett, R.J. (1988). *Mammals of Malawi: an annotated checklist and atlas*. Trendrine Press, St Ives, UK. 170 pp.  
Definitive and authoritative review of mammals of Malawi. Contains maps showing distributions; 122 species occur in the lower Shire valley.  
Malawi, mammals
29. Ansell, W.F.H. & Dowsett, R.J. (1991). Addenda and corrigenda to Mammals of Malawi (Ansell & Dowsett, 1988). *Nyala* **15**(1): 43-46.  
Additions to the checklist of mammals of Malawi.  
Malawi, mammals
30. AOC Technical Services (1975). Relatório integrador sobre a região sul; Vol. 1. A.O.C. Technical Services/Hidrotécnica Portuguesa/R.F.Loxton Hunting/Gabinete do Plano do Zambeze, Mozambique. 205 pp.  
[only summary available] Consultant's report on the agricultural potential of the Gorongosa-Marromeu-Delta area of Mozambique. Descriptions of vegetation types, soils, pasture potential and physiography are included.  
Mozambique, Delta, agriculture, vegetation
31. Appleton, C.C. (1979). The Unionacea (Mollusca, Lamellibranchiata) of south-central Africa. *Annals of the South African Museum* **77**(9): 151-174.  
Taxonomic review of the 12 species of this freshwater mussel family from the Zambezi, Kunene, Cuvelai, Okavango and Linyanti river systems. There is a recognised paucity of ecological information.  
SAfrica, inverts
32. Appleton, C.C. (1996). *Freshwater Molluscs of Southern Africa*. University of Natal Press, Pietermaritzburg, South Africa. 64 pp.  
Illustrated guide with keys to the molluscs (gastropods, lamellibranchs) of southern Africa, including the Zambezi basin.  
SAfrica, inverts
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33. Aspinwall, D.R. (1979). Bird notes from Zambezi district, North-Western province. Occasional Paper No.2. *Zambian Ornithological Society, Lusaka, Zambia*. 60 pp.  
Annotated checklist of 220 bird species from part of N Barotseland, including notes on 36 species of waterbirds, based on three brief visits in 1973-75. Brief notes on habitats and a gazetteer are included.  
Zambia, Barotse, birds
34. Aspinwall, D.R. (1989). Spurwinged Plover *Vanellus spinosus* in northern Botswana. *Babbler* **18**: 34-35.  
Brief account of this species at the edge of a swamp near Kavimba (Chobe R). First record for southern Africa; way south of its normal range which is north of S Tanzania.  
Botswana, Chobe, birds
35. Astle, W.L., Phiri, P.S.M. & Prince, S.D. (1997). Annotated checklist of the flowering plants and ferns of the South Luangwa National Park, Zambia. *Kirkia* **16**(2): 109-160.  
Checklist of the plants of the South Luangwa National Park categorised by vegetation type, including wetland types.  
Luangwa, Zambia, plants, vegetation
36. Attwell, R.I.G. (1963). Surveying Luangwa hippo. *The Puku* **1**: 29-49.  
Survey of Luangwa river hippo population over the 1950s. There is historical evidence that this population suffered heavy human depredations in the mid 19th century, when hippo meat was traded actively.  
Luangwa, Zambia, human, mammals
37. Attwell, R.I.G. (1970). Some effects of Lake Kariba on the ecology of a floodplain of the mid-Zambezi Valley of Rhodesia. *Biological Conservation* **2**(3): 189-196.  
Account of the ecology and importance of the Mana Pools floodplains, and the effects of Kariba dam. Various large mammal species are having a major effect on the ecology of the floodplain woodlands owing to a change in the hydrological regime, and vegetation changes are occurring. The major difference is in the lack of seasonal flooding, resulting in a more homogenous regime. The lack of pre-impoundment studies is pointed out, along with the necessity for occasional releases of water to create flooding.  
Mana, Zimbabwe, conservation, water, vegetation, mammals
38. Auerbach, R.D. (1987). *The Amphibians and Reptiles of Botswana*. Mokwepa Consultants, Gaborone, Botswana. 295 pp.  
Detailed accounts of all reptile and amphibian species in the country, with distribution maps.  
Botswana, herps
39. Axelrod, H.R. & Burgess, W.E. (1981). *African Cichlids of Lakes Malawi and Tanganyika*. 9th edition. T.F.H. Publications, Neptune, New Jersey, USA. 381 pp.  
Popular pictorial guide to many of the cichlid fish of Lake Malawi.  
Malawi, LMalawi, fish
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40. Baars, R.M.T. (1996). *Condition and management of the rangelands in the Western Province of Zambia*. Published PhD thesis, Wageningen Agricultural University. Wageningen, Netherlands. 152 pp. ISBN 90-5485-548-7.  
Mainly covers land evaluation for extensive grazing and the determination of livestock potential carrying capacity for Western Province. Descriptions are given of 9 Land Regions, subdivided into 32 Land Systems, 124 Land Units and 415 Land Facets. A vegetation map is given (original at scale 1:500,000). There are said to be no signs of overgrazing.  
Zambia, Barotse, agriculture, vegetation, plants
41. Bacelar, A. (1948). Lepidopteros de Africa principalmente das Colonias Portuguesas. *Arquivos do Museu Bocage* **19**: 165-206.  
N/S  
Angola, Mozambique, inverts
42. Balinsky, B.I. (1967). On some intrinsic and environmental factors controlling the distribution of dragonflies (Odonata), with redescription and a new name for a little known species. *Journal of Entomological Society of Southern Africa* **29**: 1-22.  
Contains a list of 27 species of dragonfly from the Okavango swamps, and 42 species from Kariba (before and after impoundment).  
Botswana, Okavango, Zimbabwe, Kariba, inverts
43. Balinsky, B.I. & James, G.V. (1960). Explosive reproduction of organisms in the Kariba Lake. *South African Journal of Science* **56**: 101-104.  
Brief account of zonation of aquatic vegetation, fish, invertebrates and amphibians in Lake Kariba. There is evidence of explosive reproduction for only a few species.  
Zimbabwe, Kariba, vegetation, inverts, herps, fish
44. Balon, E.K. (1971). Age and growth of *Hydrocynus vittatus* Castelnau, 1861, in Lake Kariba, Sinazongwe area. *Fisheries Research Bulletin, Zambia* **5**: 89-118.  
Account of a biological study on tiger fish in part of Lake Kariba. Production is estimated at 21% of fish biomass; considering only 25% of inshore Lake Kariba with water depth of 0-16 m, estimated annual production is 1890 tonnes.  
Zambia, Zimbabwe, Kariba, fish
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45. Balon, E.K. (1971). The eels of Siengwazi Falls (Kalomo river, Zambia) and their significance. *Zambia Museums Journal* 2: 65-82.  
List of the fish species collected in the Kalomo river, with a discussion of the importance of Siengwazi Falls as a barrier to movement of eels from the middle to upper Zambezi.  
Zambia, biogeography, fish
46. Balon, E.K. (1971). First catches of Lake Tanganyika clupeids (kapenta - *Limnothrissa miodon*) in Lake Kariba. *Fisheries Research Bulletin, Zambia* 5: 175-185.  
Photographs and brief notes on methods of early catches of pelagic kapenta from Lake Kariba in mid-October 1969, confirming its successful introduction in 1967/68.  
Zimbabwe, Kariba, human, fish
47. Balon, E.K. (1971). Replacement of *Alestes imbir* Peters, 1852, by *A. lateralis* Boulenger, 1900 in Lake Kariba, with ecological notes. *Fisheries Research Bulletin, Zambia* 5: 119-162.  
Detailed study on two *Alestes* (now *Brycinus*) species, which are described as ecologically separated in the upper Zambezi/Kafue River catchments and lower Zambezi respectively. Both occur sympatrically in the new Lake Kariba owing to invasion of the middle Zambezi by *A. lateralis*.  
Zambia, Kafue, Kariba, biogeography, fish
48. Balon, E.K. (1973). Results of fish population size estimates in Lake Kariba coves (Zambia), a decade after their creation. In: *Man-made Lakes: Their Problems and Environmental Effects* (editors W.C. Ackermann, G.F. White & E.B. Worthington). Geophysical Monograph Series Vol. 17. American Geophysical Union, Washington DC, USA. pp. 149-158.  
Describes a programme to estimate the abundance of inshore fish species. Lists of fish caught are given.  
Zambia, Kariba, human, fish
49. Balon, E.K. (1974). Fish production of a tropical ecosystem. In: *Lake Kariba: a Man-made Tropical Ecosystem in Central Africa* (editors E.K. Balon & A.G. Coche). Monographiae Biologicae 24. W. Junk, The Hague, Netherlands. pp. 249-573, 263-676.  
N/S. Summary of much of Balon's previous work. Detailed lists of species collected at various sites are given, with details on their growth.  
Zambia, Zimbabwe, Kariba, human, fish
50. Balon, E.K. (1974). Fishes from the edge of Victoria Falls, Africa: demise of a physical barrier for downstream invasions. *Copeia* 3: 643-660.  
Study of the fish faunas from above and below Victoria Falls. The faunas are shown to be comparatively distinct, and the Falls is considered a physical barrier to upstream migration. Fish biodiversity is substantially higher in the upper Zambezi. However, the Falls are not considered a downstream barrier as can now be seen from the invasion of Lake Kariba by upper Zambezi species. The downstream barrier is considered to have been ecological, a lack of sufficient suitable habitats.  
Zimbabwe, Zambia, Kariba, biogeography, fish
51. Balon, E.K. (1974). *Fishes of Lake Kariba*. T.F.H. Publications, Neptune City, New Jersey, USA. 144 pp.  
N/S. Illustrated descriptions of the fish of Lake Kariba, with notes on their size and biology.  
Zimbabwe, Zambia, Kariba, fish
52. Balon, E.K. (1974). Total production of the drainage area and the influence of ecosystem changes on fish distribution. In: *Lake Kariba: a Man-made Tropical Ecosystem in Central Africa* (editors E.K. Balon & A.G. Coche). Monographiae Biologicae 24. W. Junk, The Hague, Netherlands. pp. 459-573.  
N/S  
Zambia, Zimbabwe, Kariba, Kafue, human, biogeography, fish
53. Balon, E.K. (1975). The eels of Lake Kariba: distribution, taxonomic status, age, growth and density. *Journal of Fish Biology* 7: 797-815.  
Detailed account of the biology of eels in Lake Kariba. Although initially it was thought eels would die out as young would not be able to surmount Kariba dam, evidence is presented here that upstream migration is still possible.  
Zambia, Zimbabwe, Kariba, conservation, fish
54. Balon, E.K. (1978). Kariba: the dubious benefits of large dams. *Ambio* 7(2): 40-48.  
Good brief overview, from a conservation perspective, of the effects of the construction of Kariba on fish ecology.  
Zambia, Zimbabwe, Kariba, conservation, fish
55. Balon, E.K. & Coche, A.G. [editors] (1974). *Lake Kariba: a Man-made Tropical Ecosystem in Central Africa*. Monographiae Biologicae 24. W. Junk, The Hague, Netherlands. 767 pp.  
Multidisciplinary account of the formation and early limnology, biology and fisheries of Lake Kariba soon after its impoundment. The importance of Victoria Falls as a zoogeographic barrier is discussed. There are sections on the fishery productivity of the Kafue Flats and on the introduction of kapenta.  
Zambia, Zimbabwe, Kariba, Kafue, human, biogeography, fish
56. Banda, H.M. (1996). Status of the Nyika Wattled Crane and management recommendations. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 295-303.  
Account of the Wattled Crane in the Nyika NP. Includes a map of the wetlands of Malawi.  
Malawi, conservation, birds
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57. Banda, M. & Hara, M.M. (1997). Habitat degradation caused by seines on the fishery of Lake Malombe and Upper Shire River and its effects. In: *African Inland Fisheries, Aquaculture and the Environment* (editor K. Remane). Fishing News Books, Oxford, UK. pp. 305-310.  
Account of the effects of overfishing on fish populations and aquatic habitats of waters draining Lake Malawi, with particular reference to the impact of seine netting on the artisanal fish catches. The collapse of the chambo fishery is related to the clearing of their breeding grounds in the weed beds and shoreline vegetation. Most of the fish caught by netting are immature.  
Malawi, human, fish, LMalawi
58. Banister, K.E. & Clarke, M.A. (1980). A revision of the large *Barbus* (Pisces, Cyprinidae) of Lake Malawi with a reconstruction of the history of the southern African Rift Valley lakes. *Journal of Natural History* **14**(4): 483-542.  
Detailed taxonomic account of 3 *Barbus* species in Lake Malawi with discussion on their possible evolution and links to species elsewhere. The geomorphological evolution of various E African lakes is described and discussed, along with an account of linkages between the Shire and Zambezi.  
Malawi, LMalawi, LShire, biogeography, fish
59. Barbosa, L.A.G. (1952). Esboço da Vegetação da Zambézia. Documentário Moçambique No. 69. Junta de Exportação do Algodão, Maputo, Mozambique.  
Vegetation survey of Zambezia Province, north of the Zambezi river. 18 vegetation types are described; the delta is mapped as hydrophilic grassland plus patches of "morrumbala" forest, with mangrove forest and salt flats flanking some of the larger tributaries close to the coast.  
Mozambique, Delta, vegetation
60. Barbosa, L.A.G. (1968). Moçambique. In: *Conservation of Vegetation in Africa South of the Sahara. Proceedings of a symposium held at the 6th AETFAT Congress, Uppsala, September 12-16 1966* (editors I. Hedberg & O. Hedberg). Acta Phytogeographica Suecia No. 54. Almqvist & Wiksells, Uppsala, Sweden. pp. 224-232.  
Brief account of the vegetation of Mozambique, including the grasslands of Marromeu on the Zambezi delta.  
Mozambique, Delta, vegetation, conservation
61. Barbosa, L.A.G. (1970). *Carta Fitogeográfica de Angola*. Instituto de Investigação Científica de Angola, Luanda, Angola. 323 pp. One map.  
Report and colour map at 1:2.5 million scale of vegetation of Angola, compiled from existing surveys. There are 32 vegetation types described, grouped into 10 physiognomic types. The Upper Zambezi grasslands are classified as grasslands of sandy plains with poor drainage, typified by *Loudezia simplex* (Type 31). Occasional trees of *Parinari pumila*, *Syzygium* sp. and *Magnistipula eglandulosa* are found. Corresponds to vegetation type 65 of Wild & Barbosa (1968).  
Angola, headwaters, vegetation
62. Barnard, K.H. (1948). Report on a collection of fishes from the Okovango River, with notes on Zambesi fishes. *Annals of the South African Museum* **36**: 407-458.  
Detailed account of fish species collected in the Okavango River near Rundu, NE Namibia. 31 species are listed, and each is discussed with regard to taxonomy and distribution.  
Namibia, Okavango, fish
63. Bartlett, M.-A., Hickley, M., Lennard, D., Bartlett, R., Pasteur, A., Chiwona, E.A., Munthali, H., Chikuni, A., Salubeni, A. & Ngonda, J. (1996). The ecology and human geography of the Elephant Marsh - Lower Shire valley, Malawi. Report of the Cambridge expedition to Malawi, July-August 1991. Pembroke College, Cambridge University, Cambridge, UK. 135 pp.  
N/S. Expedition report on the Elephant Marsh. Not much on biodiversity.  
Malawi, LShire, human
64. Beel, C. (1993). Slaty Egret field characters. *Honeyguide* **39**: 193.  
Brief notes on habits and appearance of the species.  
Botswana, Chobe, birds
65. Begg, G.W. (1970). Limnological observations on Lake Kariba during 1967 with emphasis on some special features. *Limnology & Oceanography* **15**(5): 776-788.  
Account of limnological observations on Lake Kariba. The lake is subdivided into 5 basins each with differing hydrological characteristics. There is great amplitude in water chemistry relating to locality, biotope, time of year and depth. The problem of H<sub>2</sub>S derived from rotting *Salvinia* is outlined.  
Zimbabwe, Kariba, water
66. Begg, G.W. (1973). The biological consequences of discharge above and below Kariba Dam. In: *Proceedings of the 11th Congrès des Grands Barrages*. Commission Internationale des Grands Barrages, Madrid, Spain. pp. 421-430.  
Account of the influences of lake level fluctuations (2m annual fluctuation is said to most suitable for fisheries), and on the downstream effects of discharge on both fish and wildlife.  
Mana, Zimbabwe, Zambia, Kariba, conservation, fish
67. Begg, G.W. (1974). The distribution of fish of riverine origin in relation to the limnological characteristics of the five basins of Lake Kariba. *Hydrobiologia* **44**(2/3): 277-285.  
Account of the limnology of Lake Kariba and of the change in fish fauna resulting from changed physico-chemical characteristics. Most fish species are of mid Zambezi river stock and show strong ties with the riverine habitat, particularly in relation to spawning requirements. The cichlids have adapted to lacustrine conditions.  
Zambia, Zimbabwe, Kariba, fish, water

68. Begg, G.W. (1974). The influence of thermal and oxygen stratification on the vertical distribution of zooplankton at the mouth of the Sanyati Gorge, Lake Kariba. *Kariba Studies* 4: 60-67.  
Account of vertical distribution of zooplankton in part of Lake Kariba. Zooplankton does not occur below the thermocline because of absence of oxygen in the hypolimnion. When thermal stratification broke down zooplankton closely followed the descent of the thermocline. Plankton maxima occurred in May/June and January/February.  
Zimbabwe, Kariba, plankton, water
69. Beilfuss, R.D. (1995). Wattled Cranes in the Great Zambezi Delta. *ICF Bugle* 21(3): 3.  
Popular account of the Marromeu area and aerial crane census, and conservation priorities. At least 58 pairs and several large flocks were seen.  
Mozambique, Delta, conservation, birds
70. Beilfuss, R.D. (1997). Restoring the flood: a vision for the Zambezi Delta. *ICF Bugle* 23(4): 1-2.  
Popular account of the possibilities of release of waters from Cabora Bassa to simulate the natural flooding regime. The effects of regulated flow (low wet season flows with no flooding, and high dry season flows) on the ecology and utilization of the Delta are discussed. Noted that there are 2500 Wattled Cranes in the delta wetlands.  
Mozambique, Delta, conservation, birds
71. Beilfuss, R.D. & Allan, D.G. (1996). Wattled crane and wetland surveys in the Great Zambezi Delta, Mozambique. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 345-353.  
Of a total world population of 13-15,000 Wattled Cranes, more than 95% occur on the floodplains of the Zambezi, lower Zaire and Okavango. Breeding attempts are highly dependent on hydrological regime. An aerial survey of the Marromeu complex in March 1995 gave an estimate of 208 cranes and 77 breeding pairs, but at a time when most would have dispersed. Other species of crane, storks and egrets were counted. Important numbers of African Openbilled Storks, Saddlebilled Storks and Pelicans were seen. The buffalo count showed c.1000. Drastic reductions in numbers of waterbuck, zebra, hippo and elephant from previous censuses were noted. The level of agricultural development in the wetlands was low, but there is much settlement along the banks of the Zambezi. Numbers of birds noted are tabulated.  
Mozambique, Delta, conservation, birds, mammals
72. Beilfuss, R.D. & Bento, C.M. (1999, in press). Impacts of hydrological changes on the Marromeu complex of the Zambezi Delta, with especial attention to the avifauna. In: *Proceedings of the Workshop on the Sustainable Use of the Cabora Bassa Dam and the Zambezi Valley* (editor B.R. Davies).  
Draft document. Account of the Marromeu complex, the communities of waterbirds and the impacts of changed hydrology on them. Recommendations for amelioration of some of these effects are given.  
Mozambique, Cabora, Delta, water, conservation, birds
73. Beilfuss, R.D. & Davies, B.R. (1999, in press). Prescribed flooding and wetland rehabilitation in the Zambezi Delta, Mozambique. In: *An International Perspective on Wetland Rehabilitation* (editor W.J. Streever). Kluwer Academic Press, Dordrecht, Netherlands.  
Draft m/s. Account of the effects of Cabora Bassa and Kariba dams on the wetlands of the Zambezi Delta. The possibilities of prescribed flooding to simulate historical floods are discussed.  
Mozambique, Delta, Cabora, water, conservation
74. Beilfuss, R.D., Tarboton, W.R. & Gichuki, N.N. [editors] (1996). *Proceedings of the 1993 African Crane and Wetland Training Workshop*. International Crane Foundation, Baraboo, Wisconsin, USA. 661 pp.  
Contains many papers of interest on cranes and wetlands (function and policy) from all over Africa, 18 concerning parts of the Zambezi Basin. Also includes 'crane and wetland action plans' for Botswana, Malawi, Mozambique, Namibia and Zambia.  
Zbasin, conservation, birds
75. Bekker, R.P. & de Wit, P.V. (1991). Contribution to the vegetation classification of Botswana. Field Document No. 34. FAO/UNDP, Gaborone, Botswana. 66 pp.  
A compilation of vegetation data from the nationwide soil survey to draw up a vegetation map of Botswana. The Chobe/Linyanti floodplains are covered under Region 12. They consist of grasslands with fringing riverine woodland of *Combretum imberbe*, *Acacia erioloba* and *Colophospermum mopane*.  
Chobe, Botswana, vegetation
76. Belcher, C.F. (1930). *The Birds of Nyasaland*. Technical Press, Kingston Hill, UK. 356 pp.  
Descriptions of birds recorded from Malawi up to 1930 covering 521 species, with details on identification features and distribution.  
Malawi, birds
77. Bell-Cross, G. (1965). Additions and amendments to the check list of the fishes of Zambia - No. 2. *Fisheries Research Bulletin, Zambia* 4: 99-101.  
Note with 17 amendments to Jackson 1961 on fish distribution records.  
Zambia, fish
78. Bell-Cross, G. (1965). The distribution of fishes in Central Africa. *Fisheries Research Bulletin, Zambia* 4: 3-20.  
Account of the differences in fish fauna between the upper and mid/lower Zambezi river systems. This is ascribed to there being two distinct drainage basins in the past, which have now joined. A brief account is given of additional mechanisms causing separation. An extensive list of 184 fish species present in the various central African drainage systems is included.  
Zbasin, biogeography, fish
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79. Bell-Cross, G. (1965). Movement of fish across the Congo-Zambezi watershed in the Mwinilunga District of Northern Rhodesia. In: *Proceedings of the Central African Scientific and Medical Congress, Lusaka, Northern Rhodesia, 26-30 August 1963* (editor G.J. Snowball). Pergamon Press, Oxford, UK. pp. 415-424.  
Account of movement of fish across the watershed from the Congo drainage system to the Zambezi via wetland areas during the rainy season. Of 16 fish species recorded, 6 crossed the watershed.  
headwater, Zambia, biogeography, fish
80. Bell-Cross, G. (1965). Physical barriers separating the fishes of the Kafue and middle Zambezi river systems. *Fisheries Research Bulletin, Zambia* 4: 97-98.  
Lists of species found above and below the Avumba Menda Falls on the Kafue river are given. The Falls are shown to be a zoogeographical barrier to fish from the mid Zambezi.  
Zambia, Kafue, biogeography, fish
81. Bell-Cross, G. (1965). Preliminary observations on *Hydrocynus vittatus* in the Upper Zambezi river system. *Fisheries Research Bulletin, Zambia* 4: 21-27.  
N/S  
Zambia, Barotse, fish
82. Bell-Cross, G. (1971). Weir fishing on the Barotse flood plain. *Fisheries Research Bulletin, Zambia* 5: 331-340.  
Account of traditional fishing in the upper Zambezi floodplains. The cropping of juveniles is not thought to be detrimental to populations.  
Barotse, Zambia, human, fish
83. Bell-Cross, G. (1972). The fish fauna of the Zambezi river system. *Arnoldia (Rhodesia)* 5(29): 1-19.  
Species lists of fish in the Zambezi basin and Lake Malawi, with a discussion on their biogeography. 361 species are listed, including 22 estuarine and 217 endemic to Lake Malawi.  
Zbasin, LMalawi, biogeography, fish
84. Bell-Cross, G. (1974). A fisheries survey of the Upper Zambezi river system. *Occasional Papers of the National Museums & Monuments of Rhodesia* 5(5): 279-338.  
Description of the fisheries of the upper Zambezi, including an annotated checklist of the fish species.  
Zambia, Barotse, biogeography, human, fish
85. Bell-Cross, G. (1974). Observations on fish-eating birds in central Africa. *Honeyguide* 77: 23-31.  
Brief notes on fish predation by birds in the Zambezi Basin. Many bird species are mentioned under family.  
Zambia, Barotse, birds
86. Bell-Cross, G. (1976). *The Fishes of Rhodesia*. National Museums & Monuments of Rhodesia, Harare, Zimbabwe. 262 pp.  
Comprehensive account of the fish fauna of Zimbabwe, including the upper and mid Zambezi. Identification keys and descriptions for each species are given, with notes on distribution and biology.  
Zimbabwe, fish
87. Bell-Cross, G. (1982). *The biogeography of the Zambezi river fish fauna*. MSc thesis, University of Natal. Pietermaritzburg, South Africa. 223 pp.  
N/S  
Zbasin, biogeography, fish
88. Bell-Cross, G. & Bell-Cross, B. (1971). Introduction of *Limnothrissa miodon* and *Limnocaridina tanganicae* from Lake Tanganyika into Lake Kariba. *Fisheries Research Bulletin, Zambia* 5: 207-214.  
Brief account of the introduction of kapenta fish and a species of shrimp into a vacant niche created by the newly-formed Lake Kariba. Causes of mortality are discussed.  
Zambia, Zimbabwe, Kariba, human, fish
89. Bell-Cross, G. & Kaoma, J. (1971). Additions and amendments to the checklist of fishes of Zambia - No. 3. *Fisheries Research Bulletin, Zambia* 5: 235-244.  
Checklist of fish from the Upper Zambezi not found in the Mid Zambezi prior to the formation of Lake Kariba (50 spp.), recent additions to the checklist of Zambian fish (7 spp.) and a checklist of fish from the Zambian section of Lake Tanganyika (132 sp.).  
Zambia, Kariba, fish
90. Bell-Cross, G. & Minshull, J.L. (1988). *The Fishes of Zimbabwe*. National Museums and Monuments of Zimbabwe, Harare, Zimbabwe. 294 pp.  
Comprehensive account of the fish fauna of Zimbabwe, including the Zambezi basin. Subjects covered include the history of ichthyology, zoogeography, ecology, fish morphology and colouration, nomenclature, angling, size records, commercial fishing, description of the river systems of Zimbabwe and fish distribution. This is followed by a key to families and genera, and detailed descriptions of all 132 fish species known to occur in the country, many illustrated in colour.  
Zimbabwe, Kariba, fish, biogeography
91. Bell, R.H.V. & Grimsdell, J.J.R. (1973). The persecuted black lechwe of Zambia. *Oryx* 12(1): 77-92.  
Account of the biology and demise of the black lechwe in the Bangweulu Swamps; numbers have declined from 500,000 to 16,000. This specialised antelope is the only mammal capable of exploiting the high fertility of the floodplain, which could support 10 times the present number. A description of the Bangweulu Swamps is given.  
Zambia, Bangweulu, conservation, mammals

92. Bell, R.H.V., Grimsdell, J.J.R., Van Lavieren, L.P. & Sayer, J.A. (1973). Census of the Kafue lechwe by aerial stratified sampling. *East African Wildlife Journal* **11**: 55-74.  
Four aerial surveys over 2 years, from 1970 onwards, are reported. Population trends and human threats are discussed.  
Zambia, Kafue, conservation, mammals
93. Benson, C.W. (1960). Recent records from north-western Northern Rhodesia. *Bulletin of British Ornithologists' Club* **80**: 106-112, 114-119.  
Distribution, taxonomic and other notes on 34 bird species from Zambezi and Kabompo districts of W Zambia.  
Zambia, Barotse, birds
94. Benson, C.W. (1969). Large mammals of the Liuwa Plain and Sioma-Ngwezi Game Reserves, Barotse. *The Puku* **5**: 49-57.  
Descriptive list of larger mammals of some protected areas in Barotseland in 1964, including results of counts. 18 species were noted from the Liuwa Plains.  
Zambia, Barotse, mammals
95. Benson, C.W. & Benson, F.M. (1948). Notes from southern Nyasaland, mainly from the lower Shiré valley at 200 ft. altitude. *The Ostrich* **19**(1): 1-16.  
Annotated list of 94 bird species seen in the lower Shire, including 15 species of waterbirds.  
Malawi, LShire, birds
96. Benson, C.W. & Benson, F.M. (1975). Studies of some Malawi birds. *Arnoldia (Rhodesia)* **7**(32): 1-27.  
Distribution and taxonomic notes on 45 bird species from Malawi, including 10 waterbirds.  
Malawi, birds
97. Benson, C.W. & Benson, F.M. (1977). *The Birds of Malawi*. Montfort Press, Limbe, Malawi. 263 pp.  
A guide to all birds found in Malawi; has a section on habitats.  
Malawi, birds
98. Benson, C.W., Brooke, R.K., Dowsett, R.J. & Irwin, M.P.S. (1970). Notes on the birds of Zambia: part V. *Arnoldia (Rhodesia)* **4**(40): 1-59.  
Notes on 161 species of bird from Zambia (including 50 waterbirds), mostly concerning distribution.  
Zambia, birds
99. Benson, C.W., Brooke, R.K., Dowsett, R.J. & Irwin, M.P.S. (1971). *The Birds of Zambia*. Collins, London, UK. 414 pp.  
Illustrated guide to all birds found in Zambia, including notes on distribution and breeding times.  
Zambia, birds
100. Benson, C.W., Brooke, R.K. & Irwin, M.P.S. (1971). The Slaty Egret *Egretta vinaceigula* is a good species. *Bulletin of British Ornithologists' Club* **91**: 131-133.  
Taxonomic notes on the Slaty Egret showing differences from the Black Egret.  
Namibia, Chobe, birds
101. Benson, C.W. & Irwin, M.P.S. (1965). Some birds from the North-Western Province, Zambia. *Arnoldia (Rhodesia)* **1**(29): 1-11.  
Annotated checklist of 60 species of birds collected from NW Zambia, principally Mwinilunga.  
Zambia, headwater, birds
102. Benson, C.W. & Irwin, M.P.S. (1965). Some intra-African migratory birds: II. *The Puku* **3**: 45-55.  
Notes on 5 species of migratory birds which breed in Zambia, including locality descriptions and times of occurrence for Rock Pratincoles.  
Zambia, birds
103. Benson, C.W. & Irwin, M.P.S. (1967). A contribution to the ornithology of Zambia. *Zambia Museum Papers* **1**: 1-139.  
Annotated checklist of 240 bird species from Zambia, including 42 waterbirds, with particular reference to Barotseland. Notes mostly cover taxonomy and distribution.  
Zambia, Barotse, birds
104. Benson, C.W. & Pitman, C.R.S. (1964). Further breeding records from Northern Rhodesia (No. 4). *Bulletin of British Ornithologists' Club* **84**: 54-60.  
Brief notes on 18 breeding species in Zambia, some of them wetland species.  
Zambia, birds
105. Benson, C.W. & White, C.M.N. (1957). Check list of the birds of Northern Rhodesia. Government Printer, Lusaka, Zambia. 166 pp.  
Annotated list of 658 species of birds from Zambia with brief notes on status and distribution. Typical species of various habitats are listed.  
Zambia, birds
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106. Bernacsek, G.M. & Lopes, S. (1984). Cahora Bassa (Mozambique). In: *Status of African Reservoir Fisheries* (editors J.M. Kapetsky & T. Petr). CIFA Technical Paper No. 10. FAO, Rome, Italy. pp. 21-42. Account of the fisheries of Cabora Bassa. Fishery at present is grossly underutilised, and few data are available. Large fluctuations in water level and high clay loads reduce potential productivity. Data are given on hydrology and water quality. Conflict and inadequate attention to biological concerns during design are outlined. From an ecological viewpoint, Cabora Bassa could be "the least studied and least environmentally acceptable dam project in Africa".  
Mozambique, Cabora, water, human, fish
107. Bernacsek, G.M. & Lopes, S. (1984). Investigations into the fisheries and limnology of Cahora Bassa reservoir seven years after dam closure. FAO/GCP/MOZ/006(SWE) Field Document No. 9. FAO, Rome, Italy. 145 pp.  
N/S  
Mozambique, Cabora, fish, human
108. Bernacsek, G.M., Massinga, A. & Contreras, P. (1983). Exploratory gill-netting in Lake Niassa, Mozambique, including biological profiles of the main taxa caught. FAO/GCP/MOZ/006(SWE) Field Document No. 5. FAO, Rome, Italy.  
N/S  
Mozambique, LMalawi, human, fish
109. Berry, P.S.M. (1973). A hippo count on the upper Luangwa river. *The Puku* 7: 193-195. Brief report on hippo numbers along the Luangwa river in 1967. Total was estimated at 324.  
Luangwa, Zambia, mammals
110. Bethune, S. (1991). Kavango river wetlands. *Madoqua* 17(2): 77-112. Account of the wetlands associated with the Kavango river in N Namibia, including sections on hydrology, water chemistry, ecology, vegetation and biodiversity. The wetlands are shown to be important for local economic utilization, provision of environmental services and for conservation. Lists of 889 species of plants (including 20 algae) and 73 species of fish are given.  
Okavango, Namibia, vegetation, conservation, human, water, plants, plankton, fish, birds, mammals
111. Bethune, S. (1992). An updated review of the limnological baseline survey of the Okavango River in Namibia, 1984-1986. Report No. RR/92/3. Department of Water Affairs, Windhoek, Namibia.  
N/S  
Namibia, Okavango, water
112. Bethune, S. (1996). Biological control of *Salvinia molesta* in the Eastern Caprivi. Progress report, 1980-1995. Report No. RR/96/1. Department of Water Affairs, Windhoek, Namibia. 51 pp. Detailed technical report on the problem of *Salvinia molesta* infestation in the E Caprivi, and on the biological control methods used and their success.  
Namibia, Chobe, probsp, plants, inverts
113. Bethune, S. & Roberts, K. (1991). Checklist of the fishes of Namibia for each wetland region. *Madoqua* 17(2): 193-199. List of fish species found in Namibia. 72 species are recorded from the E Caprivi, of which one is endemic and two rare.  
Namibia, Chobe, biogeography, fish
114. Bhima, R. (1996). Census of hippopotamus (*Hippopotamus amphibius* (L)) in the Upper Shire River, Malawi. *African Journal of Ecology* 34: 83-85. Brief account of a census of hippo along the upper parts of the Shire river. Estimated number is 1029.  
MShire, Malawi, mammals
115. Biggs, R.C. (1974?). An ecological survey of Chief's Island and the adjacent floodplain. *Botswana Notes & Records* 7: 203-204. Outline of a study in progress. No data or results are presented.  
Botswana, Okavango, vegetation
116. Biggs, R.C. (1976). The effects of the seasonal flood regime on the ecology of Chief's Island and the adjacent floodplain systems. In: *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. pp. 113-120. Account of the vegetation types of a large island in the Okavango delta. 5 main types, subdivided into 21 types, are described based on seasonal water availability and species composition.  
Botswana, Okavango, vegetation, plants
117. Biggs, R.C. (1979). *The ecology of Chief's Island and the adjacent floodplains of the Okavango delta*. MSc thesis, University of Pretoria. Pretoria, South Africa.  
N/S  
Botswana, Okavango, vegetation, mammals
118. Bingham, M.G. (1982). The livestock potential of the Kafue Flats. In: *The consequences of hydroelectric power development on utilisation of the Kafue Flats* (editors G.W. Howard & G.J. Williams) Kafue Basin Research Committee, University of Zambia, Lusaka, Zambia. pp. 95-103. Account of the existing cattle production and carrying capacity of the Kafue Flats. The vegetation of the flats is briefly described. The Kafue Flats are a most valuable agricultural area with great livestock potential, and their value could be reduced by dam construction.  
Zambia, Kafue, agriculture, plants



119. Bingham, M.G. (1990). An ethno-botanical survey of Senanga West. RDP Livestock Services/Department of Agriculture, Senanga, Lusaka, Zambia. 62 pp.  
Includes a comprehensive list of 304 species of flowering plants with vernacular names (principally Lozi), arranged in alphabetical order by genus/species. The different types of plant usage are described and discussed.  
Barotse, Zambia, human, plants
120. Bingham, M.G. (1994). Zambezi source area: Zambia. In: *Centres of Plant Diversity: A guide and strategy for their conservation. 1 - Europe, Africa, South West Asia and the Middle East* (editors S.D. Davis, V.H. Heywood & A.C. Hamilton). WWF/IUCN, Cambridge, UK. pp. 192-193.  
Data sheet on Zambesian Regional Centre of Endemism in the Mwinilunga area of NW Zambia. An area of 1700 km<sup>2</sup> at the headwaters of the Zambezi river contains edaphic grasslands/wetlands owing to impervious drainage, with affinities to the Zambesian and Guineo-Congolian phytochoria. The seepage dambos are permanently wet peat areas rich in orchids and other herbs.  
headwater, Zambia, vegetation, conservation, biogeography, plants
121. Bingham, M.G. (1996). Western Province plant species list. Unpublished report, Lusaka, Zambia.  
An updated and expanded version of Bingham's ethno-botanical survey of Senanga West (1990). The alphabetically-arranged list gives a brief description, vernacular names, habitat and uses.  
Zambia, Barotse, human, plants
122. Binns, B. (1968). *A First Check List of the Herbaceous Flora of Malawi*. Government Printer, Zomba, Malawi. 113 pp.  
Comprehensive checklist of the herbs and grasses of Malawi, with indication of district-level distribution.  
Malawi, plants
123. Birkhead, M.E. (1978). Some aspects of the feeding ecology of the Reed Cormorant and Darter on Lake Kariba, Rhodesia. *The Ostrich* **49**(1): 1-7.  
Study of gut contents and habitat preferences of 2 water birds. Cichlids constituted over 90% of the fish eaten; both species fed in the littoral zone.  
Zimbabwe, Kariba, birds
124. Bivar de Sousa, A. (1980). Lepidopteros papilionides de Angola (3a Nota). *Boletim da Sociedade Portuguesa de Entomologia* **7**: 36-37.  
N/S  
Angola, inverts
125. Bivar de Sousa, A. & Fernandes, J.d.A. (1964). Contribução para o conhecimento dos Lepidopteros de Angola. *Boletim da Sociedade Portuguesa de Ciencias Naturais* **2**(10): 104-115.  
N/S  
Angola, inverts
126. Bivar de Sousa, A. & Fernandes, J.d.A. (1966). Contribução para o conhecimento dos Lepidopteros de Angola Papilionidae (2a Nota). *Archivos do Museu Bocage* **2**(1): 161-169.  
N/S  
Angola, inverts
127. Blackmore, S., Dudley, C.O. & Osborne, P.L. (1988). An annotated check-list of the aquatic macrophytes of the Shire River, Malawi, with reference to potential aquatic weeds. *Kirkia* **13**(1): 125-142.  
Survey of the non-microscopic aquatic plants of the Shire river in Malawi during 1979/80. The 71 species recorded are classified by life-form and position with respect to the water surface. An annotated checklist covers 93 species. The major habitat and plant communities are described. The threat posed by the aquatic weed *Eichhornia* is pointed out. The lower Shire (from Kapichira Falls to its confluence with the Zambezi) has a very shallow gradient. The two main marshes which have a well-developed aquatic flora are Elephant Marsh (500 km<sup>2</sup>) and Ndinge Marsh (150 km<sup>2</sup>). Both support important fisheries industries.  
Malawi, MShire, LShire, vegetation, probssp, plants
128. Blair Rains, A. & McKay, A.D. (1968). The Northern State Lands, Botswana. Land Resource Study 5. Land Resources Division, Surrey, UK. 124 pp.  
Investigation into the land resources of the Northern State Lands of NE Botswana with a view to developing the cattle industry but conserving wildlife. The area covers c.65,000 km<sup>2</sup> and includes the Chobe waterfront as far west as the Goha hills, thus excluding the major wetland areas. A vegetation map (scale 1:500,000) is given, and shows a narrow fringe of floodplain grassland along the Linyanti river. Seasonally flooded grasslands along the Chobe river are dominated by *Chloris gayana* and *Setaria sphacelata*. Beds of *Cyperus papyrus*, *Phragmites mauritianus* and *Vetiveria nigritana* occur in permanently wet areas.  
Botswana, Chobe, vegetation, agriculture
129. Bogert, C.M. (1940). Herpetological results of the Vernay Angola Expedition, with notes on African reptiles in other collections. Part I - Snakes, including an arrangement of African Colubridae. *Bulletin of American Museum of Natural History* **77**(1): 1-107.  
Account of snakes, including some from Rungwe mountain in Angola(?).  
Angola, herps
130. Bond, W.J., Coe, N., Jackson, P.B.N. & Rogers, K.H. (1978). The limnology of Cabora Bassa, Moçambique, during its first year. *Freshwater Biology* **8**(5): 433-447.  
Account of limnology of Cabora Bassa dam in its early stages. The initial productive phase is likely to be shorter than that of Kariba, but productivity is likely to be higher in the maturation phase.  
Mozambique, Cabora
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131. Bond, W.J. & Roberts, M.G. (1978). The colonization of Cabora Bassa, Moçambique, a new man-made lake, by floating African macrophytes. *Hydrobiologia* **60**(3): 243-259.  
Account of the spread of *Salvinia* and *Eichhornia* on Cabora Bassa. Problems are likely to be less than with Lake Kariba.  
Mozambique, Cabora, probssp, plants
132. Boon, P.J. (1984). A re-examination of the submerged tree fauna in Lake Kariba (South Central Africa), 24 years after inundation. *Archiv für Hydrobiologie* **101**(4): 569-576.  
Account of the invertebrates found on submerged trees in Lake Kariba, and changes in their composition and abundance since the 1960s. A species of mayfly comprised 90% of total biomass.  
Zimbabwe, Kariba, inverts
133. Bootsma, H.A. & Hecky, R.E. (1993). Conservation of the African great lakes: a limnological perspective. *Conservation Biology* **7**(3): 644-656.  
Limnology of the three Great Lakes is described by examining how their physical, chemical and biological properties will determine the response to human activities. Pollution could be a problem as flushing rates are low, climatic change could cause large changes in levels, and eutrophication would cause changes in fish composition. The importance of international cooperation in their conservation is emphasised.  
Malawi, LMalawi, conservation, water, fish
134. Botswana Society [editor] (1976). *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. 350 pp.  
Proceedings of a conference on the Okavango. There are 32 papers covering geology, geography, hydrology, history, ecology, utilization and potential developments of the area.  
Botswana, Okavango, water, conservation, human, vegetation, fish, herps, mammals, plants
135. Boughey, A.S. (1963). The explosive development of a floating weed vegetation on Lake Kariba. *Adansonia* **3**: 49-61.  
Account of floating weed mats on Lake Kariba, particularly *Salvinia*. Colonisation by other plants is described.  
Zimbabwe, Kariba, probssp, plants
136. Boulenger, G.A. (1897). A list of the reptiles and batrachians collected in northern Nyasaland by Mr Alex. Whyte, F.Z.S., and presented to the British Museum by Sir Harry H. Johnston, K.C.B.; with descriptions of new species. *Proceedings of Zoological Society of London* **1897**: 800-803.  
Checklist of 37 reptile and 15 amphibian species collected along the northwest shore of Lake Malawi, the Nyika Plateau and Misuku Mountains, with descriptions of 4 new species.  
Malawi, LMalawi, herps
137. Bourguignat, J.R. (1889). Mélanidées du lac Nyassa suivies d'un aperçu comparatif sur la faune malacologique de ce lac avec celle du grand lac Tanganyika. *Bulletin de la Société de France* **6**: 1-66.  
N/S. Account of freshwater molluscs in Lake Malawi.  
Malawi, LMalawi, inverts
138. Bowmaker, A.P. (1960). A report on the Kariba Lake area and Zambezi River prior to inundation and the initial effects of inundation with particular reference to the fisheries. FAO-ETAP Report 1299(2). FAO, Rome, Italy. 100-127 pp.  
N/S. Report giving early estimates of the fishery potential of Kariba, limnological and taxonomic work preceding impoundment is discussed, and recommendations for improving fisheries are given.  
Zimbabwe, Zambia, Kariba, human, fish
139. Bowmaker, A.P. (1960). Seasonal hydrological changes affecting the ecology of Luaka Lagoon, Lake Bangweulu: some preliminary observations. In: *Proceedings of the Third Symposium on Hydrobiology and Inland Fisheries: Major Lakes. Lusaka, Zambia*. CCTA/CSA Technical and Scientific Publication No.63. Conseil Scientifique pour l'Afrique au Sud du Sahara, 22 pp.  
N/S  
Zambia, Bangweulu, water
140. Bowmaker, A.P. (1968). Preliminary observations on some aspects of the biology of the Sinamwenda estuary, Lake Kariba. *Proceedings & Transactions of the Rhodesia Scientific Association* **53**(1): 3-8.  
Account of aspects of the ecology of newly-filled Lake Kariba. The major habitats are briefly described with particular reference to infestation by *Salvinia*, which is considered a limiting factor to fish productivity.  
Zimbabwe, Kariba, vegetation, fish, probssp, plants
141. Bowmaker, A.P. (1973). *An hydrobiological study of the Mwenda river and its mouth, Lake Kariba*. PhD thesis, University of Witwatersrand. Johannesburg, South Africa.  
N/S  
Zimbabwe, Kariba, vegetation, plants
142. Bowmaker, A.P. (1973). Hydrophyte dynamics in Mwenda Bay, Lake Kariba. *Kariba Studies* **3**: 42-59.  
Account of water plants on a flooded valley on Lake Kariba. A reduction in *Salvinia* is described. The shoreline was sterile in 1967 and by 1972 had been stabilised by *Panicum repens*. A succession of submerged hydrophytes has occurred, and this is enhanced by stable water levels, variation of which should not exceed 2 m.  
Zimbabwe, Kariba, vegetation, probssp, plants

143. Bowmaker, A.P., Jackson, P.B.N. & Jubb, R.A. (1978). Freshwater fishes. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 1181-1230.  
Review of knowledge of the freshwater fish of southern Africa. The origins of the fish fauna and its current distribution and probable dispersal routes are examined. The two major fish faunas are of standing and running waters. The considerable and rapid changes in water availability during the Pleistocene are pointed out. The effects of man on fish distribution and composition are discussed, with particular reference to Lakes Kariba and Cabora Bassa. Checklists of river fishes and fishes of Malawi are given.  
SAfrica, Kariba, Cabora, biogeography, fish
144. Boye-Chisholm, M. & Robarts, R.D. (1982). An SEM study of bacteria and zooplankton food sources in Lake McIlwaine. In: *Lake McIlwaine: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 101-106.  
Brief account of bacteria and phytoplankton found in Lake Chivero. Their importance as food for zooplankton is pointed out.  
Chivero, Zimbabwe, plankton
145. Branfield, A. (1989). A birding experience in the eastern Caprivi. *Bokmakierie* 41(2): 38-40.  
Popular account of the birds of the E Caprivi; 330 species were recorded in 1988.  
Namibia, Chobe, birds
146. Branfield, A. (1990). New bird records for the East Caprivi, Namibia. *Lanioturdus* 25(1/2): 4-21.  
Brief notes on occurrence of 123 bird species recorded in 1988, including 31 water-related species (8 new records).  
Namibia, Chobe, birds
147. Breen, C.M. (1991). Are intermittently flooded wetlands of arid environments important conservation sites? *Madoqua* 17(2): 61-65.  
Very good overview of wetland definition, functions and values, with particular reference to Namibia but with direct relevance to the Zambezi Basin. The paper suggests a classification of wetlands based on the US Fish and Wildlife Service definition, which makes much biological sense. This definition incorporates system (marine, estuarine, riverine, lacustrine and palustrine), regularity of flooding and substrate type.  
SAfrica, Namibia, vegetation, water
148. Brelsford, V. (1947). Notes on the birds of the Lake Bangweulu area in Northern Rhodesia. *Ibis* 89: 57-77.  
N/S  
Zambia, Bangweulu, birds
149. Brelsford, V. (1961). The story of a swamp: Lake Bangweulu in Northern Rhodesia. *Horizon* 3: 7.  
N/S  
Zambia, Bangweulu
150. Brinck, P. (1955). Odonata. In: *South African Animal Life: Results of the Lund University Expedition 1950-51* Volume 2. pp. 191-233.  
Account of 56 dragonfly species collected in Africa S of the Zambezi, with particular reference to the Cape species. Only locality in Zambezi Basin is Victoria Falls. Includes detailed discussion of ecology and zoogeography. A list of 142 species by geographical area is given.  
SAfrica, biogeography, inverts
151. Britton, P.L. (1970). Birds of the Balovale District of Zambia. *The Ostrich* 41(3): 145-190.  
Annotated checklist of birds from Zambezi District in W Zambia covering 340 species. Separate lists are given for various vegetation types.  
Barotse, Zambia, birds
152. Broadley, D.G. (1971). The National Museums of Rhodesia expedition to Malawi, November-December, 1970. *Journal of Herpetological Association of Africa* 7: 1-3.  
Report on a herpetological expedition to the Nyika Plateau, Misuku mountains, Lake Malawi, Mt Mulanje and Lake Chilwa. Nothing on Lower Shire.  
Malawi, LMalawi, MShire, herps
153. Broadley, D.G. (1971). The reptiles and amphibians of Zambia. *The Puku* 6: 1-143.  
Comprehensive and annotated list, with keys, of all reptiles and amphibians in the country. Distribution maps are given.  
Zambia, herps
154. Broadley, D.G. (1981). A review of the genus *Pelusios* Wagler in southern Africa (Pleurodira: Pelomedusidae). *Occasional Papers of the National Museums & Monuments* 6(9): 633-686.  
Monograph on a group of terrapins found in the region.  
SAfrica, herps
155. Broadley, D.G. (1983). *Fitzsimons' Snakes* (revised edition). Delta Books, Johannesburg, South Africa.  
Book providing detailed accounts and distribution maps for snakes of the region south of the Zambezi.  
SAfrica, herps
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156. Broadley, D.G. (1990). The Zambezi flapshelled turtle or Nkhasi (*Cyloderma frenatum*). *Zimbabwe Science News* **24**(10/12): 100-101.  
Brief account of the biology of a freshwater turtle, which in the Zambezi basin is confined to the lower Zambezi below Cabora Bassa, the Shire valley and Lake Malawi.  
Malawi, LMalawi, LShire, Mozambique, herps
157. Broadley, D.G. (1991). The herpetofauna of northern Mwinilunga District, northwestern Zambia. *Arnoldia (Zimbabwe)* **9**(37): 519-538.  
Annotated checklist of 57 species of reptile and 35 species of amphibian collected in the Mwinilunga area in 1990.  
headwater, Zambia, herps
158. Broadley, D.G. (1995). A small collection of reptiles and amphibians from central and southern Malawi. *African Herp News* **24**: 16-18.  
List of 12 reptile and 8 amphibian species collected from Elephant Marsh on the lower Shire and Dedza.  
LShire, Malawi, herps
159. Brooke, R.K. (1969). Preliminary list of the birds of the Kafue National Park. *The Puku* **5**: 57-86.  
Checklist of 418 bird species recorded from the Kafue NP during October 1964.  
Zambia, Kafue, birds
160. Brown, C.J. (1992). The status of cranes in Namibia. In: *Proceedings of the First South African Crane Conference* (editors D.J. Porter, H.S. Craven, D.N. Johnson & M.J. Porter). Southern African Crane Foundation, Durban, South Africa. pp. 73-78.  
Brief account with maps of the status of 3 crane species in Namibia. Distributions are plotted by quarter-degree squares for the period 1979-1988. Wattled Cranes occur in E Caprivi (6 squares); 6 breeding pairs are estimated on the Nkasa-Lupala islands (Kwando-Linyanti).  
Namibia, Chobe, conservation, birds
161. Brown, C.J. & Jones, B. [editors] (1994). Results of a socio-ecological survey of the west Caprivi Strip, Namibia: a strategic community-based environment and development plan. Directorate of Environmental Affairs, Windhoek, Namibia. 205 pp.  
Comprehensive report on social and natural resources of the W Caprivi up to the Kwando river. The Kwando floodplain is 2-5 km wide, and joins the Linyanti. It has a permanent swamp system along its lower reaches, as well as riparian woodland. Brief vegetation descriptions are given. There is a high invertebrate, reptile, amphibian and bird diversity along the rivers. Comprehensive lists are given of flowering plants, alien plants, fish (Kavango river only), amphibians, reptiles, birds and mammals.  
Chobe, Namibia, vegetation, human, conservation, mammals, birds, fish, herps, inverts, plants
162. Brown, D.S. (1978). Freshwater molluscs. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 1153-1180.  
Review of knowledge on freshwater molluscs of southern Africa. Both temperate and tropical faunas are recognised, but the diversity of molluscs in southern Africa in general is low. It is believed that the upper Zambezi is grossly under-collected, and its diversity is higher than presently recognised. Preliminary species lists for various areas are presented. Lake Malawi has a rich endemic molluscan fauna of over 20 species, principally found in deep water.  
SAfrica, LMalawi, biogeography, inverts
163. Brown, D.S. (1994). *Freshwater Snails of Africa and their Medical Importance* (second edition). Taylor & Francis, London, UK. 609 pp.  
N/S  
SAfrica, inverts, probssp
164. Brown, D.S., Curtis, B.A., Bethune, S. & Appleton, C.C. (1992). Freshwater snails of East Caprivi and the lower Okavango river basin in Namibia and Botswana. *Hydrobiologia* **246**: 9-40.  
Detailed taxonomic account of the aquatic gastropods of the lower Okavango river in Namibia and Botswana, including the Okavango delta. Most of the 20 species found are widespread Afrotropical species; there are no endemics, but *Bellamyia monardi* is only known from the Okavango and Cunene rivers.  
Namibia, Chobe, Botswana, Okavango, biogeography, inverts
165. Brown, D.S., Oberholzer, G. & Van Eeden, J.A. (1971). The *Bulinus natalensis/tropicus* complex in southeastern Africa: 2. Some biological observations, taxonomy and general discussion. *Malacologia* **11**: 171-198.  
N/S  
SAfrica, inverts
166. Bruessow, D.M. (1989). The reproductive capability of the Elephant Marsh crocodile population: report on an aerial survey. Wildlife Africa Ltd./National Parks, Malawi, London, UK.  
Survey of crocodiles in the Elephant Marsh, where 168 breeding females were counted. Six major types of marsh habitat are described, and related to crocodile breeding needs.  
Malawi, LShire, conservation, herps
167. Cantrell, M.A. (1979). Possible environmental changes in response to hydro-electric development of the Shire River Basin (Malawi). 1 - The aquatic environment. In: *Proceedings of the International Conference on Kainji Lake and River Basin Development in Africa*. Kainji Lake Research Institute, New Bussa, Nigeria. pp. 144-149.  
N/S. May contain lists of fish from the lower Shire valley.  
Malawi, LShire, water, fish

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168. Carcasson, R.H. (1964). A preliminary survey of the zoogeography of African butterflies. *East African Wildlife Journal* **2**: 122-157.  
Account of the relationship between butterfly distributions and vegetation (past and present). Special mention is made of the Zambezi wetlands.  
SAfrica, biogeography, inverts
169. Carey, T.G. (1964). Fish populations in lagoon and riverine environments. *Fisheries Research Bulletin, Zambia* **3**: 9-12.  
Brief account of 4 fish species netted in the Kafue river and their size distributions.  
Zambia, Kafue, fish
170. Carey, T.G. (1965). Feeding habits of some fishes in the Kafue River. *Fisheries Research Bulletin, Zambia* **4**: 105-109.  
Account of stomach contents of 15 fish species from the Kafue River including algae, other plants, other fish, crustacea, insects and molluscs.  
Zambia, Kafue, fish, plankton, inverts
171. Carey, T.G. (1967). Some observations on distribution and abundance of the invertebrate fauna. *Fisheries Research Bulletin, Zambia* **3**: 22-24.  
Brief report on various invertebrates, especially insects, collected from both terrestrial and aquatic habitats on the Kafue floodplain.  
Zambia, Kafue, inverts
172. Carey, T.G. (1971). Hydrobiological survey of the Kafue flood plain. *Fisheries Research Bulletin, Zambia* **5**: 245-295.  
Results of a hydrobiological survey of the Kafue to determine the ecological importance of seasonal flooding. Zooplankton and phytoplankton were most dense during low water stages, and the invertebrate fauna at the margins varied more seasonally than that in submerged vegetation. Breeding in most fish followed periods of flooding. Detailed results are presented.  
Zambia, Kafue, water, fish, inverts, plankton
173. Carvalho, M.F. (1961). Contribuição para o melhor conhecimento da flora lenhosa de Moçambique. *Boletim de Instituto de Investigação Científica da Moçambique* **2**(2): 402-420.  
List of woody plants with vernacular names, including from Inhaminga and Marromeu.  
Delta, Mozambique, plants
174. Chabwela, H.N. (1992). The ecology and resource use of the Bangweulu Basin and the Kafue Flats. In: *Managing the Wetlands of Kafue Flats and Bangweulu Basin: Proceedings of the WWF-Zambia Wetlands Project Workshop* (editors R.C.V. Jeffery, H.N. Chabwela, G.W. Howard & P.J. Dugan). IUCN Wetlands Programme No. 1. IUCN, Gland, Switzerland. pp. 11-24.  
Account of the ecology of both the Bangweulu swamps and Kafue Flats, with particular reference to wildlife and its utilization.  
Zambia, Kafue, Bangweulu, human, conservation
175. Chabwela, H.N. & Ellenbroek, G.A. (1990). The impact of hydroelectric developments on the lechwe and its feeding grounds at Kafue Flats, Zambia. In: *Wetland Ecology and Management: case studies* (editors D.F. Whigham, R.E. Good & J. Kuet). Kluwer Academic Publishers, Boston, USA. pp. 95-101.  
N/S  
Zambia, Kafue, conservation, mammals
176. Chabwela, H.N. & Siwela, A.A. (1986). The vegetative structure of the Kafue Flats North Bank, after the construction of the dams. In: *Proceedings of E.W.R.S./AAB 7th Symposium on Aquatic Weeds*. Loughborough University, Loughborough, UK. pp. 61-72.  
N/S  
Zambia, Kafue, conservation, vegetation
177. Chace, F.A. (1953). Zoological results of a fifth expedition to East Africa. VI - Decapod crustacea from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(6): 425-443.  
Detailed records of collections made during an expedition.  
Malawi, Mozambique, LShire, inverts
178. Channing, A. (1989). New frog records from the Eastern Caprivi Strip, South West Africa/Namibia. *Madoqua* **16**(1): 1-4.  
Report on 1986 amphibian survey resulting in 26 species being found, of which 4 are new Namibian records. An annotated list of species is given, and a link with the tropical frog fauna of Malawi is suggested.  
Namibia, Chobe, biogeography, herps
179. Channing, A. & Griffin, M. (1993). An annotated checklist of the frogs of Namibia. *Madoqua* **18**(2): 101-116.  
Checklist and distribution maps for 43 species of frog in Namibia.  
Namibia, herps
180. Chapman, D.W., Miller, W.H., Dudley, R.G. & Scully, R.J. (1971). Ecology of fishes in the Kafue River. FAO FI:SF/ZAM 11: Technical Report 2. FAO, Rome, Italy. 66 pp.  
N/S. Probably contains a list of fish species from the Kafue with notes on their ecology.  
Zambia, Kafue, fish
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181. Chifamba, P.C. (1995). The status of *Oreochromis niloticus* in Lake Kariba. Zambia-Zimbabwe SADC Fisheries Project. Project Report 35. 21 pp.  
First record on the establishment of this exotic tilapia species, including comments on its potential impact.  
Zimbabwe, Zambia, Kariba, fish
182. Chifamba, P.C. (1998). Status of *Oreochromis niloticus* in Lake Kariba, Zimbabwe, following its escape from fish farms. In: *Stocking and Introduction of Fish* (editor I. Cowx). Fishing News Books, Oxford, UK. pp. 267-273.  
Account of problems associated with introduction of tilapia fish for fish farming, particularly *Oreochromis niloticus*. The study focused on NE Lake Kariba.  
Zimbabwe, Kariba, fish, probsp
183. Child, G. (1968). Behaviour of large mammals during the formation of Lake Kariba. *Kariba Studies*: 1-123.  
Review of mammal behaviour observed during translocation exercises around Lake Kariba. An account of the physical and biological features of the area is given.  
Zimbabwe, Kariba, mammals
184. Child, G. (1968). An Ecological Survey of Northeastern Botswana. FAO Report TA 2563. FAO, Rome, Italy. 156 pp.  
Detailed account of the ecology of the Chobe area, including vegetation and wildlife resources. Notes on distribution and biology of the larger mammals are given. Suggestions on the development and management of National Parks and tourism are included. Appendices include a checklist of 318 species of birds in the Chobe Game Reserve.  
Botswana, Chobe, conservation, vegetation, mammals, birds
185. Child, G. (1975). The decline of a lechwe population. *Mammalia* **39**(4): 706.  
Account of decline of red lechwe population in the Chobe and E Caprivi area. Population declined by 85-90% between 1962 and 1969.  
Botswana, Chobe, conservation, mammals
186. Child, G. & von Richter, W. (1969). Observations on the ecology and behaviour of lechwe, puku and waterbuck along the Chobe River, Botswana. *Zeitschrift für Säugetierkunde* **34**: 275-295.  
Study comparing 3 species of *Kobus* antelope on the Chobe floodplain. Habitat differences are mentioned. Both puku and lechwe populations are declining; puku are now isolated from other populations.  
Botswana, Chobe, conservation, mammals
187. Childes, S.L. & Mundy, P.J. (1998). Important Bird Areas in Zimbabwe. In: *The Important Bird Areas of Southern Africa* (editor K.N. Barnes). BirdLife South Africa, Johannesburg, South Africa. pp. 355-384.  
Account of 20 areas of particular importance for bird conservation in Zimbabwe, including (within the Zambezi Basin) the Middle Zambezi Valley, Batoka Gorge and Lake Chivero. Species of particular interest are mentioned.  
Zimbabwe, birds, conservation
188. Chipungu, P.M. (1981). The impact of the Kafue Gorge dam on the Kafue floodplain fishery. CIFA Technical Paper No. 8. FAO, Rome, Italy. pp. 120-129.  
Review of the effects on fisheries of damming the Kafue river. The Kafue floodplains produced 8000 tons of fish annually and was important for commercial farming. Although feasibility studies predicted an increase in fish production after dam closure, this has not materialised.  
Zambia, Kafue, human, fish
189. Clancey, P.A. (1996). *The Birds of Southern Mozambique*. African Bird Book Publishing, Westville, Natal. 329 pp.  
N/S. Detailed illustrated account of the birds found in Mozambique south of the Zambezi; an up-date of Clancey (1971). Distribution maps of some species are given; a gazeteer is included.  
Mozambique, birds
190. Clarke, J.E. (1975). Zambia's wetlands. *Black Lechwe* **12**(1): 14-17.  
Brief account of the 9 major wetlands of Zambia, giving size and conservation importance.  
Zambia, conservation
191. Clarke, J.E. & Bell, R.H.V. (1986). Representation of biotic communities in protected areas: a Malawian case study. *Biological Conservation* **35**: 293-311.  
Discussion on meshing the range of biotic communities in Malawi with the distribution of protected areas. The wetlands of the lower Shire are not formally protected. It is concluded that an approach looking at representation, rare and threatened species, aesthetics and catchment conservation is required.  
Malawi, vegetation, conservation
192. Coates-Palgrave, K. (1988). *Trees of Southern Africa*. Fifth edition. Struik, Cape Town, South Africa.  
Detailed, illustrated identification guide to the woody plants south of the Zambezi. Simplified distribution maps are given.  
SAfrica, plants
193. Coaton, W.G.H. & Sheasby, J.L. (1973). National survey of the Isoptera of Southern Africa: part 1. *Cimbebasia* **3**(1): 1-7.  
First part of a 18 part series of papers (from Cimbebasia 1973-78 and Entomology Memoirs 48-53) on the termites of southern Africa. Very few records from Botswana (including Okavango/Chobe), Zimbabwe and Mozambique are cited.  
SAfrica, inverts

194. Coke, M. (1968). The distribution of fish on a bush-cleared area of Lake Kariba, Central Africa. *American Fisheries Society, Transactions* **97**: 460-465.  
N/S. Distribution and yield of commercially important fish caught in 6 inch gillnets is presented. Yields were greater near the bottom than the water surface, but decreased with water depth. The highest yields were from nets set at 1.5 m depth.  
Zimbabwe, Kariba, human, fish
195. Cole, M.M. (1963). Vegetation and geomorphology in Northern Rhodesia: an aspect of the distribution of the savanna of Central Africa. *Geographical Journal* **129**(3): 290-310.  
Account of the factors determining vegetation structure across Zambia. Geomorphology is shown to be of great importance, as in the floodplain grasslands which are subject to seasonally poor drainage. Older floral elements may persist on old exhausted soils with poor drainage. Most of the grasslands lie on sandy to sandy-clay soils with a bed of nodular laterite below the surface; soils are acid and low in exchangeable bases, having suffered leaching over a long period. The grasslands of the Kafue Flats, however, lie on black clay soils which are base-rich and sometimes calcareous. The dynamic nature of vegetation on a changing landscape is stressed.  
Zambia, biogeography, vegetation
196. Collar, N.J., Crosby, M.J. & Stattersfield, A.J. (1994). *Birds to Watch 2: The World List of Threatened Birds*. BirdLife International, Cambridge, UK. 407 pp.  
Authoritative account on threatened birds worldwide. Uses the new IUCN criteria of threat status for each country including Botswana, Malawi, Mozambique, Namibia and Zambia, and lists the threatened and near-threatened species. Among waterbirds, Slaty Egret (in 3 countries), Wattled Crane (in 5), Cormorant (in 3) and White-winged Flufftail (in 1) are all threatened and described in some detail. For near-threatened waterbirds, Madagascar Pond Heron (in 1), Shoebill (in 2), Lesser Flamingo (in all 5), Great Snipe (in 4) and Black-winged Pratincole (in 3) are simply listed. Each species is also categorised according to any of 9 threats.  
SAfrica, conservation, birds
197. Collar, N.J. & Stuart, S.N. (1985). *Threatened Birds of Africa and Related Islands* (third edition). International Council for Bird Preservation/IUCN, Cambridge, UK. 761 pp.  
Comprehensive book giving details of conservation status and type of threat for many bird species. Covers wetland birds and bird habitats of the Zambezi wetlands, including Slaty Egret (indeterminate), Shoebill Stork (special concern), Wattled Crane (special concern) and White-winged Flufftail (indeterminate).  
SAfrica, conservation, birds
198. Connant, R.A. (1975). Preliminary counts of the Liuwa Plain. National Parks and Wildlife Service, Lusaka, Zambia. Unpublished report.  
N/S  
Zambia, Barotse, mammals
199. Connolly, M. (1925). The non-marine mollusca of Portuguese East Africa. *Transactions of the Royal Society of South Africa* **12**(3): 105-220.  
Descriptions and taxonomic account of 154 species of mollusc from Mozambique. 111 spp are terrestrial and 43 are aquatic.  
Mozambique, inverts,
200. Connolly, M. (1939). A monographic survey of the South African non-marine Mollusca. *Annals of the South African Museum* **33**: 1-660.  
Detailed taxonomic account of molluscs from southern Africa, south of the Cunene and Zambezi rivers, covering 764 spp.  
SAfrica, inverts
201. Coppinger, M.P., Williams, G.D. & Maclean, G.L. (1988). Distribution and breeding biology of the African Skimmer on the upper and middle Zambezi river. *The Ostrich* **59**(3): 85-96.  
Survey of a water bird along the Zambezi from the source to the Luangwa confluence in 1986-87. 1000 birds were counted in Barotse and 230 in E Caprivi; 33 of 35 breeding colonies found were on the Barotse floodplain.  
Barotse, Mana, Chobe, birds
202. Cott, H.B. (1932). The Zoological Society's expedition to the Zambezi, 1927: No.4 - On the ecology of tree-frogs in the Lower Zambezi Valley, with special reference to predatory habits considered in relation to the theory of warning colours and mimicry. *Proceedings of Zoological Society of London* **1932**: 471-541.  
Account of a collecting trip for tree frogs in the Marroneu area; 7 species are mentioned.  
Mozambique, Delta, herps
203. Cott, H.B. (1934). The Zoological Society's expedition to the Zambezi, 1927: No.5 - On a collection of lizards, mainly from Portuguese East Africa, with descriptions of new species of *Zonurus*, *Monopeltis*, and *Chirindia*. *Proceedings of Zoological Society of London* **1934**: 145-173.  
Account of reptiles collected during a trip to the lower Shire valley and Zambezi delta; 24 species are listed, 17 from the delta.  
Malawi, Mozambique, LShire, Delta, herps
204. Cott, H.B. (1935). The Zoological Society's expedition to the Zambezi, 1927: No.6 - On a collection of snakes from Portuguese East Africa. *Proceedings of Zoological Society of London* **1934**(4): 963-975.  
Account of snakes collected during a trip to the Zambezi Delta; 29 species are described. A checklist of amphibians (32 species) and reptiles (69 species), principally from the lower Zambezi and delta, is given.  
Mozambique, Delta, herps

205. Cott, H.B. (1961). Scientific results of an enquiry into the ecology and economic status of the Nile Crocodile (*Crocodilus niloticus*) in Uganda and Northern Rhodesia. *Transactions of Zoological Society of London* **29**(4): 211-337.  
Detailed study on diet and biology of the crocodile, including data from the Bangweulu swamps, Luangwa valley, Kafue Flats and the upper Zambezi.  
Zambia, herps
206. Coulson, I.M. (1992). Linyanti/Kwando riverine vegetation survey: March 1992. Kalahari Conservation Society, Gaborone, Botswana. 37 pp. Unpublished report.  
Account of a study on the composition, distribution and status of riparian woodland on the Botswana side of the Linyanti and Kwando rivers. Elephants are thought to be the major cause of the extensive tree damage noted. Acacias are particularly affected.  
Botswana, Chobe, vegetation, conservation, mammals
207. Coulter, G.W., Allanson, B.R., Bruton, M.N., Hart, R.C., Jackson, P.B.N. & Ribbink, A.J. (1986). Unique qualities and special problems of the African Great Lakes. *Environmental Biology of Fishes* **17**(3): 161-183.  
Useful general account of the African lakes, including Lake Malawi, and their biodiversity problems.  
Malawi, LMalawi, biogeography, conservation, fish
208. Cowx, I.G. & Kapasa, C.K. (1995). Species changes in reservoir fisheries following impoundment: the case of Lake Itezhi-tezhi, Zambia. In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 322-332.  
Study of the changes in fish species composition and abundance following damming of the Kafue river. A marked decline in fish catches was noted following initial high productivity. There was also a decline in species diversity with cichlids becoming dominant, ascribed to fluctuating lake-levels. There is an unfilled niche for plankton-feeding open-water species.  
Zambia, Kafue, human, conservation, fish
209. Cronberg, G. (1997). Phytoplankton in Lake Kariba, 1986-1990. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 66-101.  
Account of studies into phytoplankton around the lake and at various times of year. The plankton has a riverine origin, and is mesotrophic. Composition shows a typical seasonal pattern with blue-green algae dominating in the warm rainy period and diatoms in the cold dry season. 155 species of algae are listed.  
Zimbabwe, Kariba, water, plankton
210. Crowley, T.E., Pain, T. & Woodward, F.R. (1964). A monographic review of the Mollusca of Lake Nyasa. *Annales du Musée Royal de l'Afrique Centrale; Sciences Zoologique* **131**: 1-58.  
Detailed study and descriptions of freshwater molluscs from Lake Malawi, including discussion on ecology.  
Malawi, LMalawi, inverts
211. Cumming, D.H.M., Mackie, C., Magane, S. & Taylor, R.D. (1994). Aerial census of large herbivores in the Gorongosa National Park and the Marromeu area of the Zambezi delta in Mozambique: June 1994. In: *Description of Gorongosa-Marromeu Natural Resource Management Area*. IUCN ROSA, Harare, Zimbabwe. 10 pp.  
Results of an aerial census of Gorongosa and central Marromeu. Buffalo, hippo and wildebeest have disappeared from Gorongosa NP and populations of elephant, hartebeest, waterbuck and zebra are now at very low densities (c.1 animal/10 km<sup>2</sup>), a drastic decline on the 1979 census. Elephant numbers were estimated at 108, and buffalo at 2346. Continued drastic declines in buffalo and waterbuck in Marromeu are noted; the declines seem to have occurred before 1990.  
Mozambique, Delta, mammals, conservation
212. Curson, H.H. (1947). Notes on Eastern Caprivi Strip. *South African Journal of Science* **43**: 124-157.  
Early detailed account of the topography, flood levels, climate, soils and vegetation. A list of 218 plant species is included.  
Namibia, Chobe, water, vegetation, plants
213. Curtis, B., Roberts, K.S., Griffin, M., Bethune, S., Hay, C.J. & Kolberg, H. (1998). Species richness and conservation of Namibian freshwater macro-invertebrates, fish and amphibians. *Biodiversity & Conservation* **7**(4): 447-466.  
Account of the species of aquatic invertebrates, fish and amphibians found in Namibia, discussed by catchment. Endemics are also listed. The Caprivi wetlands have the greatest diversity of all Namibian wetland systems, but not a high level of endemism. 82 fish species, 38 frogs (mostly water-dependent species; 75% of species recorded for Namibia), 27 molluscs (16 snail, 1 limpet, 10 mussels), 14 Annelida, a freshwater jellyfish, a freshwater sponge, and 140 species of Coleoptera have been recorded. Diversity of Mollusca, Coleoptera, Odonata and Diptera is high for Namibia. The Okavango River also has a high species diversity owing to varied habitats. Mollusc fauna is similar to that of Caprivi, but the insect fauna differs (only c.40 spp.). The river has the highest Odonata and Dipteran diversity of any wetland habitat, but there are few Crustacea. There are 79 fish species, none endemic; the frog fauna is similar to that of Caprivi (c.30 spp.).  
Namibia, conservation, herps, fish, inverts
214. Curtis, B.A. (1991). Freshwater macro-invertebrates of Namibia. *Madoqua* **17**(2): 163-187.  
Account of the larger invertebrates found in freshwater and wetlands from all over Namibia. There are sections on sponges, coelenterates, flatworms, ectoprocta, roundworms, annelids, molluscs, crustacea and insects. Composition is also discussed by wetland/river type. An extensive bibliography is given. A list of 646 species is presented (127 from E Caprivi); about 50 of these species are thought to be endemic to Namibia. The E Caprivi wetlands are probably grossly under-recorded, but are not considered comparatively rich or specialised.  
Namibia, Chobe, Okavango, inverts



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215. D'Abbrera, B. (1997). *Butterflies of the Afrotropical Region: Part 1 Papilionidae, Pieridae, Acraeidae, Danaidae and Satyridae* (new and revised edition). Hill House publishers, Melbourne, Australia.  
N/S. Descriptive account of most species in these groups occurring in the area.  
Zbasin, inverts
216. Da Silva, J.A. (1986). River runoff and shrimp abundance in a tropical coastal ecosystem - the example of the Sofala Bank (Central Mozambique) (editor S. Skreslet). NATO ASI Series 67. Springer-Verlag, Berlin, Germany. pp. 329-344.  
Account of the abundance of the shallow water shrimp as related to outflows of the Zambezi. Flows directly affect the number of recruits or induce changes size at migration. It is not clear, but the paper seems to say that reduced flood flows replaced by a more continual flow regime since Cabora Bassa has had a detrimental affect on the shrimp fishing industry.  
Mozambique, Delta, water, human, inverts
217. Daget, J., Gosse, J.-P., Teugels, G.G. & Thys van den Audenaerde, D.F.E. [editors] (1991). *Check-list of the Freshwater Fishes of Africa (CLOFFA)*. Volume 4. ISNB/ORSTOM/MRAC, Brussels, Tervuren, Belgium & Paris, France. 740 pp.  
The final volume of this checklist of fish in Africa deals with the family Cichlidae (143 genera and 870 species). It includes both a systematic list and 3000 literature references.  
SAfrica, fish
218. Daget, J., Gosse, J.-P. & Thys van den Audenaerde, D.F.E. [editors] (1984). *Check-list of the Freshwater Fishes of Africa (CLOFFA)*. Volume 1. ORSTOM/MRAC, Paris, France & Tervuren, Belgium. 410 pp.  
The first volume of a major checklist, dealing with the Chondrichthyes (3 families) and 30 families of Osteichthyes, from the Lepidosireniformes to the Cypriniformes.  
SAfrica, fish
219. Daget, J., Gosse, J.-P. & Thys van den Audenaerde, D.F.E. [editors] (1986). *Check-list of the Freshwater Fishes of Africa (CLOFFA)*. Volume 2. ISNB/ORSTOM/MRAC, Brussels, Tervuren, Belgium & Paris, France. 520 pp.  
The second volume of this important checklist, which covers 43 osteichthyian families, from the Siluriformes to the Perciformes (but not including the cichlids).  
SAfrica, fish
220. Dangerfield, J.M., McCarthy, T.S. & Ellery, W.N. (1998). The mound-building termite *Macrotermes michaelseni* as an ecosystem engineer. *Journal of Tropical Ecology* 14(4): 507-520.  
Account of the effects of mounds of a species of termite on the floodplains of the Okavango. The mounds modify nutrient flow rates and distribution, and landscape topography, and thus effect the ecology and biological composition.  
Botswana, Okavango, inverts
221. Davies, B.R. (1975). They pulled the plug out of the Lower Zambezi. *African Wildlife* 29(2): 26-27.  
Popular article on the environmental impact of the closure of Cabora Bassa dam.  
Mozambique, Cabora, Delta, conservation
222. Davies, B.R. (1986). The Zambezi River system. In: *The Ecology of River Systems* (editors B.R. Davies & K.F. Walker). Monographiae Biologicae 60. Kluwer, Dordrecht, Netherlands. pp. 225-267.  
N/S  
Zbasin, water
223. Davies, B.R. [editor] (1999, in press). *Proceedings of the Workshop on the Sustainable Use of the Cabora Bassa Dam and the Zambezi Valley*.  
N/S. Papers from a workshop on potentials and problems associated with the Cabora Bassa dam, principally from a conservation perspective. Only drafts available to date.  
Mozambique, Cabora, Delta, water, conservation, birds
224. Davies, B.R., Hall, A. & Jackson, P.B.N. (1975). Some ecological aspects of the Cabora Bassa dam. *Biological Conservation* 8: 189-201.  
Account of the potential impacts of the impoundment of the Zambezi at Cabora Bassa. Discussion includes sections on aquatic weeds, fisheries, bush clearing, wildlife, human health and downstream effects.  
Mozambique, Cabora, conservation, human, water
225. Davison, E. (1950). A maze of reeds: the home of the sitatunga. *African Wildlife* 4: 57-59.  
Popular account on the natural history of the sitatunga in the Chobe area.  
Botswana, Namibia, Chobe, mammals
226. De Moor, F.C. [compiler] (1998). A preliminary report on a survey of the aquatic macroinvertebrates of the middle Cunene River in Namibia. Internal report, Albany Museum Albany Museum, Grahamstown, South Africa. 60 pp.  
Detailed survey of aquatic macroinvertebrates from the Cunene River in N Namibia between the Ruacana Falls to downstream of Epupa Falls in order to provide a baseline for monitoring. The importance of maintaining a reasonably even flow regime is stressed. Finds in the various taxonomic groups are briefly discussed; several new species were recognised. Photos and field sheets from the 19 recording sites are given.  
Namibia, inverts

227. De Vos, A. & Dowsett, R.J. (1966). The behaviour and population structure of three species of the genus *Kobus*. *Mammalia* **30**: 30-55.  
Account of study on the behaviour and population structures of lechwe, waterbuck and puku in Zambia. Compares social organisation, territorial behaviour and habitat selection.  
Zambia, mammals
228. Debenham, F. (1952). Studies of an African swamp. *The Northern Rhodesia Journal* **??**: 88.  
N/S  
Zambia, Bangweulu
229. Debenham, F. (1952). Study of an African swamp. Report of the Cambridge University Expedition to the Bangweulu Swamps, Northern Rhodesia, 1949. HMSO, London, UK. 88 pp.  
A classic comprehensive account of the Bangweulu swamps in NE Zambia with details on hydrology, geography, vegetation and agriculture, and on the Chambeshi river.  
Zambia, Bangweulu, plants, agriculture
230. Dening, R.C. Checklist of the Zambian butterflies. unpublished report, British Museum (Natural History), London, UK.  
N/S. Unpublished checklist of Zambian butterflies.  
Zambia, inverts
231. Dennis, N. & Tarboton, W.R. (1993). *Waterbirds*. Struik, Cape Town.  
N/S  
SAfrica, birds
232. Denny, P. [editor] (1985). *The Ecology and Management of African Wetland Vegetation*. Geobotany Vol. 6. W. Junk, Dordrecht, Netherlands. 344 pp.  
Compiled book containing 10 detailed and definitive papers on various aspects of the vegetation, botany and ecology of wetlands throughout Africa. A botanical/ecological approach is taken, rather than a geographical approach.  
SAfrica, vegetation, conservation, probspp, plants
233. Department of Biology (1996). Lake Chilwa Ramsar site study: executive summary. University of Malawi, Zomba, Malawi. 32 pp.  
Report on various aspects of the biology and ecology of Lake Chilwa. The importance of the lake for waterfowl, particularly Palaearctic migrants, and fishery is emphasised. Sections on ecology, vegetation, invertebrates, fish, amphibians, reptiles, mammals and birds are included.  
Malawi, MShire, human, vegetation, fish, birds, herps, mammals, inverts
234. Dickson, C.G.C. & Kroon, D.M. [editors] (1978). *Pennington's Butterflies of Southern Africa*. Ad Donker, Johannesburg, South Africa. 670 pp.  
Large illustrated identification book on the butterflies of southern Africa covering 781 species, including 16 confined to the Zambezi wetlands. Food plants are mentioned.  
SAfrica, inverts
235. DNFFB (1997). Recursos florestais e faunísticos do norte de Sofala. Direcção Nacional de Florestas e Fauna Bravia, Maputo, Mozambique. 115 pp.  
Detailed management plan for the Gorongosa-Marromeu area, including the wildlife areas on the S bank of the Zambezi.  
Mozambique, Delta, conservation, vegetation, human
236. DNFFB (1998). Avaliação preliminar dos recursos florestais, faunísticos e pesqueiros no delta do Zambezi. Direcção Nacional de Florestas e Fauna Bravia, Maputo, Mozambique. 67 pp.  
Account of the natural resources (mammals, plants, fish) of the Zambezi Delta area and their present use, including vegetation descriptions. Lists of marine algae, zooplankton, timber trees and fish are given, and maps of distribution of some of the resources.  
Mozambique, Delta, conservation, vegetation, plants, mammals, fish, plankton, human
237. Dodman, T. (1996). Distribution of cranes in Zambia. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 251-254.  
Zambia has extensive habitat for two species of crane; the Kafue Flats being the most important area. The Wattled Crane is found in many of the wetlands, while the Grey Crowned Crane is concentrated in the Luangwa valley.  
Zambia, Kafue, Luangwa, birds
238. Dodman, T. (1996). Present status and distribution of cranes in the Kafue Flats, Zambia with reference to population estimates of the 1980's. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 255-259.  
Brief account of distribution and numbers of Wattled Crane and Grey Crowned Crane on the Kafue Flats in 1992/93. Notes on breeding behaviour are included.  
Zambia, Kafue, conservation, birds

239. Dodman, T., de Vaan, C., Hubert, E. & Nivet, C. (1997). African Waterfowl Census 1997. Wetlands International, Wageningen, Netherlands. 260 pp.  
Annual report on waterbird counts throughout Africa. Counts were made in the Lochinvar and Blue Lagoon National Parks in the Kafue Flats, Zambia in July 1996 (31,848 birds of 58 species) and January 1997 (43,925 birds of 79 species).  
birds, Zambia, Kafue
240. Dodman, T. & Taylor, V. (1995). African Waterfowl Census, 1995. International Waterfowl Research Bureau, Slimbridge, UK. 192 pp.  
Counts were made in the Lochinvar and Blue Lagoon NPs on the Kafue Flats in Zambia in July 1994 (29,591 birds of 57 spp) and in January 1995 (49,181 birds of 82 spp).  
Zambia, Kafue, conservation, birds
241. Dodman, T. & Taylor, V. (1996). African Waterfowl Census, 1996. Wetlands International, Wageningen, Netherlands. 206 pp.  
Counts were made in the Elephant Marsh in Malawi in July 1995 (210 birds of 42 spp) and in the Lochinvar and Blue Lagoon NPs on the Kafue Flats in Zambia in July 1995 (4667 birds of 46 spp) and January 1996 (27,175 birds of 63 spp).  
Zambia, Malawi, Kafue, LShire, conservation, birds
242. Dohrn, H. (1865). List of the land and freshwater shell of the Zambesi and Lake Nyasa, eastern tropical Africa, collected by John Kirk, MD, FLS, etc. *Proceedings of Zoological Society of London* **1865**: 231-234.  
N/S  
LMalawi, Malawi, Mozambique, inverts
243. Donnelly, B.G. & Hustler, K. (1986). Notes on the diet of the Reed Cormorant and Darter on Lake Kariba during 1970 and 1971. *Arnoldia (Zimbabwe)* **9**(24): 319-324.  
Study of stomach contents of 128 cormorants and 28 darters from Lake Kariba. Mostly non-commercial fish species were found.  
Zimbabwe, Kariba, birds
244. Douthwaite, R.J. (1974). An endangered population of Wattled Cranes (*Grus carunculatus*). *Biological Conservation* **6**(2): 134-142.  
Account of Wattled Cranes on the Kafue Flats. Up to 3000 were estimated for the dry season. They are threatened by an upstream dam and the changed flooding regime; breeding success is higher in good flood years. Food plants are listed.  
Zambia, Kafue, conservation, birds
245. Douthwaite, R.J. (1977). Filter-feeding ducks of the Kafue Flats, Zambia, 1971-1973. *Ibis* **119**(1): 44-66.  
Account of the occurrence and feeding habits of 7 species of duck, mainly at Lochinvar NP. At times, the numbers of 3 species (Fulvous and White-faced Whistling Ducks, Red-billed Teal) exceeded 25,000 and Pochard reached 6500. Despite similarities in diet, the ducks differed in feeding behaviour. Fruits, seeds, herbs and aquatic grasses were the most important food plants.  
Zambia, Kafue, birds
246. Douthwaite, R.J. (1978). Geese and Red-knobbed Coot on the Kafue Flats, Zambia, 1970-1974. *East African Wildlife Journal* **16**: 29-47.  
Account of the occurrence and breeding chronology of various species of geese on the Kafue Flats. The hydroelectric scheme may benefit the Pygmy Goose and Red-knobbed Coot but harm the Spurwinged Goose.  
Zambia, Kafue, birds
247. Douthwaite, R.J. (1982). Waterbirds: their ecology and future on the Kafue Flats. In: *The consequences of hydroelectric power development on utilisation of the Kafue Flats* (editors G.W. Howard & G.J. Williams) Kafue Basin Research Committee, University of Zambia, Lusaka, Zambia. pp. 137-140.  
Account of the waterbirds of the Kafue Flats and their ecology. Over 400 bird species have been listed of which 125 are waterbirds. The effects of the Itzhezhi dam could help simulate natural flooding, which is the key to the bird diversity.  
Zambia, Kafue, birds
248. Douthwaite, R.J. (1982). Waterbirds: their ecology and future on the Kafue Flats. In: *Proceedings of the National Seminar on Environment and Change: the Consequences of Hydroelectric Power Development on the Utilization of the Kafue Flats* (editors G.W. Howard & G.J. Williams). Kafue Basin Research Committee, Lusaka, Zambia. pp. 137-140.  
Account of waterbirds found on the Kafue Flats. Over 400 species of bird have been recorded, 125 are waterbirds. The Flats are the most important site for Wattled Crane.  
Zambia, Kafue, birds
249. Douthwaite, R.J. (1992). Effects of DDT on the Fish Eagle *Haliaeetus vocifer* population of Lake Kariba in Zimbabwe. *Ibis* **134**: 250-258.  
Account of the impacts of DDT use in tsetse fly control on the Fish Eagle on Lake Kariba. High DDT residues were found in some eggs.  
Zimbabwe, Kariba, water, birds
250. Douthwaite, R.J., Hustler, C.W., Kruger, J. & Renzoni, A. (1992). DDT residues and mercury levels in Reed Cormorants on Lake Kariba: a hazard assessment. *The Ostrich* **63**: 123-127.  
Account of the impacts of DDT and mercury on the Reed Cormorant in Lake Kariba. DDT residues were detected in all samples, along with 4 insecticides in some. Adult female fat contained sufficient to cause egg thinning and breeding failure.  
Zimbabwe, Kariba, water, birds
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251. Douthwaite, R.J. & Mundy, P.J. (1999). Changes to the Fish Eagle population breeding on Lake Kariba and exposure to DDT residues. In: *DDT in the Tropics: Recovery of wildlife in Zimbabwe following ground spraying for tsetse fly control*. Douthwaite & Associates, Canterbury, UK, pp. 39-43.  
Account of recovery of Fish Eagles in N Zimbabwe after DDT spraying, There were less DDT residues and thicker shells in 1998 compared with 1989, and a decline in birds population in some parts of Lake Kariba.  
Zimbabwe, Kariba, conservation, water, birds
252. Douthwaite, R.J. & Tingle, C.C.D. [editors] (1994). *DDT in the Tropics: The impact on wildlife in Zimbabwe of ground-spraying for tsetse fly control*. Natural Resources Institute, Chatham, UK. 195 pp.  
Multidisciplinary study on the effects of DDT spraying on a range of organisms (bats, birds, lizards, fish, insects) in the middle Zambezi catchment. Adverse effects were found in populations of 4 birds and 1 lizard species, and species numbers were low for some.  
Zimbabwe, Kariba, water, birds, fish, herps, inverts, mammals
253. Douthwaite, R.J. & Van Lavieren, L.P. (1977). A description of the vegetation of Lochinvar National Park, Zambia. Technical Report No.34. National Council for Scientific Research, Lusaka, Zambia. 66 pp.  
N/S  
Zambia, Kafue, vegetation
254. Dowsett, R.J. (1966). A preliminary list of the birds of the Kafue Flats. *The Puku* 4: 101-124.  
Checklist of 337 species from the Kafue Flats from personal observation and other publications, of which 119 are waterbirds. Brief indications of habitat are given.  
Zambia, Kafue, birds
255. Dowsett, R.J. (1966). The status of four species of aquatic bird in Zambia as suggested by ringing recoveries. *The Puku* 4: 129-133.  
Brief account of migrant birds (Cattle Egret, Sacred Ibis, African Spoonbill, Red-billed Teal) ringed in South Africa that have been recovered in Barotseland and elsewhere.  
Zambia, Barotse, birds
256. Dowsett, R.J. (1966). Wet season game populations and biomass in the Ngoma area of the Kafue National Park. *The Puku* 4: 135-145.  
Study on the biomass and composition of large mammal populations on grasslands in the Kafue NP. 26 species are noted.  
Zambia, Kafue, mammals
257. Dowsett, R.J. (1969). Ringed Sacred Ibis *Threskiornis aethiopica* recovered in Zambia. *The Puku* 5: 59-63.  
Account of 48 recoveries from birds ringed in South Africa, 42 of which were found in Barotseland. There are both a high number of waterbirds and high hunting pressures there.  
Zambia, Barotse, birds
258. Dowsett, R.J. (1993). Afrotropical avifaunas: annotated country checklists. In: *A contribution to the Distribution and Taxonomy of Afrotropical and Malagasy Birds* (editors R.J. Dowsett & F. Dowsett-Lemaire). Tauraco Press, Liège, Belgium. pp. 1-322.  
A series of country bird checklists (including Angola, Botswana, Namibia, Zambia, Zimbabwe, Malawi and Mozambique), with common names, status and bibliographic references. Summary statistics are given.  
Angola, Botswana, Namibia, Zambia, Zimbabwe, Malawi, Mozambique, birds
259. Dowsett, R.J. & Aspinwall, D.R. (in prep.). *The Bird Atlas of Zambia*. Zambian Ornithological Society, Lusaka.  
N/S  
Zambia, birds
260. Dowsett, R.J., Aspinwall, D.R. & Leonard, P.M. (1999). Further additions to the avifauna of Zambia. *Bulletin British Ornithologist's Club* 119: 94-103.  
N/S. Notes on 31 species including waterbirds.  
Zambia, birds
261. Dowsett, R.J. & De Vos, A. (1965). The ecology and numbers of aquatic birds on the Kafue Flats, Zambia. In: *Wildfowl Trust 16th Annual Report, 1963-1964*. Wildfowl Trust, Reading, UK. pp. 67-73.  
Account of numbers of aquatic birds on the Kafue Flats and Kafue river, and their association with lechwe. 33 species are listed for the Flats and 22 species for the Kafue River.  
Zambia, Kafue, birds
262. Du Toit, R.F. [compiler] (1982). *A preliminary assessment of the environmental implications of the proposed Mupata and Batoka hydroelectric schemes (Zambezi river, Zimbabwe)*. Natural Resources Board, Harare, Zimbabwe. 209 pp.  
Study of the environmental impacts of two potential dams. Vegetation, terrestrial invertebrates, amphibians and reptiles, birds and mammals were looked at. The Mupata scheme would have a severe negative effect on the ecology of the Mana floodplain. Birds (16 spp) would be affected adversely (5 spp beneficially). The negative effects from the Batoka Gorge scheme would be relatively minor.  
Mana, Zimbabwe, conservation

263. Du Toit, R.F. (1983). The Zambezi schemes. *Zimbabwe Wildlife* **32**: 2-7.  
Synopsis of the findings of an environmental impact assessment of the Batoka and Mupata dams on the Zambezi in Zimbabwe. The Batoka scheme is considered far less detrimental environmentally.  
Mana, Zimbabwe, conservation
264. Du Toit, R.F. (1984). Some environmental aspects of proposed hydro-electric schemes on the Zambezi River, Zimbabwe. *Biological Conservation* **28**: 73-87.  
Account of preliminary EIA studies on hydroelectric schemes at Mupata and Batoka gorges on the mid Zambezi river in Zimbabwe, which concluded that Batoka entailed much less environmental cost. Likely impacts on mammals, birds, fish, terrestrial and aquatic vegetation, and human health of each scheme are discussed.  
Zimbabwe, Mana, conservation, water
265. Du Toit, R.F. (1994). Mid-Zambezi and Mana Pools: ecology and conservation status. In: *Wetlands Ecology and Priorities for Conservation in Zimbabwe: Proceedings of a seminar on wetlands in Zimbabwe* (editors T. Matiza & S.A. Crafter). IUCN Wetlands Programme No. 14. IUCN, Gland, Switzerland. pp. 35-42.  
Brief account of the mid-Zambezi valley in Zimbabwe, with particular reference to the lake shore habitats of Lake Kariba, the alluvial terraces below Kariba, and inland mopane pans. Wetlands are shown to be of limited extent, the largest being Mana Pools.  
Mana, Zimbabwe, conservation, vegetation
266. Dudley, C.O. (1978). The herpetofauna of the Lake Chilwa Basin. *Nyala* **4**(2): 87-99.  
Account of the reptiles and amphibians of Lake Chilwa. The general area is said to be rich as it forms part of a zoogeographic transition zone. A checklist is given, and some species discussed.  
Malawi, MShire, biogeography, herps
267. Dudley, C.O. (1998). An inventory and bibliography of the invertebrate biodiversity of Malawi. In: *Malawi Biodiversity Country Study. Indigenous Animals: invertebrates*. Museums of Malawi, Blantyre, Malawi. 17 pp. Consultants report.  
N/S  
Malawi, inverts
268. Dudley, R.G. (1974). Growth of *Tilapia* of the Kafue floodplain, Zambia: predicted affects of the Kafue Gorge dam. *Transactions of the American Fisheries Society* **103**(2): 281-291.  
Account of the growth of 3 tilapia species. It is predicted that their growth and survival would be enhanced by flooding for the Kafue Gorge dam.  
Zambia, Kafue, human, fish
269. Dudley, R.G. (1976). Status of major fishes of the Kafue floodplain, Zambia five years after completion of the Kafue Gorge dam. National Science Foundation, Washington DC, USA. 71 pp.  
N/S. Report which may give lists of important fish species and data on changes after the closure of the Kafue Gorge dam.  
Zambia, Kafue, human, fish
270. Dudley, R.G. (1979). Changes in growth and size distribution of *Sarotherodon macrochir* and *Sarotherodon andersoni* from the Kafue floodplain, Zambia, since construction of the Kafue Gorge dam. *Journal of Fish Biology* **14**: 205-223.  
Account of the growth of 2 tilapia species since dam closure (see Dudley 1974). There appears to be no obvious change in growth rates, and reproductive success is said to have become more erratic owing to changes in flood regime.  
Zambia, Kafue, human, fish
271. Dudley, R.G., Manning, I. & McCormick, S. (1991). Kapichira environmental assessment: Malawi Power V Project. Associates in Rural Development, Burlington, Vermont, USA. 2 volumes.  
Consultants' report giving a good assessment of the possible effects of the Kapichira power station on the wetlands of the lower Shire valley. Contains summaries of basic data on Elephant Marsh (physiography, geology, hydrology, biology, socio-economic). On biodiversity, concentrates on hippo, crocodiles and fisheries. They found that unless Lake Malawi water levels drop significantly, no negative effects on the wetlands could be expected. But as flow rates and water levels fluctuate considerably in the short term, possible disturbance to the marshes would include lower fish catches, river bank erosion, reduced crocodile breeding and reduction in extent of marsh land. Simplified lists of vegetation/plant species, larger mammals and fish are given in appendices.  
Malawi, LShire, human, water, vegetation, mammals, fish
272. Dudley, R.G. & Scully, R.J. (1980). Changes in experimental gillnet catches from the Kafue floodplain, Zambia, since construction of the Kafue Gorge Dam. *Journal of Fish Biology* **16**: 521-537.  
Study on changes in fish catches on the Kafue floodplain after dam construction. Of 9 species abundantly caught pre-impoundment (1969/70), only 1 species increased in frequency after impoundment (1975/76), while 3 predator species decreased. It is not clear if this is due to changes in flooding patterns or earlier dry conditions. Annual fish yield was around 5000 tons.  
Zambia, Kafue, human, fish
273. Dunham, K.M. (1989). Vegetation-environment relations of a middle Zambezi floodplain. *Vegetatio* **82**(1): 13-24.  
A study of the relationships between environmental factors and plant species composition of alluvial vegetation in the Mana Pools area along the Zambezi river. Grass and sedge species composition was shown to be related to soil moisture regime. *Faidherbia albida* is a pioneer species on low-lying sandbanks, and woody species diversity increased with height above the river. A list of plant species found is given.  
Mana, Zimbabwe, vegetation, plants
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274. Dunham, K.M. (1990). Biomass dynamics of herbaceous vegetation in Zambezi riverine woodlands. *African Journal of Ecology* **28**: 200-212.  
Account of biomass, productivity and large mammal utilization of floodplain herbaceous vegetation on the Mana floodplain, Zimbabwe. Production was greater in perennial than in annual grasslands, with utilisation varying between 53 and 99% of annual production. Mana, Zimbabwe, vegetation, mammals
275. Dunham, K.M. & Tsindi, N. (1984). Record of the puku (*Kobus vardoni*) from Zimbabwe. *Zimbabwe Science News* **18**(3/4): 35.  
First visual record of puku on the Zimbabwe side of Zambezi. Suggested that it had moved west from the Luangwa-Zambezi confluence. Mana, Zimbabwe, mammals
276. Dutton, P., Ramsey, S. & Falção, R. (1994). Aerial survey of hunting areas (coutadas) 6, 7, 9 and 15 conducted on behalf of Sociedade de Safaris de Moçambique (Safrique). Sociedade de Safaris de Moçambique, Beira, Mozambique. 26 pp.  
Account of a 6% survey of larger mammals (grey duiker, impala, reedbuck, elephant and nyala) of the area north of Gorongosa. Estimates of total numbers (all species) are low at 408 head. Uncontrolled hunting is a major problem compounding diminution of numbers owing to the war. Hardwoods are being illegally exploited. There is still good potential for use of the area for hunting. Mozambique, Delta, mammals
277. Duval, C.T. (1969). Recent ornithological records from the Southern Province. *The Puku* **5**: 223-226.  
Brief notes on 20 species of bird from S Zambia, including some from wetlands. Zambia, birds
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278. East, R. [editor] (1989). *Antelopes: Global Survey and Regional Action Plans. Part 2, Southern and South-Central Africa*. IUCN/SSC Antelope Specialist Group, IUCN, Gland, Switzerland. 96 pp.  
Detailed reports on antelope conservation status for ten countries. Reviews protected areas and includes crude distribution maps of all species within each country report. The three lechwe subspecies are all considered threatened. SAfrica, conservation, mammals
279. Eccles, D.H. (1985). Lake flies, water fleas and sardines - a cautionary note. *Biological Conservation* **33**: 309-333.  
Discussion on the proposal to introduce kapenta into Lake Malawi and the impact this may have on the lake fish communities. Malawi, LMalawi, conservation, human, fish, inverts
280. Eccles, D.H. & Trewavas, E. (1989). *Malawian Cichlid Fishes: the Classification of some Haplochrome Genera*. Lake Fish Movies/H.W. Dieckhoff, Herten, Germany. 334 pp.  
Taxonomic book covering some of the commercially important genera of fish. Malawi, LMalawi, fish
281. Edmonds, A.C.R. [compiler] (1976). *Republic of Zambia: Vegetation map*. Forest Department, Lusaka, Zambia. 9 sheets  
Series of 9 colour maps at 1:500,000 scale bound in large format cover of the vegetation of Zambia. Accompanying text is printed on the reverse of each sheet. The legend shows 17 vegetation types, based primarily on the Yangambi classification system, grouped into 6 physiognomic classes. Most of the Barotse floodplains are mapped as grassland (type 17) with inclusions of Kalahari sand woodland (type 13), which becomes more common upstream. The Kafue flats (downstream) and the Lukanga swamps are both mapped as grassland (17), surrounded principally by munga woodland (type 15). Classification follows Fanshawe (1971). Zambia, vegetation
282. Edwards, D. (1972). Report by November 1972 joint Botswana-South Africa survey of the extent and degree of occurrence of *Salvinia molesta* (Kariba weed) in the Chobe-Linyanti-Kwando river system. Unpublished report, South Africa. 14 pp.  
Report, including airphotos, on extent and distribution of *Salvinia* in the river system, showing distribution in parts on airphoto mosaics. The weed extended about 50 km upstream of Lake Liambezi. Namibia, Botswana, Chobe, probspp, plants
283. Edwards, D. & Thomas, P.A. (1977). The *Salvinia molesta* problem in northern Botswana and eastern Caprivi area. In: *Proceedings of the Second National Weeds Conference of South Africa* (editor D. Annecke). A.A. Balkema, Cape Town, South Africa. pp. 221-239.  
Account of the distribution and history of *Salvinia* in the Kwando-Linyanti-Chobe river system, including results from control measures. Namibia, Botswana, Chobe, probspp, plants
284. Elenbaas, P.F.M. & Grundel, C. (1994). Zooplankton composition and abundance in two impoundments in Zimbabwe. *Hydrobiologia* **272**: 265-275.  
Account of the zooplankton, including rotifers and crustacea, of two man-made lakes near Harare, Lake Chivero and Cleveland Dam. Chivero, Zimbabwe, plankton
285. Ellenbroek, G.A. (1987). *Ecology and productivity of an African wetland system: the Kafue Flats, Zambia*. Geobotany No. 9. W. Junk, Dordrecht, Netherlands. 267 pp.  
Detailed quantitative ecological study on the vegetation of the Kafue Flats. About 3000-5000 km<sup>2</sup> out of 7000 km<sup>2</sup> is inundated for 1-7 months/year. Account covers physical environment, vegetation zones, phytosociology, plant phenology, plant productivity, decomposition and fire. One finding is that C3 grasses dominate on the floodplain. Zambia, Kafue, vegetation



286. Ellery, W.N., Ellery, K. & McCarthy, T.S. (1993). Plant distribution on islands of the Okavango delta, Botswana: determinants and feedback interactions. *African Journal of Ecology* **31**: 118-134.  
N/S  
Botswana, Okavango, plants

287. Ellery, W.N., Ellery, K., McCarthy, T.S., Cairncross, B. & Oelofse, R. (1989). A peat fire in the Okavango delta, Botswana, and its importance as an ecosystem process. *African Journal of Ecology* **27**: 7-21. Account of peat fires in the Okavango swamps. These are shown to be long-lasting and to cause transformation of the habitat, and possibly later reflooding.  
Botswana, Okavango, vegetation

288. Ellery, W.N., McCarthy, T.S. & Dangerfield, J.M. (1997). Biotic factors in mima mound development: evidence from floodplains of the Okavango Delta, Botswana. *International Journal of Environmental Science* **1**: 1-10.  
N/S  
Botswana, Okavango, invertebrates

289. Eriksson, M.O.G. (1994). Waterbird densities at Lake Kariba, Zimbabwe, during a period of extremely low waterlevel in 1984-85. *Honeyguide* **40**: 4-15.  
Study on water bird numbers along the S bank of Lake Kariba. 25 species are recorded; no general patterns between waterbird occurrence and aquatic macrophytes.  
Zimbabwe, Kariba, birds

290. Eriksson, M.O.G. & Kautsky, N. (1992). Distribution of African Openbilled Storks *Anastomus lamelligerus* at Lake Kariba, Zimbabwe, in relation to density and biomass of mussels. *Tauraco* **2**(1): 47-61. Account of study on a specialised predator of molluscs on the shores of Lake Kariba. Numbers of storks were highest when water levels were low. Distribution of storks was related to high abundance of the mussel *Muelea dubia*, and not to total density or biomass of mussels.  
Zimbabwe, Kariba, birds, invertebrates

291. Evans, R.E. (1982). The rehabilitation of the Savory Dam. *Zimbabwe Agricultural Journal* **79**: 47-56. Gives a list with abundance of all fish species collected when a small dam near Harare was drained.  
Zimbabwe, fish

292. Everett, G.V. (1971). Sampling fish stocks in the Kafue river. *Fisheries Research Bulletin, Zambia* **5**: 297-304.  
Account of a proposed technique to measure exploited fish stocks along the Kafue river. Quantity of fish taken is estimated at 5600 ton/year, mostly through gill-netting.  
Zambia, Kafue, human, fish

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293. Fanshawe, D.B. (1968). The vegetation of Sesheke District. Forest Research Pamphlet No. 16. Forest Department, Ndola, Zambia. 34 pp.  
Account of the vegetation of Sesheke District in the south of Barotseland. The district is principally comprised of Kalahari sands, with some old alluvium. The vegetation is described under 12 types (*Cryptosepalum* forest, *Baikiaea* forest, riparian woodland, miombo/Kalahari woodland, suffrutex savanna, mopane woodland, munga woodland, Kalahari termitaria, mopane termitaria, munga termitaria, dambo and floodplain) with species lists for each type.  
Zambia, Barotse, vegetation, plants

294. Fanshawe, D.B. (1969). The vegetation of Kalabo District. Forest Research Pamphlet No. 22. Forest Department, Ndola, Zambia. 19 pp.  
Account of the vegetation of Kalabo District in northwest Barotseland. The district is very flat, around 75% being sand plain or floodplain, and poor in woody species. The vegetation is described under 9 types (swamp woodland, riparian woodland, seepage dambos, Kalahari woodland, Kalahari suffrutex savanna, dry dambo, munga termitaria, munga/riparian termitaria, and flood plains), with species lists.  
Zambia, Barotse, vegetation, plants

295. Fanshawe, D.B. (1969). The vegetation of Mongu-Lealui District. Forest Research Pamphlet No. 23. Forest Department, Ndola, Zambia. 22 pp.  
Account of the vegetation of the Mongu area in W Zambia, lying principally on Kalahari Sand. 14 vegetation types are described (*Cryptosepalum* forest, Kalahari sand chipya, *Baikiaea* forest, *Pteleopsis* woodland, swamp woodland, riparian woodland, seepage dambo, miombo woodland, Kalahari sand woodland, munga woodland, dry dambo, miombo termitaria, munga termitaria and floodplain), each with species lists.  
Zambia, Barotse, vegetation, plants

296. Fanshawe, D.B. (1969). The vegetation of Mwinilunga District. Forest Research Pamphlet No. 27. Forest Department, Ndola, Zambia. 35 pp.  
Account of the vegetation of Mwinilunga District at the headwaters of the Zambezi. The vegetation is described under 15 types (*Cryptosepalum* forest, Kalahari sand chipya, chipya scrub, swamp forest, riparian forest, seepage dambo, miombo woodland, hill miombo, miombo/Kalahari woodland, watershed plain, dry dambos, miombo/kalahari termitaria, riparian termitaria, dambo grassland, riverine grassland), each with species lists. The district is perhaps the richest in plant species in Zambia with over 50 woody endemics.  
Zambia, headwater, vegetation, plants

297. Fanshawe, D.B. (1969). The vegetation of Senanga District. Forest Research Pamphlet No. 26. Forest Department, Ndola, Zambia. 26 pp.  
Account of the vegetation of Senanga District in central Western Province. About 40% of the district is liable to seasonal waterlogging or flooding. The vegetation is described under 15 types (*Cryptosepalum* forest, *Baikiaea* forest, secondary *Baikiaea* forest, riparian woodland, miombo/Kalahari woodland, Kalahari woodland, mopane woodland, munga woodland, mopane termitaria, munga termitaria, riparian termitaria, dambo termitaria, sand plains, dambos and flood plains), each with species lists. In the sand plains and dambos suffrutex species are characteristic. The flood plains contain many sweet grasses.  
Zambia, Barotse, vegetation, plants
298. Fanshawe, D.B. (1969). The Vegetation of Zambia. Forest Research Bulletin No. 7. Division of Forest Research, Kitwe, Zambia. 67 pp.  
Comprehensive account of the vegetation of Zambia. There are 18 vegetation types described, grouped into 6 classes; these are mapped in Edmonds (1976) map of vegetation at scale 1:500,000. Floodplain grasslands often comprise swards of bunch grasses; *Hyparrhenia rufa* is characteristic of shallowly flooded margins and *Echinochloa pyramidalis* of the floodplain proper. *Vossia* is found in the "sump". *Tristachya* and *Themeda* are characteristic of the sandy floodplains of Barotseland. Swamps (e.g. Lukanga, Busanga) contain *Cyperus papyrus*, *Oryza longistaminata*, *Leersia hexandra*, *Pennisetum glaucocladum*, *Phragmites mauritianus* and *Vossia cuspidata*.  
Zambia, vegetation, plants
299. Fanshawe, D.B. (1972). The biology of the reed - *Phragmites mauritianus* Kunth. *Kirkia* **8**: 147-150.  
Account of the biology of the common reed, often found flanking river channels, with brief notes on its ecology, uses and control  
SAfrica, human, plants
300. Fanshawe, D.B. (1973). The vegetation of Balovale District. Forest Research Pamphlet No. 56. Forest Department, Ndola, Zambia. 23 pp.  
Account of the vegetation of Balovale (Zambezi) District in central North West Province. Most of the district is underlain by Kalahari sands. The vegetation is described under 18 types (dry evergreen forest, dry deciduous forest, swamp forest, riparian forest, moist dambos, miombo woodland, hill miombo woodland, Kalahari woodland, Kalahari/miombo woodland, *Burkea-Erythrophleum* woodland, *Burkea-Diplorhynchus* scrub, suffrutex savanna, bush groups, Kalahari sands munga woodland, dry dambos, miombo termitaria, dambo grassland, riverine grassland), each with species lists.  
Zambia, Barotse, vegetation, plants
301. Fanshawe, D.B. (1973). The vegetation of Kabompo District. Forest Research Pamphlet No. 55. Forest Department, Ndola, Zambia. 21 pp.  
Account of the vegetation of Kabompo District in northwest Barotseland. Almost the whole district is underlain by Kalahari sand. The vegetation is described under 13 types (dry evergreen forest, chipya woodland, dry deciduous forest, swamp forest, riparian forest, moist dambos, miombo woodland, Kalahari woodland, munga woodland, dry dambos, termitaria, dambo grassland, riverine grassland), with species lists for each type.  
Zambia, Barotse, vegetation, plants
302. FAO (1968). Wildlife, fisheries and livestock production. Vol. 5. *Multipurpose Survey of the Kafue River Basin, Zambia*. Report FAO SF: 35/ZAM FAO, Rome, Italy. 7 volumes.  
N/S. Should contain much important information on fisheries and wildlife.  
Zambia, Kafue, human, agriculture, mammals, fish
303. FAO (1990). Wildlife management and crop protection, Malawi - elephant and crocodile management strategy. F: MLW/87/010 Field Document No. 10. Department of National Parks, Lilongwe, Malawi.  
N/S  
Malawi, LShire, human, mammals, herps
304. Feresu, S.B. & Van Sickle, J. (1990). Coliforms as a measure of sewage contamination of the River Zambezi. *Journal of Applied Bacteriology* **68**: 397-403.  
Study of faecal bacteria from untreated sewage in river water below Victoria Falls town.  
Zimbabwe, water
305. FitzSimons, V. (1935). Scientific results of the Vernay-Lang Kalahari Expedition, March to September, 1930: Reptila and amphibia. *Annals of the Transvaal Museum* **16**(2): 295-397.  
Account of herp collections (99 species) from the Kalahari area of Botswana, W Zimbabwe and the Transvaal, including the Chobe.  
Botswana, Zimbabwe, Chobe, herps
306. Flora Zambesiaca Managing Committee (1960-to date). *Flora Zambesiaca* (current editor G.V. Pope). Flora Zambesiaca Managing Committee, London, UK.  
An on-going series of taxonomic publications covering the flora of Caprivi, Botswana, Zambia, Zimbabwe, Malawi and Mozambique. Each part covers a family or group of families. 154 out of 233 families have been published to date.  
Zbasin, plants
307. Fox, P.J. & Matthiessen, P. (1982). Acute toxicity to fish of low-dose aerosol application of endosulfan to control tsetse fly in the Okavango Delta, Botswana. *Environmental Pollution (series A)* **27**: 129-142.  
N/S. Study shows significant fish mortality in lagoons in the Okavango delta after ultra-low volume spraying of endosulfan for tsetse fly control.  
Botswana, Okavango, water, fish



308. Fox, P.J. & Watt, E.H. (1976). Some effects of *Salvinia molesta* on fish populations in the Linyanti. Unpublished report, Maun, Botswana. 2 pp.  
Brief results of a fish catching trial in open and *Salvinia*-covered waters along the Linyanti river. Oxygen concentrations are given; those under *Salvinia* are 7% compared to 34-41% in open water. 11 fish species were caught in open water compared to 2 species under *Salvinia*, with only 12% of open-water weight.  
Botswana, Chobe, prob spp., fish, plants
309. Fraga de Azevedo, J., Medeiros, L.d., Faro, M.M.d.C., Xavier, M.d.L. & Gandara, A.F.E.M.T. (1961). Fresh water mollusks of the Portuguese Overseas Provinces III - mollusks of Mozambique. *Estudos, Ensaios e Documentos* **88**: 205-394.  
English section of longer work; illustrations from p.399. Review of information on freshwater molluscs across Mozambique with particular reference to those which are potential carriers of bilharzia. Study looks at biology, ecology and taxonomy. 28 species are described and distributions given.  
Mozambique, inverts
310. Frost, P.G.H. (1992). A policy framework for fire management in the Western Province of Zambia. RDP Livestock Services/Livestock Development Project Western Province, Mongu, Zambia. 71 pp.  
Detailed consultants' report on the role and actions of fire, with particular reference to vegetation structure, composition and productivity in Western Province.  
Zambia, Barotse, agriculture, vegetation
311. Frost, W.E. (1957). A note on eels (*Anguilla* spp.). *Piscator* **38**: 104-106.  
Brief account of the eels collected from various tributaries of the Zambezi river in Zambia.  
Zambia, fish
312. Fry, C.H., Hosken, J.H. & Skinner, D. (1986). Further observations on the breeding of Slaty Egrets *Egretta vinaceigula* and Rufous-bellied Herons *Ardeola rufiventris*. *The Ostrich* **57**(1): 61-64.  
Detailed description of a breeding locality of these two species in the Okavango swamps.  
Botswana, Okavango, birds
313. Fryer, G. (1957). Freelifving freshwater crustacea from Lake Nyasa and adjoining waters. Part I - Copepoda. *Archiv für Hydrobiologie* **53**: 62-86.  
N/S. Considered an important publication on Lake Malawi.  
Malawi, LMalawi, inverts
314. Fryer, G. (1957). Freelifving freshwater crustacea from Lake Nyasa and adjoining waters. Part II - Cladocera and Conchostraca. *Archiv für Hydrobiologie* **53**: 223-239.  
N/S. Considered an important publication on Lake Malawi.  
Malawi, LMalawi, inverts
315. Fryer, G. (1957). Freelifving freshwater crustacea from Lake Nyasa and adjoining waters. Part III - General remarks with notes on certain Malacostraca. *Archiv für Hydrobiologie* **53**: 527-536.  
N/S. Considered an important publication on Lake Malawi.  
Malawi, LMalawi, inverts
316. Fryer, G. (1959). The trophic interrelationships and ecology of some littoral communities of Lake Nyasa with especial reference to the fishes, and a discussion of the evolution of a group of rock-frequenting Cichlidae. *Proceedings of Zoological Society of London* **132**: 153-281.  
One of the first detailed accounts of the littoral fish communities of Lake Malawi. Research was principally focussed on Nkata Bay and also covered cichlid taxonomy. Each littoral habitat has a different fish fauna and many species show striking adaptations to their mode of life. Food webs are constructed. An extensive discussion on evolution and phylogeny of this group follows; the group is restricted to rocky shores and sandy beaches are effective barriers to dispersal.  
Malawi, LMalawi, biogeography, fish
317. Fryer, G. (1972). Conservation of the Great Lakes of East Africa: a lesson and warning. *Biological Conservation* **4**(4): 457-475.  
Account of the conservation problems facing the African great lakes, including Lake Malawi.  
Malawi, LMalawi, conservation
318. Fryer, G. & Iles, T.D. (1972). *The Cichlid Fishes of the Great Lakes of Africa: Their Biology and Evolution*. Oliver & Boyd, Edinburgh, UK. 641 pp.  
A major book on cichlid fish which has stimulated much of the later research. It gives accounts of the evolution, taxonomy, biology, behaviour, ecology and commercial importance of these species in the African great lakes.  
Malawi, LMalawi, biogeography, fish
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319. Games, I. (1983). Observations on the sitatunga *Tragelaphus spekei selousi* in the Okavango Delta of Botswana. *Biological Conservation* **27**: 157-170.  
Account of the distribution and habits of sitatunga in the Okavango swamps. Seasonal movement and feeding patterns are affected by the annual flood regime. Conflicts with cattle are examined.  
Botswana, Okavango, mammals
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Account of sitatunga populations in the Okavango, showing that their distribution is determined by flood regime. The species is a non-selective feeder.  
Botswana, Okavango, mammals
321. Games, I. & Moreau, J. (1997). The feeding ecology of two Nile crocodile populations in the Zambezi valley. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 183-195.  
Study of the effects of crocodiles in Lake Kariba on the fish and fisheries. Fish form the major part of the diet, but the Kariba crocodiles probably only consume 10-15% of fish offtake from artisanal fishing.  
Zimbabwe, Kariba, herps, fish
322. Gammelsrod, T. (1992). Improving shrimp production by Zambezi river regulation. *Ambio* **21** (2): 145-147.  
Study on variation in shrimp production off the Zambezi delta. Annual variations in abundance are correlated with wet season runoff. Control of flow from Cabora Bassa dam to fit in with the shrimp life cycle could improve potential productivity.  
Mozambique, Delta, human, inverts
323. Gammelsrod, T. (1992). Variation in shrimp abundance on the Sofala bank, Mozambique, and its relation to the Zambezi runoff. *Estuarine, Coastal & Shelf Science* **35**: 91-103.  
Study on the relationship between water flows of the Zambezi and shrimp (*Penaeus indicus*) production on the Sofala Bank off the mouth of the Zambezi delta. Catch rate is positively related to river runoff, but not to rainfall. Annual shrimp abundance can be related to wet season river runoff, and in years with a late wet season there is a tendency towards larger shrimps. Controlled water release from Cabora Bassa could enhance shrimp production.  
Mozambique, Delta, human, water, inverts
324. Gibbs-Russell, G.E. (1975). Distribution of vascular aquatic plants in Rhodesia. *South African Journal of Science* **71**(9): 270-272.  
Brief account of the distribution and ecology of aquatic plants in Zimbabwe. Of 491 species only 11 are free-floating and another 60 are submerged. Rivers have the highest proportion of species, and although pans have fewer species than man-made lakes, a higher proportion of those species are restricted to them.  
Zimbabwe, plants
325. Gibbs-Russell, G.E. (1975). Taxonomic bibliography of vascular aquatic plants in southern Africa. *Journal of Limnological Society of Southern Africa* **1**(1): 53-65.  
Bibliography of 638 references on aquatic plants from Botswana, Zimbabwe and South Africa. References are also listed by genus.  
SAfrica, plants
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Comprehensive keys to the genera and species of aquatic plants recorded from Zimbabwe. Each species is briefly described.  
Zimbabwe, plants
327. Gibbs-Russell, G.E. & Mitchell, D.S. (1976). Common aquatic plants on Rhodesian pans and lakes. *Rhodesia Agriculture Journal* **73**(1): 13-17.  
Brief account of water plants found in Zimbabwe lakes and pans, with descriptions of the common species.  
Zimbabwe, plants
328. Gifford, D. (1965). *Butterflies of Malawi*. Society of Malawi, Blantyre, Malawi. 144 pp.  
Lists 521 butterfly species for Malawi, but very few from the lower Shire.  
Malawi, inverts
329. Gliwicz, Z.M. (1984). Limnological study of Cahora Bassa reservoir with special regard to sardine fishery expansion. FAO/GCP/MOZ/006/SWE Field Document No. 8. FAO, Rome, Italy. 71 pp.  
Consultants' report on the feasibility of introducing kapenta into Cabora Bassa. Water quality is discussed, along with phytoplankton, primary productivity, zooplankton and kapenta biology.  
Mozambique, Cabora, water, human, plankton, fish, inverts
330. Gliwicz, Z.M. (1986). A lunar cycle in zooplankton. *Ecology* **67**: 883-897.  
Cycle of zooplankton density that fluctuated with the moon phase was observed in Cabora Bassa. *Limnothrissa miodon* feed on zooplankton more efficiently when the moon is full, switching to other food sources when the moon is low, thus allowing the zooplankton population to recover; a classical predator-prey relationship. Suggests that the moon phase cycle in zooplankton is a global phenomenon.  
Mozambique, Cabora, plankton, fish
331. Goodman, P.S. (1992). Wattled Cranes on the Marromeu floodplain. In: *Proceedings of the First Southern African Crane Conference* (editors D.J. Porter, H.S. Craven, D.N. Johnson & M.J. Porter). Southern African Crane Foundation, Durban, South Africa. pp. 155-156.  
Brief account of a census of Wattled Cranes in Marromeu with a map of habitats. 2570 birds were estimated along with other wetland birds.  
Mozambique, Delta, birds
332. Goodman, P.S. (1992). Zambeze Delta - an opportunity for sustainable utilisation of wildlife. *IWRB News* **8**: 12.  
Brief popular account of the wildlife and birds of Marromeu, and conservation prospects for the area.  
Mozambique, Delta, conservation, birds

333. Gouveia, D.H.G. (1974). Carta esboço dos solos da Zambézia. Maputo, Mozambique. Soil survey of Zambezia Province containing a section on vegetation types, which are described by area. Mozambique, Delta, vegetation, agriculture
334. Government of Malawi (1983). Biotic communities of Malawi. In: *The National Atlas of Malawi*. Department of Surveys, Lilongwe, Malawi. pp. 42-43.  
Two map sheets at scale 1:1 million showing vegetation. The legend covers 19 vegetation types, grouped into 9 classes, with details on species composition and structure in the text. The lower Shire valley is mapped as perennially wet to swampy grassland. Major components are *Typha australis*, *Vossia cuspidata*, *Pennisetum purpureum*, *Cyperus papyrus* and *Echinochloa pyramidalis*, with scattered *Hyphaene* and *Borassus* palms.  
Malawi, vegetation
335. Gratwicke, B. & Marshall, B.E. (in prep.). The effect of the floating fern *Azolla filiculoides* on animal biodiversity in a stream in Zimbabwe.  
N/S  
Zimbabwe, probssp, plants, inverts
336. Gray, W.N. (1980). Mollusca-range extensions - Pulmonata: Ancyliidae. *Nyala* 6(1): 72.  
Records of range extensions of 3 species of freshwater mollusc from S Malawi.  
Malawi, inverts
337. Gray, W.N. (1981). The bilharzia transmitting snails and their related species in Malawi. *Nyala* 7(2): 109-128.  
Lists and discusses 10 species of snail, of which 4 occur in the lower Shire.  
Malawi, inverts
338. Gray, W.N. (1981). Three new species of Mollusca for Malawi. *Nyala* 7(1): 51.  
Records of 3 new species of freshwater mollusc for Malawi from near Blantyre and Lake Malawi.  
Malawi, inverts
339. Graz, F.P. (1996). Fresh water fish distribution maps, Eastern Caprivi: data processing and map production. Technical Notes NRSC No.6. National Remote Sensing Centre, Windhoek, Namibia.  
Series of maps of the E Caprivi area at 1:650,000 scale, one for each fish species. Map shows location of 1995 sampling sites.  
Namibia, Chobe, fish
340. Green, J. (1985). Horizontal variations in associations of zooplankton in Lake Kariba. *Journal of Zoological Society of London* 206: 225-239.  
Study on the zooplankton of Lake Kariba. Crustacea were generally sparse. Zooplankton composition is greatly influenced by the presence of kapenta. 62 species of zooplankton are listed (40 rotifers, 18 crustacea, 3 diptera, 1 hydrozoan).  
Zimbabwe, Kariba, plankton, inverts
341. Green, J. (1990). Zooplankton associations in Zimbabwe. *Journal of Zoology* 222: 259-283.  
Study on the species composition of zooplankton in 18 Zimbabwe reservoirs, most in the Zambezi catchment.  
Zimbabwe, plankton, inverts
342. Green, J. & Carey, T.G. (1967). Preliminary checklist of Crustacea and Rotifera in zooplankton samples. *Fisheries Research Bulletin, Zambia* 3: 24-26.  
Checklist of crustacea and rotifers in zooplankton from the Kafue river floodplain. 12 species of crustacea and 23 species of rotifera are listed.  
Zambia, Kafue, plankton, inverts
343. Griffin, M. (1995). Review of Namibian anuran diversity. *Madoqua* 19(1): 31-32.  
Brief account of amphibian diversity, showing a water-dependent fauna in the Caprivi derived from the rich fauna of the Zambezi. Perennial rivers are probably the most important conduits for distribution.  
Namibia, Chobe, biogeography, herps
344. Griffin, M. & Channing, A. (1991). Wetland-associated reptiles and amphibians of Namibia - a national review. *Madoqua* 17(2): 221-225.  
Review of amphibians and reptiles associated with Namibian wetlands. 88% of amphibians are not restricted to wetlands, but some species of both reptiles and amphibians are dependent on perennial water. No species are considered endangered. A list of 64 species is given, of which 46 are found (or expected to be found) in the E Caprivi/Kwando area.  
Namibia, Chobe, herps
345. Griffin, M. & Grobler, H.J.W. (1991). Wetland-associated mammals of Namibia - a national review. *Madoqua* 17(2): 233-237.  
Review of mammals (large and small) associated with Namibian wetlands. About 10% of the total mammal fauna is thought to be dependent on wetlands. The highest species diversity of this group is in the Kavango-Caprivi area, including puku, sitatunga, bushbuck, oribi, waterbuck and red lechwe. Larger mammals are under threat from both habitat destruction and hunting. A list of 37 species is given, of which 34 are found in the E Caprivi/Kwando area.  
Chobe, Namibia, conservation, mammals
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346. Grimsdell, J.J.R. & Bell, R.H.V. (1972). The black lechwe and the Bangweulu flood plains. *Black Lechwe* ??(4): 6-9.  
Account of the Bangweulu swamps and the biology of the black lechwe. Lechwe are confined to the floodplain. The Black Lechwe Conservation Project is described.  
Zambia, Bangweulu, conservation, mammals
347. Grimsdell, J.J.R. & Bell, R.H.V. (1972). Population growth of red lechwe, *Kobus leche leche* Gray, in the Busanga Plain, Zambia. *East African Wildlife Journal* **10**: 117-122.  
Reports on large increase of an isolated population of red lechwe protected since 1948.  
Zambia, Kafue, mammals
348. Grimsdell, J.J.R. & Bell, R.H.V. (1972). The status of black lechwe in the Bangweulu flood plains. *Black Lechwe* ??(2): 29.  
Brief report on progress and concerns of the Black Lechwe Conservation Project, and threats and prospects for the population.  
Zambia, Bangweulu, conservation, mammals
349. Grimsdell, J.J.R. & Bell, R.H.V. (1975). Ecology of the Black Lechwe in the Bangweulu Basin of Zambia. Black Lechwe Research Project: Final Report. Animal Productivity Research Report AR 1. National Council for Scientific Research, Lusaka, Zambia. 175 pp.  
Detailed report on the biology, status, ecology and conservation of the lechwe in the Bangweulu swamps, N Zambia.  
Zambia, Bangweulu, mammals, conservation
350. Grimsdell, J.J.R. & Bell, R.H.V. (1976). The Bangweulu basin of Zambia. In: *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. pp. 257-262.  
Overview of the ecology of the Bangweulu swamps, with particular reference to the black lechwe.  
Zambia, Bangweulu, mammals
351. Grobler, M. & Ferreira, J. (1990). The dying of Lake Liambezi. *Custos* **19**(6): 40-44.  
Popular account on the drying up of Lake Liambezi in Caprivi by 1985. About 1000 kg of fish were harvested each day at its height, and was a very important local source of protein. Drying out was rapid, followed by peat fires on the bed. The lake is said to only appear after good flood years, after which it can be maintained by lesser annual inflows. Hunting of elephant and hippo has caused blockage of river channels, so refilling may now be less likely.  
Namibia, Chobe, human
352. Günther, A. (1864). Report on a collection of reptiles and fishes made by Dr. Kirk in the Zambesi and Nyassa regions. *Proceedings of Zoological Society of London* **1864**: 303-314.  
Account of reptiles and fishes collected by the 1858-63 Livingstone Expedition along the Rovuma, Lower Zambezi, Shire and Lake Malawi.  
Mozambique, Malawi, LShire, fish, herps
353. Günther, A. (1892). Report on a collection of reptiles and batrachians transmitted by Mr. H.H. Johnston, C.B., from Nyassaland. *Proceedings of Zoological Society of London* **1892**: 555-558.  
Account of reptiles and amphibians collected from the Shire Highlands, Malawi.  
Malawi, MShire, herps
354. Günther, A. (1894). Second report on the reptiles, batrachians, and fishes transmitted by Mr. H.H. Johnston, C.B., from British Central Africa. *Proceedings of Zoological Society of London* **1894**: 616-628.  
Account of reptiles, amphibians and fishes collected from the Shire Highlands.  
Malawi, MShire, fish, herps
355. Guy, P.R. (1977). Notes on the vegetation types of the Zambezi Valley, Rhodesia, between the Kariba and Mpata gorges. *Kirkia* **10**(2): 543-557.  
Vegetation survey of the mid-Zambezi valley area below the escarpment in Zimbabwe from Kariba Gorge to near Kanyemba. There are 18 vegetation types described. The Zambezi floodplains are described as *Faidherbia albida* woodland. Lining the watercourses are the perennial grasses *Vetiveria nigritana* and *Setaria sphacelata*.  
Mana, Zimbabwe, vegetation
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356. Haacke, W.D., Rautenbach, I.L. & Kemp, A.C. (1971). The Transvaal Museum Expedition to the Eastern Caprivi Strip: Observations on Mammals of the Eastern Caprivi strip; Observations on Birds of the Eastern Caprivi Strip. *Transvaal Museum Bulletin* **11**: 4-8.  
General description of the topography and vegetation. Includes species lists with 48 mammals and 260 birds.  
Namibia, Chobe, birds, mammals
357. Hall, A. & Davies, B.R. (1974). Cabora Bassa: apreciação global do seu impacto no vale do Zambeze. *E.M.* (July): 15-25.  
General account of the possible effects and economic opportunities associated with the Cabora Bassa dam. Concerns on aquatic weeds are discussed, as is the potential introduction of kapenta.  
Mozambique, Cabora, human, probspp, fish
358. Hall, A., Davies, B.R. & Valente, I. (1976). Cabora Bassa: some preliminary physico-chemical and zooplankton pre-impoundment survey results. *Hydrobiologia* **48**(1): 17-25.  
Account of 1974 survey on the physical and chemical parameters, and zooplankton composition, of the waters of the Zambezi river. Major enrichment of waters in the lower Zambezi occurs where the Shire river enters.  
Mozambique, Cabora, LShire, water, plankton
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359. Hall, A., Valente, I. & Davies, B.R. (1977). The Zambezi river in Moçambique: the physico-chemical status of the middle and lower Zambezi prior to the closure of the Cabora Bassa dam. *Freshwater Biology* 7: 187-206.  
Account of 1974 pre-Cabora Bassa research into water quality of the waters of the Zambezi. Temperatures increase going downstream and average pH is 7.8. The river is well oxygenated, but transparency is low. Water quality of the mid Zambezi was principally determined by Lake Kariba, and that of the lower Zambezi below the Shire confluence by the ionically-rich Shire river.  
Mozambique, Cabora, LShire, water
360. Hall-Martin, A.J. (1977). The influence of man and wildlife on rift valley plant communities of Malawi. *Nyala* 3(1): 3-29.  
Account of human effects on vegetation in Lengwe NP in the lower Shire valley, including agriculture, fire, logging and direct utilization of plants. The effects of large mammals on vegetation are also discussed.  
Malawi, LShire, plants, human, mammals
361. Hall-Martin, A.J. & Drummond, R.B. (1980). Annotated list of plants collected in Lengwe National Park, Malawi. *Kirkia* 12(1): 151-181.  
An annotated list of over 500 plant species found during the course of a vegetation survey of Lengwe NP in the lower Shire valley. A summary of the major vegetation types is also given. Seasonally inundated grasslands or dambos are one type, and are characterised by the grasses *Setaria palustris* and *Ischaemum afrum*. Woody plants are restricted to termitaria. The floodplain of the Nkombedzi-wa-Fodia river is dominated by the tall grasses *Sorghum sudanensis* and *Pennisetum purpureum*, while sandbanks in the river support *Phragmites mauritianus* and *Cyperus* spp.  
Malawi, LShire, vegetation, plants
362. Hancock, D.L. (1982). Butterflies of the Mana Pools area. *Zimbabwe Science News* 16: 88-89.  
N/S. Brief account of butterflies caught at Mana Pools, N Zimbabwe.  
Zimbabwe, Mana, inverts
363. Hancock, F.D. (1979). Diatom associations and succession in Lake Kariba, south central Africa. *Hydrobiologia* 67(1): 33-50.  
Account of some diatom associations in 4 sites in Lake Kariba, and a comparison with two stretches of the Zambezi river.  
Zimbabwe, Kariba, plankton
364. Hancock, F.D. (1985). Diatom associations in the aufwuchs of inundated trees and underwater leaves of *Salvinia*, drowned Mwenda River, Lake Kariba, Zimbabwe. *Hydrobiologia* 121: 65-76.  
Describes the diatom species associated with submerged trees and *Salvinia* in Lake Kariba between 1963 and 1972.  
Zimbabwe, Kariba, plankton
365. Handlos, W.L. (1977). Aspects of Kafue basin ecology. In: *Development and Ecology in the Lower Kafue Basin in the Nineteen Seventies* (editors G.J. Williams & G.W. Howard). Kafue Basin Research Committee, Lusaka, Zambia. pp. 29-39.  
Account of the ecological processes affecting the Kafue Flats.  
Zambia, Kafue
366. Handlos, W.L. (1982). Introduction to the ecology of the Kafue Flats. In: *Proceedings of the National Seminar on Environment and Change: the Consequences of Hydroelectric Power Development on the utilization of the Kafue Flats* (editors G.W. Howard & G.J. Williams). Kafue Basin Research Committee, Lusaka, Zambia. pp. 5-29.  
General review of the ecology of the Kafue Flats covering geology, climate, vegetation and animal life (particularly invertebrates). Productivity, nutrient cycles and symbioses are discussed.  
Zambia, Kafue, vegetation
367. Hanks, J. (1968). Bangweulu survey. *Black Lechwe* 7(1): 9-12.  
Popular account of an aerial survey of black lechwe.  
Zambia, Bangweulu, mammals
368. Hanks, J. (1969). Addenda and corrigenda to "A first list of plants collected in Kafue National Park". *The Puku* 5: 91-121.  
List giving 342 additions to Mitchell's 1963 plant checklist.  
Kafue, Zambia, plants
369. Hanks, J. (1969). Recent lechwe counts in Zambia. *The Puku* 5: 231-235.  
Brief notes on counts of various lechwe subspecies in Zambia in 1966-68.  
Zambia, Kafue, Bangweulu, mammals
370. Hanks, J., Stanley Price, M. & Wrangham, R.W. (1969). Some aspects of the ecology and behaviour of the defassa waterbuck (*Kobus defassa*) in Zambia. *Mammalia* 33: 471-494.  
Study on the behaviour, reproduction, feeding habits and predation of waterbuck in the Kafue NP, Zambia.  
Zambia, Kafue, mammals
371. Hanmer, D.B. (1976). Birds of the Lower Zambezi. Southern Birds No. 2. Witwatersrand Bird Club, Johannesburg, South Africa. 66 pp.  
A checklist of 322 species was made from 5 habitats at Mopeia and from the Shire confluence to Luabo in 1972-73, including 94 species of waterbirds. Some habitat information is included.  
Mozambique, Delta, vegetation, birds
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372. Hanmer, D.B. (1977). Man-induced changes in the Lower Shire valley with special reference to the avifauna. *Nyala* **3**(1): 33-37.  
Account, concentrating on birds, of the changes in the river and marsh systems of the lower Shire due to the activities of rural people and the SUCOMA sugar estate. Most effects have been negative, but cane fields have provided habitats for some species.  
Malawi, LShire, conservation, birds
373. Hanmer, D.B. (1977). The Skimmer (*Rynchops flavirostris*) in Malawi. *Nyala* **3**(2): 41-43.  
Account of occurrence of the African Skimmer in Malawi, including breeding along the lower Shire.  
Malawi, LShire, birds
374. Hanmer, D.B. (1979). A trapping study of Palaearctic passerines at Nchalo, southern Malawi. *Scopus* **3**(4): 81-92.  
Account of a study on palaearctic passerines at Nchalo, lower Shire valley. 9 species of warbler were caught over 5 years.  
Malawi, LShire, birds
375. Hanmer, D.B. (1982). First record of the African Skimmer breeding in Malawi. *The Ostrich* **53**(3): 189.  
Notes on breeding of the African Skimmer along the lower Shire river.  
Malawi, LShire, birds
376. Hanmer, D.B. (1985). Shooting breeding White-faced Ducks (*Dendrocygna viduata*). *Nyala* **11**: 25-26.  
Notes on dangers to duck breeding from shooting.  
Malawi, LShire, birds
377. Hanmer, D.B. (1986). Migrant palaearctic passerines at Nchalo, Malawi. *Safring News* **15**(1/2): 19-28.  
Notes on capture of 15 species of Palaearctic passerines at Nchalo, lower Shire valley from 1973-1986. Örtstreuung is demonstrated for some species. Weather is shown to have an effect on numbers captured.  
Malawi, LShire, birds
378. Hanmer, D.B. (1989). The African Skimmer breeding in Malawi. *Nyala* **13**: 78-79.  
Account of breeding of a waterbird on the lower Shire. Breeding occurred in 1981 and in 1982-86.  
Malawi, LShire, birds
379. Hanmer, D.B. (1989). The end of an era - final longevity figures for Nchalo. *Safring News* **18**: 19-30.  
Summary account of ringing results (1973-1989) from Nchalo, lower Shire valley. 579 individuals of 75 species are known to be 5+ years old.  
Malawi, LShire, birds
380. Hanney, P. (1965). The Muridae of Malawi (Africa: Nyasaland). *Journal of Zoology, London* **146**: 577-633.  
Gives information on the distribution of 32 rodent species in Malawi, but the collections from wetlands were very limited. 9 species may occur in the lower Shire valley wetlands.  
Malawi, mammals
381. Happold, D.C.D. & Happold, M. (1992). The ecology of three communities of small mammals at different altitudes in Malawi, Central Africa. *Journal of Zoology, London* **228**: 81-101.  
Compares rodent communities at Zomba, Lengwe and Liwonde in terms of seasonal changes in populations and species occurrence.  
MShire, Malawi, mammals
382. Happold, D.C.D., Happold, M. & Hill, J.E. (1987). The bats of Malawi. *Mammalia* **51**: 337-414.  
Account of the bats in Malawi including biological and ecological data. 55 species are listed, with the lower Shire valley being the richest area with 35 species. Most live in woodland savanna but may forage over the wetlands.  
LShire, Malawi, mammals
383. Happold, M. & Happold, D.C.D. (1997). New records of bats (Chiroptera: Mammalia) from Malawi, east-central Africa, with an assessment of their status and conservation. *Journal of Natural History* **31**: 805-836.  
Account of the distribution and status of the 59 bat species recorded from Malawi; relative abundance was determined by catch effort. Based on high species diversity and rarity, conservation of several sites in S and C Malawi is recommended. Chiromo in the lower Shire has a high diversity (30 spp), with the remaining woodlands being particularly important habitats.  
Malawi, LShire, conservation, mammals
384. Harding, D. (1964). Hydrology and fisheries in Lake Kariba. *Verh. International Verein. Limnology* **15**: 139-149.  
Early record of the limnology and fishery of the filling Lake Kariba. Comparison of fish catches with pre-impoundment days shows higher yields. Catch composition changed continuously as the lake filled. Provides a list of fishes from Middle Zambezi prior to flooding.  
Zimbabwe, Kariba, human, fish
385. Harding, D. (1966). Lake Kariba, the hydrology and development of fisheries. In: *Man-made Lakes* (editor R.H. Lowe-McConnell). Academic Press, London, UK. pp. 7-20.  
N/S  
Zimbabwe, Kariba, human, fish, water

386. Harrison, A.D. (1978). Freshwater invertebrates (except molluscs). In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 1139-1152.  
Review of knowledge on most groups of freshwater invertebrates found in southern Africa. The two groups are the south temperate Gondwana fauna and the tropical pan-Ethiopian fauna; the biology and ecology of these groups are discussed.  
SAfrica, biogeography, inverts
387. Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. (1997). *The Atlas of Southern African Birds*. 2 volumes. BirdLife South Africa, Johannesburg, South Africa. Detailed illustrated account of distribution, with maps, of all southern African birds based on observations from across the region.  
SAfrica, biogeography, birds
388. Hastings, R.E. (1973). Fisheries Research Unit, Lower Shire: Interim report 1970-1973. Fisheries Department, Lilongwe, Malawi. 117 pp.  
Report on various research projects on the fish and fisheries of the lower Shire. Aspects of the biology of 9 important fish species are described, including the economically most important, a catfish. There are sections on primary productivity, physical and chemical features of the water, and the effect of various factors (flooding, water level, temperature), with particular emphasis on Elephant Marsh. The vegetation of Elephant Marsh is described in detail. A list is provided of fish species collected in the lower Shire.  
Malawi, LShire, human, water, fish
389. Hatton, J. & Guerra-Marques, L. (1992). Wetlands, coastal zone systems and marine fisheries. In: *Angolan Environmental Status Quo Assessment*. IUCN ROSA, Harare, Zimbabwe. 45 pp.  
Account of the wetlands of Angola. Within the Zambezi hydrogeographic basin various types of wetland are found, including "chanas" (seasonally inundated edaphic grasslands) and "anharas" (seasonally flooded grassland of large extent). Lakes include Lake Cameia on the Chonga (Lumeje) river and Lake Dilolo. Cameia NP comprises seasonally inundated floodplains and three lakes (Cuamba, Calundo and Chaluvanda), now with few large mammals. In the Zambeze numerous dambos are found in the headwater region. Hippo and crocodile are common in the rivers and lakes, with red lechwe, bushpig, roan antelope, reedbuck and sitatunga associated with the floodplains. Fish are common, and fishing is an important economic activity. Many people are now farming on the "chanas" and over-exploitation and soil erosion are becoming common.  
Angola, vegetation, mammals, fish, human
390. Hay, C.J. (1993). *The distribution of freshwater fish in Namibia*. Unpublished MSc thesis, Rank Afrikaans University. Johannesburg.  
N/S  
Namibia, fish
391. Hay, C.J., Van Zyl, B.J. & Steyn, G.J. (1996). A quantitative assessment of the biotic integrity of the Okavango River, Namibia based on fish. *Water S. A.* **22**: 263-284.  
N/S  
Namibia, fish, water
392. Hay, C.J., van Zyl, B.J., van der Bank, F.H., Ferreira, J.T. & Steyn, G.J. (in press). The distribution of freshwater fish in Namibia. *Cimbebasia*  
N/S  
Namibia, fish
393. Hayes, G.D. (1978). *A Guide to Malawi's National Parks and Game Reserves*. Montfort Press, Limbe, Malawi. 166 pp.  
Included in this book are historical observations on wildlife populations in the lower Shire. Livingstone in 1859 noted over 800 elephant on one floodplain as well as buffalo and antelope. Elephant Marsh was one of the two first gazetted Game Reserves in 1897, but was deproclaimed in 1922.  
Malawi, LShire, mammals, human
394. Hayman, R.W. (1963). Mammals from Angola, mainly from the Lunda District. *Publicações Culturais de Companhia de Diamantes de Angola* **66**: 84-140.  
Account of 91 species and subspecies of smaller mammals (principally insectivores, bats and rodents) collected from Lunda District in NE Angola. 14 species are recorded from Angola for the first time. A gazeteer of collecting localities is included. Although much of the study area lies in the Zaire drainage system, some information is provided on the upper Zambezi catchment, particularly from vicinity of Calundo, Cazombo and Macondo.  
Angola, mammals
395. Heath, A. (1982). A provisional checklist of Zambian butterflies. Natural History Museum, Bulawayo, Zimbabwe.  
N/S. List of butterflies found in Zambia with notes on distinguishing features and localities.  
Zambia, inverts
396. Heery, S. (1979). Vegetation ecology of dambos around Choma, Zambia, 1976-1979. Research Branch, Department of Agriculture, Lusaka, Zambia. 67 pp.  
N/S. Unpublished report - said to be one of the best studies on dambo ecology in Zambia.  
Zambia, vegetation
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397. Henning, G.A., Henning, S.F., Joannou, J.G. & Woodhall, S.E. (1997). *Living Butterflies of Southern Africa: Vol. 1 Hesperidiidae, Papilionidae and Pieridae of South Africa*. Umदाus Press, ??, South Africa. N/S. Illustrated account of the butterflies of southern Africa covering taxonomy, habitat, ecology, foodplants and distribution. First of a 5 volume series; this part covers 156 species.  
SAfrica, inverts
398. Herremans, M. (1992). New records of the European Reed Warbler *Acrocephalus scirpaceus* from Botswana. *Babbler* **24**: 10-13.  
Notes on records of Reed Warbler, including from the Okavango and Chobe.  
Botswana, Okavango, Chobe, birds
399. Herremans, M., Joos-Vandewalle, M. & Borello, W.D. (1996). The status of the Woollynecked Stork *Ciconia episcopus* in Botswana. *Ostrich* **67**(2): 80-83.  
Details of a non-breeding migratory population of this bird species in the Savuti area of N Botswana.  
Botswana, Chobe, birds
400. Hill, J.E. & Carter, T.D. (1941). The mammals of Angola, Africa. *Bulletin of American Museum of Natural History* **78**: 1-211.  
N/S. Remains the main review of Angolan mammals.  
Angola, mammals
401. Hines, C.J.H. (1993). Temporary wetlands of Bushmanland and Kavango, northeast Namibia. *Madoqua* **18**(2): 57-69.  
Good account of the ecology and species (plant, bird, herps and mammals) found in seasonal pans in an area of the Kalahari adjacent to the Zambezi basin. The importance of these seasonal and shallow waterbodies for conservation is shown. Lists of amphibians, reptiles, birds and mammals using the wetlands are given.  
Namibia, vegetation, conservation, herps, birds, mammals
402. Hines, C.J.H. (1996). Cranes in Namibia. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 305-306.  
Three species of crane occur in Namibia, associated with the three wetland areas, including the Chobe/Linyanti system. The numbers of Wattled Crane fluctuate, being lowest in the dry season. Breeding takes place, but numbers are low (10-12 pairs). The Grey Crowned Crane is occasionally seen along the Chobe and Okavango rivers.  
Namibia, Chobe, birds
403. Hines, C.J.H. (1996). Namibia's Caprivi Strip. *Bulletin of African Bird Club* **3**(2): 113-128.  
Popular account of ornithological sites and species of interest in the Caprivi. Many bird species are mentioned.  
Namibia, Chobe, birds
404. Hines, C.J.H. (1996). Wetlands in arid lands: values, threats, and conservation. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 307-313.  
Account of arid zone wetlands in Namibia and their importance, including mention of the Kwando, Linyanti and Chobe-Zambezi floodplains.  
Namibia, conservation, birds
405. Hines, C.J.H. (1997). Vegetation survey. In: *An Environmental Profile and Atlas of the Caprivi* (compilers J.M. Mendelsohn & C.S. Roberts). Directorate of Environmental Affairs, Windhoek, Namibia. pp. 19-23, A1-A4.  
Detailed vegetation survey (chapter 5) and map of the Caprivi, giving 36 types grouped into Kalahari, mopane and riparian woodlands, and floodplains. Species descriptions are given of each type.  
Namibia, Chobe, vegetation
406. Hines, C.J.H., Schlettwein, G. & Kruger, W. (1985). Invasive alien plants in Bushmanland, Owambo, Kavango and Caprivi. In: *Invasive Alien Organisms in South West Africa/Namibia* (editors C.J. Brown, A.W. MacDonald & S.E. Brown). South African National Scientific Programmes No. 119. CSIR, Pretoria, South Africa. pp. 6-12.  
N/S  
Namibia, probspp, plants
407. Hockey, P.A.R., Brooke, R.K., Cooper, J., Sinclair, J.C. & Tree, A.J. (1986). Rare and vagrant scolopacid waders in southern Africa. *The Ostrich* **57**(1): 37-55.  
Account of unusual wader birds, incorporating 374 records of 15 species. Occurrence is analysed and habitat requirements described. Great Snipe, Black-tailed Godwit, Redshank and Green Sandpiper have been recorded along the Zambezi and Chobe Rivers in Botswana and Zimbabwe.  
SAfrica, Chobe, birds
408. Hocutt, C.H. & Johnson, P.N. (1993). Fisheries resource assessment of the Kavango and Caprivi Provinces, Namibia. Department of Fisheries, Windhoek, Namibia. 138 pp.  
Consultants' report on fisheries potential for the Caprivi region. A brief account of the ecology and fish species found is given.  
Namibia, Chobe, human, fish



409. Holshausen, K. (1996). Conservation of cranes in Zimbabwe. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 333-335.  
Both the Wattled Crane and Grey Crowned Crane (c.5000 individuals) occur in Zimbabwe. Because they generally do not occur in protected areas the future of their wetland habitat on the central plateau depends partly on commercial farmers. Some captive breeding is being carried out.  
Zimbabwe, conservation, birds
410. Holtzhausen, J.A. (1991). Freshwater fishes of Namibian wetlands - a review. *Madoqua* **17**(2): 189-191.  
Review of the fish found in Namibian wetlands. 59 species are found in the E Caprivi of which 78% are associated with floodplains, although the Kavango river system has a higher diversity. There are two endemic species in Caprivi; the striped killifish is also endangered.  
Namibia, Chobe, fish
411. Howard, G.W. (1985). The Kafue Flats of Zambia - a wetland ecosystem comparable with floodplain areas of northern Australia. *Proceedings of the Ecological Society of Australia* **13**: 293-306.  
N/S  
Zambia, Kafue
412. Howard, G.W. (1989). Recent counts of Wattled Cranes *Bugeranus carunculatus* on the Kafue Flats, Zambia - November 1987. *Scopus* **12**: 69-72.  
Account of an stratified aerial census of the Kafue Flats. 2508 Wattled Crane were estimated present; one third of those counted were in pairs.  
Zambia, Kafue, birds
413. Howard, G.W. (1992). Ecology and biodiversity in the conservation of wetlands. In: *Wetlands of Zambia: Report of the Zambia Wetlands Conservation Seminar, Siavonga, 17-19 June 1992* (editor T. Matiza). ROSA Wetlands Report No. 2. IUCN ROSA, Harare, Zimbabwe.  
Unpublished abstract covering the types of wetland ecosystems in Zambia. Zambia's wetlands have the highest biodiversity in the region.  
Zambia, conservation
414. Howard, G.W. (1993). Issues in wetland and water bird conservation in Africa. In: *Proceedings of the Eighth Pan-African Ornithological Congress* (editor R.T. Wilson). Annales Musée Royal de l'Afrique Centrale (Zoologie) 268. Musée Royal de l'Afrique Centrale, Tervuren, Belgium. pp. 483-487.  
Paper points out that an understanding of the taxonomy, distribution and general ecology of waterbirds is necessary for conservation. More detailed and accurate information is needed on population trends, movements, feeding requirements and sizes of foraging habitats for key species.  
SAfrica, conservation, birds
415. Howard, G.W. (1995). Biodiversity issues in African wetlands. In: *Conservation of Biodiversity in Africa: Local Initiatives and Institutional Roles* (editors L.A. Bennun, R.A. Aman & S.A. Crafter). National Museums of Kenya, Nairobi, Kenya. p. 85.  
Abstract only. Emphasises the importance of wetlands in contributing to overall biodiversity of the Zambezi region, but points out the lack of functional information. Threats to African wetlands are summarised.  
Zbasin, conservation
416. Howard, G.W. & Aspinwall, D.R. (1984). Aerial censuses of shoebills, saddlebilled storks and wattled cranes at the Bangweulu Swamps and Kafue Flats, Zambia. *The Ostrich* **55**: 207-212.  
Census of 3 bird species in Zambian wetlands. 3282 Wattled Cranes were estimated for the Kafue Flats in May 1982, similar to that 9 years before. The Bangweulu swamps contained 232 Shoebills, 275 Saddlebilled Storks and 1718 Wattled Cranes.  
Zambia, Bangweulu, Kafue, birds
417. Howard, G.W. & Chabela, H.N. (1987). The red lechwe of Busango Plain, Zambia - a conservation success. *Oryx* **21**: 233-235.  
N/S  
Zambia, conservation, mammals
418. Howard, G.W. & Jeffery, R.C.V. (1981). Present distribution of lechwe on the Kafue Flats. *Black Lechwe (new series)* **1**: 17-20.  
N/S  
Zambia, Kafue, mammals
419. Howard, G.W., Jeffery, R.C.V. & Grimsdell, J.J.R. (1984). Census and population trends of black lechwe in Zambia. *African Journal of Ecology* **22**: 175-179.  
Account of an aerial census in October 1983 which shows a large increase in population since 1973.  
Zambia, Bangweulu, mammals
420. Howard, G.W. & Sidorowicz, J.A. (1976). Geographical variation in lechwe (*Kobus lechwe* Gray) in Zambia. *Mammalia* **40**(1): 69-77.  
Account of morphological differences in various lechwe populations, suggesting that the red and Kafue lechwe are similar, but the black lechwe is a distinct subspecies.  
Zambia, Kafue, Bangweulu, mammals

421. Howard, G.W. & Williams, G.J. [editors] (1982). *Proceedings of the National Seminar on Environment and Change: the Consequences of Hydroelectric Power Development on the Utilization of the Kafue Flats*. Kafue Basin Research Committee, Lusaka, Zambia. 110 pp.  
Series of 10 papers on the ecology, sociology, hydrology, livestock potential and fisheries of the Kafue Flats and the possible effects arising from dam construction.  
Zambia, Kafue, conservation, water, human, agriculture
422. Howard-Williams, C. (1972). Limnological studies in an African swamp: seasonal and spatial changes in the swamps of Lake Chilwa, Malawi. *Archiv für Hydrobiologie* **70**(3): 379-391.  
Account of seasonal changes and spatial differences in physical factors, soils and water chemistry for Lake Chilwa, Malawi. Most major ions reach higher concentrations in the swamp compared to the open lake. High releases of nitrate follow flooding of marginal soils. The significance of these changes in the swamps are discussed in relation to the lake nutrient budget.  
Malawi, MShire, water
423. Howard-Williams, C. (1973). Preliminary botanical description of the Elephant Marsh. In: *Fisheries Research Unit, Lower Shire: interim report 1970-1973* (editor R.E. Hastings). Fisheries Bulletin No. 4. Fisheries Department, Lilongwe, Malawi.  
Brief account of the vegetation of Elephant Marsh listing 33 species. There is a brief discussion on the development of sudd.  
Malawi, LShire, vegetation, plants
424. Howard-Williams, C. (1973). *Vegetation and environment in the marginal areas of a tropical African lake (L. Chilwa, Malawi)*. PhD thesis, University of London. London, UK.  
N/S  
Malawi, MShire, vegetation
425. Howard-Williams, C. (1975). Seasonal and spatial changes in the composition of the aquatic and semi-aquatic vegetation of Lake Chilwa, Malawi. *Vegetatio* **30**: 33-39.  
N/S  
Malawi, MShire, vegetation
426. Howard-Williams, C. (1975). Vegetation changes in a shallow African lake: response of the vegetation to a recent dry period. *Hydrobiologia* **47**: 381-398.  
N/S  
Malawi, MShire, vegetation
427. Howard-Williams, C. (1977). A checklist of the vascular plants of Lake Chilwa, Malawi, with special reference to the influence of environmental factors on the distribution of taxa. *Kirkia* **10**(2): 563-579.  
An annotated list of 270 plants, aquatic and terrestrial, of Lake Chilwa in S Malawi. Some of the environmental conditions affecting plants are discussed. The lake is shallow (1-5 m deep) in a closed drainage basin, covers around 600 km<sup>2</sup>, and is surrounded by around 500 km<sup>2</sup> of marsh and swamps, principally of *Typha domingensis*. There is a low number of submerged and free-floating aquatics.  
Malawi, MShire, plants
428. Howard-Williams, C. (1979). The distribution of aquatic macrophytes in Lake Chilwa: annual and long-term environmental fluctuations. In: *Lake Chilwa: Studies of changes in a tropical ecosystem* (editors M.J. Kalk, A.J. McLachlan & C. Howard-Williams). Monographiae Biologicae 35. Junk, The Hague, Netherlands. pp. 105-122.  
N/S  
Malawi, MShire, vegetation
429. Howard-Williams, C. (1979). Interactions between swamp and lake. In: *Lake Chilwa: Studies of changes in a tropical ecosystem* (editors M.J. Kalk, A.J. McLachlan & C. Howard-Williams). Monographiae Biologicae 35. Junk, The Hague, Netherlands. pp. 231-245.  
N/S  
Malawi, MShire, water
430. Howard-Williams, C., Furse, M., Schulten-Senden, C.M., Bourn, D.M. & Lenton, G.M. (1972). Lake Chilwa, Malawi. Studies on a Tropical Freshwater Ecosystem. Report to the IBP/UNESCO Symposium on Synthesis of PF Results. UNESCO, Reading, UK.  
N/S  
Malawi, MShire
431. Howard-Williams, C. & Howard-Williams, W.A. (1978). Nutrient leaching from the swamp vegetation of Lake Chilwa, a shallow African lake. *Aquatic Botany* **4**: 257-267.  
N/S  
Malawi, MShire, vegetation, water
432. Howard-Williams, C. & Lenton, G.M. (1975). The role of the littoral zone in the functioning of a shallow tropical lake ecosystem. *Freshwater Biology* **5**: 445-459.  
N/S  
Malawi, MShire

433. Howard-Williams, C. & Walker, B.H. (1974). The vegetation of a tropical African lake: classification and ordination of the vegetation of Lake Chilwa (Malawi). *Journal of Ecology* **62**: 831-854.  
Study involving classification of the marginal vegetation of Lake Chilwa. Water depth was the major determining factor, but salinity and disturbance were also important.  
Malawi, MShire, vegetation, water
434. Hughes, R.H. & Hughes, J.S. (1992). *A Directory of African Wetlands*. IUCN/UNEP/WCMC, Gland, Switzerland. 820 pp.  
A major reference source, covering most of the wetlands and topics of biodiversity interest to the IUCN wetlands project. Wetlands are discussed by country, with semi-detailed accounts of individual areas, including extent and major species. Southern Africa is covered in section 5, which gives a good overview with a geographic perspective.  
Zbasin, conservation, vegetation
435. Hunter, C. (1991). A summary of the ecological literature on Botswana's wetlands and wildlife. University of Florida, Gainesville, USA. 53 pp.  
Unpublished detailed review of available literature on the wetlands of northern Botswana, principally the Okavango, but with some reference to the Linyanti and Chobe. Ecological impacts are discussed.  
Botswana, Okavango, Chobe, human, vegetation, birds, mammals
436. Hunting Technical Services (1957). The soil survey and land classification report of the Elephant Marsh area, Lower Shire Valley, Nyasaland. Hunting Technical Services, London, UK. 92 pp.  
Consultants' report on a soil survey of the marsh with transects taken by boat. Vegetation types are briefly described. A soil map at scale 1:50,000 is included, along with a land classification map showing land capability for irrigated agriculture if the marshes are drained. A brief recent history of the swamps is given, describing the periodic drying out.  
Malawi, LShire, agriculture
437. Hustler, C.W. (1991). *The ecology of fish-eating birds on Lake Kariba, with special reference to the diving Pelecaniformes*. DPhil thesis. University of Zimbabwe. Harare, Zimbabwe. 148 pp.  
Study on the impact of fish-eating birds on the commercial fishery of Lake Kariba. Most numerous species were Reed Cormorant and Darter; numbers of Reed Cormorants were correlated with fish abundance. Reed Cormorants and Darters increased to maximum numbers in November-December, and during the year accounted for 85% of the fish removed by birds. Total fish removed in 1987 was estimated at 1460 tonnes.  
Zimbabwe, Kariba, birds
438. Hustler, K. (1997). The ecology of fish-eating birds and their impact on the inshore fisheries of Lake Kariba. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 196-218.  
Study on the effect of fish-eating birds on the fisheries of Lake Kariba. The extent of suitable habitats determines feeding. Cormorants and darters were the most numerous species and eat between 10 and 20% of their weight in fish daily. However such fish species are generally not commercially utilized.  
Zimbabwe, Kariba, birds
439. Hustler, K. & Carson, D. (1996). Status of the Swamp Nightjar in Zimbabwe. *Honeyguide* **42** (2): 96-100.  
Notes on occurrence of Swamp Nightjar on upper Zambezi floodplain habitats.  
Chobe, Zimbabwe, birds
440. Hustler, K. & Marshall, B.E. (1990). Population dynamics of two small cichlid fish species in a tropical man-made lake (Lake Kariba). *Hydrobiologia* **190**: 253-262.  
Study of two small fish species comprising 14 and 7% of inshore fish population, and which are the major components of fish-eating birds on the lake. Combined production of the 2 species in suitable habitat could be 40 kg/ha/year.  
Zimbabwe, Kariba, fish
441. Hustler, K. & Marshall, B.E. (1996). The abundance and food consumption of piscivorous birds on Lake Kariba, Zimbabwe-Zambia. *Ostrich* **67**: 23-32.  
Account of 26 bird species on the lake, particularly Reed Cormorant, Whitewinged Balck Tern and Darter. Average numbers were 25,000 individuals. Gently sloping shores were the best fishing grounds, and few birds were noted on steeply sloping shores or in open water. Birds were most numerous during the rainy season. They consumed less than 1000 tons of fish per year, compared to 40,000 tons taken by commercial fisheries.  
Zimbabwe, Zambia, Kariba, birds
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442. Irvine, K. (1995). Ecology of the lakefly, *Chaoborus edulis*. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 109-140.  
Detailed account of the biology of the lakefly, a conspicuous and important component of the zooplankton of Lake Malawi, and which frequently forms dense swarms over the lake.  
Malawi, LMalawi, plankton, inverts
443. Irvine, K. (1995). Standing biomasses, production, spatial and temporal distributions of the crustacean zooplankton. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 85-108.  
Account of the crustacea in the zooplankton of Lake Malawi, including data on their abundance, biomass, production and seasonal variation.  
Malawi, LMalawi, plankton, inverts
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444. Irvine, K. & Waya, R. (1995). The zooplankton: general sampling methods and estimation of biomass and development rates. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 69-83.  
Account containing some data on the composition of zooplankton of Lake Malawi, including data on its biomass and rates of growth.  
Malawi, Lake Malawi, plankton
445. Irvine, K., Waya, R. & Hart, R.C. (1995). Additional studies into the ecology of *Tropodiptomus cunningtoni*. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 141-158.  
Detailed account of the biology of the most abundant crustacean species in the zooplankton of Lake Malawi, with data on its population structure, development, food dependence and diet.  
Malawi, Lake Malawi, plankton, invertebrates
446. Irwin, M.P.S. (1956). Field notes on a collection from Mozambique. *Ostrich* **27**(1): 28-39.  
Annotated list of 106 bird species collected from the Lower Zambezi between Tete and Sena, and Gorongosa Mountain.  
Mozambique, birds
447. Irwin, M.P.S. (1975). Adaptive morphology in the Black and Slaty Egrets *Egretta ardesiaca* and *Egretta vinaceigula*, and relationships within the genus *Egretta* (Aves: Ardeidae). *Bonner Zoologische Beiträge* **26**(1-3): 155-163.  
Account of the physical characteristics of 2 egret species from the Chobe/Capri/Okavango area, with discussion on their distribution and evolution.  
Botswana, Okavango, Chobe, birds
448. Irwin, M.P.S. (1987). *The Birds of Zimbabwe* (second edition). Quest Publishing, Harare, Zimbabwe. 464 pp.  
Illustrated guide to the birds of Zimbabwe with distribution maps.  
Zimbabwe, birds
449. Irwin, M.P.S. & Benson, C.W. (1966). Notes on the birds of Zambia. *Arnoldia (Rhodesia)* **2**(32): 1-19.  
Anatomical and distribution notes on 34 bird species including the African Sedge Warbler.  
Zambia, birds
450. Irwin, M.P.S. & Benson, C.W. (1966). Notes on the birds of Zambia: part II. *Arnoldia (Rhodesia)* **2**(37): 1-21.  
Taxonomic and anatomical notes on 43 birds from Zambia, including 6 species of waterbirds.  
Zambia, birds
451. Irwin, M.P.S. & Benson, C.W. (1967). Notes on the birds of Zambia: part IV. *Arnoldia (Rhodesia)* **3**(8): 1-27.  
Account with taxonomic and distribution notes on 25 species of birds including 4 waterbirds.  
Zambia, birds
452. Irwin, M.P.S., Niven, P.N.F. & Winterbottom, J.M. (1969). Some birds of the lower Chobe river area, Botswana. *Arnoldia (Rhodesia)* **4**(21): 1-40.  
Report on bird collecting expeditions to the lower Chobe area between Kasane and Ngoma, including Lake Liambezi. Includes an account of previous ornithological work, avian zoogeography, and a brief ecological account of the 11 habitats. 460 species are recorded including 82 species of waterbird.  
Botswana, Chobe, birds
- [Back to Contents](#)
453. Jackson, G., Wiehe, P.O. & Hubbard, C.E. (1958). An annotated check list of Nyasaland grasses, indigenous and cultivated. Government Printer, Zomba, Malawi. 75 pp.  
Annotated list of the grass species of Malawi giving distribution and habitat, covering 371 taxa (only 18 species that could be in the Lower Shire). A key and description of broad habitat types is given.  
Malawi, plants
454. Jackson, P.B.N. (1958). A lungfish (*Protopterus*) from the middle Zambezi. *Nature, London* **182**: 123-124.  
Brief account of the first lungfish record from the Gwembe Valley in the mid Zambezi. Nearest records are the Zambezi delta, lower Shire and in N Zambia.  
Zambezi basin, fish
455. Jackson, P.B.N. (1961). Check-list of the fishes of Nyasaland. *Occasional Papers of the National Museum of Southern Rhodesia* **3**: 535-621.  
Checklist of the fish recorded from Malawi, particularly Lake Malawi.  
Malawi, Lake Malawi, fish
456. Jackson, P.B.N. (1961). *The Fishes of Northern Rhodesia: a check list of indigenous species*. Department of Game and Fisheries, Lusaka, Zambia. 140 pp.  
Keys and annotated descriptions of all 156 fish species recorded in Zambia at that time (plus 25 spp of uncertain status, but excluding Lake Tanganyika), including common and vernacular names. A brief introduction to fish systematics and zoogeography is given, along with a comprehensive bibliography.  
Zambia, fish

457. Jackson, P.B.N. (1961). Ichthyology: the fish of the middle Zambezi. *Kariba Studies* **1**: 1-36.  
Account of the fish species collected in the mid Zambezi prior to the creation of Lake Kariba. The lack of small fish is ascribed to predation by tigerfish.  
Zambia, Zimbabwe, Kariba, biogeography, fish
458. Jackson, P.B.N. (1962). Ecological factors affecting the distribution of freshwater fishes in tropical southern Africa. *Annals of the Cape Province Museum* **2**: 223-228.  
Discussion on the importance of ecological factors in the distribution of freshwater fish. The faunal disjunction along the Zambezi is noted.  
SAfrica, biogeography, fish
459. Jackson, P.B.N. (1966). The establishment of fisheries in man-made lakes in the tropics. In: *Man-Made Lakes* (editors R.H. Lowe-McConnell). Academic Press, London, UK. pp. 53-69.  
N/S. Describes the thermocline on Lake Kariba and the possible disappearance of eels owing to the dam. Tree clearing in productive fishing areas is recommended, along with stocking with kapenta.  
Zimbabwe, Kariba, human, water, fish
460. Jackson, P.B.N. (1975). Relatorio sobre o plano de desenvolvimento para indústria piscatória em Cabora Bassa. R.F. Loxton, Hunting & Associates/Gabinete do Plano do Zambeze, Maputo, Mozambique. 23 pp.  
Consultancy study on the fisheries potential of the Cabora Bassa dam. The detrimental effect of aquatic weeds is highlighted. Various fish species found, or with potential, are listed.  
Cabora, Mozambique, probsp, human, fish
461. Jackson, P.B.N. (1986). The fish of the Zambezi system. In: *The Ecology of River Systems* (editors B.R. Davies & K.F. Walker). Monographiae Biologicae 60. Kluwer, Dordrecht, Netherlands. pp.269-288.  
N/S. A general review of the fishes of the Zambezi system, their distribution, origins and relationships.  
Zbasin, fish
462. Jackson, P.B.N. (1989). Prediction of regulation effects on natural biological rhythms in south-central African freshwater fish. *Regulated Rivers: Research & Management* **3**: 205-220.  
N/S  
Zbasin, fish
463. Jackson, P.B.N. & Davies, B.R. (1976). Cabora Bassa in its first year: some ecological aspects and comparisons. *Rhodesia Science News* **10**(5): 128-133.  
General account of the early ecological effects of Cabora Bassa dam, including details of aquatic weed infestation and changes in fish populations.  
Cabora, Mozambique, human, probsp, fish, plants
464. Jackson, P.B.N., Iles, T.D., Harding, D. & Fryer, G. (1963). Report on a survey of northern Lake Nyasa. Government Printer, Zomba, Malawi. 171 pp.  
The earliest survey of northern Lake Malawi, with data on plankton and fish species.  
Malawi, LMalawi, fish, plankton
465. Jackson, P.B.N. & Ribbink, A.J. (1975). *Mbuna: the Rock-dwelling Cichlids of Lake Malawi, Africa*. Tropical Fish Hobbyist Publications, Neptune City, New Jersey, USA. 128 pp.  
N/S. Should provide an illustrated guide to the most important mbuna species.  
Malawi, LMalawi, fish
466. Jackson, P.B.N. & Rogers, K.H. (1976). Cabora Bassa fish populations before and during the first filling stage. *Zoologica Africana* **11**(2): 373-397.  
Study of the effects on fish species and populations of the filling of Cabora Bassa dam. The effects over a short period are shown to be marked, with rapid disappearance of some species and population increase of others. Breeding patterns were also disrupted. 38 species are listed pre-impoundment. Aquatic weeds also have had an effect.  
Cabora, Mozambique, human, fish
467. Jamusana, H.K.S. (1994). *Population status, distribution and abundance of hippopotamus and its management as a vertebrate pest in the Southern Region of Malawi*. MSc thesis, University of Kent. Canterbury, UK. 176 pp.  
Counts of hippo showed 1411 individuals in the marshes of the lower Shire.  
Malawi, LShire, human, mammals
468. Jansen, R. & Riezebos, H.Th. (1990). The Chobe Enclave: development profile and land evaluation. Final Report. University of Utrecht/Ministry of Local Government and Lands, Gaborone, Botswana. 136 pp.  
Detailed report on research carried out as a background for physical planning of the Chobe Enclave in NE Botswana. Covers natural resources and their utilization, with brief accounts of the vegetation of the Chobe/Linyanti floodplains.  
Botswana, Chobe, agriculture, human, vegetation
469. Jarman, P.J. (1968). *The effect of the creation of Lake Kariba upon the ecology of the Middle Zambezi, with particular reference to the large mammals*. PhD thesis, University of Manchester. Manchester, UK.  
N/S. Thesis looks at the effect of the formation of Lake Kariba on large mammals, principally in the Sinamwenda area. No major impact was detected.  
Zimbabwe, Kariba, mammals
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470. Jarman, P.J. (1969). The effect of the creation of Lake Kariba upon the terrestrial ecology of the Middle Zambezi Valley, with particular reference to the large mammals. In: *Report of the Nuffield Lake Kariba Research Station, Sinamwenda, 1962-1968* University College of Rhodesia, Salisbury, Zimbabwe. pp. 26-33. Brief account of results of the formation of Lake Kariba on vegetation, birds and large mammals. Differences between Sinamwenda and Mana Pools are described.  
Zimbabwe, Kariba, mammals
471. Jarman, P.J. (1972). Seasonal distribution of large mammal populations in the unflooded Middle Zambezi Valley. *Journal of Applied Ecology* 9: 283-299.  
N/S  
Zimbabwe, Kariba, mammals
472. Jarvis, M.J.F. (1982). Avifauna of Lake McIlwaine. In: *Lake McIlwaine: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 188-194.  
Brief account of the birdlife associated with Lake Chivero. Changes in species composition are shown to be sometimes linked to changes in nutrient levels and aquatic plants. Data on abundance of selected waterfowl is given.  
Chivero, Zimbabwe, birds
473. Jarvis, M.J.F., Mitchell, D.S. & Thornton, J.A. (1982). Aquatic macrophytes and *Eichhornia crassipes*. In: *Lake McIlwaine: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 137-144.  
Account of the aquatic and littoral plants associated with Lake Chivero. The spread of *Polygonum senegalense* and *Eichhornia* is described, along with various control measures.  
Chivero, Zimbabwe, vegetation, probsp, plants
474. Jeanes, K.W. (1985). Ecological survey and rangeland resource appraisal. In: *Senanga West Cattle Development Area, Project Proposal* Vol. 2, Appendix C. Ministry of Agriculture & Water Development, Mongu, Zambia.  
N/S. Includes detailed vegetation survey of part of the Barotse floodplain.  
Zambia, Barotse, agriculture, vegetation
475. Jeanes, K.W. & Baars, R.M.T. (1991). The vegetation ecology and rangeland resources, Western Province, Zambia. Vols. 1/2. RDP Livestock Services/Livestock Development Project, Western Province, Mongu, Zambia. 208 pp.  
Detailed report on the rangeland resources and potentials for livestock production of Western Province. Land systems and land units are described and mapped (see separate entry), and the vegetation of each described in detail, both woody (5 types) and herbaceous (5 types). Herbaceous production is estimated. Dry season water availability is discussed, as is the extent and influence of tsetse fly. An accompanying detailed map (scale 1:500,000) shows 71 species-defined vegetation types, grouped structurally. Volume 2 contains lists of species with vernacular names (including tree species, browse species, grasses, poisonous plants), range types and land units. All field sheets are included.  
Barotse, Zambia, agriculture, vegetation
476. Jeffery, R.C.V. (1992). The Kafue Flats of Zambia: a case study. In: *Wetlands Conservation Conference for Southern Africa* (editors T. Matiza & H.N. Chabwela). IUCN Wetlands Programme No. 4. IUCN, Gland, Switzerland. pp. 57-70.  
Account of the WWF Wetlands Conservation project in the Kafue. The importance of the Kafue for the unique Kafue lechwe (50,000) and wattled cranes (3000) is pointed out.  
Zambia, Kafue, conservation, mammals, birds
477. Jeffery, R.C.V., Chabwela, H.N., Howard, G.W. & Dugan, P.J. [editors] (1992). *Managing the Wetlands of Kafue Flats and Bangweulu Basin: Proceedings of the WWF-Zambia Wetlands Project Workshop*. IUCN Wetlands Programme No. 1. IUCN, Gland, Switzerland. 113 pp.  
Proceedings of a workshop containing 11 papers on conservation and management of two wetland areas.  
Zambia, Kafue, Bangweulu, conservation, human, water, agriculture
478. Jeffery, R.C.V., Kampamba, G., Kamweneshe, B. & Nefdt, R.J.C. (1990). Large wild mammal surveys of the Kafue Flats. Unpublished report. WWF Wetlands Project/National Parks and Wildlife Service, Chilanga, Zambia.  
N/S  
Zambia, Kafue, mammals
479. Jeffery, R.C.V., Kamweneshe, B., Mupembo, F., Malambo, C.M. & Nefdt, R.J.C. (1989). Wild mammal surveys of the Bangweulu Swamps. Unpublished report. WWF Wetlands Project/National Parks and Wildlife Service, Chilanga, Zambia.  
N/S  
Zambia, Bangweulu, mammals
480. Jeffery, R.C.V., Malambo, C.M. & Nefdt, R.J.C. (1989). Wild mammal surveys of the Kafue Flats. Unpublished report. WWF Wetlands Project/National Parks and Wildlife Service, Chilanga, Zambia.  
N/S  
Zambia, Kafue, mammals

481. Johnsen, P. (1982). Acridoidea of Zambia: 1-3. Zoology Department, Aarhus University, Aarhus, Denmark.  
First of 5 reports (1982-87) on this Orthopteran group (grasshoppers) from Zambia.  
Zambia, inverts
482. Johnsen, P. (1990). The Acridoidea of Botswana. Part 1. Aarhus University, Aarhus, Denmark. 129pp.  
Account of this Orthopteran group (grasshoppers) from Botswana. 160 species are mentioned, many from the Okavango/Chobe area.  
Botswana, inverts
483. Jones, B. (1990). Wildlife and people compete for thirstland's wetlands. *Custos* **19**(6): 36-37.  
Popular account of the biological and economic importance of wetlands in Namibia. Dangers of the impacts of dams and overgrazing are discussed.  
Namibia, Chobe, conservation, human
484. Joos-Vandewalle, M.E. (1988). *Abundance and distribution of large herbivores in relation to environmental factors in Savuti, Chobe National Park, Botswana*. MSc thesis, University of Witwatersrand. Johannesburg, South Africa.  
N/S  
Botswana, Chobe, vegetation, mammals
485. Joubert, C.S.W. (1975). The food and feeding habits of *Mormyrops delicosus* (Leach), 1818 and *Mormyrus longirostris* Peters, 1852 (Pisces: Mormyridae) in Lake Kariba, Rhodesia. *Kariba Studies*: 68-85.  
Account of food and feeding habits of the Cornish jack and bottlenose in Lake Kariba. *M. delicosus* fed mainly on anisopteran nymphs and cichlid fishes, while *M. longirostris* was a benthic feeders on a variety of invertebrate taxa. With both species there was a change in diet with size.  
Zimbabwe, fish, Kariba
486. Jubb, R.A. (1952). A note on the distribution of *Hydrocynus vittatus*, Castilneau, the well-known tigerfish of the Zambezi and Limpopo rivers. *South African Journal of Science* **49**(2): 50-51.  
Brief account of the distribution of tigerfish, with map showing the importance of physical barriers to upstream dispersal. The species occurs in the upper, middle and lower Zambezi, but not above the Kafue Gorge or Murchison Falls on the Shire.  
Zbasin, biogeography, fish
487. Jubb, R.A. (1958). A preliminary report on the collections of freshwater fishes made by the Bernard Carp Expeditions to the Caprivi Strip, 1949, the Lower Sabi River, 1950, and to Barotseland, 1952. *Occasional Papers of the National Museum of Southern Rhodesia* **22B**: 177-189.  
Account of the 60 fish species recorded during collecting trips to various parts of the Upper Zambezi and elsewhere. Notes on particular species of interest are included.  
Zbasin, Caprivi, Barotse, fish
488. Jubb, R.A. (1959). Some Lake Kariba fish problems. *Piscator* **47**: 112-119.  
Popular account of the angling fish of the Zambezi river, with particular reference to Kariba. The fisheries potential of the lake is discussed.  
Zimbabwe, Kariba, fish, human
489. Jubb, R.A. (1961). *An Illustrated Guide to the Freshwater Fishes of the Zambezi River, Lake Kariba, Sabi, Lundi and Limpopo Rivers*. Stewart Manning, Bulawayo, Zimbabwe. 171 pp.  
Illustrated guide to the fishes of Zimbabwe, including from the upper Zambezi.  
Zimbabwe, fish
490. Jubb, R.A. (1967). *Freshwater Fishes of Southern Africa*. A.A. Balkema, Cape Town, South Africa. 248 pp.  
Expanded and revised version of Jubb (1961), which includes most, but not all, of the fish species from the Zambezi system.  
SAfrica, biogeography, fish
491. Jubb, R.A. (1976). Unintentional introductions of fishes via hydro-electric power stations and centrifugal pumps. *Journal of the Limnological Society of Southern Africa* **2**(1): 29-30.  
Brief account of fish surviving passage through turbines and water pumps associated with power stations. Fish from the upper Zambezi could by-pass Victoria Falls to the mid Zambezi via the power station.  
Zbasin, fish
492. Junor, F.J.R. (1969). *Tilapia melanopleura* Dum. in artificial lakes and dams in Rhodesia with special reference to its undesirable effects. *Rhodesia Journal of Agricultural Research* **7**: 61-69.  
N/S  
Zimbabwe, fish
493. Junor, F.J.R. & Begg, G.W. (1971). A note on the successful introduction of *Limnothrissa miodon* Boulenger, the "Lake Tanganyika sardine" to Lake Kariba. *Limnological Society of Southern Africa, Newsletter* **16**: 8-14.  
Account of the introduction of kapenta and the first few years observations. *Limnothrissa* took less than 3 years to become established throughout Lake Kariba.  
Zimbabwe, Kariba, fish
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494. Kalk, M.J. (1968). Limnological problems in a shallow tropical lake, Lake Chilwa. *Limnological Society of Southern Africa, Newsletter* **11**: 30-33.  
N/S  
Malawi, MShire, water
495. Kalk, M.J. (1972). The challenge of Lake Chilwa, Malawi. *African Journal of Tropical Hydrobiology & Fisheries* **1**(2): 141-146.  
Account of physical features of Lake Chilwa with a summary of research findings on its ecology.  
Malawi, MShire, water
496. Kalk, M.J., McLachlan, A.J. & Howard-Williams, C. [editors] (1979). *Lake Chilwa: Studies of changes in a tropical ecosystem*. Monographiae Biologicae 35. Junk, The Hague, Netherlands. 462 pp.  
N/S. Monograph on Lake Chilwa which adopts a holistic approach.  
Malawi, MShire, vegetation, water
497. Kalk, M.J. & Schulten-Senden, C.M. (1977). Zooplankton in a tropical endorheic lake (Lake Chilwa, Malawi) during drying and recovery phases. *Journal of Limnological Society of Southern Africa* **3**(1): 1-7.  
Account of zooplankton in Lake Chilwa showing how populations declined with drying out of the lake. Crustacea numbers increased after refilling, but all zooplankton numbers declined with fish recolonisation.  
Malawi, MShire, plankton
498. Kampamba, G. & Pope, A.J. (1996). The conservation management of cranes in Zambia. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 249-254.  
Brief account of the conservation of cranes and threats to their habitats. There seems to be a link between the local distributions of Wattled Crane and black and Kafue lechwe.  
Kafue, Zambia, birds, conservation
499. Kamundi, D. (1996). Conservation status of wetlands in Malawi with respect to habitats and the survival of cranes. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 291-293.  
Brief account of wetlands in Malawi, and factors affecting their degradation.  
Malawi, conservation, birds
500. Kamweneshe, B. (1996). Status and ecology of wattled cranes in Bangweulu Basin, Zambia. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 261-265.  
Brief account of Wattled Cranes. The Bangweulu Swamps and Kafue Flats have the highest populations in southern Africa, but their range is being reduced by human activity. From aerial and ground surveys, Bangweulu is estimated to have about 1455 birds.  
Zambia, Bangweulu, conservation, birds
501. Kapetsky, J.M. (1974). The Kafue River floodplain: an example of pre-impoundment potential for fish production. In: *Lake Kariba: a Man-made Tropical Ecosystem in Central Africa* (editors E.K. Balon & A.G. Coche). Monographiae Biologicae 24. W. Junk, The Hague, Netherlands. pp. 497-523.  
Account of the general productivity of the Kafue Flats for fishery, and the relative abundance and biomass of fish in the river and lagoons.  
Zambia, Kafue, human, fish
502. Karenge, L. & Kolding, J. (1994). On the relationship between hydrology and fisheries in Lake Kariba, Central Africa. In: *Plus Ça Change, Plus C'est la Même Chose. On the Ecology and Exploitation of Fish in Fluctuating Tropical Freshwater Systems*. University of Bergen, Bergen, Norway. pp. 1-31. Section of a PhD thesis from University of Bergen, Norway.  
Account of a study to show that the fluctuating lake levels and resultant nutrient inputs are important in promoting fish production, and hence in the exploitation of fish resources. Experimental, inshore artisanal and offshore pelagic catches fluctuate synchronously and are highly correlated to water level changes, particularly water level rises. This contradicts earlier belief that water levels should be kept as stable as possible.  
Zimbabwe, Kariba, fish, water
503. Karenge, L. & Kolding, J. (1995). Inshore fish population and species changes in Lake Kariba, Zimbabwe. In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 245-275.  
Detailed study on changes in fish species composition and relative abundance on Lake Kariba. There were three phases - initial filling, increasing diversity and maturity. The changes were related to lake level, aquatic macrophytes, predation and competition, as well as to the effects of fishing. Lake-level fluctuations, with associated changes in nutrient inputs, have probably had the largest influence; the introduction of kapenta does not seem to have greatly affected inshore fish production.  
Zimbabwe, Kariba, human, fish, water
504. Karenge, L. & Kolding, J. (1995). On the relationship between hydrology and fisheries in man-made Lake Kariba, Central Africa. *Fisheries Research* **22**: 205-226.  
Study showing a positive relationship between fish catches and the hydrology of the Zambezi. Lake level fluctuations and resultant nutrient inputs are important in promoting fish production. All fish species found are listed.  
Zimbabwe, Kariba, human, fish, water



505. Katanekwa, V. (1996). Reduction in distribution of the Crowned Crane: a case study of the Barotse floodplains. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 283-286. Brief account of the Grey Crowned Crane in the Barotse floodplain, Liuwa, Luena and Matabele Plains. From a ground survey, distribution appears to have been reduced to a small part of the Liuwa Plains (80 birds). This is ascribed to human impacts such as agriculture and hunting, and to successive droughts.  
Barotse, Zambia, conservation, birds
506. Kautsky, N. & Kiiibus, M. (1997). Biomass, ecology and production of benthic fauna in Lake Kariba. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 162-182. Account of the distribution and biomass of bottom dwelling fauna, principally mussels. Total biomass was estimated at almost 119,000 tons, 96% of it comprising four species of mussel. This high value is ascribed to a lack of predators.  
Zimbabwe, Kariba, inverts
507. Kenmuir, D.H.S. (1976). Fish spawning under artificial flood conditions on the Mana flood-plain, Zambezi river. *Kariba Studies* 5: 86-97. Account of the relationship between fish breeding on the mid Zambezi floodplain and the discharge of water from Kariba, with recommendations on the timing of discharge. Lists of fish species found at Mana Pools are given.  
Mana, Zimbabwe, water, fish
508. Kenmuir, D.H.S. (1978). *A Wilderness Called Kariba: the wildlife and natural history of Lake Kariba*. Wilderness Publishers, Bulawayo, Zimbabwe. 140 pp. Popular book on the history and natural history of Lake Kariba, from its inception to the late 1970s. Particularly strong on fish and fish ecology.  
Zimbabwe, Kariba, human, prob spp, mammals, birds, fish, plants
509. Kenmuir, D.H.S. (1980). The mussel resources of Lake Kariba. *Transactions of the Zimbabwe Scientific Association* 60(2): 7-10. Account of a survey on freshwater mussels on the Zimbabwe side of Lake Kariba. 4 species occur with a total biomass of 160,000 tonnes, one third of it flesh.  
Zimbabwe, Kariba, inverts
510. Kenmuir, D.H.S. (1980). Seasonal breeding activity in freshwater mussels (Lamellibranchiata: Unionacea) in Lake Kariba and Lake Mcllwaine, Zimbabwe. *Transactions of the Zimbabwe Scientific Association* 60(4): 18-23. Account of a study on breeding of 3 species of freshwater mussel in Lake Kariba and Lake Chivero. In Kariba 2 species breed through the year while other species show seasonality.  
Zimbabwe, Kariba, Chivero, inverts
511. Kenmuir, D.H.S. (1981). Repetitive spawning behaviour in two species of freshwater mussels (Lamellibranchiata: Unionacea) in Lake Kariba. *Transactions of the Zimbabwe Scientific Association* 60(8): 49-56. Account of a study into seasonal breeding habits of 2 species of mussel in Lake Kariba. Both species seem capable of successive spawning at intervals of a few weeks, possibly owing to sustained warm waters of the lake.  
Zimbabwe, Kariba, inverts
512. Kenmuir, D.H.S. (1984). Fish population changes in the Sanyati Basin, Lake Kariba, Zimbabwe. *South African Journal of Zoology* 19: 194-209. Account of the populations of larger fish species in Lake Kariba with data on their relative abundance from 1960 to 1975. Changes that followed the creation of the lake are outlined.  
Zimbabwe, Kariba, fish
513. Kenmuir, D.H.S. (1989). *Fishes of Kariba* (second edition). Longman, Harare, Zimbabwe. 135 pp. Popular illustrated account of the fish species and fish ecology of Lake Kariba. Contains much useful information.  
Zimbabwe, Kariba, fish
514. Kershaw, P.S. (1922). On a collection of mammals from Chiromo and Cholo, Ruo, Nyasaland, made by Mr. Rodney C. Wood, with field-notes by the collector. *Annals & Magazine of Natural History, Series 9* (56): 177-192. Collection notes on 60 mammal species from the lower Shire taken from Wood's collections.  
Malawi, LShire, mammals
515. Kimmins, D.E. (1958). On some Trichoptera from S. Rhodesia and Portuguese East Africa. *Bulletin of British Museum (Natural History), Entomology* 7(7): 359-368. Account of 5 species of caddis fly collected from Victoria Falls.  
Zimbabwe, inverts
516. King, R.D. & Thomas, D.P. (1985). Environmental conditions and phytoplankton in the Mwenda River, a small intermittent river flowing into Lake Kariba. *Hydrobiologia* 126: 81-89. Lists the genera of phytoplankton, especially diatoms, found in a small river flowing in to Lake Kariba. Diatom populations consist of cosmopolitan tropical taxa.  
Zimbabwe, Kariba, plankton
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517. Kirk, J. (1864). List of mammals met with in Zambesia, East Tropical Africa. *Proceedings of Zoological Society of London* **1864**: 649-660.  
N/S  
Delta, Mozambique, mammals
518. Kirk, R.G. (1967). The zoogeographical affinities of the fishes of the Chilwa-Chiuta depression in Malawi. *Revue de Zoologie et de Botanique Africaines* **76**: 295-312.  
N/S  
Malawi, MShire, biogeography, fish
519. Koch, H. & Schlettwein, C.H.G. (1983). The history of the *Salvinia molesta* problem in the eastern Caprivi Zipfel of South West Africa/Namibia from 1948 to 1981. In: *Proceedings of the 20th Annual Congress of the Limnological Society of Southern Africa*. Limnological Society, South Africa.  
Account of the infestation of the Caprivi wetlands by *Salvinia*, including on various methods of control.  
Namibia, Chobe, probsp, plants
520. Koen, J.H. (1988). Birds of the Eastern Caprivi. Southern Birds No. 15. Witwatersrand Bird Club, Benmore, South Africa. 73 pp.  
Checklist of 260 species recorded from the E Caprivi in 1978-79, incorporating an additional 117 species from 5 previous lists. 120 species of waterbirds were included. An account of the area and its habitats is given.  
Namibia, Chobe, birds
521. Komen, J. (1990). Distribution of Greater Swamp Warblers in southern Africa. *Lanioturdus* **25**: 55-56.  
Brief note on a wetland bird restricted to papyrus swamps. It was found in the E Caprivi wetlands in 1986-88, but within the Zambezi Basin is principally confined to the Okavango and Linyanti.  
Namibia, Chobe, Okavango, Botswana, birds
522. Konings, A. (1990). *Cichlids and all the Fishes of Lake Malawi*. Tropical Fish Hobbyist Publication, Neptune City, USA.  
Well illustrated book of cichlid fish species of Lake Malawi, particularly those of interest to aquarists.  
Malawi, LMalawi, fish
523. Konrad, P.M. (1981). Status and ecology of Wattled Crane in Africa. In: *Crane Research Around the World* (editors J.C. Lewis & H. Masatomi). International Crane Foundation, Baraboo, Wisconsin, USA. pp . 220-237.  
Account of the Wattled Crane across its mostly southern African range, with recommendations on conservation actions. The species inhabits scattered wetlands such as the Kafue flats, Bangweulu swamps, Busanga plains, Liuwa plains, Okavango and Makgadikgadi pans. Individual wetlands support 250-3000 individuals. They feed mainly on sedge tubers and rhizomes. Numbers of cranes nesting during the rainy season and available food depend on amount of flooding or receding water; it has an inherently low breeding rate. Suitable habitat is being lost through habitat alteration such as dams and intensive agriculture.  
Zbasin, conservation, birds
524. Konrad, P.M. (1987). Wattled Cranes in peril - Kafue Flats, Zambia. In: *Proceedings of the 1983 International Crane Workshop* (editors G.W. Archibald & R.F. Pasquier). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 349-352.  
Account of the ecological importance of the Kafue Flats which supports the largest world population of Wattled Crane (c.3000), and describes the threats posed to the floodplain by the Kafue Gorge and Itzhi-tezhi dams.  
Zambia, Kafue, conservation, birds
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525. Ladeiro, J.N. (1956). Compendium entomologicum angolae: II Lepidopteros de Angola. *Anais da Junta de Investigação do Ultramar* **11**(3): 151-172.  
N/S. List of Angolan butterflies.  
Angola, inverts
526. Lagler, K.F., Kapetsky, J.M. & Stewart, D.J. (1971). The fisheries of the Kafue River flats, Zambia, in relation to the Kafue Gorge dam. FAO FI/SF/ZAM 11 Technical Report No. 1. FAO, Rome, Italy. 161 pp.  
N/S. May contain a list of fish species from the Kafue with notes on the population changes after dam closure.  
Zambia, Kafue, human, fish
527. Larsen, T.B. (in prep.). *The Butterflies of Botswana and their Natural History*. Botswana Collection University of Botswana, Gaborone, Botswana.  
N/S. Illustrated book under preparation of the 250 butterfly species recorded from Botswana. Will include details on appearance, habits, foodplants and distribution.  
Botswana, inverts
528. Laurent, R.F. (1964). Reptiles et amphibiens de l'Angola (troisième contribution). *Publicações Culturais de Compania de Diamantes de Angola* **67**: 1-165.  
List of reptiles and amphibians from Angola, with records from the upper Zambezi.  
Angola, herps
529. Lawrence, B. & Loveridge, A. (1953). Zoological results of a fifth expedition to East Africa. I - Mammals from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(1): 1-80.  
Detailed records of collections made during an expedition.  
Malawi, Mozambique, mammals
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530. Lawrence, R.F. (1953). Zoological results of a fifth expedition to East Africa. V - Chilopoda (Myriopoda) from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(5): 407-423.  
Detailed records of collections made during an expedition.  
Malawi, Mozambique, invertebrates
531. Lawson, P. (1998). A remote part of Africa. Impalila Island and the eastern Caprivi. *Africa: Birds & Birding* **3**(5): 48-50.  
Popular account of the birds found on an island in the E Caprivi along the Chobe River.  
Namibia, Caprivi, birds
532. Lawton, R.M. (1959). A pollen analysis of the Lake Bangweulu peat deposits. *The Northern Rhodesia Journal* **4**: 33-43.  
Account of research into recent pollen deposits of Lake Bangweulu. A brief description of present vegetation is given. Relative proportions of pollen of different groups are listed, and it is shown that *Syzygium* swamp forest covered in the past what is now sudd.  
Zambia, Bangweulu, plants
533. Lawton, R.M. (1963). Paleoecological and ecological studies in the Northern Province of Northern Rhodesia. *Kirkia* **3**: 46-76.  
Study of the present vegetation of part of N Zambia, including the Bangweulu swamps. The account includes descriptions of vegetation types and ecological relations. Remnant vegetation types are described. Results from pollen analysis provide suggestions on previous vegetation cover. Lists of woody species from various types are given.  
Zambia, Bangweulu, vegetation, plants
534. Lent, P.C. (1969). A preliminary study of the Okavango lechwe (*Kobus lechwe lechwe* Gray). *East African Wildlife Journal* **7**: 147-157.  
Account of seasonal habitat selection, behaviour and reproduction of lechwe in the Moremi area. Lechwe are only found where the floodplain is still wide in the dry season and open water is present.  
Botswana, Okavango, mammals
535. Leonard, P.M. (1998). Notes on Afrotropical bird movements and seasonality near Kafue. In: *Zambia Bird Report 1997*, pp. 23-45.  
N/S. Includes sightings of 72 waterbird species.  
Zambia, Kafue, birds
536. Lewis, D., Reinthal, P. & Trendall, J. (1986). *A Guide to the Fishes of Lake Malawi National Park*. WWF, Gland, Switzerland.  
General illustrated introduction to the fish of Lake Malawi NP at Cape Maclear, particularly the rock-dwelling 'mbuna' group.  
Malawi, LMalawi, fish
537. Long, R.C. (1956). The breeding colonies of large water and marsh birds within the Port Herald District. *Nyasaland Journal* **9**(2): 29-50.  
Notes on biology and nest distribution of 6 species of waterbirds in the Nsanje area.  
Malawi, LShire, birds
538. Long, R.C. (1960). The birds of the Port Herald district (Part I). *The Ostrich* **31**: 85-104.  
Account of the birds from the Nsanje area of the lower Shire (1951-1960). Gives information on 137 bird species (89 waterbirds) with a map and general description of the area, including vegetation.  
Malawi, LShire, birds
539. Long, R.C. (1961). The birds of the Port Herald district (Part II). *The Ostrich* **32**(1): 23-35.  
Continuation of the checklist of birds from the Nsanje area of the Lower Shire covering 100 species including 12 waterbirds. Notes on habitat and occurrence are given.  
Malawi, LShire, birds
540. Long, R.C. (1961). The birds of the Port Herald district (Part III). *The Ostrich* **32**(4): 147-173.  
Continuation of the checklist of birds from the Nsanje area of the Lower Shire covering 184 species including 12 waterbirds. Notes on habitat and occurrence are given.  
Malawi, LShire, birds
541. Long, R.C. (1967). The birds of the Port Herald district (Part IV). *The Ostrich* **38**(1): 37-45.  
Continuation of the checklist of birds from the Nsanje area of the Lower Shire giving an up-date over the period 1957-62. 110 species are mentioned, including 65 waterbirds.  
Malawi, LShire, birds
542. Long, R.C. (1973). The birds of the Port Herald District (Part 1). *Society of Malawi Journal* **26**(2): 56-63.  
Habitat descriptions and notes on 1200 bird specimens from the area.  
Malawi, LShire, birds
543. Long, R.C. (1973). A list with notes of the mammals of the Nsanje (Port Herald) District, Malawi. *Society of Malawi Journal* **26**(1): 60-78.  
Locality records of 183 mammal specimens from the area, few of which are from wetlands.  
Malawi, LShire, mammals
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544. Long, R.C. (1974). The birds of Nsanje (Port Herald) district (part V). *Society of Malawi Journal* **27**(1): 74-88.

Additional notes on a checklist of birds from the Nsanje area of the Lower Shire, covering 76 species including 8 waterbirds. Notes are given on individuals seen and location.  
Malawi, LShire, birds

545. Louda, S.M., Gray, W.N., McKaye, K.R. & Mhone, O.J. (1983). Distribution of gastropod genera over a vertical depth gradient at Cape Maclear, Lake Malawi. *The Velliger* **25**: 387-391.

N/S  
LMalawi, Malawi, inverts

546. Louda, S.M., McKaye, K.R., Kocher, T.D. & Stackhouse, C.J. (1984). Activity, dispersion and size of *Lanistes nyassanus* and *L. solidus* over the depth gradient at Cape Maclear, Lake Malawi, Africa. *The Velliger* **26**: 145-152.

N/S  
LMalawi, Malawi, inverts

547. Loveridge, A. (1953). Herpetological results of the Berner-Carr entomological survey of the Shire Valley, Nyasaland. *Quarterly Journal of the Florida Academy of Sciences* **16**: 139-150.

Detailed record of species collected during an expedition, 25 of which are from the lower Shire valley.  
Malawi, Mozambique, LShire, herps

548. Loveridge, A. (1953). Zoological results of a fifth expedition to East Africa. III - Reptiles from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(3): 141-322.

Detailed record of species collected during an expedition including 4 species from the lower Shire.  
Malawi, Mozambique, LShire, herps

549. Loveridge, A. (1953). Zoological results of a fifth expedition to East Africa. IV - Amphibians from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(4): 323-406.

Detailed records of collections made during an expedition including 5 species from the lower Shire.  
Malawi, Mozambique, LShire, herps

550. Loveridge, A. (1953). Zoological results of a fifth expedition to East Africa: VII - Itinerary and conclusions. With an appendix of avifauna by C.W. Benson. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(7): 444-487.

Conclusions of expedition to SW Tanzania and Malawi, with table of montane and forest amphibians.  
Malawi, herps, birds

551. Lowe-McConnell, R.H. (1991). Ecology of cichlids in South American and African waters, excluding the African Great Lakes. In: *Cichlid Fishes: Behaviour, Ecology and Evolution* (editor M.H.A. Keenleyside). Chapman & Hall, London. pp. 60-85.

Account of cichlid fishes worldwide, with a section on the species of the Zambezi system. The Zambezi has a higher proportion of cichlids (22 spp.) than the Niger or Zaire. The various types are discussed and the differences in upper and lower Zambezi habitats brought out.

SAfrica, fish, biogeography

552. Lowe-McConnell, R.H. (1993). Fish faunas of the African Great Lakes: origins, diversity and vulnerability. *Conservation Biology* **7**: 634-643.

Account of the evolutionary origins, significance and diversity of the fish fauna of East Africa lakes, including Lake Malawi. The evolutionary importance of the endemic fauna is highlighted, and the threats to its conservation pointed out.

Malawi, LMalawi, fish, biogeography, conservation

553. Lunderstedt, M. (1991). Trip to Botswana and Zimbabwe from 14/ix/1990 to 15/x/1990. *Metamorphosis* **2**: 27-29.

N/S. List of species from a collecting trip to Botswana, including from the Chobe/Linyanti swamps.  
Botswana, inverts

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554. Maar, A. (1960). Introductory check list of the fishes of the Zambeze sub-region of the Ethiopian region. In: *Proceedings of the First Federal Science Conference*. Rhodesia Scientific Association, Harare, Zimbabwe. pp. 339-346.

List of fish recorded from the Zambezi basin; now out of date.  
Zbasin, biogeography, fish

555. Macedo, J.d.A. (1974). Vegetação aquática em Cabora Bassa. Memórias No. 5. Instituto de Investigação Agronómica de Moçambique, Maputo, Mozambique.

N/S  
Mozambique, Cabora, probspp, plants

556. Machena, C. (1989). *Ecology of the hydrolittoral macrophyte communities in Lake Kariba, Zimbabwe*. PhD thesis, University of Uppsala. Uppsala, Sweden. 135 pp.

Compiled thesis (5 papers) describing the dynamics of the aquatic shoreline vegetation of Lake Kariba. It shows an ecological gradient from the Zambezi river inlet to the Sanyati basin, reflecting the hydrological gradient of the lake.  
Zimbabwe, Kariba, vegetation, inverts

557. Machena, C. (1992). Dam developments and their environmental effect: the Kariba experience. In: *Wetlands Conservation Conference for Southern Africa* (editors T. Matiza & H.N. Chabwela). IUCN Wetlands Programme No. 4. IUCN, Gland, Switzerland. pp. 27-42.  
Account of the effects of the creation of Lake Kariba, with particular reference to fisheries and fish composition.  
Zimbabwe, Kariba, human, fish
558. Machena, C. (1997). The organization and production of the submerged macrophyte communities of Lake Kariba. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 139-161.  
Account of the submerged aquatic plants of Lake Kariba, with sections on species diversity, distribution, zonation, and the biology and production of *Lagarosiphon ilicifolius*. A total of 7 submerged species have been recorded, a low number possibly resulting from annual lake level fluctuations.  
Zimbabwe, Kariba, vegetation, plants
559. Machena, C. & Kautsky, N. (1988). A quantitative diving survey of benthic vegetation and fauna in Lake Kariba, a tropical man-made lake. *Freshwater Biology* **19**: 1-14.  
Account of the distribution and abundance of benthos in relation to that of aquatic plants. Lists of molluscs and submerged plants are given.  
Zimbabwe, Kariba, vegetation, inverts, plants
560. Maclean, G.L. (1992). Eastern Caprivi revisited. *Birding in South Africa* **44**(1): 8-11.  
Popular account of birdwatching in the E Caprivi. Many bird species are mentioned.  
Namibia, Chobe, birds
561. Maclean, G.L. (1993). *Roberts' Birds of Southern Africa* (6th edition). John Voelcker Bird Book Fund, Cape Town, South Africa.  
Field guide that gives distributions, status and biology of all species south of the Cunene-Zambezi.  
SAfrica, birds
562. Magadza, C.H.D. (1968). *The relative abundance and distribution of Collembola (Insecta) in relation to the development of a littoral fauna on Lake Kariba, Rhodesia*. MPhil thesis, University of London. Harare, Zimbabwe.  
N/S  
Zimbabwe, Kariba, inverts
563. Magadza, C.H.D. (1969). The shoreline vegetation. In: *Nuffield Lake Kariba Research Station, Sinamwenda, Report 1962-1968*. LKRS, Harare, Zimbabwe. pp. 33-34.  
N/S  
Zimbabwe, Kariba, vegetation
564. Magadza, C.H.D. (1970). A preliminary survey of the vegetation of the shore of Lake Kariba. *Kirkia* **7**(2): 253-267.  
Study of the plants of the Lake Kariba shoreline around the Mwenda estuary, N Zimbabwe. Three zones are described, A *Ludwigia* zone of dicotyledons and Cyperaceae closest to the water, a *Laggera* ecotone zone comprising a mixture of species from zones both above and below, and a Gramineae zone closest to the still-existing mopane woodland. Floating colonies of *Salvinia molesta* with *Typha latifolia* or *Phragmites australis* are sometimes seen. A list of species from each zone is given. Zonation corresponds to lake level movements, and is also affected by intensity of wave action, gradient of shoreline, the presence of deposited *Salvinia* mats, and game activity. The colonizing ability of *Panicum repens* is described.  
Zimbabwe, Kariba, vegetation, plants
565. Magadza, C.H.D. (1977). A note on entomostraca in samples from three dams in Rhodesia. *Arnoldia (Rhodesia)* **8**(14): 1-4.  
Lists crustacean zooplankton species from Lake Chivero, Mazoe Dam and Connemara Dam, Zimbabwe.  
Chivero, Zimbabwe, plankton
566. Magadza, C.H.D. (1977). Observations on the behaviour of macrophytes following impoundment of the Kafue River at Kafue Gorge (1974-1976). *Transactions of the Rhodesia Scientific Association* **58**(3): 17-23.  
Survey of aquatic plants on the Kafue Gorge dam soon after its formation. Some possible methods of control of aquatic weeds, particularly *Vossia* and *Aeschynomene*, are discussed.  
Zambia, Kafue, probsp, plants
567. Magadza, C.H.D. (1978). Field observations on the environmental effect of large-scale aerial applications of endosulfan in the eradication of *Glossina morsitans centralis* Westw. in the Western Province of Zambia in 1968. *Rhodesia Journal of Agricultural Research* **16**(2): 211-220.  
Study of the impacts of endosulfan spraying on both savanna and wetland vegetation in W Zambia along the Kwando river. Few deleterious effects were recorded.  
Barotse, Zambia, water, human, inverts
568. Magadza, C.H.D. (1978). Notes on molluscan intermediate hosts of trematodes in the Kafue Gorge dam, Zambia. *Transactions of the Rhodesia Scientific Association* **58**(8): 48-54.  
Study on snail vectors of trematode worms in the Kafue Gorge dam. The 4 common snail species all carried flukes.  
Zambia, Kafue, inverts
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569. Magadza, C.H.D. (1980). The distribution of zooplankton in the Sanyati Bay, Lake Kariba; a multivariate analysis. *Hydrobiologia* **70**: 57-67.  
Gives a list of crustacean zooplankton species found in Lake Kariba with population densities. The distribution of plankton is linked to river inflow.  
Zimbabwe, Kariba, plankton
570. Magadza, C.H.D. (1981). A contribution to the check list of entomostraca of Zambia: free living Copepoda and Cladocera. *Transactions of the Zimbabwe Scientific Association* **60**(7): 41-48.  
Preliminary checklist of 71 species of aquatic planktonic crustacea from various sites in Zambia.  
Zambia, plankton
571. Magadza, C.H.D. (1985). An analysis of plankton samples of the Lake Bangweulu area. In: *Hydrobiological Survey of the Lake Bangweulu Luapula Basin* (editor J.J. Symoens). Circle Hydrobiologique de Bruxelles, Brussels, Belgium. 32 pp.  
N/S. Analysis of plankton samples from Lake Bangweulu showing spatial distribution of species. This could be linked to water chemistry and land use patterns.  
Zambia, Bangweulu, plankton, water
572. Magadza, C.H.D. (1992). Post-impoundment studies on Lake Kafue: a man-made hydroelectric impoundment in Zambia. In: *Lake Conservation and Management: Proceedings of the 4th International Conference on the Conservation and Management of Lakes* (editors L. Hongliang, Z. Yutian & L. Haisheng). CRAES/UNEP/ILEC, Beijing, China. pp. 220-253.  
Limnological study of Lake Kafue showing 3 zones (gorge area, floodplain and transition). Model based on nutrient status and sewage input suggests eutrophication is looming. Results on the chemical composition of the waters, and zooplankton and phytoplankton composition are given.  
Zambia, Kafue, plankton, water
573. Magadza, C.H.D. (1994). Evaluation of eutrophication control in Lake Chivero, Zimbabwe, by multivariate analysis of plankton samples. *Hydrobiologia* **272**: 277-292.  
N/S. Account of reduction in eutrophication in Lake Chivero as seen from plankton data. Zooplankton was a useful tool for the evaluation of eutrophication. Changes in its spatial and temporal composition were related to nutrient inflows and nutrient status of the lake. Zooplankton are unable to graze on colonial phytoplankton species that develop in eutrophic water.  
Chivero, Zimbabwe, water, plankton
574. Magadza, C.H.D. (1995). DDT in the Tropics: a review of the NRI report on impacts of DDT in the Zambezi Valley, Zimbabwe. Zambezi Society, Harare, Zimbabwe. 31 pp.  
Consultants' report critically reviewing a recent publication on the impacts of DDT on biota. The effects on organisms and ecology of DDT in the Zambezi valley are identified and shown to be not insubstantial.  
Zimbabwe, Kariba, water, human
575. Main, M. (1987). *Kalahari: Life's Variety in Dune and Delta*. Southern Books, Johannesburg, South Africa. 265 pp.  
Popular account of the geology, ecology and natural history of the Kalahari with detailed chapter on the Okavango swamps and reference to Chobe-Linyanti system.  
Botswana, Okavango, Namibia
576. Main, M. (1992). *Zambezi: Journey of a River*. Southern Book Publishers, Halfway House, South Africa. 313 pp.  
Popular account of the geology, ecology and natural history of the Zambezi river from source to mouth.  
Zbasin
577. Malambo, C.M. & Chabwela, H.N. (1992). Preliminary observations on the distribution and abundance of Wattled Cranes in Zambian wetlands. In: *Proceedings of the Seventh Pan-African Ornithological Congress* (editor L. Bennun). Pan-African Ornithological Congress, Nairobi, Kenya. 552 pp. 71-74.  
Brief account of asurvey of Wattled Cranes in the Kafue Flats. The species is largely confined to floodplains and dambos. An aerial census was done in the central part of the Kafue Flats in June 1988 and 663 cranes were recorded (estimated population 2724). Changes in the flooding regime, disturbance by cattle and an increase in fishermen and boats have reduced breeding intensity.  
Kafue, Zambia, birds, conservation
578. Mandahl-Barth, G. (1968). Freshwater molluscs. *Exploration hydrobiologique Bangweulu-Luapula* **12**: 1-68.  
N/S  
Zambia, Bangweulu, inverts
579. Mandahl-Barth, G. (1972). The freshwater Mollusca of Lake Malawi. *Revue de Zoologie et de Botanique Africaines* **86**(3/4): 129-160.  
N/S  
Malawi, LMalawi, inverts
580. Mandahl-Barth, G. (1988). Studies on African freshwater bivalves. Danish Bilharziasis Laboratory, Charlottenlund, Denmark. 161 pp.  
N/S  
SAfrica, inverts

581. Mandima, J.J. (1997). Some limnological aspects of Lake Cahora Bassa, Mozambique. *Transactions of the Zimbabwe Scientific Association* **71**: 14-18.  
Comparative survey of water quality (nutrients, dissolved oxygen) and zooplankton of Lake Cahora Bassa. Nutrient concentration was higher than in Lake Kariba, but zooplankton composition was similar, although numbers appear to have decreased since the early 1980s. Mozambique, Cahora, water, plankton
582. Mangubuli, M.J.J. (1996). Wattled cranes in Botswana: their status and needs for conservation. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 315-316.  
Population size of Wattled Cranes in Botswana is around 1000-3000 visitors to the Okavango wetlands and 100-200 resident breeding pairs. Breeding has reduced in recent years, possibly because of disturbance and drought. Okavango, Botswana, conservation, birds
583. Manning, I. (1975). Bangweulu: trails of the sitatunga. *Black Lechwe* **12**(2): 14-19.  
Popular account of the sitatunga in the Bangweulu swamps, covering behaviour, ecology and conservation. The total population is 18,340-27,510.  
Zambia, Bangweulu, mammals
584. Marshall, B.E. (1975). Observations on the freshwater mussels (Lamellibranchiata: Unionacea) of Lake Mchilwane, Rhodesia. *Arnoldia (Rhodesia)* **7**(16): 1-16.  
Describes the mussels found in Lake Chivero with data on their distribution and abundance.  
Chivero, Zimbabwe, invertebrates
585. Marshall, B.E. (1978). Aspects of the benthic fauna in Lake Mchilwane, Rhodesia. *Freshwater Biology* **8**: 241-249.  
Lists some of the benthic species found in Lake Chivero.  
Chivero, Zimbabwe, invertebrates
586. Marshall, B.E. (1979). Fish populations and fisheries potential of Lake Kariba. *South African Journal of Science* **75**(11): 485-488.  
Account of the fishery potential of Lake Kariba with a discussion on kapenta and biogeographical aspects.  
Zimbabwe, Kariba, biogeography, human, fish
587. Marshall, B.E. (1982). The benthic fauna of Lake Mchilwane. In: *Lake Mchilwane: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 144-155.  
Account of the bottom-dwelling fauna of Lake Chivero, principally comprising worms, insect larvae and mussels. There is zonation according to water depth, and lake-level fluctuations and aquatic plants are shown to have an effect. The eutrophic state of the waters is mentioned.  
Chivero, Zimbabwe, invertebrates, water
588. Marshall, B.E. (1982). The fish of Lake Mchilwane. In: *Lake Mchilwane: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 155-188.  
Detailed account of the fish and fish biology of Lake Chivero. Diets of the various species are described. The fisheries potential is discussed. A list of 26 species is given, 5 of them introduced.  
Chivero, Zimbabwe, human, fish
589. Marshall, B.E. (1991). The impact of the introduced sardine, *Limnothrissa miodon* on the ecology of Lake Kariba. *Biological Conservation* **55**: 151-165.  
Account of the impact of introduced kapenta on the ecology of Lake Kariba, with particular reference to the severe reduction in the abundance and diversity of zooplankton and possible extinction of a Dipteran species.  
Zimbabwe, Kariba, human, fish, plankton
590. Marshall, B.E. (1995). Changes in the benthic fauna of Lake Chivero, Zimbabwe, over thirty years. *Southern African Journal of Aquatic Sciences* **21**(1/2): 22-28.  
Account of the changes in bottom-dwelling fauna in Lake Chivero, which has become more eutrophic and calcium-rich in the intervening period. A decrease in the number of mussels but a dramatic increase in the population of snails were the most striking changes.  
Chivero, Zimbabwe, water, invertebrates
591. Marshall, B.E. (1995). Why is *Limnothrissa miodon* such a successful introduced species and is there anywhere else we should put it? In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 527-545.  
Account of the introduction of kapenta into Lake Kariba and the species characteristics that have made it so successful. *Limnothrissa* introduction was successful because it occupied a vacant niche, has a high reproductive ability and can change its life history to suit conditions. Its ecological effects include an increase of some predatory fish species, major changes to the structure of zooplankton, and possible alteration of nutrient cycling patterns. Further introductions should be limited to man made lakes, as it could cause extensive unpredictable changes in natural lakes.  
Zimbabwe, Kariba, fish
592. Marshall, B.E. (1997). Lake Chivero after forty years: the impact of eutrophication. In: *Lake Chivero, a polluted lake* (editor N.A.G. Moyo). University of Zimbabwe, Harare, Zimbabwe. pp. 1-12.  
Account of the eutrophication of Lake Chivero, the causes and the biological results. Algal blooms, water hyacinth and fish kills have occurred. The level of nutrients is now excessively high, due primarily to sewage effluent.  
Chivero, Zimbabwe, water
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593. Marshall, B.E. (1997). A review of zooplankton ecology in Lake Kariba. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 102-119. Account of the zooplankton in the lake since its formation. The effects on zooplankton composition of the introduction of kapenta and the development of a fishing industry based on it are discussed.  
Zimbabwe, Kariba, fish, plankton, human
594. Marshall, B.E. (1998). *Serranochromis macrocephalus* in the middle Zambezi river: further evidence of the importance of hydroelectric power stations to the downstream movement of fish species. *South African Journal of Science* **94**: 86-88.  
Describes the discovery of *Serranochromis macrocephalus* downstream from Lake Kariba in relation to its spread within the lake, and emphasises the fact that this species could only have invaded the river via the hydroelectric turbines.  
Zimbabwe, fish, Kariba
595. Marshall, B.E. & Junor, F.J.R. (1981). The decline of *Salvinia molesta* on Lake Kariba. *Hydrobiologia* **83**: 477-484.  
Account of invasion and decline of *Salvinia*. In 1962 it covered 22% of the lake, but declined to a stable 10-15%, 5% in 1973 and 1% in 1980. This is ascribed partly to control by a grasshopper, but mostly to nutrient stress as nutrient levels decreased.  
Zimbabwe, Kariba, probsp, plants
596. Marshall, B.E., Junor, F.J.R. & Langerman, J.D. (1982). Fisheries and fish production on the Zimbabwean side of Lake Kariba. *Kariba Studies* **10**: 175-231.  
Account of fisheries in Lake Kariba. Total catch of artisanal gill-net fishing is estimated at 1200 t/year. Industrial kapenta fisheries yields 7990 t/year, but is highly seasonal. Tiger fishing is an important recreational industry. Estimates of fish production from the whole lake vary from 6900-39,000 t/year, but inshore fishing over the whole lake is unlikely to yield more than 3000 t/year. A list of fish species is given.  
Zimbabwe, Kariba, human, fish
597. Marshall, B.E. & Lockett, C.A. (1976). Juvenile fish populations in the marginal areas of Lake McIlwaine, Rhodesia. *Journal of Limnological Society of Southern Africa* **2**: 37-42.  
Account of the abundance of juvenile fish in Lake Chivero with lists of species taken from shallow water.  
Chivero, Zimbabwe, fish
598. Martens, A.E.V. (1860). Verzeichniss der von Prof. Peters in Mossambique gesammelten Landund Süßwasser-Mollusken. *Malakozoologische Blätter* **6**: 211-221.  
N/S  
Mozambique, inverts
599. Martens, A.E.V. (1879). Übersicht de von 1843 bis 1847 in Mossambique gesammelten Mollusca. *Monatsberichte der Königlich Preussischen Akademie der Wissenschaft zu Berlin* **44**: 727-749.  
N/S  
Mozambique, inverts
600. Masundire, H. (1989). Zooplankton composition and abundance in relation to water transparency and predation in Lake Kariba. *Archiv für Hydrobiologie Beiheft. Ergebnisse Limnologie* **33**: 513-520.  
Account of zooplankton collected from Lake Kariba. 40 species of rotifers, 9 cladocerans, 4 cyclopoids and 3 calanoids were found in the five basins of the lake. Zooplankton abundances decreased along the lake towards the dam wall. The study attempts to relate zooplankton species composition and abundance to predation by *Limnothrissa miodon* and water transparency.  
Zimbabwe, Kariba, plankton, water
601. Matthes, H. (1968). The food and feeding habits of the Tiger-fish, *Hydrocyon vittatus* (Cast., 1861) in Lake Kariba. *Beaufortia* **15**(201): 143-153.  
Account based on stomach contents and laboratory studies of the food of tigerfish in Lake Kariba. Results are tabulated. Tigerfish are the main and most efficient predators of the lake; the effects of predation are mostly seen on small and young fish, including commercial species.  
Zimbabwe, Kariba, fish
602. Matthiessen, P. (1985). Contamination of wildlife with DDT insecticide residues in relation to tsetse fly control operations in Zimbabwe. *Environmental Pollution (B)* **10**: 189-211.  
N/S. Study shows the impacts of DDT application in the area around Lake Kariba. There appears to be a reproductive failure in migratory fish, and effects on hippo, predatory birds and bats.  
Zimbabwe, Kariba, water, fish, mammals, birds
603. McCarthy, T.S. (1992). Physical and biological processes controlling the Okavango Delta - a review of recent research. *Botswana Notes & Records* **24**: 57-86.  
Study on the nature of the processes underpinning the Okavango delta. These are said to be external (graben faulting, geology, sedimentation) and internal variables (biotic). Plant communities regulate the dispersal of sediment and water, thus many of the features seen today are biotically controlled through vegetation and blockages.  
Botswana, Okavango, water, vegetation
604. McCarthy, T.S., Ellery, W.N. & Dangerfield, J.M. (1998). The role of soil biota in shaping flood plain morphology on the Okavango alluvial fan, Botswana. *Earth Surface Processes & Landforms* **23**: 291-316.  
Account of the role of termite mounds in island formation on a floodplain. The raised mound changes hydrological flows resulting in establishment of trees and shrubs. Termites are shown to be important components of the landscape.  
Botswana, Okavango, inverts



605. McCarthy, T.S., Franey, N.J., Ellery, W.N. & Ellery, K. (1993). The use of SPOT imagery in the study of environmental processes of the Okavango Delta, Botswana. *South African Journal of Science* **89**: 432-436. Study of swamp vegetation using digital analysis of satellite data. With papyrus, reflectance was shown to be related to standing biomass; differing reflectance did not always indicate differing species composition. Evidence is presented to show that plant growth is sensitive to hydrological environment, thus different vegetation detectable from satellite data can indicate differing hydrological regimes. Botswana, Okavango, water, vegetation
606. McKaye, K.R., Makwinja, R.D., Menyani, W.W. & Mhone, O.K. (1985). On the possible introduction of non-indigenous zooplankton-feeding fishes into Lake Malawi. *Biological Conservation* **33**: 289-307. Discussion of the proposal to introduce kapenta into Lake Malawi and the impact this may have on the fish communities. Malawi, LMalawi, conservation, fish
607. McKaye, K.R., Stauffer, J.R. & Louda, S.M. (1986). Fish predation as a factor in the distribution of Lake Malawi gastropods. *Experimental Biology* **45**: 279-289. N/S. An investigation into the control of snails by fish in Lake Malawi, with special reference to the spread of bilharzia, and the possible increase in this disease caused by the removal of snail-eating fish by commercial fishing. Malawi, LMalawi, fish, invertebrates
608. McLachlan, A.J. (1965). The ecology of the bottom fauna of Lake Kariba. In: *Proceedings of the Lake Kariba Fisheries Research Institute Symposium*. Kariba, Zimbabwe. pp. 58-59. Brief account of research on animals living in mud and other substrata within Lake Kariba. Chironomid larvae are the major type. The lack of littoral vegetation is suggested to be the reason for depauperate fauna from other groups. Changes in water level also affect the faunal composition. Zimbabwe, Kariba, invertebrates
609. McLachlan, A.J. (1969). The effect of aquatic macrophytes on the variety and abundance of benthic fauna in a newly created lake in the tropics (Lake Kariba). *Archiv für Hydrobiologie* **66**(2): 212-231. Account of the effect of 4 aquatic plants on the benthic communities of Lake Kariba. Faunal biomass and species number increases with appearance of aquatic vegetation. Chironomid larvae were particularly important. Zimbabwe, Kariba, plants, invertebrates
610. McLachlan, A.J. (1970). Submerged trees as a substrate for benthic fauna in the recently created Lake Kariba (Central Africa). *Journal of Applied Ecology* **7**: 253-266. Account of 24 invertebrate species living on submerged trees together with data on their distribution and rate of colonisation. Chironomid larvae form a major part of the fauna. Zimbabwe, Kariba, invertebrates
611. McLachlan, A.J. (1974). Recovery of the mud substrate and its associated fauna following a dry phase in a tropical lake. *Limnology & Oceanography* **20**: 74-83. Account of the benthic fauna of Lake Chilwa after drying out. Chironomid larvae were pioneers, but disappeared after 3 months owing to particle precipitation. Malawi, MShire, invertebrates
612. McLachlan, A.J. (1975). The role of aquatic macrophytes in the recovery of the benthic fauna of a tropical lake after a dry phase. *Limnology & Oceanography* **20**(1): 54-63. Account of saline Lake Chilwa and changes in its plant and invertebrate composition. Two types of macrophytes are present - permanent (*Typha*) and temporary (*Aeschynomene* and *Diplacne*). Their roles in the recovery of the lake ecology are considered. Faunal experiments on salinity tolerance and competition are described. Malawi, MShire, plants, invertebrates
613. McLachlan, A.J. & McLachlan, S.M. (1971). Benthic fauna and sediments in the newly created Lake Kariba (Central Africa). *Ecology* **52**: 800-809. Account of a study on the development of bottom deposits and associated fauna from the newly-formed Lake Kariba. Chironomid larvae predominate. Faunal biomass is correlated to the amount of carbon, modified by a response to water depth. A list of species found is given. Zimbabwe, Kariba, invertebrates
614. McLachlan, G.R. (1966). The first ten years of ringing in South Africa. In: *Proceedings of the Second Pan-African Ornithological Congress* (editor G.J. Broekhuysen). The Ostrich Supplement 6. South African Ornithological Society, Cape Town, South Africa. pp. 255-263. Account of ringing recoveries (plus maps) for 12 bird species, including Cattle Egrets, Sacred Ibis, Spoonbill and Red-billed Teal in the Zambezi basin, from ringing places in South Africa. SAfrica, Zbasin, birds
615. McShane, T.O. & McShane-Caluzi, E. (1988). The habitats, birds and mammals of Vwaza Marsh Game Reserve. *Nyala* **12**(1/2): 39-66. Account of the habitats and vegetation of Vwaza Marsh GR in NW Malawi, with checklists of mammals (50 species) and birds (266 species) seen, with an indication of their preferred habitat. Malawi, mammals, birds, vegetation
616. Meester, J. (1973). Mammals collected during the Bernard Carp Expedition to the Western Province of Zambia. *The Puku* **7**: 137-149. Report on collections from SE Angola, W Zambia and E Caprivi in 1953, covering 39 species. Barotse, Zambia, mammals
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617. Meine, C.D. & Archibald, G.W. [compilers] (1996). *The Cranes: Status Survey and Conservation Action Plan*. IUCN, Gland, Switzerland. 294 pp.  
Detailed accounts of the status of crane species with suggested conservation actions. Includes chapters on the Wattled and Grey Crowned Cranes, with current and priority conservation measures.  
SAfrica, conservation, birds
618. Mendelsohn, J.M. & Roberts, C.S. (1997). *An Environmental Profile and Atlas of Caprivi*. Directorate of Environmental Affairs/Macmillan, Windhoek, Namibia. 51 pp.  
Compilation of all available information on the resources and environment of the Caprivi, including a detailed vegetation map.  
Namibia, Chobe, human, agriculture, vegetation, water
619. Menz, A. [editor] (1995). *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa*. Natural Resources Institute, Chatham, UK. 181 pp.  
Report of a major investigation into the ecology of the pelagic waters of Lake Malawi. The 13 chapters cover the ecology of phytoplankton, zooplankton and fish. Fisheries potential is discussed.  
Malawi, LMalawi, human, fish, plankton
620. Mephram, R.H. & Mephram, J.S. (1987). Swamps and floodplains of the Zambezi Basin and coastal Mozambique. In: *Directory of African wetlands and shallow water bodies* (editors M.J. Burgis & J.J. Symoens). Travaux et Documents 211. ORSTOM, Paris, France. 615 pp.  
N/S  
Zbasin
621. Merron, G.S. (1986). Report on a fish kill after aerial spraying with insecticides in the lower Okavango swamps. Investigation Report No. 20. J.L.B. Smith Institute for Ichthyology, Grahamstown, South Africa. 15 pp.  
N/S  
Botswana, Okavango, water, fish
622. Merron, G.S. (1991). *The ecology and management of the fishes of the Okavango Delta, Botswana, with particular reference to the role of seasonal floods*. PhD thesis, Rhodes University. Grahamstown, South Africa. 166 pp.  
N/S  
Botswana, Okavango, water, fish
623. Merron, G.S. (1992). Tsetse fly control and environmental implications for fish in the Okavango Delta, Botswana. *Botswana Notes & Records* 24: 49-56.  
Account of the effects of insecticide spraying on fish populations in the Okavango. Endosulfan was found to have undesirable effects, particularly in shallow floodplains, while deltamethrin was less toxic.  
Botswana, Okavango, water, fish
624. Mertens, R. (1937). Reptilien und Amphibien aus dem südlichen Inner-Afrika. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 435: 1-23.  
Account of reptiles and amphibians from SC Africa, including Lake Bangweulu and the Chambeshi River.  
Zambia, Bangweulu, herps
625. Miller, P. (1977). Kafue Basin. *Black Lechwe* 12(3): 18-20.  
Brief overview of the Kafue basin from a conservation perspective. The basin is 154,000 km<sup>2</sup> in size and contains 3 National Parks (Kafue, Lochinvar and Blue Lagoon).  
Zambia, Kafue, conservation
626. Minshull, J.L. (1987). A revised checklist of Zimbabwe fishes. *Arnoldia (Zimbabwe)* 9(27): 343-352.  
List of 132 fish species (including 10 introductions) found in Zimbabwe, including new records. The river systems they occur in are shown: 74 species are from the upper Zambezi, 61 from Lake Kariba, 53 from the mid Zambezi, and 48 from the lower Zambezi.  
Zimbabwe, biogeography, fish
627. Minshull, J.L. (1999). The Zambezi River. In: *Kariba International Tiger Fish Tournament 1999* pp. 33-34.  
Brief popular article describing the ecological features of the Zambezi from source to delta.  
Zbasin, fish
628. Missão de Fomento e Povoamento do Zambêze (1961). Aspectos pecuários (1958-1960). In: *Bacia do Zambêze: elementos económico-sociais* Ministério do Ultramar, Província de Moçambique, Maputo, Mozambique. pp. 12-28.  
Early report on suitability for livestock production of a large part of the Zambezi valley in Mozambique. The natural vegetation is described under 18 types, and under 5 veld types. Maps of the different types are provided.  
Mozambique, agriculture, vegetation
629. Mitchell, B.L. (1946). A naturalist in Nyasaland. *Nyasaland Agricultural Quarterly Journal* 6: 1-47.  
Brief account of the natural history of some reptile species in the lower Shire.  
Malawi, LShire, herps

630. Mitchell, B.L. (1963). A first list of plants collected in the Kafue National Park. *The Puku* **1**: 75-191. Following a brief account of vegetation types of the southern part of the Kafue NP, a checklist of 708 species is given with notes on habitat and forage use. A list of vernacular names is also presented.  
Zambia, Kafue, plants
631. Mitchell, B.L. & Uys, J.M.C. (1961). The problem of the lechwe (*Kobus leche*) on the Kafue Flats. *Oryx* **6**: 171-183.  
Account of the Kafue Flats and lechwe populations, focussing on its natural history, historic changes in numbers, hunting and conservation.  
Zambia, Kafue, human, conservation, mammals
632. Mitchell, D.S. (1964). The biological explosion of *Salvinia auriculata* Aublet on Lake Kariba. *Journal of Institute of Sewerage Purification* **3**: 252.  
N/S  
Zimbabwe, Kariba, probspp, plants
633. Mitchell, D.S. (1965). Research on *Salvinia auriculata* Aublet. In: *Proceedings of the Lake Kariba Fisheries Research Institute Symposium*. Kariba, Zimbabwe. pp. 51-56.  
Brief account of research on *Salvinia* on Lake Kariba, covering biology and growth. *Salvinia* was shown to modify the nutrient status of the waters.  
Zimbabwe, Kariba, probspp, plants
634. Mitchell, D.S. (1967). *Salvinia auriculata* in the estuaries of Lake Kariba. In: *Proceedings of the First Rhodesian Science Congress*. Rhodesia Scientific Association, Harare, Zimbabwe. p. 64.  
N/S  
Zimbabwe, Kariba, probspp, plants
635. Mitchell, D.S. (1967). A survey of *Salvinia auriculata* in the Chobe river system - March 1967. Unpublished report. Department of Wildlife and National Parks, Botswana. 7 pp.  
First detailed report on *Salvinia* in the Chobe system, before it reached Lake Liambezi. The infestation was shown to be extensive between Liambezi and Kasane.  
Namibia, Botswana, Chobe, probspp, plants
636. Mitchell, D.S. (1968). Ecological studies of *Salvinia auriculata* with particular reference to Lake Kariba (Rhodesia-Zambia) and the Chobe River (Botswana). In: *Proceedings of the International Hydrological Decade Symposium, Ecology and Control of Aquatic Vegetation*. UNESCO, Paris. p. 64.  
N/S  
Zimbabwe, Botswana, Kariba, Chobe, probspp, plants
637. Mitchell, D.S. (1969). The ecology of vascular hydrophytes on Lake Kariba. *Hydrobiologia* **34**(3/4): 448-464.  
Account of the various types of aquatic plants found in or on Lake Kariba. Sudd formation is described, as is the possible development of vegetation. The importance of *Salvinia* is outlined.  
Zimbabwe, Kariba, vegetation, probspp, plants
638. Mitchell, D.S. (1970). *Autecological studies of Salvinia auriculata* Aubl. PhD thesis, University of London. London, UK. 669 pp.  
N/S  
Zimbabwe, Kariba, probspp, plants
639. Mitchell, D.S. (1978). Freshwater plants. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 1113-1138.  
Review of knowledge on the taxonomy, ecology and distribution of freshwater plants. Both microphytes and macrophytes are covered, and the flora of standing and flowing waters. Water weeds are discussed. Levels of endemism are low. There have been very few holistic studies in the region.  
SAfrica, biogeography, vegetation, plants
640. Mitchell, D.S. & Marshall, B.E. (1974). Hydrobiological observations on three Rhodesian reservoirs. *Freshwater Biology* **4**: 61-72.  
Account of the physico-chemical properties of 3 reservoirs, including Lake Chivero. Phytoplankton are related to these characteristics. Chivero has a high proportion of blue-green algae.  
Chivero, Zimbabwe, water, plankton
641. Mitchell, D.S. & Rose, D.J.W. (1979). Factors affecting fluctuations in extent of *Salvinia molesta* on Lake Kariba. *PANS* **25**(2): 171-177.  
Account of changes in *Salvinia* populations on Lake Kariba, peaking in 1962. Reduction in extent is partly ascribed to the introduction of an aquatic grasshopper.  
Zimbabwe, Kariba, probspp, plants
642. Mitchell, S.A. (1976). The marginal fish fauna of Lake Kariba. *Kariba Studies* **8**: 109-162.  
Account of fish living around the margins of Lake Kariba. Vegetation type and fish biomass were related, with the highest biomass under *Salvinia* mats. The effects of water depth and changes in lake level on fish are discussed. Stomach contents of various fish species are listed.  
Zimbabwe, Kariba, fish
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643. Mkanda, F.X. & Kumchedwa, B. (1997). Relationship between crop damage by hippopotamus (*Hippopotamus amphibius* L.) and farmer complaints in the Elephant Marsh. *Journal of African Zoology* **111**: 27-38.  
Study on the damage caused by trampling and grazing by hippo of maize and rice crops around the Elephant Marsh, S Malawi. Malawi, LShire, probssp, mammals
644. Mlotshwa, D.H. (1996). The first record of *Barbus mattozi* Guimaraes, 1884 (Pisces: Cyprinidae) from the upper Zambezi river, Zimbabwe. *Arnoldia (Zimbabwe)* **10**(5): 33-35.  
First record of a fish previously unrecorded from the Zambezi. Zimbabwe, fish
645. Moll, E.J. & Werger, M.J.A. (1978). Mangrove communities. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 1231-1238.  
Brief review of knowledge on the mangroves of southern Africa. The east and west coast mangroves form two groups, and each group shows clear vegetation zonation related to water depth. Mozambique, Delta, vegetation
646. Monteiro, M.I. (1960). Contribution to the study of the diatomaceae of the Lake Nyasa (Mozambique). Estudos, Ensaios e Documentos No. 72. Junta da Investigações do Ultramar, Lisbon, Portugal. pp. 55-96.  
English version of a study on the phytoplankton of the Mozambique part of Lake Malawi. The study looked at diatom productivity and composition. Descriptions of 38 species and varieties are given, along with photos. Mozambique, LMalawi, plankton
647. Moore, A.E. (1988). Plant distribution and the evolution of the major river systems in southern Africa. *South African Journal of Geology* **91**(3): 346-349.  
Account of links between the proto-Upper Zambezi and the Limpopo as shown by distribution of some woody plant species. The palaeogeomorphology is described. Zbasin, plants, biogeography
648. Morais, R.T. (1974?). Estudos ictiológicos no rio Zambeze: parte I (área da albufeira de Cabora Bassa). Brigada de Estudos Piscícolas de Cabora Bassa Universidade de Lourenço Marques, Maputo, Mozambique. 49 pp.  
Account of research on the section of the Zambezi to be flooded by Lake Cabora Bassa, with particular reference to the fish. Nutrient status and flush are discussed. 34 fish species are listed, although few are of commercial interest. Lists of plants, zooplankton, phytoplankton and aquatic mammals are also given. Cabora, Mozambique, plankton, plants, fish
649. Moreau, J. [editor] (1997). *Advances in the Ecology of Lake Kariba*. University of Zimbabwe Publications, Harare, Zimbabwe. 271 pp.  
Book comprising 12 detailed chapters on sediments, nitrogen budget, phytoplankton, zooplankton, vegetation, aquatic plants, benthic fauna, crocodiles, birds and energetics. Zimbabwe, Kariba, water, vegetation, herps, fish, birds, plants, inverts, plankton
650. Mortimer, M.A.E. [editor] (1965). *The Fish and Fisheries of Zambia*. Falcon Press, Ndola, Zambia. 97 pp.  
N/S. Should contain a list of fish species and their distribution in Zambia, perhaps with biological notes. Zambia, fish
651. Moss, B. (1979). The Lake Chilwa ecosystem - a limnological overview. In: *Lake Chilwa: Studies of changes in a tropical ecosystem* (editors M.J. Kalk, A.J. McLachlan & C. Howard-Williams). Monographiae Biologicae 35. Junk, The Hague, Netherlands. pp. 401-415.  
N/S  
Malawi, MShire, water
652. Moss, B. & Moss, J. (1969). Aspects of limnology of an endorheic African lake (L. Chilwa, Malawi). *Ecology* **50**(1): 109-118.  
Account of the levels of various nutrients (ions) in a closed drying lake. These are thought to derive from saline inflows. There is an alternation between high ion concentrations in the dry season, and lower concentrations in the wet season. On filling the lake experiences a flush of nutrients, which results in a productive fishery. Malawi, MShire, water
653. Moyo, N.A.G. [editor] (1997). *Lake Chivero, a polluted lake*. University of Zimbabwe, Harare, Zimbabwe. 134 pp.  
Collection on 13 papers on the eutrophication and pollution of Lake Chivero in the Zambezi catchment. Solutions to these problems are presented. Chivero, Zimbabwe, water, human
654. Moyo, N.A.G. & Worster, K. (1997). The effects of organic pollution on the Mukuvisi river, Harare, Zimbabwe. In: *Lake Chivero, a polluted lake* (editor N.A.G. Moyo). University of Zimbabwe, Harare, Zimbabwe. pp. 53-63.  
Study on oxygen and nutrient levels in the Mukuvisi river after the discharge of sewage effluent. Lists of benthic invertebrates, zooplankton, phytoplankton and plants are given. The fauna and flora is characteristic of eutrophic waters, and the river is being degraded. Chivero, Zimbabwe, water, plankton

655. Mphande, J.N.B. (1987). The status of the Nile Crocodile in Malawi. Department of National Parks and Wildlife, Lilongwe, Malawi.  
Results of a survey giving estimates of 4600-15,000 crocodiles in Malawi, of which 45% are in the Elephant Marsh. Results seem much higher than others (e.g. Bruessow 1989).  
Malawi, LShire, herps
656. Msukwa, A.V. & Ribbink, A.J. (1998). The potential role of sanctuary areas for biological control of Schistosomiasis in Lake Malawi National Park. In: *Proceedings of Workshop on Medical Malacology in Africa* (editors H. Madsen, C.C. Appleton & M. Chimbari). Harare, Zimbabwe. pp. 305-317.  
N/S  
Malawi, LMalawi, probspp, inverts
657. Mulders, R. (1995). Counting exercise: hippopotamus and crocodile, Lower Shire, July 1995. Wildlife Society of Malawi, Blantyre, Malawi. 7 pp.  
Brief report on status of hippo and crocodile along the lower Shire river. Hippo numbers are low and the present extent of suitable feeding areas very restricted owing to extensive cultivation. Poaching is a problem. Numbers seen of each species are given by section of river.  
Malawi, LShire, human, mammals, herps
658. Muldoon, G. (1957). *The Trumpeting Herd*. Rupert Hart-Davis, London, UK. 182 pp.  
Anecdotal accounts of large mammal populations in S and C Malawi during the 1950s. Massive declines in elephant, other large herbivores and large carnivores are described and documented. This was mainly to allow agricultural development. The first chapter records heavy settlement and cropping along the lower Shire, especially in the Elephant Marsh, in mid 1950s. Also notes that the birdlife in the lower Shire had also declined considerably since the initial descriptions by Livingstone.  
LShire, Malawi, human, birds, mammals
659. Muleta, S., Simasiku, P., Kalyocha, G., Kasutu, C., Walusiku, M. & Mwiya, S. (1996). Proposed terms of reference for the preparation of the management plan for Liuwa Plains National Park. IUCN Upper Zambezi Wetlands Project, Mongu, Zambia. 51 pp.  
Report containing detailed information on the Liuwa Plains NP. Ecological characteristics and larger animal species found are given. Seasonality is shown to be an important ecological feature, in particular for wildebeest.  
Barotse, Zambia, mammals
660. Müller, T. & Pope, G.V. (1982). Vegetation report for the impact assessment of the proposed Mupata and Batoka gorge dams on the Zambezi river. In: *A preliminary assessment of the environmental implications of the proposed Mupata and Batoka hydroelectric schemes (Zambezi river, Zimbabwe)* (editor R.F. Du Toit). Natural Resources Board, Harare, Zimbabwe. pp. 53-67, 162-165.  
Account of the vegetation of the broad Mana Pools area with map showing 12 vegetation types. The vegetation of Batoka Gorge is also described under 3 types.  
Mana, Zimbabwe, vegetation, conservation
661. Munro, J.L. (1966). A limnological survey of Lake McIlwaine, Rhodesia. *Hydrobiologia* **28**(2): 281-308.  
General account of Lake Chivero, a man-made dam, with lists of plankton, benthos and fish.  
Zimbabwe, Chivero, fish, inverts, plankton
662. Munthali, S.M. (1997). Dwindling food-fish species and fishers' preference: problems of conserving Lake Malawi's biodiversity. *Biodiversity & Conservation* **6**: 253-261.  
Survey of fisheries activity on Lake Malawi from a biodiversity conservation viewpoint. The endemic, ornamental cichlids are shown to be at risk now that fish stocks are in decline.  
Malawi, LMalawi, conservation, human, fish
663. Musando, B. (1996). *Inshore fish population changes in the Zambian waters of Lake Kariba from 1980 to 1995*. MPhil thesis, University of Bergen. Bergen, Norway. 74 pp.  
Description of inshore fish community structure principally on the Zambian side of Lake Kariba. Study looks at exploited stocks and relates that to annual lake levels and intensity of fishing activities using time-series gillnet data collected from 1980-1995. Hydrological regimes were found to influence inshore fish communities on both sides of the lake, but the population sizes on the fished Zambian side were less than those on the unexploited Zimbabwe side. Lake Kariba is said to have 51 species of fish.  
Zambia, Kariba, human, fish
664. Muyanga, E.D. & Chipungu, P.M. (1982). A short review of the Kafue Flats fishery, from 1968 to 1978. In: *The consequences of hydroelectric power development on utilisation of the Kafue Flats* (editors G.W. Howard & G.J. Williams). Kafue Basin Research Committee, University of Zambia, Lusaka, Zambia. pp. 105-113.  
Account of the effects of dam construction on the fisheries of the Kafue Flats. 21 fish species of commercial significance are listed. Changes in relative abundance as a result of the Kafue Gorge dam are described. Fish catches have increased since impoundment, probably owing to increased oxygen and nutrient content of the water.  
Zambia, Kafue, human, fish, water
665. Mwenya, A.N. (1973). Ornithological notes from southeast of Lake Bangweulu. *Puku* **7**: 152-161.  
N/S  
Zambia, Bangweulu, birds
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666. Mwenya, A.N. & Kaweche, G.B. (1982). Wildlife conservation in the Kafue Flats in the light of hydroelectric development. In: *Proceedings of the National Seminar on Environment and Change: the Consequences of Hydroelectric Power Development on the Utilization of the Kafue Flats* (editors G.W. Howard & G.J. Williams). Kafue Basin Research Committee, Lusaka, Zambia. pp. 129-135.  
Account of the history of conservation on the Flats. Estimates of numbers of larger mammals are given (lechwe 100,000).  
Zambia, Kafue, conservation, mammals

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667. Neave, S.A. (1910). Zoological collections from Northern Rhodesia and adjacent territories: Lepidoptera Rhopalocera. *Proceedings of Zoological Society of London* **1910**: 2-86.  
N/S. Account of butterflies and moths collected in Zambia.  
Zambia, inverts

668. Nefdt, R.J.C. [compiler] (1993). Kafue Basin Bibliography. Kafue Basin Research Committee, Lusaka, Zambia.  
Bibliography of all reports and papers on the Kafue Flats, including a detailed review of research carried out under the headings: mammals, general ecology, vegetation, hydrology, birds, veterinary, herpetology and entomology. Previous and future recommendations are outlined.  
Zambia, Kafue

669. Nefdt, R.J.C. (1996). Reproductive seasonality in Kafue lechwe antelope. *Journal of Zoology, London* **239**: 155-166.  
Study on time of mating in lechwe on the Kafue Flats after changes in the time of flooding related to recent hydroelectric schemes. Lechwe primarily mated when water levels were increasing and inundating potential food supplies, although this now takes place at a different time of year from before impoundment. Calving thus occurs when floods are receding and fresh grass becomes available.  
Zambia, Kafue, mammals, conservation

670. Newman, K. (1989). *Birds of Botswana*. Southern Book Publishers, Johannesburg, South Africa. 344 pp.  
Illustrated guide to the birds of Botswana including distribution maps.  
Botswana, birds

671. Newman, K., Johnston-Stewart, N. & Medland, B. (1992). *Birds of Malawi: a supplement to Newman's Birds of Southern Africa*. Wildlife Society of Malawi, Limbe, Malawi. 110 pp.  
Book giving details and identification characters for bird species occurring in Malawi, but not included in the main Southern African bird books. Species from the Lower Shire and Elephant Marsh are listed.  
Malawi, birds

672. Nkunika, P.O.Y. (1982). The termites of southern Zambia: their distribution in relation to vegetation zones. *Zambia Museums Journal* **6**: 112-117.  
Brief account of the termite species of S Zambia in relation to vegetation types. 10 species are listed from grassland and swamps.  
Zambia, inverts

673. Nkunika, P.O.Y. (1986). An ecological survey of the termites (Isoptera) of Lochinvar National Park, Zambia. *Journal of Entomological Society of Southern Africa* **49**(1): 45-53.  
Study on the termites and their distribution in Lochinvar NP on the Kafue Flats. 23 species are listed, with species diversity lowest in the floodplain (9 species).  
Zambia, Kafue, inverts

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674. Oates, F. (1971). *Matabeleland and the Victoria Falls*. Facsimile reprint of 1881 edition. Heritage Series. The Pioneer Head, Harare, Zimbabwe. 383 pp.  
Travels through Matabeleland to the Victoria Falls in the 1870s. Although Oates died of fever on the return journey, his meticulous collections were eventually received by the British Museum. Notes include much on natural history of the region, including mammals. Contains detailed reports by scientific officers on his ethnographic, ornithological, herpetological and entomological specimens.  
Zimbabwe, mammals, birds, inverts, herps

675. Oatley, T.B. & Prys-Jones, R.P. (1986). A comparative analysis of movements of southern African waterfowl (Anatidae), based on ringing recoveries. *South African Journal of Wildlife Research* **16**: 1-6.  
Study on waterfowl movement across southern Africa, covering 2137 recoveries of 9 species. Pochard, Red-billed Teal and Knob-billed Duck move into the Zambezi basin from South Africa.  
SAfrica, birds

676. Osborne, T.O. (1973). Additional notes on the birds of the Kafue Flats. *Puku* **7**: 163-166.  
N/S  
Zambia, Kafue, birds

677. Osborne, T.O. (1975). Notes on the birds of the Liuwa National Park and a preliminary checklist. Unpublished report. National Parks and Wildlife Service, Chilanga, Zambia.  
N/S  
Barotse, Zambia, birds

678. Osborne, T.O. & Colebrook-Robjent, J.F.R. (1988). The diurnal raptors of Lochinvar National Park, Zambia, 1970-1980. In: *Proceedings of the Sixth Pan-African Ornithological Congress* (editor G.C. Backhurst). Sixth PAOC Organizing Committee, Nairobi, Kenya. pp. 223-231.  
Account of raptors on the Kafue Flats. The seasonal use, habitats, breeding and density of 49 species are discussed.  
Zambia, Kafue, birds

679. Owen, R.B., Crossley, R., Johnson, T.C., Tweddle, D., Kornfield, I., Davison, S., Eccles, D.H. & Engstrom, D.E. (1990). Major low levels of Lake Malawi and their implications for speciation rates in cichlid fishes. *Proceedings of the Royal Society of London, B* **240**: 519-553.

Detailed account of the geological features of Lake Malawi with particular reference to changes in water level. The significance of these changes in the evolution of cichlid fishes is discussed.

Malawi, LMalawi, biogeography, fish

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680. Parker, H.W. (1931). A collection of frogs from Portuguese East Africa. *Proceedings of Zoological Society of London* **1930**: 897-905.

List and brief descriptions of 29 species of frog collected from the lower Zambezi.

Mozambique, Delta, herps

681. Parry, D.C. & Blyther, R. (1991). Tree canopy cover within the dry season range of elephant in the Chobe National Park, Moremi Game Reserve and Bokwi Island area. Ecosurv, Gaborone, Botswana. 24 pp. Unpublished draft report.

Study on rate of change in tree canopy in woodlands in N Botswana using air photos and fieldwork. There was a significant reduction in canopy in woodlands with a high concentration of elephant, particularly *Acacia erioloba* woodland.

Botswana, Chobe, Okavango, mammals, vegetation, conservation

682. Patterson, G. & Kachinjika, O. (1995). Limnology and phytoplankton ecology. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 1-67.

Account of the phytoplankton species of Lake Malawi with data on seasonal abundance and distribution. Lists of phytoplankton species collected are given.

Malawi, LMalawi, plankton

683. Pedro, J.G. & Barbosa, L.A.G. (1955). A vegetação. In: *Esboço de Reconhecimento Ecológico-Agrícola de Moçambique*. Memórias e Trabalhos 23. Centro de Investigação Científica Algodreira, Maputo, Mozambique. pp.67-224.

Main vegetation survey of the country with detailed descriptions. The map (scale 1:2 million) shows 117 vegetation units. The map has been revised slightly for Flora Zambesiaca (Wild & Barbosa 1967).

Mozambique, vegetation

684. Penry, H. (1986). Threatened birds of Botswana - Part 1: the major issues. *Babbler* **11**: 6-8.

Account of conservation categories regarding birds in Botswana based on recent publications. Slaty Egret, Cape Vulture and Wattled Crane are considered at greatest risk of extinction.

Chobe, Okavango, Botswana, conservation, birds

685. Penry, H. (1994). *Bird Atlas of Botswana*. University of Natal Press, Pietermaritzburg, South Africa.

Detailed atlas of bird distribution in Botswana. Book has analysis of distribution data and a discussion of factors affecting bird distribution. Atlassing was done from July 1980-June 1990 by half-degree squares. 7 squares cover the Chobe-Linyanti, with numbers of species per square varying from 15-405 (Kasane). 12 waterbirds are mapped in this region and an extra 9 as 'rarities'.

biogeography, Botswana, birds

686. Peracca, M.G. (1910). Rettili raccolti nell'alto Zambese (Barotseland) dal Signor Cav. Luigi Jalla. *Bollettino Musei de Zoologia ed Anatomia comparata della R. Università de Torino* **25**(624): 1-6.

Annotated list in Italian of some species of snakes and lizards collected from Barotseland.

Barotse, Zambia, herps

687. Perennou, C. [compiler] (1992). African Waterfowl Census, 1992. International Waterfowl Research Bureau, Slimbridge, UK.

Country accounts of annual results of waterfowl counts. 1640 waterfowl were recorded in the Elephant Marsh (Malawi) in January 1992.

Malawi, LShire, birds

688. Perera, N.P. (1982). The ecology of wetlands (dambos) of Zambia, and their evaluation for agriculture - a model for the management of wetlands in sub-humid eastern and southern Africa. *International Journal of Ecology & Environmental Sciences* **8**(1): 27-38.

Description of dambos in Zambia, their characteristics, ecology and potential for agricultural use. Dambos cover 5% of Zambia (37,000 km<sup>2</sup>). Species present are principally determined by the considerable seasonal fluctuations in water level. The main seepage zone is often dominated by the grass *Loudetia simplex*, the upper wash zone by *Hyparrhenia* spp., and the lower wash zone by *Setaria sphaelata* and *Typha*. Dambos can also be described on the basis of soil pH as sour (4-5.5), intermediate (5.5-7) or sweet (7-8).

Zambia, agriculture

689. Peters, J.L. & Loveridge, A. (1953). Zoological results of a fifth expedition to East Africa. II - Birds from Nyasaland and Tete. *Bulletin of Museum of Comparative Zoology, Harvard* **110**(2): 85-139.

Detailed records of bird collections made during an expedition.

Malawi, Mozambique, LShire, birds

690. Peters, W.C.H. (1852). *Naturwissenschaftliche Reise nach Mossambique: Zoologie, 1 - Saugtiere*. Georg Reimer, Berlin, Germany.

N/S. Earliest publication on East African mammals with descriptions of new species from coastal Mozambique and report on a collection from Tete. Contains notes on natural history.

Mozambique, mammals



691. Peters, W.C.H. (1854). Diagnosen neuer Batrachier, welche zusammen mit der früher (24. Juli und 17. August) gegebenen Übersicht der Schlangen und Eidechsen mitgeteilt werden. *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der königlich-preussischen Akademie der Wissenschaften zu Berlin*. pp. 614-628.  
Account with original descriptions of many reptiles and amphibians from Mozambique.  
Delta, Mozambique, herps
692. Peters, W.C.H. (1882). *Naturwissenschaftliche Reise nach Mossambique auf Befehl seiner Majestät des Königs Friedrich Wilhelm IV. In den Jahren 1842 bis 1848 ausgeführt*. G. Reimer, Berlin, Germany. 191 pp.  
Illustrated monograph on the reptiles and amphibians collected by Peters in Mozambique between 1843-1847.  
Mozambique, herps
693. Pike, R. (1964). Poisonous snakes. *Black Lechwe* 3(6): 31-41.  
Brief account of the venomous snakes of the Bangweulu Swamps; 12 species mentioned.  
Bangweulu, Zambia, herps
694. Pinhey, E.C.G. (1976). Entomofauna from Cabora Bassa. Results of the Entomological Brigade of the IICM. *Garcia de Orta (Zoologia)* 5(2): 25-64.  
N/S. Report on 99 species of insects collected by M.C. & G.V. Ferreira around Cabora Bassa, 66 of which were butterflies.  
Mozambique, Cabora, inverts
695. Pinhey, E.C.G. (1949). Records of Southern Rhodesian butterflies (Rhopalocera) (collected up to March 1948). *Occasional Papers of the National Museum of Southern Rhodesia* 2(15): 276-341.  
N/S. List of butterfly species recorded from Zimbabwe.  
Zimbabwe, inverts
696. Pinhey, E.C.G. (1951). The Dragonflies of Southern Africa. Transvaal Museum Memoir No. 5. Transvaal Museum, Pretoria, South Africa. 310 pp.  
Comprehensive taxonomic treatment of the dragonfly species known at that time, many from the Zambezi basin.  
SAfrica, inverts
697. Pinhey, E.C.G. (1961). Dragonflies (Odonata) of Central Africa. *Occasional Papers of the Rhodes-Livingstone Museum* 14: 1-97.  
Annotated checklist (with keys) of 226 species of dragonfly from Zambia, including many records from the upper Zambezi.  
Zambia, inverts
698. Pinhey, E.C.G. (1962). *Hawk Moths of Central and Southern Africa*. Thomas Meikle Series Longman, Cape Town, South Africa. 139 pp.  
Identification book on the hawk moths of the region.  
SAfrica, inverts
699. Pinhey, E.C.G. (1962). New or little known dragonflies (Odonata) of Central and Southern Africa. *Occasional Papers of the National Museum of Southern Rhodesia* 26: 892-911.  
Annotated list (with keys) of 49 species of dragonfly from Zambia and Zimbabwe.  
Zimbabwe, Zambia, inverts
700. Pinhey, E.C.G. (1962). New or little known Lepidoptera from Central Africa. *Occasional Papers of the National Museum of Southern Rhodesia* 26: 871-891.  
Brief report on 57 species of Lepidoptera collected in the Katanga and Mwinilunga areas of N Zambia.  
headwater, Zambia, inverts
701. Pinhey, E.C.G. (1964). Dragonflies (Odonata) of the Angola-Congo borders of Rhodesia. *Publicações Culturais de Companhia de Diamantes de Angola* 63: 95-129.  
Annotated list (with keys) of 56 species of dragonfly collected along the Zambia-Angola border in Mwinilunga District. The species have affinities to the Chobe/Okavango area.  
headwater, Angola, Zambia, inverts
702. Pinhey, E.C.G. (1964). Further records of African dragonflies (Odonata). *Journal of Entomological Society of Southern Africa* 26(2): 324-336.  
Notes on dragonfly species, particularly from Zimbabwe, including description of a new species from Zambia.  
Zambia, Zimbabwe, inverts
703. Pinhey, E.C.G. (1965). *The Butterflies of Southern Africa*. Thomas Meikle Series Nelson, Johannesburg, South Africa. 139 pp.  
Identification book on the butterflies of the region.  
SAfrica, inverts
704. Pinhey, E.C.G. (1966). Check-list of dragonflies (Odonata) from Malawi, with description of a new *Teinobasis* Kirby. *Arnoldia (Rhodesia)* 2(33): 1-24.  
Detailed listing of the 111 species of dragonflies in Malawi, but little is noted from the lower Shire.  
LShire, Malawi, inverts



705. Pinhey, E.C.G. (1967). Odonata of Ngamiland (1967). *Arnoldia (Rhodesia)* **3**(15): 1-17.  
Checklist of 63 dragonfly species recorded from the Okavango region during a wet period. Notes are given on some species.  
Botswana, Okavango, inverts
706. Pinhey, E.C.G. (1968). Check list of the butterflies (Lepidoptera-Rhaphalocera) of Botswana: Part 1. *Botswana Notes & Records* **1**: 85-92.  
Brief account of various butterflies, including some from the Chobe area. 41 species are listed.  
Chobe, Botswana, inverts
707. Pinhey, E.C.G. (1971). Check list of the butterflies (Lepidoptera-Rhaphalocera) of Botswana: Part 2. *Botswana Notes & Records* **3**: 148-152.  
Brief account of various butterflies, including some from the Chobe and Okavango areas. 33 species are listed.  
Chobe, Okavango, Botswana, inverts
708. Pinhey, E.C.G. (1972). Check list of the butterflies (Lepidoptera, Rhaphalocera) of Botswana: Part 3 (with illustrations). *Botswana Notes & Records* **6**: 197-214.  
Brief account of various butterflies, including a few from the Chobe and Okavango areas. 30 species are listed.  
Chobe, Okavango, Botswana, inverts
709. Pinhey, E.C.G. (1972). *Emperor Moths of South and South Central Africa*. C. Struik, Cape Town, South Africa. 150 pp.  
Identification book on the emperor moths of the region.  
SAfrica, inverts
710. Pinhey, E.C.G. (1974). Check list of the butterflies (Lepidoptera, Rhaphalocera) of Botswana: Part 4. *Botswana Notes & Records* **8**: 269-279.  
N/S. Brief account of various butterflies.  
Botswana, inverts
711. Pinhey, E.C.G. (1974). Checklist of the butterflies (Lepidoptera, Rhaphalocera). *Botswana Notes & Records* **8**: 269-288.  
Brief account of various butterflies, including a few from the Chobe and Okavango areas. 104 species are listed.  
Chobe, Okavango, Botswana, inverts
712. Pinhey, E.C.G. (1975). The insects. In: *Mosi-oo-Tunya: A handbook to the Victoria Falls Region* (editor D.W. Phillipson). Longman Zimbabwe, Harare, Zimbabwe. pp. 201-218.  
Account of various insect species found in the Victoria Falls area, including dragonflies, grasshoppers and butterflies.  
Zimbabwe, Zambia, inverts
713. Pinhey, E.C.G. (1976). Dragonflies (Odonata) of Botswana, with ecological notes. *Occasional Papers of the National Museums and Monuments of Rhodesia* **5**(10): 524-601.  
Checklist with keys to the dragonflies of Botswana covering 103 species, the majority in the Okavango swamps.  
Botswana, Okavango, inverts
714. Pinhey, E.C.G. (1978). Odonata. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 723-731.  
Brief review of knowledge on the dragonflies of southern Africa. The importance of wetlands in distribution is pointed out; many species have wide distribution, but some are very restricted. Areas with high species diversity are the mid Zambezi and the Okavango.  
SAfrica, biogeography, inverts
715. Pinhey, E.C.G. (1979). Additions and corrections to the 1966 check-list of dragonflies (Odonata) from Malawi. *Arnoldia (Rhodesia)* **8**(38): 1-14.  
Additions to Pinhey (1966); very few from the Shire valley.  
Malawi, inverts
716. Pinhey, E.C.G. (1981). Checklist of the Odonata of Mozambique. *Occasional Papers of the National Museums and Monuments* **6**(8): 557-632.  
Illustrated checklist of the dragonflies of Mozambique, including some from the Zambezi delta.  
Mozambique, inverts
717. Pitman, C.R.S. (1934). A report on a faunal survey of Northern Rhodesia with especial reference to game, elephant control and National Parks. Government of Northern Rhodesia, Livingstone, Zambia.  
N/S. Annotated checklist of reptiles, amphibians and mammals with notes on their distribution in Zambia.  
Zambia, herps, mammals
718. Poynton, J.C. (1964). The amphibia of southern Africa: a faunal study. *Annals of the Natal Museum* **17**: 1-334.  
Detailed account of the amphibians south of the Cunene, Kafue and Zambezi rivers with keys and descriptions.  
SAfrica, herps, biogeography
719. Poynton, J.C. (1964). Amphibia of the Nyasa-Luangwa region of Africa. *Senckenbergiana Biologica* **45**(3/5): 193-225.  
Descriptions of amphibians collected in S Malawi, but no wetland records.  
Malawi, Zambia, herps
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720. Poynton, J.C. & Broadley, D.G. (1978). The herpetofauna. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 925-948. Review of knowledge on the reptiles and amphibians of southern Africa. Most species are of tropical affinity, and aspects of zoogeography are discussed. Species are also discussed by broad habitat.  
SAfrica, biogeography, herps
721. Poynton, J.C. & Broadley, D.G. (1985-88). Amphibia Zambesiaca 1: Scolecomorphidae, Pipidae, Microhylidae, Hemisidae, Arthroleptidae. *Annals of the Natal Museum* **26**(2): 503-553.  
Taxonomic revision of 5 groups of amphibians. 4 other taxonomic parts follow (vols. 27, 28, 29).  
Zbasin, herps
722. Poynton, J.C. & Broadley, D.G. (1991). Amphibia Zambesiaca 5: Zoogeography. *Annals of the Natal Museum* **32**: 221-277.  
Distribution maps for 114 species of amphibian in the Zambesiaca area (Botswana, Caprivi, Zambia, Malawi, Mozambique, Zimbabwe). There are considered to be various zoogeographical zones, possibly temperature-determined, with the eastern lowland zone being of particular interest.  
Zbasin, biogeography, herps
723. Preston, H.B. (1905). Notes on a small collection of shells from Victoria Falls, Zambezi River, with descriptions of new species. *Proceedings of the Malacological Society of London* **6**: 300-301.  
N/S  
Zimbabwe, inverts
724. Pringle, E.L.L., Henning, G.A. & Ball, J.B. [editors] (1995). *Pennington's Butterflies of Southern Africa*. Struik, Winchester, South Africa.  
N/S. Updated and revised version of earlier editions of Pennington's.  
SAfrica, inverts
725. Proctor, D.L.C. (1983). Biological control of the aquatic weed *Salvinia molesta* D.S. Mitchell in Botswana using the weevils *Cyrtobagous singularis* and *Cyrtobagous* sp. nov.. *Botswana Notes & Records* **15**: 99-101.  
Brief account of biological control of *Salvinia* in the Kwando-Linyanti-Chobe system.  
Botswana, Chobe, probspp, plants, inverts
726. Proctor, D.L.C. (1985). The possibilities for biological control of *Salvinia* in Botswana. In: *Proceedings of the Second Conservation Seminar for District Authorities*. Department of Wildlife & National Parks, Gaborone, Botswana. pp. 82-85.  
Brief account of methods of *Salvinia* control in the Chobe/Linyanti area. A beetle (*Cyrtobagous singularis*) has been successfully used for biological control.  
Botswana, Chobe, probspp, plants, inverts
727. Proctor, J. (1977). Vegetation. In: *Investigation into fish productivity in a shallow freshwater lagoon in Malawi* (editor C.J. Shepherd). Ministry of Overseas Development, London, UK. pp. 22-29.  
N/S  
LShire, Malawi, vegetation
728. Proctor, J. (1980). The macrophytic vegetation of Bangula Lagoon, Malawi. *Kirkia* **12**(1): 141-149.  
Description of the aquatic vegetation of Bangula lagoon in the lower Shire. The lagoon is filled seasonally and has the potential for fish production. Its depth varies from 1-3 m, and its extent from 200-1500 ha. The most important floating or submerged plants are *Ceratophyllum demersum*, *Nymphaea petersiana* and *Pistia stratiotes*. The most important sudd or swamp species are *Echinochloa pyramidalis*, *Ludwigia stolonifera*, *Panicum subalbidum* and *Phragmites mauritanus*. There is a fringing marsh dominated by *Cyperus* spp.  
Malawi, LShire, water, vegetation
- [Back to Contents](#)
729. Ramberg, L. (1987). Phytoplankton succession in the Sanyati Basin, Lake Kariba. *Hydrobiologia* **153**: 193-202.  
Account of the species composition and seasonal variation in phytoplankton in a part of Lake Kariba from 1982-84.  
Zimbabwe, Kariba, plankton
730. Randall, R.D. (1993). Rare birds to look for in the Kasane/north Chobe area. *Babbler* **25**: 23-26.  
Annotated list of 12 species of unusual Botswana birds found in the Chobe area, including 7 waterbirds.  
Botswana, Chobe, birds
731. Randall, R.D. (1994). Important numbers of African Skimmers *Rhynchops flavirostris* on the Chobe River. *Babbler* **26/27**: 31-32.  
Notes on sighting of c.60 African Skimmers on sandbanks in the Chobe river.  
Botswana, Chobe, birds
732. Rattray, J.M. (1962). Vegetation types of Southern Rhodesia. *Kirkia* **2**: 68-93.  
Early account of the vegetation of Zimbabwe, based partly on the Yangambi classification system. There are 52 vegetation types described, grouped into 14 physiognomic classes. Many edaphic dambo grasslands are dominated by *Loudetia* spp. or *Alloteropsis semialata*.  
Zimbabwe, vegetation

733. Rattray, J.M. & Wild, H. (1962). Vegetation map of the Federation of Rhodesia and Nyasaland. *Kirkia* **2**: 94-104.

A vegetation survey of Zimbabwe, Zambia and Malawi, based on the survey of Zimbabwe by Rattray (1962). The map was published separately as part of the Federal Atlas (1960). There are 29 vegetation types, grouped into 6 physiognomic units, basically following the Yangambi system. The wetlands of the Barotse floodplains are mapped as *Loudebia* grassland dominated by *L. simplex*, replaced by *Tristachya* in the Siluwana Plains. The smaller and wetter plains of central Barotseland often contain *Miscanthidium*. The Kafue floodplains are classified as swamp and papyrus sudd, surrounded by *Hyparrhenia* grassland with *H. rufa* and *Setaria* sp. Sudd normally comprises the grasses/sedges *Cyperus papyrus*, *Vossia cuspidata*, *Scirpus cubensis*, *Echinochloa pyramidalis*, *Pennisetum purpureum*, *Miscanthidium teretifolium*, *Eleocharis plantaginea* and *Echinochloa stagnina*. The floodplain of the Shire river is classified as swamp and papyrus sudd.  
Zbasin, vegetation

734. Rees, W.A. (1974). Kafue Flats. *Black Lechwe* **11**(3): 27-35.

Popular report on ecology of the Kafue Flats with emphasis on lechwe. Concern is expressed over hydroelectric developments which will drastically change the hydrological regime.  
Zambia, Kafue, conservation

735. Rees, W.A. (1976). The ecology of the lechwe, *Kobus leche kafuensis* Haltenorth, in Lochinvar National Park, Zambia, as affected by the Kafue Gorge Hydroelectric Scheme. Herbage digestibility in free-living antelope. *East African Wildlife Journal* **14**(1): 59-66.

Account of digestibility studies on lechwe on the Kafue Flats using collected rumen fluid.  
Zambia, Kafue, mammals

736. Rees, W.A. (1978). The ecology of the Kafue lechwe: as affected by the Kafue Gorge hydroelectric scheme. *Journal of Applied Ecology* **15**: 205-217.

Account of the effects of the Kafue flood regime on the lechwe at Lochinvar NP. Time, speed and duration of flooding are important factors in lechwe ecology. The Itenzi-tezhi dam will reduce extremes and duration of flooding and the floristic composition of the floodplains. This may cause lechwe mortality owing to reduced appropriate forage.  
Zambia, Kafue, conservation, mammals

737. Rees, W.A. (1978). The ecology of the Kafue lechwe: soils, water levels and vegetation. *Journal of Applied Ecology* **15**: 163-176.

Account of the physical characteristics, including soils, of Lochinvar NP, Kafue Flats. Fluctuations in flood water levels are given. A vegetation map with 10 units is presented; variation is attributed to hydrological differences. A list of 55 herbaceous plants is included.  
Zambia, Kafue, vegetation, plants

738. Rees, W.A. (1978). The ecology of the Kafue lechwe: the food supply. *Journal of Applied Ecology* **15**: 177-191.

Account of the grassland and grasses of Lochinvar NP. Composition and productivity of grazed areas is described, and the effects of heavy grazing noted. Digestibility and nutritive values are given.  
Zambia, Kafue, vegetation, mammals

739. Rees, W.A. & Zulu, I. (1977). Lechwe ecology at Lochinvar. *Black Lechwe* **12**(4): 6-11.

Account of the ecology of the Kafue Flats regarding lechwe. A vegetation map of Lochinvar is included.  
Zambia, Kafue, vegetation, mammals

740. Regan, C.T. (1921). The cichlid fishes of Lake Nyasa. *Proceedings of Zoological Society of London* **1921**: 675-727.

N/S. Classic account of the cichlids of Lake Malawi, with many original descriptions.  
Malawi, LMalawi, fish

741. Reid, D.G. (1986). *The littorinid molluscs of mangrove forests in the Indo-Pacific Region*. British Museum (Natural History), London, UK.

N/S  
Mozambique, inverts

742. Reinthal, P. (1993). Evaluating biodiversity and conserving Lake Malawi's cichlid fish fauna. *Conservation Biology* **7**(3): 712-718.

Account of the rock-dwelling cichlid fish species of Lake Malawi with emphasis on endemism and distribution around the lake. Distribution and diversity are related, and the genus is suggested as the appropriate conservation level.  
Malawi, LMalawi, biogeography, conservation, fish

743. Renvoize, S.A. (1996). Survey of plant diversity, 1996. Report on a visit by S.A. Renvoize. Royal Botanic Gardens, Kew/WWF Bangweulu Wetlands Project, London, UK. 23 pp.

Report on the plants (principally grasses and sedges) of the Bangweulu swamps, with 181 species listed by vegetation type and family.  
Zambia, Bangweulu, plants

744. Ribbink, A.J. (1991). Distribution and ecology of the cichlids of the African Great Lakes. In: *Cichlid Fishes: Behaviour, Ecology and Evolution* (editor M.H.A. Keenleyside). Chapman & Hall, London, UK. pp. 36-59.

Review of the reasons for diversity of cichlid fish species in Lakes Malawi, Victoria and Tanganyika. The very high diversity is ascribed to narrow niche specialisation, diversity of niches (seasonality, depth, substrate, oxygen levels) and high investment in few offspring, features which are possible in stable environments. However, this makes the species vulnerable to man-made changes such as mechanised fishing and alien introductions. Chapter contains many references.  
Malawi, LMalawi, biogeography, fish

745. Ribbink, A.J., Marsh, A.B., Marsh, A.C., Ribbink, A.C. & Sharp, B.J. (1983). A preliminary survey of the cichlid fishes of the rocky habitats in Lake Malawi. *South African Journal of Zoology* **18**: 149-309. N/S. Detailed account of a survey on the 'mbuna' group of cichlids living along the rocky shores of Lake Malawi. Malawi, LMalawi, fish
746. Ricardo-Bertram, C.K., Borley, H.J.H. & Trewavas, E. (1942). Report on the fish and fisheries of Lake Nyasa. Crown Agents, London, UK. 181 pp. N/S. Considered a classic account on the fish of Lake Malawi with valuable historical data. Malawi, LMalawi, human, fish
747. Robarts, R.D., Thornton, J.A. & Watts, C.J. (1982). Phytoplankton, primary production and nutrient limitation. In: *Lake McIlwaine: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 106-133. Study of phytoplankton found in Lake Chivero, with an account of its productivity and the importance of nutrient limitation. Variation in composition is seen through the year. An appendix gives a partial list of 13 species. Chivero, Zimbabwe, water, plankton
748. Robertson, A., Jarvis, A.M., Brown, C.J. & Simmons, R.E. (1998). Avian diversity and endemism in Namibia: patterns from the Southern African Bird Atlas Project. *Biodiversity & Conservation* **7**(4): 495-511. Account of bird diversity and patterns in Namibia. There are 644 bird species; overall diversity is greatest in the northeast where riverine and wetland habitats are present. The Caprivi area is one of the most important for conservation of Red Data species. Namibia, birds
749. Robinette, W.L. & Child, G. (1964). Notes on biology of the lechwe (*Kobus leche*). *The Puku* **2**: 84-117. Study of the Kafue lechwe on Lochinvar Ranch covering reproduction, weights and measurements, and diseases/parasites. Zambia, Kafue, mammals
750. Rodwell, T.C., Tagg, J. & Grobler, M. (1995). Wildlife resources in the Caprivi, Namibia: the results of an aerial census in 1994 and comparisons with past surveys. Research Discussion Paper No. 9. Department of Environmental Affairs, Windhoek, Namibia. 29 pp. Survey of large mammals in the Caprivi. The Mamili swamps between the Kwando and Linyanti rivers, is now a National Park and the largest protected wetland in Namibia (360 km<sup>2</sup>). Up to 80% is flooded during high floods. Transect counts of large mammals showed 640 elephant (density c.1.8/km<sup>2</sup>), a small but stable population of buffalo (1170), and lechwe (1033), hippo (470), kudu (30), reedbuck (40), and some goats. Namibia, Chobe, mammals
751. Roodt, V. (1993?). *The Shell Field Guide to the Common Trees of the Okavango Delta and Moremi Game Reserve*. Shell Botswana, Gaborone, Botswana. 112 pp. Illustrated identification guide to some trees of the Okavango, with notes on ecology, uses and history. Botswana, Okavango, plants
752. Roux, J. (1907). Sur quelques reptiles Sud-Africains. *Revue Suisse Zool.* **15**: 75-86. Brief annotated list in French of various reptile species found in Barotseiland. Zambia, Barotse, herps
753. Rowan, M.K. (1963). The Yellowbilled Duck *Anas undulata* Dubois in southern Africa. *The Ostrich Supplement* **5**: 1-56. Detailed account of the taxonomy, distribution, movements, habitat, breeding biology and physical features of a subspecies of duck. SAfrica, birds
754. Russell-Smith, A. (1976). Preliminary observations on the effects of insecticide application on the aquatic fauna of the Okavango Delta. In: *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. pp. 153-160. General account of the effects of DDT and endosulfan application on the aquatic ecology of the Okavango delta. Preliminary results suggest effects are not too serious. Botswana, Okavango, water, fish, inverts
755. Russell-Smith, A. (1981). Seasonal activity and diversity of ground-living spiders in two African savanna habitats. *Bulletin of British Arachnological Society* **5**(4): 145-154. Study on diversity of spiders in two habitats (floodplain grassland and mopane woodland) in the Okavango delta. 135 species are listed. Botswana, Okavango, inverts
756. Russell-Smith, A. & Ruckert, E. (1981). The effects of aerial spraying of endosulfan for tsetse fly control on aquatic invertebrates in the Okavango Swamps, Botswana. *Environmental Pollution (series A)* **24**: 57-73. N/S Botswana, Okavango, water, inverts

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757. Santos, S. & Soto, B. (1992). Mangroves: their ecology, status and utilisation. In: *Wetlands Conservation Conference for Southern Africa* (editors T. Matiza & H.N. Chabwela). IUCN Wetlands Programme No. 4. IUCN, Gland, Switzerland. pp. 149-156. Brief account of mangroves in Mozambique. There are six species of mangroves; the extent of mangrove forest is 850 km<sup>2</sup>. Mozambique, Delta, vegetation

758. Sanyanga, R.A. (1995). Management of the Lake Kariba inshore fishery and some thoughts on biodiversity and conservation issues. *Environmental Conservation* **22**(2): 111-116.  
General discussion on the biodiversity and conservation of fish stocks in Lake Kariba, including aspects such as regulation, over-fishing and the introduction of exotic species. A list of fish species is given.  
Zimbabwe, Kariba, human, conservation, fish
759. Sanyanga, R.A. (1996). Variations in abundance of *Synodontis zambezensis* (Pisces, Mochokidae) Peters, 1852, in the inshore fishery of Lake Kariba. *Fisheries Research* **26**: 171-186.  
N/S. The squeaker, *Synodontis zambezensis*, has increased in abundance in Lake Kariba. This paper describes this increase and explores its causes.  
Zimbabwe, Kariba, fish
760. Sanyanga, R.A. (1998). Food composition and selectivity of *Synodontis zambezensis* (Pisces: Mochokidae) in Lake Kariba, and the ecological implications. *Hydrobiologia* **361**: 89-99.  
Account of the diet of a catfish from the S shore of Lake Kariba. Although facultative, the species principally feeds on molluscs (a food resource presently little utilized by other species), and also selects for chironomid larvae and termites when available. Details of food preferences are given.  
Zimbabwe, Kariba, fish, inverts
761. Sanyanga, R.A. & Feresu, F. (1994). First catches of the African pike *Hepstus odoe* (Bloch, 1794) (Pisces: Hepsetidae) in Lake Kariba, Zimbabwe. *Revue d'Hydrobiologie Tropicale* **27**(1): 39-42.  
First account of this species being found in the mid-Zambezi system, although it is known from the upper Zambezi.  
Zimbabwe, Kariba, fish
762. Sanyanga, R.A., Machena, C. & Kautsky, N. (1995). Abundance and distribution of inshore fish in fished and protected areas in Lake Kariba, Zimbabwe. *Hydrobiologia* **306**: 67-78.  
Account of the effects of fishing on fish populations. Some differences were noted but data are equivocal.  
Zimbabwe, Kariba, human, fish
763. Sayer, J.A. & Van Lavieren, L.P. (1975). The ecology of the Kafue lechwe population of Zambia before the operation of hydro-electric dams on the Kafue river. *East African Wildlife Journal* **13**(1): 9-37.  
Account of the numbers and status of Kafue lechwe from 1953 to 1972. A stable population of 94,000 is suggested for the early 1970s. Analysis of the age structure of the population suggests that it will decline under an altered flooding regime.  
Zambia, Kafue, mammals
764. Schelpe, E.A.C.L.E. (1961). The ecology of *Salvinia auriculata* and associated vegetation on Kariba lake. *Journal of South African Botany* **27**: 181-187.  
Account of the invasion of *Salvinia* on Lake Kariba.  
Zimbabwe, Kariba, probsp, plants
765. Scheppe, W.A. (1985). Effects of human activities on Zambia's Kafue Flats ecosystems. *Environmental Conservation* **12**: 49-57.  
N/S  
Zambia, Kafue, conservation
766. Schlettwein, C.H.G. (1985). Distribution and densities of *Cyrtobagous singularis* Hustache (Coleoptera: Curculionidae) on *Salvinia molesta* Mitchell in the Eastern Caprivi Zipfel. *Madoqua* **14**(3): 291-293.  
Brief report on the occurrence of the introduced biological control beetle *Cyrtobagous* on *Salvinia* in E Caprivi. It was shown to be widespread and established, but population densities are low.  
Namibia, Chobe, probsp, inverts
767. Schlettwein, C.H.G. & Bethune, S. (1992). Aquatic weeds and their management in southern Africa: biological control of *Salvinia molesta* in the Eastern Caprivi. In: *Wetlands Conservation Conference for Southern Africa* (editors T. Matiza & H.N. Chabwela). IUCN Wetlands Programme No. 4. IUCN, Gland, Switzerland. pp. 173-187.  
Account of problems with *Salvinia molesta* in the E Caprivi and the methods used to control it. Details are given on growth rates.  
Namibia, Chobe, probsp, plants
768. Schlettwein, C.H.G. & Koch, H. (1983). Growth and mortality rates of *Salvinia molesta* in the eastern Caprivi Zipfel. In: *Proceedings of the 20th Annual Congress of the Limnological Society of Southern Africa*. South Africa. 20 pp.  
Study of growth rates of *Salvinia* on Lake Liambezi and on the Chobe river. Doubling times on the Chobe were 8.6-15.8 days (4.4-8.5% per day), but much lower on Lake Liambezi, possibly owing to a deficiency of nitrogen.  
Namibia, Chobe, probsp, plants
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769. Schlettwein, C.H.G., Simmons, R.E., MacDonald, A.W. & Grobler, H.J.W. (1991). Flora, fauna and conservation of East Caprivi wetlands. *Madoqua* **17**(2): 67-76.  
Account of the largest of Namibia's wetlands, covering 5000 km<sup>2</sup>. The E Caprivi wetlands are divided into 5 zones - upper Kwando river, lower Kwando and Linyanti swamp, Lake Liambezi, Chobe marsh, Zambezi and Chobe floodplains. In wet years they all join up. Conservation concerns include invasion (now controlled) by *Salvinia*, poaching, large cattle populations and overfishing. Wildlife (sitatunga, lechwe) are about 10% of their 1980 numbers. An appendix of 90 species of aquatic and marsh plants is given.  
Namibia, Chobe, water, conservation, plants, birds, mammals
770. Schulten, G.G. (1974). The food of some duck species occurring at Lake Chilwa, Malawi. *The Ostrich* **45**: 224-226.  
Account of a study on the gut contents of 7 species of duck from Lake Chilwa. Most food items were seeds; also some leaves, algae and insects.  
Malawi, MShire, birds
771. Schuster, R.H. (1976). Reproductive social organisation of Kafue lechwe: implications for management and survival. In: *Proceedings of the Fourth Regional Wildlife Conference for Eastern and Central Africa*. Zambia Printing Company, Lusaka, Zambia. pp 163-183.  
Describes social behaviour and the lek mating system of Kafue lechwe in Lochinvar NP, and identifies threats should wetland habitat be changed. Priorities for management are noted.  
Zambia, Kafue, conservation, mammals
772. Schuster, R.H. (1980). Will the Kafue lechwe survive the Kafue dams? *Oryx* **15**(5): 476-489.  
Account of the effects of dam construction on the breeding of lechwe. The highly-specialised antelope uses natural flooding as a trigger for breeding, and breeding success is now liable to decline.  
Zambia, Kafue, conservation, mammals
773. Schuurman, G. & Dangerfield, J.M. (1997). Dispersion and abundance of *Macrotermes michaelsenii* colonies: a limited role for intraspecific competition. *Journal of Tropical Ecology* **13**(1): 39-49.  
Study on the distribution of termitaria in various habitats within Moremi, Okavango. The highest density was found on floodplain grassland. It is suggested that distribution is not regular, and not density-dependent.  
Botswana, Okavango, invertebrates
774. Scott, A.J. (1993). A revised and annotated check-list of the birds of the Luangwa Valley National Parks and adjacent areas. Occasional Paper No. 3 (second edition). *Zambian Ornithological Society*, Lusaka, Zambia. 52 pp.  
A comprehensive checklist of birds, primarily from the South Luangwa and Luambe NPs below the 900 m contour. Brief notes of habitats are given. 731 species are listed with brief notes on abundance and distribution. A bibliography and gazetteer are included.  
Luangwa, Zambia, birds
775. Scott, D.A. & Rose, P.M. (1996). *Atlas of Anatidae Populations in Africa and Western Eurasia*. Wetlands International Publication No. 41. Wetlands International, Wageningen, Netherlands. 336 pp.  
Detailed account of the distribution and status of swans, geese and ducks in Africa. 14 species of duck in the Zambezi basin are included, each with a full map. Also indicates 3 categories of 'key sites' where 1%-2%, 2%-10%, and >10% of the 'flyway' population has been counted. Only one such site (Kafue Flats) is listed in our area. (Three palaeartic migrants plus Maccua Duck are said not to occur).  
SAfrica, biogeography, birds
776. Scott, K.M.F. (1983). On the Hydropsychidae (Trichoptera) of southern Africa with keys to African genera of imagos, larvae and pupae and species lists. *Annals of the Cape Provincial Museums (Natural History)* **14**(8): 299-422.  
Account of southern African caddis flies, including from the Zambezi river.  
SAfrica, invertebrates
777. Scudder, T. (1962). *The Ecology of the Gwembe Tonga*. Kariba Studies Vol. 2. Manchester University Press, Manchester, UK. 274 pp.  
Detailed account of the physical environment of the part of the Middle Zambezi later flooded by Kariba Lake with an account of the life of the Valley Tonga people and how they utilized this environment. Includes brief sections on vegetation and fauna, and a list of plants used.  
Zimbabwe, Zambia, Kariba, human, agriculture
778. Scudder, T., Manley, R.E., Coley, R.W., Davis, R.K., Green, J., Howard, G.W., Lawry, S.W., Martz, D., Rogers, P.P., Taylor, A.R.D., Turner, S.D., White, G.F. & Wright, E.P. [editors] (1993). *The IUCN Review of the Southern Okavango Integrated Water Development Project*. IUCN Wetlands Programme No. 6. IUCN, Gland, Switzerland. 544 pp.  
Authoritative and detailed account of the proposed Southern Okavango Integrated Water Development Project, which resulted in the Botswana government abandoning the controversial proposal. The report principally covers hydrology and water resources, and social and economic considerations, and offers suitable development alternatives. Although the Okavango is not directly part of the Zambezi basin, the report is a good model of studies that could be carried out, and addresses similar issues to those found in the Zambezi.  
Botswana, Okavango, water, vegetation, human
779. Seagrief, S.C. (1962). The Lukanga swamps of Northern Rhodesia. *Journal of South African Botany* **28**: 3-7.  
Brief account of the Lukanga swamps on the upper Kafue. A few plant species are mentioned; *Phragmites* reed is the most common species.  
Zambia, Kafue, plants

780. Seaman, M.T., Scott, W.E., Walmsley, R.D., van der Waal, B.C.W. & Toerien, D.F. (1978). A limnological investigation of Lake Liambezi, Caprivi. *Journal of Limnological Society of Southern Africa* **4**(2): 129-144.  
Account of a survey of the lake from the early-mid 1970s. It is 101 km<sup>2</sup> in extent, shallow and reed-fringed. The water was clear and oxygenated, and slightly alkaline. Fishery potential is good, but threatened by *Salvinia* encroachment. Data on water temperature, oxygen levels and chemical analyses are presented. A list of phytoplankton species is given, along with some data on zooplankton and fish.  
Namibia, Chobe, water, fish, plankton
781. Shaw, S. (1998). Rape of the Okavango. *Keeping Track* (February/March): 22-25.  
Popular magazine article on the negative effects of a commercial fishing project on subsistence fishing in the Okavango River.  
Botswana, Okavango, conservation
782. Shepherd, C.J. (1977). Investigation into fish productivity in a shallow freshwater lagoon in Malawi 1975/76. Ministry of Overseas Development, London, UK. Mimeo report.  
N/S  
Malawi, LShire, fish
783. Sheppe, W. (1973). Notes on Zambian mammals and shrews. *The Puku* **7**: 167-190.  
Report on nearly 2000 specimens of 30 species collected in various parts of Zambia between 1966 and 1970. Wetland habitats from which specimens were collected include Kafue Flats, Kafue Gorge, Kafue NP and South Luangwa NP.  
Zambia, mammals
784. Sheppe, W. & Haas, P. (1976). Large mammal populations of the lower Chobe river, Botswana. *Mammalia* **40**: 223-243.  
Survey of mammals along the Chobe river. 16 ungulate, 2 primate and 4 carnivore species were noted, with distributions and habitats. Numbers declined at the beginning of the rains as migratory species left. There may have been changes in species composition since 1969.  
Botswana, Chobe, mammals
785. Sheppe, W. & Haas, P. (1981). The annual cycle of small mammal populations along the Chobe river, Botswana. *Mammalia* **45**(2): 157-176.  
Account contrasting small mammal populations, principally rodents, on the Chobe floodplains and Kafue Flats. Total populations were higher on the floodplain than on the surrounding high ground, perhaps owing to higher grass productivity.  
Botswana, Chobe, mammals
786. Sheppe, W. & Osborne, T.O. (1971). Patterns of use of a floodplain by Zambian mammals. *Ecological Monographs* **41**(3): 179-205.  
Description of the Kafue Flats and its vegetation. The utilization by mammals (especially rodents), birds and other animals (including ants and termites) is described. Lechwe are the principal users, perhaps because of lack of suitable habitat and food for other species.  
Kafue, Zambia, mammals, inverts
787. Silva, C. (1989). História da pescaria de camarão de águas pouco profundas no Banco de Sofala. *Revista de Investigação Pesqueira, Maputo* **18**: 47-60.  
Account in Portuguese of the shrimp fishing industry off the Sofala Bank, Mozambique, mostly focussing on *Penaeus indicus*. Figures on yield and catch per unit effort are given, along with a discussion on the relation between stock and recruitment. Yields decreased between 1974 and 1986 owing to decreased stock.  
Mozambique, Delta, human, inverts
788. Simbotwe, M.P. (1992). Economic value of the herpetofaunal resources in wetland areas of Zambia. In: *Managing the Wetlands of Kafue Flats and Bangweulu Basin: Proceedings of the WWF-Zambia Wetlands Project Workshop* (editors R.C.V. Jeffery, H.N. Chabwela, G.W. Howard & P.J. Dugan). IUCN Wetlands Programme No. 1. IUCN, Gland, Switzerland. pp. 65-69.  
Brief account of the potential of herps, particularly crocodiles and turtles, for utilization in Zambian wetlands.  
Zambia, herps, human
789. Simbotwe, M.P. & Patterson, J.W. (1983). Ecological notes and provisional checklist of amphibians and reptiles collected from Lochinvar National Park, Zambia. *Black Lechwe (new series)* **4**: 17-22.  
Checklist of 38 species of reptile and 26 amphibians collected in Lochinvar NP on the Kafue Flats, with indications of habitat.  
Zambia, Kafue, herps
790. Simmons, R.E., Boix-Hinzen, C., Barnes, K.N., Jarvis, A.M. & Robertson, A. (1998). Important Bird Areas of Namibia. In: *The Important Bird Areas of Southern Africa* (editor K.N. Barnes). BirdLife South Africa, Johannesburg, South Africa. pp. 295-332.  
Account of areas in Namibia considered important for bird conservation, including (within the Zambezi Basin) the East Caprivi wetlands. Species of particular interest are mentioned.  
Namibia, birds, conservation
791. Simmons, R.E., Brown, C.J. & Griffin, M. (1991). The status and conservation of wetlands in Namibia. Special Wetlands Edition. *Madoqua* **17**(2): 55-254.  
24 papers on Namibian wetlands. One on E. Caprivi. Others on biota and issues.  
Namibia, Chobe, conservation
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792. Simons, H.W., Roger, P.M., Bhima, R., Chiwona, E.A. & Banda, H.M. (1991). Mammal inventory, Malawi 1991. MLW/87/010 Field Document No. 9. FAO Wildlife Management and Crop Protection Project/Department of National Parks and Wildlife, Lilongwe, Malawi.  
Report containing counts of hippo in Elephant Marsh and the lower Shire valley showing 2601 animals.  
LShire, Malawi, human, mammals
793. Simpson, C.D. (1974). Food studies on the Chobe bushbuck, *Tragelaphus scriptus ornatus* Pocock, 1900. *Arnoldia (Rhodesia)* 6(32): 1-6.  
Study on feeding behaviour of bushbuck along the Chobe waterfront, Botswana. 83 plant species were utilized, but it is suggested bushbuck are selective feeders under optimum conditions.  
Botswana, Chobe, plants, mammals
794. Simpson, C.D. (1974). Habitat reference and seasonal movement in the Chobe bushbuck, *Tragelaphus scriptus ornatus* Pocock, 1900. *Arnoldia (Rhodesia)* 6(31): 1-7.  
Account of bushbuck habitat along the Chobe river in Botswana. Bushbuck have wide habitat preference, which varies somewhat through the year. They particularly favour the riparian forest fringe (av. 4.4 head/acre). Surface water is probably the major factor influencing concentration.  
Botswana, Chobe, mammals
795. Simpson, C.D. (1975). A detailed vegetation study on the Chobe river in north-east Botswana. *Kirkia* 10(1): 185-227.  
Vegetation survey of the area for 32 km along the Chobe river in Botswana W of Kasane for a study on bushbuck. 8 vegetation types are described. The floodplain grassland covers much of the Caprivi Strip on the other bank, and comprises mostly sedges and grasses. Fringing the higher banks *Syzygium guineense* trees are found. The riparian forest fringe varies considerably from closed-canopy forest to bushland. Dominant species are *Faidherbia albida*, *Garcinia livingstonei*, *Combretum imberbe* and *Diospyros mespiliformis*. Other common species are mentioned.  
Botswana, Chobe, vegetation
796. Singini, P.J.T. (1996). The Marromeu complex of the Zambezi Delta: Mozambique's unique wetland. In: *Proceedings of 1993 African Crane and Wetland Training Workshop* (editors R.D. Beilfuss, W.R. Tarboton & N.N. Gichuki). International Crane Foundation, Baraboo, Wisconsin, USA. pp. 341-343.  
Brief account of Marromeu (c.360 km<sup>2</sup>). It is an important habitat for Wattled Cranes and other waterfowl and is perhaps the most important coastal wetland in southern Africa. It should be recognised as a World Heritage Site and a Ramsar site. A massive reduction in large mammals has been noted since 1979, and the effects of Cabora Bassa dam are considered severe.  
Mozambique, Delta, conservation
797. Skarpe, C. (1997). Ecology of the vegetation in the draw-down zone of Lake Kariba. In: *Advances in the Ecology of Lake Kariba* (editor J. Moreau). University of Zimbabwe Publications, Harare, Zimbabwe. pp. 120-138.  
Account of classification of the littoral vegetation on the Zimbabwe side of Lake Kariba. The vegetation is described and mapped under 5 types. *Panicum repens* appears to be particularly important.  
Zimbabwe, Kariba, vegetation
798. Skelton, P.H. (1993). *A Complete Guide to the Freshwater Fishes of Southern Africa*. Southern Book Publishers, Halfway House, South Africa. 388 pp.  
Illustrated guide to all the fishes of southern Africa including the Zambezi basin, lower Shire and Kafue rivers. Descriptions, distributions, biological notes and keys are given.  
SAfrica, fish
799. Skelton, P. H. (1994). Diversity and distribution of freshwater fishes in east and southern Africa. *Annales du Musée Royal de l'Afrique Centrale, Zoologie* 275: 95-131.  
Account of the origin and dispersal of freshwater fishes, including in the Zambezi basin but excluding Lake Malawi. General patterns of distribution are explained. Lists of species from the Zambezi basin, by sub-basin, are given. The similarity between the upper Zambezi and Okavango sub-basins, and dissimilarity between the upper and mid/lower Zambezi is highlighted. An hypothesised outline of drainage history since the early Tertiary is given.  
Zbasin, biogeography, fish
800. Skelton, P.H., Bruton, M.N., Merron, G.S. & Van der Waal, B.C.W. (1985). The fishes of the Okavango drainage system in Angola, South West Africa and Botswana: taxonomy and distribution. *Ichthyological Bulletin of the J.L.B. Smith Institute of Ichthyology* No. 50. 21 pp.  
An annotated checklist of 80 taxa, of which 2 are endemic. Taxonomic problems are pointed out. The Okavango has a diverse fish fauna with tropical affinities; many species are poorly studied and understood. Human threats to the ecosystem include large-scale water abstraction, overgrazing, deforestation and pesticide spraying against tsetse.  
Namibia, Botswana, Angola, Okavango, fish
801. Skinner, J.D. & Smithers, R.H.N. (1991). *Mammals of the Southern African Subregion* (revised edition). University of Pretoria, Pretoria, South Africa.  
Detailed review of behaviour, ecology, distribution and status of all mammal species occurring south of the Zambezi and Cunene rivers: includes some new data and references after Smithers (1983). Distribution maps are provided for the entire range of most species. Detailed bibliography which includes studies of many species in their ranges in Angola, Malawi, N Mozambique and Zambia.  
SAfrica, mammals



802. Smith, P.A. (1969). Report on (1) a search for the aquatic weed *Salvinia auriculata* Aubl. in the Kwando, Linyanti and Savuti rivers and the Selinda Spillway and (2) a herbicide spraying experiment and other measures to control the *Salvinia* infestation at Shaile on the Linyanti river in north-western Botswana, January-May 1969. Unpublished report, Department of Veterinary Services & Tsetse Control, Maun, Botswana. 18 pp.  
One of the first detailed reports on the distribution and ecology of *Salvinia* in the Kwando-Linyanti-Chobe system. Reviews current findings. Also includes early results on control, including herbicide spraying and physical methods.  
Botswana, Chobe, probssp, plants
803. Smith, P.A. (1976). An outline of the vegetation of the Okavango drainage system. In: *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. pp. 93-112.  
Detailed account of the vegetation of the Okavango delta and river, with particular emphasis on the delta. Perennial swamp, seasonal swamp, floodplains, watercourses, open water and islands are described separately. A list of plant species is included, grouped by growth form (woody, grass, herb) and habitat.  
Botswana, Okavango, vegetation, plants
804. Smith, P.A. (1984). A preliminary list of aquatic, semi-aquatic and other wetland, vascular plants of Botswana. Unpublished report, Maun, Botswana. 21 pp.  
Comprehensive list of plants derived from herbarium specimens (including Kew, Pretoria, Harare), literature and observation. 680 species are listed (excluding varieties), 248 from the Chobe-Linyanti area, with brief notes on habit and distribution in Botswana.  
Botswana, plants
805. Smith, P.A. (1985). The distribution and ecology of *Salvinia* in Botswana. In: *Proceedings of the Second Conservation Seminar for District Authorities*. Department of Wildlife & National Parks, Gaborone, Botswana. pp. 72-78.  
Basic account of the biology of *Salvinia*, its history and distribution in Botswana.  
Botswana, Chobe, probssp, plants
806. Smith, P.A. (1991). Vegetation. In: *Okavango Ecozoning Report*. Snowy Mountains Consultants, Maun, Botswana. pp. 53-76, 205-211.  
Detailed account of the vegetation of the Okavango swamps, with classification by habitat. Plants and vegetation types considered important for conservation are described. The international conservation importance of the Okavango area is brought out.  
Botswana, Okavango, vegetation, conservation
807. Smith, P.A. (1993). Control of floating water weeds in Botswana. In: *Control of Africa's Floating Water Weeds* (editors A. Greathead & P. De Groot). Report CSC(93)AGR-18 PR295. Commonwealth Science Council/Biomass Users Network/CAB International, UK. pp. 31-42.  
Detailed review of the Botswana experience with control of water weeds, focussing on *Salvinia* and *Pistia*.  
Botswana, Chobe, probssp, plants
808. Smith, P.P. (1997). A preliminary checklist of the vascular plants in the North Luangwa National Park, Zambia. *Kirkia* 16(2): 205-245.  
Checklist of flowering plants of the N Luangwa valley, with an account of the vegetation. 924 species are listed by family. Two of the 13 vegetation types can be considered wetlands.  
Luangwa, Zambia, vegetation, plants
809. Smithers, R.H.N. (1964). A check list of the birds of the Bechuanaland Protectorate and the Caprivi Strip. Trustees of the National Museums of Southern Rhodesia, Harare, Zimbabwe. 188 pp.  
Descriptive listing of all birds found in Botswana and Caprivi including an account of the habitats. Some species are illustrated or have distribution maps.  
Botswana, Namibia, Chobe, birds
810. Smithers, R.H.N. (1971). Mammals of Botswana. Museum Memoir No. 1. National Museums of Rhodesia, Harare, Zimbabwe. 340 pp.  
Remains the most comprehensive detailed review of the distributions of all Botswana mammals. Includes gazetteer. 119 species are recorded from the Chobe and Okavango.  
Botswana, mammals
811. Smithers, R.H.N. (1983). *Mammals of the Southern African Subregion*. University of Pretoria, Pretoria, South Africa.  
Detailed review of behaviour, ecology, distribution and status of all mammal species occurring south of the Zambezi and Cunene Rivers. Distribution maps are provided for the entire range of most species. Detailed bibliography which includes studies of many species in their ranges in Angola, Malawi, N Mozambique and Zambia.  
SAfrica, mammals
812. Smithers, R.H.N. & Mackenzie, M.J.S. (1973). *Guide to the Waterfowl of Rhodesia*. Trustees of National Museums and Monuments of Rhodesia, Harare, Zimbabwe. 34 pp.  
Illustrated guide to 17 species of waterfowl occurring in Zimbabwe covering distribution, habitat and breeding.  
Zimbabwe, birds
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813. Smithers, R.H.N. & Tello, J.L.P.L. (1976). Check list and atlas of the mammals of Mozambique. Museum Memoir No. 8. National Museums & Monuments of Rhodesia, Harare, Zimbabwe. 184 pp.  
Comprehensive and detailed descriptive account of all Mozambique mammals. Distributions are given, and the main habitat/vegetation types outlined.  
Mozambique, vegetation, mammals
814. Smithers, R.H.N. & Wilson, V.J. (1979). Checklist and atlas of the mammals of Zimbabwe Rhodesia. Museum Memoir No. 9. National Museums & Monuments of Rhodesia, Harare, Zimbabwe. 193 pp.  
Remains the most comprehensive detailed review of the distributions of all Zimbabwe mammals. Many of the small mammal accounts (especially bats) have been supplemented by new data.  
Zimbabwe, mammals
815. Somer, U. & Gliwicz, Z.M. (1986). Long range vertical migration of *Volvox* in tropical Lake Cahora Bassa (Mozambique). *Limnology & Oceanography* **31**: 650-653.  
N/S  
Mozambique, Cabora, plankton
816. Sommerlatte, M.W.L. (1976). A survey of elephant populations in north-eastern Botswana. Field Document 2. FAO/Department of Wildlife, National Parks and Tourism, Gaborone, Botswana. 100 pp.  
Study on elephant distribution in relation to vegetation and availability of surface water, looked at seasonally in 1973-75. Estimated total elephant population was 5746, with a mean density of 0.5 elephants/km<sup>2</sup>. In an exceptional dry season a concentration of 4.6/km<sup>2</sup> was reached along the Chobe waterfront. The Chobe NP is a wet season dispersal area. Favoured vegetation types for elephant are the *Terminalia/Burkea* and *Baikiaea* woodlands, while *Acacia* woodlands are used more in the dry season. Mopane woodland is intermediate, and grasslands are of minor importance. The Linyanti, Chobe, Savuti and Shinamba areas suffer high tree mortality from elephant, coupled with the effects of fire. Recommendations include reduction in elephant population sizes and encouragement of regeneration of some *Acacia* woodlands. The report includes a simple vegetation map. The edaphic grasslands of the Chobe floodplain are said to be important for lechwe and puku, but there is also some elephant utilization. The perennial swamps along the Linyanti river are little used except by sitatunga and lechwe, which inhabit the islands.  
Botswana, Chobe, mammals
817. Stauffer, J.R., Arngard, M.E., Cetron, M., Sullivan, J.J., Chitsulu, L.A., Turner, G.F., Chiotha, S. & McKaye, K.R. (1997). Controlling vectors and hosts of parasitic diseases using fishes: a case history of schistosomiasis in Lake Malawi. *Bioscience* **47**: 41-49.  
N/S  
Malawi, LMalawi, inverts, fish
818. Stevens, R.A. (1974). An annotated checklist of the amphibians and reptiles known to occur in southeastern Malawi. *Arnoldia (Rhodesia)* **6**(30): 1-22.  
Annotated list of 159 species, including many from the lower Shire. Around 12 species are recorded from the Elephant Marsh.  
Malawi, LShire, herps
819. Stewart, M.M. (1967). *Amphibians of Malawi*. State University of New York Press, New York, USA. 163 pp.  
57 species of amphibian are recorded from Malawi, of which about 22 are recorded from the lower Shire. Notes on biology are given along with identification keys.  
Malawi, herps
820. Stuart, C. (1989). The puku: out of sight, out of mind? *African Wildlife* **43**(3): 138-139.  
Popular article on the threatened puku antelope with distribution map.  
Zbasin, mammals, conservation
821. Stuart, C. & Stuart, T. (1996). *Africa's Vanishing Wildlife*. Southern Book Publishers, Halfway House, South Africa. 198 pp.  
Popular pictorial account of endangered species in Africa. Includes brief descriptions on lechwe (only 8000 red lechwe remain (1000 in the E Caprivi) and 30,000 black lechwe), Wattled Crane, Shoebill, Saddlebilled Stork, White Stork, Slaty Egret, and Black-cheeked Lovebird, each with a map and some vital statistics.  
SAfrica, conservation, mammals, birds
822. Stuart, S.N. & Collar, N.J. (1988). Birds at risk in Africa and related islands: the causes of their rarity and decline. In: *Proceedings of the Sixth Pan-African Ornithological Congress* (editor G.C. Backhurst). Sixth PAOC Organizing Committee, Nairobi, Kenya. pp. 1-25.  
Account of biogeography and ecology of 297 threatened bird species. For inland water species, the Slaty Egret and White-winged Flufftail are listed as threatened, and the Shoebill and Wattled Crane as near-threatened. Man-induced habitat alteration is cited as a threat for all 4 species. Human disturbance/persecution in one way or another is cited as a threat for the Shoebill and Wattled Crane.  
SAfrica, conservation, birds
823. Subramaniam, S.P. (1992). A brief review of the status of the fisheries of the Bangweulu Basin and Kafue Flats. In: *Managing the Wetlands of Kafue Flats and Bangweulu Basin: Proceedings of the WWF-Zambia Wetlands Project Workshop* (editors R.C.V. Jeffery, H.N. Chabwela, G. Howard & P.J. Dugan). IUCN Wetlands Programme No. 1. IUCN, Gland, Switzerland. pp. 45-55.  
Brief account of the main fish and fisheries of the Bangweulu basin and Kafue Flats with suggestions on management.  
Zambia, Kafue, Bangweulu, human, fish

824. Swedeplan (1989). Programme for the planning of resource utilisation in the Okavango Delta region. Vol. 1: Natural resource and utilisation inventory. Swedeplan/Ministry of Local Government and Lands, Gaborone, Botswana. 434 pp.  
Consultants' report on the natural resources and environmental issues of much of N Botswana, including the Chobe/Linyanti area. Includes geology, soil and vegetation maps.  
Botswana, Okavango, agriculture, vegetation
825. Sweeney, R.C.H. (1959). *A Preliminary Checklist of the Mammals of Nyasaland*. Nyasaland Society/Hetherwick Press, Blantyre, Malawi. 71 pp.  
Collection records and notes on mammals of Malawi. Around 15 are noted from the lower Shire.  
Malawi, mammals
826. Sweeney, R.C.H. (1960). The Chelonia of Nyasaland Protectorate. *The Nyasaland Journal* **13** (1): 35-50.  
An annotated list, with key, to the six species of tortoise, terrapin and turtle in Malawi. Species found in the lower Shire are mentioned.  
Malawi, herps
827. Sweeney, R.C.H. (1961). *Snakes of Nyasaland*. Nyasaland Society, Zomba, Malawi. 200 pp.  
Collection records and notes on snakes of Malawi. Around 17 are noted from the lower Shire.  
Malawi, herps
828. Sweeney, R.C.H. (1970). *Animal Life of Malawi. Vol. 1, Vertebrates*. I.P.T., Belgrade, Yugoslavia. 213 pp.  
Reference book on all vertebrates known in Malawi. Many biological and anecdotal records are given.  
Malawi, mammals, birds, fish, herps
829. Sweeney, R.C.H. (1970). *Animal Life of Malawi. Vol. 2, Invertebrates*. I.P.T., Belgrade, Yugoslavia. 236 pp.  
Reference book on all invertebrates known in Malawi. Many biological and anecdotal records are given.  
Malawi, inverts
- [Back to Contents](#)
830. Taylor, E.D. & Clarke, N.V. (in press). Does *Salvinia molesta* still pose a threat to biodiversity in Namibia's eastern Caprivi wetlands? *Madoqua*  
N/S  
Namibia, Chobe, conservation, probspp, plants
831. Taylor, P.B. (1979). Palaeartic and intra-African migrant birds in Zambia: a report for the period May 1971 to December 1976. Occasional Paper No. 1. *Zambian Ornithological Society*, Lusaka, Zambia. 169 pp.  
Survey of migrant birds known to occur in Zambia with documented sightings. 83 species of palaeartic migrant (37 waterbirds) and 81 species of intra-Africa migrant (27 waterbirds) are mentioned.  
Zambia, birds
832. Taylor, R.D. (1985). *The response of buffalo, Syncerus caffer, to the Kariba lakeshore grassland (Panicum repens L.) in Matusadona National Park*. PhD thesis, University of Zimbabwe. Harare, Zimbabwe. 514 pp.  
Study of buffalo on the Kariba floodplain grassland. It looks at behaviour, nutritional requirements and reproductive ecology related to forage supply. On the floodplains forage was available into the dry season, and was thus a key resource.  
Zimbabwe, Kariba, mammals
833. Taylor, V. [compiler] (1993). African Waterfowl Census, 1993. International Waterfowl Research Bureau, Slimbridge, UK.  
Counts were made on the Chobe river in Botswana (955 birds of 23 spp) in January 1993, the Elephant Marsh in Malawi in July 1992 (422 birds of 36 spp) and January 1993 (402 birds of 27 spp), and the Kafue Flats in Zambia in January 1993 (estimated 132,900 birds of 87 spp).  
Zbasin, Chobe, LShire, Kafue, birds
834. Taylor, V. & Rose, P.M. [compilers] (1994). African Waterfowl Census, 1994. International Waterfowl Research Bureau, Slimbridge, UK.  
Counts were made on the Chobe river in Botswana (4935 birds of 41? spp) in July 1993, the Elephant Marsh in Malawi in July 1993 (2849 birds of 34 spp), on the Kafue Flats in Zambia in July 1993 (73,975 birds of 63 spp) and in January 1994 (129,477 birds of 83 spp).  
Zbasin, LShire, Chobe, Kafue, birds
835. Teixeira, J.B. (1960). Contribuição para o estudo da flora do Cuando Cubango. *Agronomia da Angola* **12**: 97-133.  
N/S  
Angola, plants
836. Teixeira, J.B. (1968). Angola. In: *Conservation of Vegetation in Africa South of the Sahara. Proceedings of a symposium held at the 6th AETFAT Congress, Uppsala, September 1966* (editors I. Hedberg & O. Hedberg). Acta Phytogeographica Suecia No. 54. Almqvist & Wiksells, Uppsala, Sweden. pp. 193-197.  
Brief account of the vegetation of Angola. Two conservation areas in the upper Zambezi area are very briefly described - Cameia NP and Lóvuá Forest Reserve.  
Angola, vegetation, conservation
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837. Tello, J.L. (1986). Wildlife cropping in the Zambezi Delta, Mozambique. In: *Proceedings of Working Party on Wildlife Management and National Parks of the African Forestry Commission*. 6 pp. (323-385). Account of the setting up of the Marrromeu Buffalo Reserve and its present management. The reduction in poaching of large and small mammals and crocodiles since wildlife utilization for the benefit of the surrounding population was introduced is pointed out. Biomass yields are given.  
Mozambique, Delta, mammals, conservation, human
838. Tembo, A. & Saiwana, L. (1991). Aerial survey results of Liuwa National Park. Unpublished report. National Parks and Wildlife Service, Lusaka, Zambia.  
N/S  
Barotse, Zambia, mammals
839. Thirgood, S.J., Nefdt, R.J.C., Jeffery, R.C.V. & Kamweneshe, B. (1994). Population trends and current status of black lechwe (*Kobus*: Bovidae) in Zambia. *African Journal of Ecology* **32**: 1-8.  
Account of black lechwe in the Bangweulu swamps. There was a major decline until 1970, followed by a rise in numbers to c.30,000. Illegal hunting now accounts for c.3000/year.  
Zambia, Bangweulu, conservation, mammals
840. Thirgood, S.J., Robertson, A., Jarvis, A.M., Belbin, S.V., Robertson, D., Nefdt, R.J.C. & Kamweneshe, B. (1992). Mating system and the ecology of black lechwe (*Kobus*: Bovidae) in Zambia. *Journal of Zoology, London* **228**: 155-172.  
Account of the reproductive biology of black lechwe in the Bangweulu swamps. Seasonal movements are outlined.  
Zambia, Bangweulu, mammals
841. Thomas, O. & Wroughton, R.C. (1908). The Rudd Exploration of South Africa: X - List of mammals obtained by Mr Grant near Tette, Zambezia. *Proceedings of Zoological Society of London* **1908**: 535-552.  
N/S  
Mozambique, mammals
842. Thomas, P.I. (1970). A Chitonga-botanical dictionary of some species occurring in the vicinity of the Mwenda estuary, Lake Kariba, Rhodesia. *Kirkia* **7**(2): 269-284.  
A list of Tonga vernacular names of 400 plant species from the Mwenda river area, Binga on Lake Kariba. An alphabetical list of Tonga names with botanical equivalent is also included.  
Zimbabwe, Kariba, plants
843. Thomasson, K. (1955). Notes on the plankton of Lake Bangweulu. *Nova Acta Societas Scientiae Uppsalaensis* **4**: 3-18.  
N/S  
Zambia, Bangweulu, plankton
844. Thomasson, K. (1965). Notes on the algal vegetation of Lake Kariba. *Nova Acta Societas Scientiae Uppsalaensis* **19**: 1-34.  
Illustrated account of phytoplankton collected from Lake Kariba in 1959.  
Zimbabwe, Zambia, Kariba, plankton
845. Thomasson, K. (1980). Plankton of Lake Kariba re-examined. *Acta Phytogeographica Suecia* **68**: 157-162.  
Account with lists of phytoplankton collected from Lake Kariba in 1968-70.  
Zimbabwe, Zambia, Kariba, plankton
846. Thompson, A.B., Allison, E.H. & Ngatunga, B.P. (1995). Spatial and temporal distribution of fish in the pelagic waters. In: *The Fishery Potential and Productivity of the Pelagic Zone of Lake Malawi/Niassa* (editor A. Menz). Natural Resources Institute, Chatham, UK. pp. 201-232.  
Detailed account of the distribution and abundance of the pelagic fish of Lake Malawi in 1992-93.  
Malawi, LMalawi, fish
847. Thompson, B.R. (1969). Some bird records from Sesheke District. *The Puku* **5**: 235-236.  
Brief notes on 21 bird species from SW Zambia, including some associated with wetlands.  
Zambia, birds
848. Thompson, K. (1976). Primary productivity of African wetlands, with particular reference to the Okavango Delta. In: *The Okavango Delta and its Future Utilisation*. Botswana Society, Gaborone, Botswana. pp. 67-79.  
Review article on wetland plant productivity, with particular reference to papyrus. Papyrus has an annual net productivity around 50-60 t DM/ha/year, even under low nutrient conditions; it shows tight nutrient cycling. Burning reduces nutrient levels, hence growth rates. An estimate of primary productivity of submerged macrophytes is 10-12 t DM/ha/year, and for phytoplankton 0.5 t DM/ha/year.  
Botswana, Okavango, vegetation, plants
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849. Thompson, K., Howard-Williams, C. & Mitchell, D.S. (1985). A cross-indexed bibliography of African wetland plants and vegetation. In: *The Ecology and Management of African Wetland Vegetation: a botanical account of African swamps and shallow waterbodies* (editor P. Denny). Geobotany Vol. 6. W. Junk, Dordrecht, Netherlands. pp. 237-316.  
Comprehensive bibliography of 794 references with keywords indicating country, subject and species (if appropriate). The references are also indexed with a comprehensive series of index words. Most of the references are to vegetation description or aquatic weeds and their control, and rather few are to ecology or ecological processes. The literature from South Africa is the most comprehensive.  
SAfrica, vegetation, probspp, plants
850. Thornton, J.A. [editor] (1982). *Lake Mcllwaine: the eutrophication and recovery of a tropical African lake*. Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. 251 pp.  
Compiled book containing 22 papers on various aspects of the geography, hydrology, water chemistry, biology, utilization and management of Lake Chivero (formerly Mcllwaine) near Harare. A comprehensive bibliography is included.  
Chivero, Zimbabwe, human, water, probspp, plants, plankton, inverts, fish, birds
851. Thornton, J.A. & Taussig, H.J. (1982). Zooplankton and secondary production. In: *Lake Mcllwaine: the eutrophication and recovery of a tropical African lake* (editor J.A. Thornton). Monographiae Biologicae 49. W. Junk, The Hague, Netherlands. pp. 133-137.  
Account of zooplankton found in Lake Chivero, with brief notes on potential productivity. An appendix gives a list of 27 species found.  
Chivero, Zimbabwe, plankton
852. Thys van den Audenaerde, D.F.E. (1994). Introduction of aquatic species into Zambian waters, and their importance for aquaculture and fisheries. ALCOM Field Document No. 24. FAO, Harare, Zimbabwe. 29 pp.  
General review of fish introduction in Zambia. The successful establishment of Nile Tilapia in the Kafue river is of particular concern.  
Zambia, Kafue, probspp, fish
853. Timberlake, J.R. (1996). Sites of interest for botanical conservation in the communal lands of the Zambezi Valley, Zimbabwe. Zambezi Society/Biodiversity Foundation for Africa, Harare, Zimbabwe. 52 pp.  
Consultants' report with account and descriptions of relatively small sites of interest for botanical conservation in the communal lands of the Zambezi valley in Zimbabwe. Some riparian sites on recent alluvium are described from along tributaries of the Zambezi. The only wetland described is a saline spring with *Cyperus laevigatus* and *Sporobolus consimilis* at Kanyemba.  
Zimbabwe, vegetation, conservation
854. Timberlake, J.R. (1998). Biodiversity of the Zambezi Basin wetlands: review and preliminary assessment of available information. Phase 1 Final Report. Biodiversity Foundation for Africa/Zambezi Society, Harare, Zimbabwe. 232 pp.  
Consultancy report containing a review of literature on Zambezi Basin wetland biodiversity, an assessment of this information and recommendations for future work. An annotated bibliography of 979 references is included.  
Zbasin, biogeography, conservation
855. Timberlake, J.R. & Mapaure, I. (1992). Vegetation and its conservation in the eastern mid-Zambezi Valley, Zimbabwe. *Transactions of the Zimbabwe Scientific Association* 66: 1-14.  
Account of the vegetation of the communal lands of the mid-Zambezi valley in Zimbabwe. 12 vegetation types are described, only one of which is on recent alluvium (type 5, alluvial floodplains and riverine woodland). Flanking the larger rivers *Faidherbia albida* is common. *Phragmites mauritianus* reeds occur on some sandbanks. Areas suitable for botanical conservation are mapped and described.  
Mana, Zimbabwe, vegetation, conservation
856. Timberlake, J.R., Nobanda, N. & Mapaure, I. (1993). Vegetation survey of the communal lands - north and west Zimbabwe. *Kirkia* 14(2): 171-270.  
Account and map (scale 1:500,000) of the vegetation of the communal lands over much of the Zambezi catchment within Zimbabwe, using a phytosociological approach and satellite imagery. 37 vegetation types are described, grouped into 8 physiognomic/floristic classes. The floodplains of the Zambezi tributaries are mostly described under mixed riparian woodland or *Faidherbia* riparian woodland. Dambo grasslands at lower altitudes are classified as *Cynodon-Eragrostis* grasslands on sands or *Panicum repens* lakeshore grassland on Lake Kariba. Relationships to soils and other environmental factors are discussed.  
Mana, Zimbabwe, vegetation
857. Tinley, K.L. (1969). A first air count of the buffalo of Marromeu. *Veterinária Moçambicana* 1(2): 155-170.  
Account of aerial survey of buffalo and other large mammals in Marromeu and adjacent areas in 1968. Distribution maps are given. Results show over 16,000 buffalo and 4000 waterbuck, but only 257 elephant. The potentials for sustained management and tourism are pointed out.  
Mozambique, Delta, mammals
858. Tinley, K.L. (1973). *An Ecological Reconnaissance of the Moremi Wildlife Reserve, Northern Okovango Swamps, Botswana* (second edition). Okovango Wildlife Society, Johannesburg, South Africa. 146 pp.  
Detailed ecological account of the Moremi area, part of the Okavango, with sections on geography, soils, climate, vegetation, large mammals and biogeography. Species lists of plants, birds and mammals are given.  
Botswana, Okavango, vegetation, conservation, mammals, birds, plants
859. Tinley, K.L. (1975). Marromeu: wrecked by the big dams. *African Wildlife* 29(2): 22-25.  
Popular account of the environmental consequences of Cabora Bassa dam on the Marromeu wetlands and buffalo populations. The great tourist potential of the area is pointed out.  
Mozambique, Delta, Cabora, conservation
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860. Tinley, K.L. (1977). *Framework of the Gorongosa Ecosystem*. DSc thesis, University of Pretoria. Pretoria, South Africa. 184 pp.  
Detailed and authoritative account of the Gorongosa ecosystem in the rift valley of central Mozambique, including part of the Zambezi delta and its hinterland. A holistic, landscape-guided, evolutionary approach is used, and the vegetation, large mammal populations and land use are described in this context. The vegetation is described in detail. Conservation of the ecosystem and its large mammals is discussed.  
Mozambique, Delta, vegetation, conservation, mammals, plants
861. Tinley, K.L. (1994). Ecological profile of the region (form, content, process). In: *Description of Gorongosa-Marromeu Natural Resource Management Area*. IUCN ROSA, Harare, Zimbabwe. 25 pp.  
Account of the geography and geomorphology of the Marromeu-Gorongosa area. The vegetation of the different landscapes is described; and the conservation importance of the whole area is outlined.  
Delta, Mozambique, vegetation, conservation
862. Tinley, K.L., Rosinha, A.J., Tello, J.L.P.L. & Dutton, P. (1976). Wildlife and wild places in Mozambique. *Oryx* **13**(4): 344-350.  
Popular account of national parks and reserves in Mozambique. Gorongosa (3770 km<sup>2</sup>) and Marromeu (1500 km<sup>2</sup>) are described. The latter has the largest concentration of buffalo (25,000) worldwide. A list of mammals, birds and reptiles is given.  
Mozambique, Delta, conservation
863. Tinley, K.L. & Sousa Dias, A.H.G.d. (1973). Wildlife reconnaissance of the mid-Zambezi Valley in Moçambique before formation of the CaboraBassa dam. *Veterinária Moçambicana* **6**(2): 103-131.  
Detailed account of the ecology, large mammals and conservation potential of the mid-Zambezi river between Zumbo and the proposed Cabora Bassa dam. Mammal populations were low, partly due to excessive hunting. The main animals were impala and kudu.  
Mozambique, Cabora, conservation, vegetation, mammals
864. Toews, D. (1975). Limnology of Lake Bangweulu. FI: DP/SAM/681511/7 Report . FAO, Rome, Italy. 7 pp.  
N/S  
Zambia, Bangweulu, water
865. Toots, H. (1970). Exotic fishes in Rhodesia. *Rhodesia Agriculture Journal* **67**: 83-88.  
Account of exotic fish species introduced into rivers and dams in Zimbabwe, including those in the Zambezi basin.  
Zimbabwe, fish
866. Trapnell, C.G. & Clothier, J.N. (1937). The soils, vegetation and agricultural systems of North-Western Rhodesia. Government Printer, Lusaka, Zambia. 81 pp.  
Account of soils, climate and vegetation types of much of Zambia. There are 7 Kalahari Sand vegetation types in Barotseland, each very briefly described. A map is included. There is a later revised edition (1957).  
Barotse, Zambia, vegetation, agriculture
867. Trapnell, C.G. & Clothier, J.N. (1996). The soils, vegetation and traditional agriculture of Zambia. 1 Central and Western Zambia. Volume 1. Redcliffe Press, Bristol, UK. 96 pp.  
Facsimile account of 1937 report on soils, climate and vegetation types of much of Zambia. There are 7 Kalahari Sand vegetation types in Barotseland, each very briefly described. A map is included.  
Barotse, Zambia, vegetation, agriculture
868. Trapnell, C.G., Martin, J.D. & Allan, W. (1962). Vegetation-soil map of Northern Rhodesia (revised edition). Sheet 1. Directorate of Overseas Surveys, Surrey, UK.  
N/S. Includes vegetation map of Barotse floodplains.  
Zambia, vegetation, agriculture
869. Traylor, M.A. (1963). Check-list of Angolan birds. *Publicações Culturais de Companhia de Diamantes de Angola* **61**: 1-250.  
Comprehensive systematic checklist of all birds recorded from Angola covering 1067 species/subspecies, with brief notes on distribution. Notes on the history of ornithology and zoogeography are given, along with a detailed reference list and gazetteer. Bird lists from just across the border in Barotseland are also presented.  
Angola, birds
870. Traylor, M.A. (1965). A collection of birds from Barotseland and Bechuanaland. *Ibis* **107**(2): 137-172.  
Following an account of various areas in Kalabo and Ngamiland a list of 276 bird species is given with notes on distribution and habitat. The zoogeography of Baotseland is discussed.  
Barotse, Botswana, Chobe, Zambia, birds
871. Traylor, M.A. & Hart, R.C. (1965). Some interesting birds from Barotseland. *The Puku* **3**: 133-141.  
Annotated checklist of 49 bird species from Kalabo, W Zambia, including 14 waterbirds.  
Barotse, Zambia, birds
872. Tree, A.J. (1969). The status of Ethiopian waders in Zambia. *The Puku* **5**: 181-205.  
Account of 15 waterbirds which breed in Zambia with detailed breeding notes and maps.  
Zambia, birds

873. Tree, A.J. (1999). The occurrence of the White-fronted Plover in Zimbabwe in the latter part of the 20th century. *Honeyguide* **45**(1): 5-9.  
Account of the status and movements of this migratory bird species in the Zambezi and Limpopo systems. The changes in distribution due to drought and dam-building are noted.  
Zimbabwe, birds
874. Trendall, J. (1988). The distribution and dispersal of introduced fish at Thumbi West Island in Lake Malawi, Africa. *Journal of Fish Biology* **33**: 357-369.  
Account of the changes that occurred amongst a community of rock-dwelling cichlid fish living around an island in Lake Malawi when fish from other islands were introduced. The conclusions have important implications for the conservation of biodiversity in the lake.  
Malawi, LMalawi, conservation, fish
875. Turner, G.F. (1995). Management, conservation and species changes of exploited fish stocks in Lake Malawi. In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 365-395.  
Review of the fisheries industry of Lake Malawi. Prior to 1986 endemic tilapia (chambo) fishing dominated, but the various fishing methods have resulted in over-exploitation. Endemic haplochromine fish now dominate the catch. Species changes are ascribed to changes in fishing methods used. Species introductions will not increase productivity.  
Malawi, LMalawi, human, fish
876. Turner, G.F., Tweddle, D. & Makwinja, R.D. (1995). Changes in demersal cichlid communities as a result of trawling in southern Lake Malawi. In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 398-412.  
Study of the impact of commercial trawling on species composition and community structure of haplochromine cichlids. Populations are declining and recommendations are given for conservation measures.  
Malawi, LMalawi, human, fish
877. Turner, J.L. (1977). Changes in the size structure of cichlid populations in Lake Malawi resulting from bottom trawling. *Journal of Fisheries Research Board of Canada* **34**: 232-238.  
Account of changes in the size structure of cichlid fishes in Lake Malawi as a result of bottom-trawling, which may have implications for their conservation.  
Malawi, LMalawi, human, fish
878. Turner, J.L. (1977). Some effects of demersal trawling in Lake Malawi (Lake Nyasa) from 1968 to 1974. *Journal of Fish Biology* **10**: 261-271.  
Account of changes in the size structure of cichlid fishes in Lake Malawi as a result of bottom-trawling, including data on changes in species composition. Results may have implications in fish conservation.  
Malawi, LMalawi, human, fish
879. Turner, J.L. (1982). Lake flies, water fleas and sardines. In: *Fishery Expansion Project, Malawi: Biological studies on the pelagic ecosystem of Lake Malawi*. FI:DP/MLW/75/019 Technical Report No. 1. FAO, Rome, Italy. pp. 165-182.  
Report on the possible interactions between lake flies, water fleas (Cladocera) and pelagic fish such as kapenta, comparing Lakes Malawi, Kariba and Tanganyika. Lake Malawi has high numbers of lake flies and Cladocera, but few pelagic fish. This is compared to Lake Tanganyika which has high populations of pelagic fish (kapenta) but few Cladocera or lake flies. It is suggested the lake flies are an important food source for pelagic fish, and that Lake Malawi could support a high pelagic fish population.  
Malawi, LMalawi, human, fish, invertebrates, plankton
880. Tvedten, I., Girvan, L.A., Masdoorp, M., Pomuti, A. & van Rooy, G. (1994). Freshwater fisheries and fish management in Namibia: a socio-economic background study. Unpublished report. Multi-Disciplinary Research Centre, University of Namibia, Windhoek, Namibia.  
Study on freshwater fisheries in Namibia. A good map of floodplains and swamps in the E Caprivi is provided. An overview of the hydrology and fisheries potential of the Kwando, Linyanti, Lake Liambezi, Chobe and Zambezi is given.  
Namibia, Chobe, water, human, fish
881. Tweddle, D. (1982). Fish breeding migrations in the North Rukuru area of Lake Malawi with a note on gillnet colour selectivity. *Luso* **3**: 67-74.  
Account of gillnetting experiments on Lake Malawi. Some fish species return up-river to spawn during the early rains, while other species tend to run up towards the end of the rains. Contains interesting data on fish breeding migrations, an aspect of fish biology which is poorly-documented. River fisheries are shown to be declining, perhaps owing to intensive river-mouth fisheries.  
Malawi, LMalawi, human, fish
882. Tweddle, D. (1992). Conservation and threats to the resources of Lake Malawi. *Mitt. International Verein. Limnology* **23**: 17-24.  
N/S  
Malawi, LMalawi, conservation, fish
883. Tweddle, D. (1995?). Malawi fish taxonomy, speciation and evolution bibliography (includes selected other groups such as aquatic molluscs). Unpublished typescript, Blantyre, Malawi. 21 pp.  
Detailed bibliography (citation only, no annotations), possibly an expanded version of Tweddle & Mkoko 1986, covering fish, crustacea, midges, gastropods, nematodes, dragonflies, etc. On file at the Wildlife Society of Malawi, Limbe. Most references are related to Lakes Malawi and Chilwa.  
LMalawi, MShire, Malawi, fish, invertebrates
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884. Tweddle, D. (n.d.). An introduction to the angling fishes of Malawi. Unpublished booklet, Blantyre, Malawi. 47 pp.  
Basic identification booklet to all larger fish species of the Shire river and Lake Malawi (except Cichlidae). 43 indigenous species are described, of which 29 are found in the lower Shire.  
LMalawi, LShire, Malawi, fish
885. Tweddle, D., Hastings, R.E. & Jones, T. (1977). The development of a floodplain fishery: Elephant Marsh, Malawi. In: *Symposium on River and Floodplain Fisheries*. Paper FIPL CIFA/77/Symp. 9. FAO, Rome, Italy. 15 pp.  
N/S  
Malawi, LShire, human, fish
886. Tweddle, D., Lewis, D.S.C. & Willoughby, N.G. (1979). The nature of the barrier separating the Lake Malawi and Zambezi fish faunas. *Ichthyological Bulletin of the J.L.B. Smith Institute of Ichthyology, Rhodes University* **39**: 1-9.  
Account of the differences in fish fauna above and below Kapichira Falls on the Shire river. The falls are an ecological barrier to downstream movement of Lake Malawi fish. Lists of fish species are given.  
biogeography, Malawi, LShire, MShire, fish
887. Tweddle, D. & Mkoko, B.J. (1986). Limnological bibliography of Malawi. CIFA Occasional Paper 13. FAO Fisheries Department, Rome, Italy. 75 pp.  
Large bibliography of 1101 references, covering a varied published and unpublished literature on fish, fisheries, aquatic birds and allied subjects. Entries are also cross-referenced by subject.  
Malawi, human, fish, birds
888. Tweddle, D., Turner, G.F. & Seisay, M.B.D. (1995). Changes in species composition and abundance as a consequence of fishing in Lake Malombe, Malawi. In: *The Impact of Species Changes in African Lakes* (editors T.J. Pitcher & P.J.B. Hart). Fish and Fisheries Series No. 18. Chapman & Hall, London, UK. pp. 413-424.  
Study of changes in cichlid fish populations from a lake fed by Lake Malawi and the Shire river. Chambo numbers have decreased, and appear to be separate from the Lake Malawi population. This has been replaced by kambuzi, of lesser value. The fisheries industry is in imminent danger of collapse.  
Malawi, LMalawi, MShire, human, fish
889. Tweddle, D. & Willoughby, N.G. (1976). Dry season fish populations in the Shire Valley game reserves. *Nyala* **2**(1): 3-14.  
Account of a survey of the fish in three different areas of the Lower Shire. Majete Game Reserve contains 21 species, Mwabvi waterholes contain 9 species, and the Lengwe waterholes had no fish.  
Malawi, LShire, fish
890. Tweddle, D. & Willoughby, N.G. (1979). An annotated checklist of the fish fauna of the river Shire south of Kapichira Falls. *Nyala* **5**(2): 75-91.  
List of 61 species from the Shire river below the waterfalls that mark the boundary of the lower and upper Shire. Abbreviated version of Tweddle & Willoughby 1979.  
Malawi, LShire, fish
891. Tweddle, D. & Willoughby, N.G. (1979). An annotated checklist of the fish fauna of the river Shire south of the Kapichira Falls, Malawi. *Ichthyological Bulletin of the J.L.B. Smith Institute of Ichthyology, Rhodes University* **39**: 11-22.  
Gives a list of 61 species of fish from the Shire river below the waterfalls that mark the boundary of the lower and upper Shire. The species are essentially those found in the lower Zambezi.  
Malawi, LShire, fish
892. Tyler, S.J. & Bishop, D.R. (1998). Important Bird Areas of Botswana. In: *The Important Bird Areas of Southern Africa* (editor K.N. Barnes). BirdLife South Africa, Johannesburg, South Africa. pp. 333-354.  
Detailed descriptions of areas considered important for bird conservation in Botswana, including the Chobe National Park and Linyanti/Chobe area. Species of particular interest are mentioned.  
Botswana, birds, conservation
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893. Underhill, L.G., Tree, A.J., Oschadleus, H.D. & Parker, V. (1999). *Review of Ring Recoveries of Waterbirds in Southern Africa*. Avian Demography Unit, University of Cape Town, Cape Town, South Africa.  
Detailed account of all ringing recoveries in or of birds from southern Africa, including many wetland species. Following brief descriptions of each species habitat and conservation status, a map showing individual ringing and recovery localities is given.  
SAfrica, birds
894. University of Idaho (1971). Ecology of fishes in the Kafue River. Report prepared for FAO/UNDP. FI: SF/SAM 11, Technical Report 2. University of Idaho, Moscow, Idaho, USA. 66 pp.  
N/S. Possibly contains lists of fish species from the Kafue river.  
Zambia, Kafue, fish
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895. University of Michigan (1971). The fisheries of the Kafue river flats, Zambia in relation to the Kafue Gorge dam. Report prepared for FAO/UNDP. FI: SF/SAM 11, Technical Report 1. University of Michigan, Ann Arbor, Michigan, USA. 161 pp.

N/S. Probably includes list of commercially important species in the Kafue river and an assessment of changes due to dam closure.  
Zambia, Kafue, human, fish

896. Urban, E.K. (1988). Status of cranes in Africa. In: *Proceedings of the Sixth Pan-African Ornithological Congress* (editor G.C. Backhurst). Sixth PAOC Organizing Committee, Nairobi, Kenya. pp. 315-329.

Account of conservation status of crane species across Africa. Wattled Cranes populations are estimated for 11 countries. The species occurs in 2 E Provinces of Angola, Chobe/Linyanti rivers and Savuti Marsh, Marromeu, E Caprivi with up to 11,000 birds in Zambia, particularly on the Kafue Flats and Liuwa Plain. Several thousand Grey Crowned Cranes also occur in Zambia.  
Zbasin, conservation, birds

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897. Van Bruggen, A.C. (1966). Notes on non-marine molluscs from Mozambique and Bechuanaland, with a checklist of Bechuanaland species. *Annals of the Transvaal Museum* 25(6): 99-113.

Checklist (with locations) with 13 mollusc species from S Mozambique and 15 species from Botswana. A compiled checklist of 39 species from Botswana is also given, 16 of which are freshwater species.  
Botswana, inverts

898. Van Bruggen, A.C. (1980). A note on some molluscs from the Caprivi Strip, South West Africa (Namibia). *Basteria* 44: 81-84.

N/S  
Namibia, Chobe, inverts

899. Van der Waal, B.C.W. (1976). *'n Visiekologiese Studie van die Liambezimeer in die Oos-Caprivi met verwysing na visontginning deur die Bantoebevolking*. DSc thesis, Rand Afrikaans University. Johannesburg, South Africa. 192 pp.

Study in Afrikaans on the fish and fisheries of Lake Liambezi in the E Caprivi.  
Namibia, Chobe, human, fish

900. Van der Waal, B.C.W. (1980). Aspects of the fisheries of Lake Liambezi, Caprivi. *Journal of Limnological Society of Southern Africa* 6(1): 19-31.

The lake contains 43 fish species, and production estimates are 74-157 kg/ha. Fish catches depend on net type and size. Data are presented on catch sizes. A small commercial fishery is operating, mostly for cichlids. Recommendations for improving the fishery industry are given.

Namibia, Chobe, human, fish

901. Van der Waal, B.C.W. (1985). Aspects of the biology of larger fish species of Lake Liambezi, Caprivi, South West Africa. *Madoqua* 14(2): 101-144.

Account of the fish species found in the lake; 43 species are listed and an account of the biology of 27 species is given, including age and growth, reproduction and feeding habits. The lake ecology is based on the gradual decomposition of organic material from the surrounding swamps.

Namibia, Chobe, fish

902. Van der Waal, B.C.W. (1990). Aspects of the fishery of the Eastern Caprivi, Namibia. *Madoqua* 17(1): 1-16.

Account of the small-scale fishing industry of Lake Liambezi and the Caprivi floodplains and swamps. Gill nets mostly caught cichlids and catfish, with an annual total of 700,000 kg. Data from experimental catches with different gill sizes are given. The need for management and control of the industry to avoid over-harvesting are pointed out.

Namibia, Chobe, human, fish

903. Van der Waal, B.C.W. (1991). A survey of the fisheries in Kavango, Namibia. *Madoqua* 17(2): 113-122.

Account of small-scale fishing along the Kavango river in N Namibia. Total annual catch was estimated at 840,000 kg. Much of the fishing gear in use catches small fish and is relatively non-selective. The importance of measures to control habitat destruction is stressed. Lists of fish species caught by different methods are given.

Namibia, Okavango, human, fish

904. Van der Waal, B.C.W. (1998). Some observations on fish migrations in Caprivi, Namibia. *Southern African Journal of Aquatic Sciences* 22: 62-80.

N/S. A description of the migration of fish species to and from the Zambezi river and the Linyati floodplain. These species are classified into those that remain in the river, those that migrate between the river and floodplain, and those that remain on the floodplain.

Namibia, Chobe, fish

905. Van der Waal, B.C.W. & Skelton, P.H. (1984). Check list of fishes of Caprivi. *Madoqua* 13 (4): 303-320.

List of 76 species of freshwater fish collected from the Caprivi over 4 years. The Kwando-Linyanti system contains two species not found in the Zambezi, and the Zambezi contains 14 species not in the Kwando. Habitat preferences are given.

Namibia, Chobe, fish

906. Van Gils, H. (1988). *Environmental profile: Western Province, Zambia*. ITC, Enschede, Netherlands. 37 pp.

Overview of the environmental attributes and issues of Western Province. Climate, land systems, broad vegetation types and wildlife resources are outlined.

Barotse, Zambia, agriculture, human, vegetation

907. Van Rensburg, H.J. (1968). The ecology of the Kafue Flats. In: *Multipurpose survey of the Kafue river basin. Final Report*. SF: 35/ZAM, Report Vol. 4(1). FAO, Rome, Italy. 138 pp.  
N/S  
Zambia, Kafue, vegetation
908. Van Rensburg, H.J. (1968). List of plant species. In: *Multipurpose survey of the Kafue river basin. Final Report*. SF: 35/ZAM, Report Vol. 4(2). FAO, Rome, Italy. 178 pp.  
N/S. Annotated list of plant species  
Zambia, Kafue, plants
909. Van Rensburg, H.J. (1972). Fire: its effect on grasslands, including swamps - southern, central and eastern Africa. In: *Proceedings of the Tall Timbers Fire Ecology Conference, 11*. Tall Timbers Research Station, Florida, USA. pp. 175-199.  
Superficial review paper on the effects of fire on grasslands. Wetlands mentioned are the Okavango, Lake Ngami and the Kafue Flats. Time of burning is shown to be important, and fire can have a beneficial effect for grazers.  
Zbasin, vegetation
910. Verboom, W.C. (1965). The Barotse ecological survey, 1964. Unpublished report. Department of Agriculture, Lusaka, Zambia.  
N/S  
Barotse, Zambia, vegetation
911. Verboom, W.C. (1966). The grassland communities of Barotse. *Journal of Tropical Agriculture (Trinidad)* **43**(2): 107-115.  
N/S  
Barotse, Zambia, vegetation
912. Verboom, W.C. (1970). The grasses and other fodder resources of the Western Province of Zambia: annotated list of grasses, sedges and legumes. Unpublished report. Department of Agriculture, Lusaka, Zambia.  
N/S  
Barotse, Zambia, plants
913. Verboom, W.C. (1975). List of plant species in the main vegetation types of the Bangweulu Basin. In: *Black Lechwe Research Project, Final Report* (editors J.J.R. Grimsdell & R.H.V. Bell). Animal Production Research Report AR 1. Lusaka, Zambia.  
Brief account of the 15 vegetation types of the Bangweulu basin, and the major plant species in each. A vegetation map is included.  
Zambia, Bangweulu, vegetation
914. Verboom, W.C. (1981). Animal protein-producing area of Zambia. Vol. 1 - The grasslands of the cattle-keeping people. National Council for Scientific Research, Zambia/International Institute for Aerial Survey and Earth Sciences, Enschede, Netherlands. 245 pp.  
Botanical and ecological account of the rangelands of Zambia, with particular reference to grasslands, which are divided into plateau grasslands and floodplain grasslands. A description and listing of the grass, sedge and legume species of the Barotse floodplains is given, with accompanying ecological notes, based on collections by Verboom in 1964. The Barotse sand grasslands are said to be fire climax open woodland developed on nutrient-poor Kalahari sands. The floodplain grasslands of Western Province occur on the Bulozzi Plain, the Matabele-Mulonga Plain and the Siloana Plain. Seasonal shallow flooding occurs from December to May. The grass, sedge and herbs present depend on land unit.  
Barotse, Zambia, agriculture, vegetation, plants
915. Verboom, W.C. (1981). Animal protein-producing area of Zambia. Vol. 2 - The flood plains. National Council for Scientific Research, Zambia/International Institute for Aerial Survey and Earth Sciences, Enschede, Netherlands.  
N/S. Botanical and ecological account of the rangelands of Zambia, with particular reference to grasslands, which are divided into plateau grasslands and floodplain grasslands.  
Barotse, Zambia, vegetation, agriculture, plants
916. Verboom, W.C. & Brunt, M.A. (1970). An ecological survey of Western Province, Zambia, with special reference to the fodder resources. Vol. 1 - The environment. Land Resource Study 8. Land Resources Division, Directorate of Overseas Surveys, Surrey, UK. 95 pp.  
Detailed account of the land units, climate, hydrology, soils, vegetation and wildlife of Western Province. The vegetation is described under 15 types. Maps of the area and of the Matabele Plain are given.  
Barotse, Zambia, agriculture, vegetation, mammals
917. Verboom, W.C. & Brunt, M.A. (1970). An ecological survey of Western Province, Zambia, with special reference to the fodder resources. Vol. 2 - The grasslands and their development. Land Resource Study 8. Land Resources Division, Directorate of Overseas Surveys, Surrey, UK. 133 pp.  
Continuation of Vol. 1 with sections on fodder resources and utilization, species lists and fodder analyses. The vegetation types of Western Province based on Trapnell et al. and Fanshawe are described, and many species listed. Notes on forage value and palatability are given.  
Barotse, Zambia, agriculture, vegetation, plants

918. Vernon, C.J. (1971). Observations on *Egretta vinaceigula*. *Bulletin British Ornithologist's Club* **91**(6): 157-159.  
Notes on physical features and behaviour of the Slaty Egret. It occupies a marsh and floodplain niche, which explains its limited distribution.  
Botswana, Chobe, birds
919. Vesey-Fitzgerald, D.F. (1956). The black lechwe and modern methods of wild life preservation. *Black Lechwe* **1**(1): 10-14.  
Popular article on the black lechwe and its conservation in the Bangweulu swamps. Gives details of the floodplain ecology and the aerial census method aimed at permitting sustainable offtake by local communities based on accurate population census.  
Zambia, Bangweulu, conservation, mammals
920. Vesey-Fitzgerald, D.F. (1961). The black lechwe and modern methods of wild life preservation. *The Northern Rhodesia Journal* **2**(6): 25-32.  
Popular article on the black lechwe and its conservation. Reprint of Vesey-Fitzgerald (1956).  
Zambia, Bangweulu, conservation, mammals
921. Vesey-Fitzgerald, D.F. (1965). Lechwe pastures. *The Puku* **3**: 143-147.  
Details on the vegetation and physical characteristics of floodplains inhabited by lechwe in Zambia. Grass species and phenology is described.  
Zambia, vegetation, mammals
922. Vesey-Fitzgerald, D.F. (1972). Black lechwe. *Black Lechwe* (1): 9-11.  
Popular article on the black lechwe.  
Zambia, Bangweulu, mammals
923. Von Richter, W. & Osterberg, R. (1977). The nutritive values of some major food plants of lechwe, puku and waterbuck along the Chobe river, Botswana. *East African Wildlife Journal* **15**: 91-97.  
Study comparing nutritive values of various grasses and herbs, and grazing selection, by 3 antelope species on floodplain grassland in N Botswana.  
Botswana, Chobe, mammals, plants
924. Vostradovsky, J. (1984). Fishery investigations on Cahora Bassa reservoir (March 1983-May 1984). FAO/GCP/MOZ/006/SWE Field Document No.11. FAO, Rome, Italy. 30 pp.  
Consultants' report on fish biology in Lake Cabora Bassa. Particular reference is given to kapenta.  
Mozambique, Cabora, water, fish
925. Vostradovsky, J. (1986). On the ichthyofauna and possibilities of fishery utilisation of the Cahora Bassa reservoir on the Zambezi river (1983-1984 period). *Prace VURH Vodnany* **15**: 3-20.  
Lists the fish species caught in Cabora Bassa 8-9 years after its creation, with some data on their relative abundance.  
Mozambique, Cabora, human, fish
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926. Walkinshaw, L.H. (1965). The Wattled Crane. *Ostrich* **36**: 73-81.  
N/S  
SAfrica, conservation, birds
927. Weare, P.R. & Yalala, A. (1971). Provisional vegetation map of Botswana. *Botswana Notes & Records* **3**: 131-147.  
A revised vegetation map (at scale 1:3 million) of Botswana compiled from previous surveys. There are 29 vegetation types, grouped into 9 physiognomic classes. The Chobe/Linyanti area, including the riparian strips, is described as swamp grassland, with dense stands of *Phragmites communis*, *Cyperus haspan* and *C. papyrus*. *Hyphaene* and *Ficus verruculosa* can be found on islands.  
Botswana, vegetation
928. Weis, G.F. (1970). Report to the Government of Zambia in fishery development in the central Barotse floodplain. FAO/UNDP Report T.A. 2816. Rome, Italy. 19 pp.  
N/S  
Barotse, Zambia, human, fish
929. Welsh, H. (1965). A contribution to our knowledge of the blue-green algae of South West Africa and Bechuanaland. *Nova Hedwigia* **9**: 131-162.  
N/S  
Namibia, Botswana, plankton
930. Werger, M.J.A. & Coetzee, B.J. (1978). The Sudano-Zambezi region. In: *Biogeography and Ecology of Southern Africa* (editor M.J.A. Werger). Monographiae Biologicae 31. W. Junk, The Hague, Netherlands. pp. 301-462.  
Comprehensive review of vegetation and ecology of a significant part of the Zambezi basin. Various factors affecting plant and vegetation distribution are discussed. Brief descriptions are given of the vegetation of the Zambezi floodplain and dambo grasslands, and also of the Zambezi and Luangwa valleys, the central African plateau, and the Zambezi delta.  
Zbasin, biogeography, vegetation
931. West, O. (1963). Notes on the Wattled Crane. *Ostrich* **34**: 63-77.  
N/S  
SAfrica, birds
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932. West, O. (1981). Notes on the distribution and status of the southern population of Wattled Cranes in Africa. In: *Proceedings of the International Crane Workshop* (editor J.C. Lewis). Oklahoma State University, Stillwater, Oklahoma, USA. pp. 347-349.  
N/S  
SAfrica, conservation, birds
933. Wetlands International (1999). Report on the conservation status of migratory waterbirds in the Agreement area. Interim Secretariat of the Africa-Eurasian Waterbird Agreement, Ministry of Agriculture, Nature Management & Fisheries, Netherlands. 153 pp. Report prepared for First Meeting of the Contracting Parties to the African-Eurasian Waterbird Agreement (AEWA 1995), held in Cape Town, South Africa, 6-9 November 1999.  
Comprehensive report listing waterbirds covered by this international agreement. Details on status and conservation are given for each. Many of the species are found within the Zambezi Basin.  
SAfrica, birds, conservation
934. Whellan, J.A. (1975). The Acridoidea of Malawi: an annotated check list. *Acrida* 4(2): 105-122.  
Checklist of 135 species of grasshopper from Malawi. Only a few records are from the lower Shire.  
Malawi, inverts
935. White, C.M.N. (1956). Northern Rhodesian butterflies. *Northern Rhodesia Journal* 3: 14-21.  
Briefly annotated list of some butterflies collected in Zambia, with many from the upper Zambezi area. 48 species are listed.  
Zambia, inverts
936. White, F. (1965). The savanna woodlands of the Zambezi and Sudanian domains: an ecological and phytogeographical comparison. *Webbia* 19: 651-681.  
An important attempt to determine phytogeographical relations in the Zambezi region. Within the Zambezi Domain (covering the complete Zambezi Basin) a Barotse centre (characterised by *Baikiaea plurijuga*) and a Kariban centre (characterised by *Triplochiton*) are recognised. A Katangan centre (characterised by *Diospyros mweoensis*) is recognised at the headwaters of the Zambezi. Other characteristic species of these centres are listed. Within the Zambian woody flora, 61 species are confined to the Zambezi valley or its major tributaries.  
Zbasin, biogeography, vegetation, plants
937. White, F. (1968). Zambia. In: *Conservation of Vegetation in Africa South of the Sahara. Proceedings of a symposium held at the 6th AETFAT Congress, Uppsala, September 12-16 1966* (editors I. Hedberg & O. Hedberg). Acta Phytogeographica Suecia No. 54. Almqvist & Wiksells, Uppsala, Sweden. pp. 208-215.  
Brief account of the vegetation of Zambia, including the Zambezi wetlands.  
Zambia, vegetation, conservation, plants
938. White, F. (1976). The underground forests of Africa: a preliminary review. *Gardens' Bulletin, Singapore* 29: 57-71.  
Account of the group of geoxylic suffrutex plants with massive woody underground stems that are characteristic of the poorly drained grasslands of the Zambezi floral region, particularly on the Kalahari sands in Barotseland. A list of species and their tree/shrub relatives is given. These species are typically found on dambo margins. The importance of these species and how they evolved is discussed. Fire and frost are not thought to be major factors.  
Zbasin, biogeography, plants
939. White, F. (1983). *The Vegetation of Africa: a descriptive memoir to accompany the UNESCO/AETFAT/UNSO vegetation map*. Natural Resources Research 20. UNESCO, Paris, France. 356 pp.  
Definitive account of the vegetation of Africa. Contains detailed accounts of the vegetation and plant species composition of various vegetation types. Wetland vegetation, which is often too small to be adequately mapped, is described under mangroves, herbaceous freshwater swamp and aquatic vegetation. The Barotse plains are mapped as edaphic grassland mosaic with semi-aquatic vegetation. The Busango, Kafue and Lukanga swamps are also mapped as edaphic grassland mosaic with semi-aquatic vegetation, but with the addition of herbaceous swamp and aquatic vegetation in the centre of the Lukanga swamps, and a mosaic of dry deciduous forest and secondary grassland in the centre of the Kafue Flats. The Zambezi delta is mapped as Zanzibar-Inhambane East African coastal mosaic, with mangroves on the coast.  
SAfrica, vegetation, biogeography, plants
940. Wild, H. & Barbosa, L.A.G. (1967). Vegetation map of the Flora Zambesiaca region. M.O. Collins, Harare, Zimbabwe. 71 pp. Supplement to Flora Zambesiaca, plus 2 maps.  
Descriptions of vegetation types of Zambia, Botswana, Zimbabwe, Malawi and Mozambique with accompanying colour map at 1:2.5 million scale, based on previous surveys. There are 74 vegetation types, grouped into 9 physiognomic types. The Chobe/Linyanti swamps are classified as *Loudetia* grassland on Kalahari sands, with small unmapped areas of papyrus sudd, as are the Barotse floodplains. *Loudetia simplex* is the main grass, replaced by *Tristachya* on the Silowana Plains. *Vetiveria nigritana* marks the alluvial banks. The upper Kafue Flats are classified as *Loudetia* grassland, while the lower swamps are described as edaphic or secondary plateau grassland with *Hyparrhenia*. On the Chambeshi floodplain the major grasses are *Hyparrhenia gazensis*, *Paspalum commersonii*, *Digitaria scalarum*, *Loudetia simplex* and *Themeda triandra*. On other floodplains *Acroceras macrum*, *Echinochloa haploclada*, *Sacciolepis* and *Etiolasia imbricata* are dominant. The Lukanga swamps are described as papyrus sudd surrounded by *Hyparrhenia* grassland. The swamps of the lower Shire valley in Malawi are described as papyrus sudd, but formations on alluvium in Mozambique. Sudd consists of *Cyperus papyrus*, other *Cyperus* spp. and *Phragmites* reed beds. In the Shire valley *Vossia cuspidata* and *Echinochloa pyramidalis* are important. The Zambezi delta is described as formations on alluvium with inclusions of coastal thicket of *Mimusops caffra* on the dunes at the coast and fringing *Rhizophora* mangroves. The delta near Quelimane has extensive groves of coconut.  
Zbasin, vegetation

941. Williams, A.J. (1991). Wetland birds and conservation in Namibia: an overview. *Madoqua* **17**(2): 245-248.  
Review of birds associated with Namibian wetlands. Of 620 birds found in the country, 167 (27%) are wholly dependent on wetlands. A high proportion of these are endangered owing to habitat destruction. Of particular concern are the Slaty Egret (a near-endemic) and the Wattled Crane.  
Namibia, conservation, birds
942. Williams, A.J. (n.d.). Popular checklist of the birds of South West Africa/Namibia. Department of Agriculture & Nature Conservation, Windhoek, Namibia.  
Lists 617 bird species from Namibia.  
Namibia, birds
943. Williams, G.D., Coppinger, M.P. & Maclean, G.L. (1989). Distribution and breeding of the Rock Pratincole on the upper and middle Zambezi river. *The Ostrich* **60**: 55-64.  
Study on the Rock Pratincole from the Zambezi source to the Luangwa confluence. Distribution is related to suitable breeding (rocky) habitat. A total of 1938 were seen, principally in lower Barotseland, Kazungula to Kariba, and Kariba to Kanyemba.  
Zbasin, birds
944. Williams, G.J. & Howard, G.W. [editors] (1977). *Development and Ecology in the Lower Kafue Basin in the Nineteen Seventies. Proceedings of a National Seminar on Environment and Change*. Kafue Basin Research Committee, Lusaka, Zambia. 102 pp.  
9 papers on various aspects of the Kafue Flats covering ecology, sociology, Kafue lechwe, water and development.  
Zambia, Kafue, human, water, mammals
945. Williams, J. (1987). Wattled Crane survey in Caprivi. *Quagga* **18**: 22-23.  
Popular article on a survey of wattled cranes in the Caprivi wetlands in July 1986. Estimated number was 11 within Namibia.  
Namibia, Chobe, birds
946. Williams, R.E. (1971). Fish ecology of the Kafue river and flood plain environment. *Fisheries Research Bulletin, Zambia* **5**: 305-330.  
Study on the fish and fish ecology of the Kafue basin. The importance of seasonal flooding is stressed, and this will be greatly modified by proposed dams. Fish migrate from the river to the floodplain when the waters rise, and their life cycle and breeding is closely related to this. The effects on fisheries are discussed. Lists of 53 fish species and 25 fish-eating birds are given.  
Zambia, Kafue, human, birds, fish
947. Williamson, D.T. (1981). The status of red lechwe in the Linyanti swamp. *Botswana Notes & Records* **13**: 101-105.  
Brief account of the population structure and status of red lechwe, indicating a declining population.  
Botswana, Chobe, conservation, mammals
948. Williamson, D.T. (1986). Notes on the sitatunga in the Linyanti Swamp, Botswana. *African Journal of Ecology* **24**: 293-297.  
Brief account of sitatunga - habitat, locomotion, activity, group size and behaviour.  
Botswana, Chobe, mammals
949. Williamson, D.T. (1990). Habitat selection by red lechwe (*Kobus leche leche* Gray, 1950). *African Journal of Ecology* **28**: 89-101.  
Account of habitat use by red lechwe in the Linyanti swamp, Botswana. Selection of feeding sites was probably related to grass quality.  
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