

# Recent Publications in the Field of Wildlife and Related Topics in Botswana

by W. VON RICHTER\*

CHILD G. (1971, *Botswana Notes & Records III*) reviewed publications of a scientific and general nature dealing with wildlife and related topics in Botswana. The publications are the results of surveys and research carried out by members of the department and independent research workers who are utilising the opportunities for research in the field of wildlife or related subjects. A number of publications not mentioned previously by Child will also be listed, and publications of importance to wildlife although the authors are not connected to the Department of Wildlife and National Parks will be included.

BELL-CROSS, G. (1972). The Fish fauna of the Zambesi River system. *Arnoldia (Rhod) V* (29): 19 pp.

The paper discusses fish distribution in the Zambesi and refers also to the Okavango system and the zoo-geographical relations between the two systems.

BROADLEY, D.G. (1967). A new species of *Ichnotropis*. (Sauria: Lacertidae) from the Botswana-Caprivi border. *Arnoldia (Rhod) III* (24): 5 pp.

Description of a new species of Lizard (*Ichnotropis grandiceps*, sp. nov) collected by the Botswana Mammal Survey west of Mohebo in 1967.

BROADLEY, D.G. (1972). The Horned viper, *Bitis caudalis* (A.Smith) in the Central Kalahari. *Botswana Notes and Records IV*: 263-264.

A short description on the biology of this common venomous snake.

CAMPBELL, A.C. (1972). Traditional utilization of wildlife in the Kalahari. *Botswana Notes and Records, Special Edition No. 1*: 108-113.

The paper describes the various traditional uses made by the different human population groups in the Kalahari in the recent past. The author points out that wildlife was and still is extensively utilised by the population owning few or no cattle and even by cattle-owning people in times of disasters when their livestock was raided by warring tribes, died due to diseases (rinderpest) or restrictions on movement in case of Foot and Mouth Disease.

CAMPBELL, A.C. (1972). The Development of the wildlife industry in the Kalahari. *Botswana Notes and Records, Special Edition No. 1*: 270-275.

The author outlines the development of a local and nationwide industry based on the utilization of wildlife in the Kalahari. He details the revenue received from subsistence and recreational hunting, trading in wildlife products and tourism, and gives a short description of the conservation areas in the Kalahari. He concludes with a projection of tourist development in the future.

CAMPBELL, A.C. (1972). Legislation for the control and utilization of wildlife in Botswana. FO: AFC/WL: 72/19.

Working paper for the 4th session of the FAO *ad hoc* working party on wildlife management.

A short description of the legal framework of conservation and utilization in Botswana.

CAMPBELL, A.C. (in press). The National Park and Reserve system in Botswana. *Biological Conservation*.

An account of nature conservation and wildlife utilization in the recent past, present and future; describing the major conservation areas, conservation policies and main problems for a rational utilization of wildlife in Botswana.

CAMPBELL, A.C. and G. CHILD (1971). The Impact of man on the environment of Botswana. *Botswana Notes and Records III*: 91-110.

\*For biographical details on Dr von Richter see 'Hunting in Botswana' in this issue.

The authors describe the major changes in vegetation and large mammal distribution and abundance as it is reflected in the publications of early explorers over the last 150 years and compare it with the present situation. Most large scale changes are exclusively attributable to past land use practices as no significant climatical changes have taken place and over-exploitation is only responsible for the disappearance of species like rhinoceros and possibly elephant.

CAMPBELL, A.C. and G. CHILD (1972). International co-ordination and control of ownership and movement of wildlife and its products. Proc., SARCCUS Symposium, Nature conservation as a form of land use: 85-90.

Proposals for a uniform system of permits for ownership and movement of wildlife products across international boundaries in southern Africa.

CAMPBELL, A.C. and W. von RICHTER (1972). The Policy of wildlife conservation in relation to other forms of land use in Botswana, FO: AFC/WL: 72/20.

Working paper for discussion during the 4th session of the FAO *ad hoc* working party on wildlife management. The authors outline the multi-disciplinary approach to land use as practised in Botswana through the Natural Resources Technical Committee to reconcile conflicting interests of different land users.

CAMPBELL, A.C. and W. von RICHTER (in press). Planning and policy making – wildlife conservation in Botswana. SA Institute, International Affairs, Johannesburg.

The paper, read at the Symposium on Natural Resources in Southern Africa – scientific and policy aspects, describes the planning and policy making for wildlife conservation as adopted in Botswana.

CARMICHAEL, I.H. (1971). Helminthiasis in domestic and wild ruminants in Botswana – preliminary investigations. *Trop. Anim. Hlth. Prod.* IV: 175-181.

The incidence of helminthiasis in domestic and wild ruminants is compared and it appears that wild animals normally do not suffer greatly. It is unlikely that wildlife populations contribute to helminthiasis in domestic stock.

CHILD, G. (1971). Ecological constraints on rural development in Botswana. *Botswana Notes and Records* III: 157-164.

The author outlines the sensitive environment of Botswana and the resulting constraints which must be observed if sustained production is to be achieved. Considerable areas already have been severely devastated by improper land use and if the general trend is not halted, and where possible reversed, Botswana is heading for disaster. Development should be ecologically viable.

CHILD, G. (1972). The Future of wildlife and rural land use in Botswana. Proc. SARCCUS symposium, Nature Conservation as a form of land use: 75-78.

The paper discusses past land use practices which allowed the renewable natural resources to deteriorate to the disadvantage of all land users in Botswana. The major threat to wildlife arises from the destruction of its habitats and suggestions are put forward to integrate wildlife as a form of land use in specific areas where it is more beneficial to the land on a long term basis.

CHILD, G. (1972). Wildlife and land use in Botswana. *Botswana Notes and Records, Special Edition No. 1*: 160-166.

A review of land use in Botswana, its effects on the environment and the role wildlife occupies as a major land user; the ecological limitations to certain forms of agricultural activities and the detrimental effects on the long term ecological stability.

CHILD, G. (1972). Development of the Wildlife Industry. Report to the Government of Botswana. FAO/TA 3083, 23 pp.

- A report on the development of the wildlife industry during the last 6 years and the future perspective of wildlife utilization as a form of land use in Botswana.
- CHILD, G. (1972). Tick infestations in hartebeest and wildebeest in poor physical conditions in Botswana. *Arnoldia* (Rhod) V (24): 2 pp.  
Very light tick infestation in spite of the generally debilitated state of the host animals at the beginning of the rains in the Kalahari.
- CHILD, G. (1972). Observations on the wildebeest die-off in Botswana. *Arnoldia* (Rhod) V 5 (31): 13 pp.  
The survey of mass wildebeest mortality in the Lake Xau area suggests differential mortality patterns that would have enhanced the population's rate of recovery once environmental conditions improved.
- CHILD, G. (1972). A survey of mixed heronries in the Okavango Delta, Botswana. *Ostrich* XXXIII: 60-62.  
Describes two significant breeding colonies of herons, wood-ibis and marabou storks in the Moremi.
- CHILD, G. (1972). Water in nature conservation and wildlife management in Botswana. *Botswana Notes and Records* IV: 253-256.  
A general discussion of the role of water in the requirement of wildlife species in Botswana and the problems associated with supply of artificial water for management purposes.
- CHILD, G. (in press). The Decline of a lechwe population. *Mammalia*. Considers the reasons for the decline of the lechwe population along the Chobe River.
- CHILD, G., R. PARRIS and E. le RICHE (1971). Use of mineralized water by Kalahari wildlife and its effects on habitats, *E.Afr.Wild.J.* IX: 125-144.  
Springbok, hartebeest, wildebeest and gemsbok made regular use of highly mineralised water from boreholes along the Nosob River. The species had little influence on the surrounding habitats in most areas, which is explained by the fact that these species are very much less dependant on water for their daily requirements and the increase in density is limited.
- CHILD, G., H. ROBBEL and C.P. HEPBURN (in press). Observations on the biology of tsessebe in North-Eastern Botswana. *Mammalia*.  
The study reports on habitat requirements, general biology and ecology, and ageing criteria of the species.
- CHILD, G. & H. ROBBEL (in press). Drowning of lechwe by spotted hyaena. *Mammalia*.
- CHILD, G. and H. ROBBEL (in press). The Possible significance of "grass homing" by male lechwe. *Mammalia*.
- CHILD, G. and H. ROBBEL (in press). An ecological survey and preliminary management and development plan for the Moremi Wildlife Reserve. FAO/TA report.  
The report outlines the main ecological aspects of the reserve, its heavy dependence on the seasonal flooding by the Okavango and the inter-relationship between large mammal distribution and the extent of flooding. The report includes proposals for management and development.
- ELDER, W.H. (1970). Morphometry of elephant tusks. *Zool. Afr.* V: 143-159.  
Tusks of elephant from Botswana are deeper rooted and larger in circumference than from other populations in Africa. This explains why weight estimates of tusk on the live animals in Botswana are usually under-estimated.
- ELDER, W.H. and N.L. ELDER (1970). Social groupings and primate associations of the bushbuck (*Tragelaphus scriptus*). *Mammalia* XXXIV: 356-362.  
The authors report on the social groupings and sex ratio of bushbuck along the Chobe River and discuss possible commensal or symbiotic relations between the antelope and baboon.

FALCONER, J. and G. CHILD (in press). A survey of foot and mouth disease in wildlife in Botswana. *Mammalia*.

Of a variety of wildlife species sampled in Botswana, only the buffalo is significant in harbouring foot and mouth disease virus. All other species, although susceptible to FMD, as reported from other African territories, did not harbour virus and had little or no immunity.

FRASER, W. (1971). Breeding herons and storks in Botswana. *Ostrich* XXXXII: 123-127. Observations in the Moremi Wildlife Reserve on breeding of purple heron, wood-stork and marabou, giving information on egg and clutch sizes, description of downy young and notes on nest predation.

FRASER, W. (1971). Birds at Lake Ngami, Botswana. *Ostrich* XXXXII: 128-130.

A list of birds recorded during five visits to Lake Ngami in 1969.

FRASER, W. (1971). Birds recorded in the Moremi Wildlife Reserve, Botswana. *S.A. Avifauna ser.* LXXV: 43 pp.

A list of birds recorded in the Moremi Wildlife Reserve.

GRAHAM, P. (1964). Destruction of birds and other wildlife by Dioldrex spraying against tsetse fly in Bechuanaland. *Arnoldia* (Rhod) I (10): 4 pp.

A total of 109 birds of 22 species, 12 mammals (4 species), 3 reptiles (2 species) and three barbels were killed after spraying with Dioldrex.

GRAHAM, P. (1967). An analysis of the numbers of game and other large mammals killed in tsetse fly control operations in Northern Bechuanaland, 1942-1963. *Mammalia* XXXI: 186-204.

The paper evaluates the annual kills of large mammals along the Maun front and the effects on the wild animal populations.

HAACKE, W.D. (1966). A new gekko (Sauria, Gekkonidae) from Bechuanaland. *Arnoldia* (Rhod) II (25): 7 pp.

Description of a new gekko species (*Pachadactylus tsodiloensis* sp. nov.) from Tsodilo Hills.

HARRISON, D.L. (1966). A note on the occurrence of Sundeval's free-tailed bat, *Tadarina (Mops) midas* Sundeval, 1843 (Chiroptera: Molossididae) in Bechuanaland. *Arnoldia* (Rhod) II (30): 2 pp.

Reporting a new species for the fauna and a considerable southward extension of the known range of the species.

HEDGER, R.S. (1972). Foot and mouth disease and the African buffalo (*Syncerus caffer*). *J.comp. Path.* LXXXII: 19-28.

62 buffalo were sampled in northern Botswana, of which 35 harboured FMD virus. Three strains of virus types were isolated. Impala, tsessebe and warthog were also sampled but none of same showed signs of past or present infection.

JACKA, R.D. (1972). Breeding white pelican of Lake Ngami. *Botswana Notes and Records* II: 281-282.

A short account of the breeding season in 1971.

JUBB, R.A. (1971). Check list of the fishes of Botswana. *Arnoldia* (Rhod) V (7): 22.

A list of fishes occurring in Botswana with a discussion on the origins of the fish fauna of the Okavango Delta.

PARRIS, R. (1972). The Ecology and behaviour of wildlife in the Kalahari. *Botswana Notes and Records, Special Edition No. 1*: 96-107.

A general account of the ecology and behaviour of the major mammal species in the Kalahari and their various means of adapting to the environment.

PARRIS, R. and G. CHILD (in press). The Importance of pans to wildlife in the Kalahari, and the effect of human settlement on these areas. *J. S. Afr. Wildl. Mgmt. Assoc.*

The study indicates that virtually all wildlife species in the Kalahari are more or less dependent on the pans or pan-like areas and that settlements of these areas severely influences the surrounding habitats and the distribution of the wildlife.

PINHEY, E. (1967). Odonata of Ngamiland (1967). *Arnoldia* (Rhod) III (15): 17 pp.

A report of dragonflies collected in Ngamiland, including the description of a new species.

PINHEY, E. (1968). Check list of the butterflies (Lepidoptera – Rhopalocera) of Botswana, part 1. *Botswana Notes and Records* I: 85-92

A preliminary list of butterflies recorded from Botswana.

PINHEY, E. (1971). Check list of the butterflies (Lepidoptera – Rhopalocera) of Botswana, part 2, *Botswana Notes and Records* III: 148-152.

A continuation of the above publication.

RETIEF, G.P. (1971). The Potential of game domestication in Africa, with special reference to Botswana. *Jl. S.Afr. Vet.Med.Ass.* XXXXII: 119-127.

The author discussed the question of domesticating wild animal species, especially eland, for a more intensive utilization of the wildlife resource.

RINEY, T. (1972). The International significance of the Botswana environment as a test case. *Botswana Notes and Records, Special Edition No. 1*: 248-261.

A review of marginal land use programmes in Africa with special reference to Botswana.

The main emphasis is put on finding alternative forms of land use which do not accelerate the degradation of marginal lands.

ROBBEL, H. and G. CHILD (in press). Notes on territorial behaviour in lechwe. *Mammalia*.

SMITHERS, R.H.N. (1971). The Mammals of Botswana. Museum Memoir 4, Trustees, Nat.Mus. Rhodesia, Salisbury. 344 pp.

An exhaustive account of distribution, taxonomic status, ecology and biology of the mammals of Botswana.

TREE, A.J. (1972). Mass wintering of palaeartic waders at Lake Ngami, Botswana, in 1970. *Ostrich* XXXXIII: 139.

Reports the mass influx of a number of migrating waders from Europe.

VON RICHTER, W. (1972). The Importance of wildlife statistics for the management of the wildlife industry. FO: AFC/WL: 72/19.

Working paper submitted to the 4th session of the FAO *ad hoc* working party on wildlife management. Discusses the importance of wildlife statistics for the proper management of the resource and methods employed in Botswana.

VON RICHTER, W. (in press). Black and square-lipped rhinoceros in Botswana. *Biol. Conser.*

Summarises the past and present distribution of both species in Botswana.

## **THE JOURNAL OF THE MEDICAL AND DENTAL ASSOCIATION OF BOTSWANA** (Gaborone)

After considerable discussion and with no little trepidation the members of the Medical and Dental Association of Botswana decided to launch out into the vast ocean of medical literature and publish their own journal. They further decided, with considerable courage considering their small numbers, that the journal should not start as a simple duplicated sheet to be passed round the members, but should be a well printed magazine which would not be out of place in the world's medical libraries.

The first number of the journal was published in January 1971 and it has appeared regularly since then at quarterly intervals. The editor, Mr R.H. Johnson MB, FRCS, assisted first by sub-editor Dr P.C. Buchan BSc, MB, DRCOG, and later by an Editorial Board consisting of Mr M.J. Condon BDS, and Dr R.T.A. Scott MB, ChB, MRCP (UK), is to be congratulated on the high standard of this little journal. It is attractively produced in the Botswana colours of light blue, white and black – the outer cover being pale blue with silver blocks in which the title of the journal is printed in black. In the first number of the journal the Right Hon. M.P.K. Nwako MP, Minister of Health, writes an encouraging 'Introduction' in which he points out the importance of the journal 'which gives Medical Officers an opportunity to discuss their problems, to present interesting cases and to read about those of others, and it gives them an opportunity to keep abreast with modern development and it stimulates lines of research that they may very well undertake in the clinical field.'

The journal is essentially practical in outlook and, of necessity, parochial to Botswana. Most of the articles are reports of papers read at the monthly meetings of the Association by visiting specialists from South Africa or Britain; or they are articles of particular interest to Botswana practitioners written by doctors practising in the country; or they are case reports. Missionary doctors seem to take a keen interest in writing articles and case reports for the journal. Several papers by visiting specialists are important and interesting, such as Dr Cecily Williams' article on 'The Wider shores of nutrition' (I,3) and Dr J.J. Brossys' practical article on 'The Use of antibiotics' (I,2). Although not a visiting specialist Dr D.B. Sebina (the present Director of Medical Services) writes an article of wide interest on 'Nutrition in pregnancy and lactation with special reference to the less developed countries' (I,3). This is, in fact, a reprint of a paper prepared by him during a WHO Fellowship at the School of Public Health, University of Michigan.

Articles written by doctors practising in Botswana primarily to help their colleagues are of considerable interest. Dr A.M. Merriweather in the first number writes on 'Modern medicine and traditional belief in Botswana', in which he gives the doctor practising in this country a clear idea of the way his patients think and believe. He also writes useful articles on 'Current practice in medicine', with particular reference to the type of disease found in Botswana (Hypertension II, 1) and Heart Disease (II, 2). Dr G. Teichler writes on 'Some eye problems in Botswana' (I, 1) and also has some interesting points in his articles on the use of local herbs (II, 3). On mental health, the government psychiatrist, Dr G. Sbrana writes two articles, one on 'Mental health topics' (II, 1), and one on 'Major mental disease in Botswana' (II, 3). Both these articles are helpful as mental disease is assuming more and more importance as the country develops. From the Public Health point of view Dr P.J. Linnett's paper on 'Trypanosomiasis in Ngamiland' is important (II, 2), whilst Dr E.U. Schmid writes a helpful paper on the 'Use of cytotoxic drugs in Botswana' (I, 3). This is a useful paper as radio-therapy for the treatment of cancer is not available in this country. Obstetrical problems have to be faced by all medical officers

working in Botswana and Dr J.F. Moore's very practical articles on 'An apparatus for autotransfusion' (I, 1), and 'Symphysiotomy in Botswana' (II, 3) are instructive. Barry Loughner, an American dentist, records a very thorough Dental Survey he conducted in some primary schools, proving that tooth decay is a very minor problem amongst baTswana children although periodontal disease is common (I, 3). Dr T.J. Paton describes his very original scheme for training medical auxiliaries, a scheme which, with some modification, the medical department seems to be adopting (I, 4). For the surgeons, Dr J. Marrow's paper on 'Osteomyelitis in Botswana', is stimulating and original (II, 3). Some interesting cases are reported such as 'Anthrax affecting a Botswana family' (I, 4), and 'Cases of Mogau poisoning' (I, 2) by Dr P.C. Buchan; 'Scoline apnoea' by Dr C.M. Lockwood (II, 1), and 'A Case of Banti's Syndrome' by Mr R.H. Johnson (II, 1).

It will be seen from the wide variety of papers and authors mentioned that this little journal has got off to a good start and there is no doubt that it is a help and of interest not only in Botswana but elsewhere, especially in other African countries. One point that irritates is the number of printing errors but no doubt these will become fewer with the passage of time. It might be interesting to ask the various hospitals in Botswana to give a few local news items and perhaps the Medical Missionary Association could give some news now and again.

All in all, considering the size of the Botswana Medical & Dental Association this is an excellent journal which, if the present standard can be maintained and improved, will be welcomed in medical libraries throughout the world.

by DR A.M. MERRIWEATHER CBE, MD, FRCP, DTM & H

**JOHN MACKENZIE OF BECHUANALAND** by A. Sillery  
(A.A. Balkema, Cape Town, 1970).

John Mackenzie is one of the distinguished names associated with the rise of modern Botswana. Another is that of his contemporary and friend, the great Khama. Yet it is remarkable how little has been written, not so much about the public life of these men but about their personal lives, their thoughts and the motives that drove them on to act as they did on the stage of history.

Neil Parsons who is a contributor to this journal is working on what we hope will be a more definitive biography of Khama. This will probably be the first attempt at assessing the life of Khama since the delightful but historically very limited biography by J. Mockford (*Khama, King of the Bamangwato* 1931) first published over forty years ago.

The short biography of John Mackenzie by that indefatigable writer on Botswana, A. Sillery, makes very interesting reading indeed. Though fairly brief and readable this book will go far toward making up for the lack of material about the lives of some of those whose activities for good or ill were centred on the making of modern Botswana.

The life of Mackenzie is traced from its very humble beginnings in the parish of Knockando in Morayshire, Scotland. There is nothing in the early life of Mackenzie that explains why he decided to become a missionary. The biographer can only reveal that at the early age of eighteen Mackenzie underwent an intense religious experience.

Following a period of education at various institutions including Edinburgh University Mackenzie, after some initial reluctance arising from his youth, was allowed by the Directors of