Content

The Bannerman's Weaver is an attractive bird endemic to the Cameroon-Nigeria chain of mountains (Nik Borrow)

Cameroon has always rightly been considered a particularly rich and interesting country in terms of biodiversity. Its position between West and Central Africa, between the coast (at the Gulf of Guinea) and Lake Chad (at the edge of the Sahel), coupled with the presence of a chain of mountains, explains the large variety of biogeographical units and habitats, hence its richness in species diversity.

The avifauna is no exception to this situation and this work lists the 954 species of birds so far recorded in Cameroon and documents records for additional species/taxa that are still in need of confirmation. A total of 24 species endemic to the Bioko-Cameroon-Nigeria chain of mountains are found in Cameroon and six more are endemic to the Gabon-Cameroon lowlands. Of these species, five are strictly endemic to Cameroon as a country.

It is therefore not surprising that this richness and uniqueness have driven the interest of the government of Cameroon and different national and international non-governmental organisations to protect key areas across the country. It is not within the scope of this document to discuss the numerous conservation initiatives in Cameroon. It is however important to mention the recent work of BirdLife International and its national partner, the Cameroon Biodiversity Conservation Society (CBCS), who have been responsible for documenting the Important Bird Areas (IBAs) and promoting their conservation.

The first step of this initiative in which I took part, was to identify such IBAs based on objective criteria (Fishpool & Evans 2001). At this stage, it became very clear that the distribution of birds of Cameroon was still poorly known. No field guide was then available and vast areas had never been surveyed. The lack of any book properly documenting the distribution of bird species was a major obstacle to fieldwork and to the training of nationals, which was one of the key objectives of the IBA programme. *The Birds of Cameroon,* an annotated checklist produced by Louette (1981a), proved extremely useful, but with the most recent records in that publication dating no later than 1978, it was obvious that the need for an updated work was timely and very necessary, hence the aim of this present work is to provide such a review.

A brief written account is given for each species largely based on the following resources: available literature that has been produced during the past 110 years; the recent fieldwork undertaken by CBCS and BirdLife International; surveys undertaken by the World Wide Fund for Nature (WWF); field trips made by various private individuals, as well as personal observations made by myself during the 10 years that I spent in Cameroon from 1998 to 2001 and 2012 to 2018. The compilation of this wealth of information has resulted in an Access Database of 67,010 records that I have compiled and analysed during my stay in Cameroon.

The key feature of this present work is the distribution map given for each and every species. Along with a short written summary for each map, an attempt is made to identify gaps in knowledge with the hope of promoting further fieldwork in this friendly and wonderful country. Indeed, although the ornithological knowledge of Cameroon has greatly improved during the past two decades, many areas (some of them over 800,000 hectares in size) have never been surveyed.

It is my hope that this work, along with the recent field guide, *Birds of Western Africa Second Edition,* produced by Borrow & Demey (2014), and the training programme promoted by BirdLife International and CBCS will help improve the general and specific knowledge of the fascinating avifauna of Cameroon.

The African Swallow-tailed Kite is an Afrotropical migrant visiting northern Cameroon during the dry season (Nik Borrow)

Klaas's Cuckoo is a common bird of Cameroon (M. Languy)

Michel Louette (1981a) gave a very detailed and informative account of the ornithological history in Cameroon and there is no need to repeat here *in extenso* what has been already described.

The first ornithological field expedition to Cameroon dates back from 1822, when Lieutenant-Colonel Dixon Denham, Hugh Clapperton and Walter Oudney visited the southern shore of Lake Chad and the region near Kousseri. These pioneers of tropical African ornithology, who gave their name to several species, produced the first list of birds for Cameroon (Denham & Clapperton 1826).

After a gap of 40 years, several collectors visited Cameroon during the second half of the 19th century and in particular the montane region on and around Mount Cameroon. Many species new to science were discovered by these ornithologists, who included Sir Richard Francis Burton, Alfred Crossley, Professor Paul Preuss and Bror Yngve Sjöstedt (Sharpe 1871, Reichenow 1874–1875, Sjöstedt 1895, 1895a).

One of the first landmarks in the ornithological history of Cameroon is the work by Doctor Anton Reichenow, who published many papers and discovered several new species. His famous publication *Die Vögel Afrikas* appeared in three volumes from 1900 to 1905 along with several papers describing the species new to science.

The first part of the 20th century was also marked by the work of another important contributor to the knowledge of birds of Cameroon: George Latimer Bates, who made extensive collections in lowland forest around Bitye, near to what is now the Dja Faunal Reserve. Bates's contribution is important, as the main geographical areas covered by his studies were the southern-central regions of the country whereas earlier work mostly focused on west Cameroon. Bates also published important papers on the birds of the Adamawa Plateau and northern Cameroon with David Armitage Bannerman (Bannerman & Bates 1924, 1926), while Bannerman himself published on the birds collected by Bates.

The middle of the 20th century sees the publication of the impressive work by Albert Irwin Good (1952–1953) entitled *The Birds of French Cameroon:* comprised of two volumes of nearly 500 pages containing much information on the avifauna of central and east Cameroon including local names of birds, measurements and also some basic information on the status of the birds and their ecology.

The Belgian expeditions of Louette from 1970 to 1977 marked the end of an era in ornithology of Cameroon whereby most records were obtained through the collection of bird specimens. Now that many taxonomic issues in ornithology have been resolved and good field guides are available, most recent records are the result of field surveys using observatory methods by visual and/or audial means as well as temporary capture of specimens with the use of mist-nets. Certainly this has greatly contributed to the sharp increase of data production, even though it does bring some limitations in the sense that not all records can be immediately considered as 'correct' and there is a need to 'screen' reports and checklists for errors (see section 5). With the phasing out of specimen collection in favour of field sightings, information on subspecies is also often more limited than when actual specimens are collected.

Towards the end of the past century, and in particular during the late 1990s, much fieldwork has been done across Cameroon. While no species new to science have been discovered, these surveys have produced much information on the distribution of birds and document the discovery of species new to Cameroon. The number of species known from publications has indeed increased from 855 in 1981 to 928 in 2005 and 954 in 2018 (Louette 1981a; Languy *et al.* 2005; this work) (**Fig. 1**).

A significant share of the recently produced information comes from individuals or groups of visitors (including organised birdwatching tours) and residents. The results of such field trips are sometimes published (most of them in journals

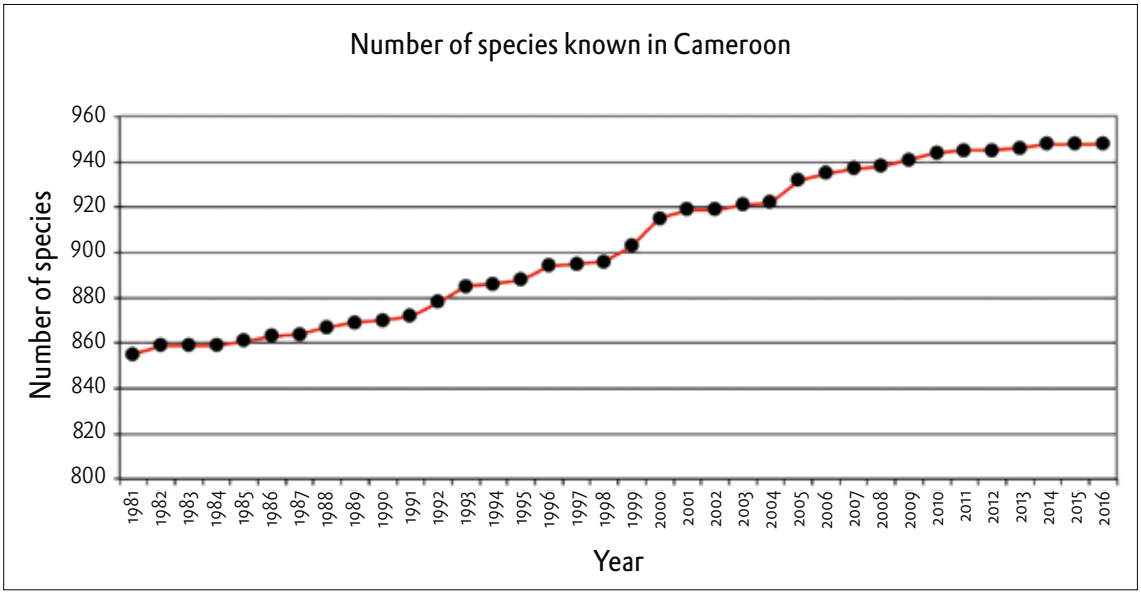


Fig. 1 Evolution of the number of species known to occur in Cameroon. *NB Ten additions, due to taxonomic splitting, are not included here.*

such as *Malimbus* and *Bulletin of British Ornithological Club*), or alternatively a private unpublished report is produced. However, much too often data are not recorded and therefore lost. Such unpublished reports usually cover well-known areas and have built up a lot of information on some sites (such as Ngaoundaba Ranch) that were unavailable before. Amongst the recent published reports, many are based on single localities (e.g. Korup National Park, Rio del Rey, Mt Kupe, Oku, Lobéké National Park) or are the result of field trips (too many to be listed here). A small number are based on surveys targeting not sites but species, such as the recent work on the Bamenda Apalis *Apalis bamendae* (Bobo *et al.* 2001).

The most important publications from the end of the last century worth mentioning are reports on the surveys by BirdLife International, then known as International Council for Bird Preservation (ICBP), on the Cameroon Mountains (Stuart 1986); surveys of selected mountain sites by Larison *et al.* (2000); and the compilation of ornithological knowledge on the Waza-Logone area (Scholte *et al.* 1999). Also worth mentioning are the surveys undertaken in the framework of the Environmental Impact Assessment of the Chad Export Project (oil exportation through a pipeline from Chad to Kribi) although most of the published information is not detailed enough for further use (Dames & Moore 1999).

The surveys undertaken by WWF and CBCS/BirdLife International in 1998–2002 certainly represent the most important ornithological work in the past twenty years. WWF surveys have targeted most of the sites where WWF had projects: Boumba-Bek, Nki and Lobéké national parks, Dja Forest area, Bénoué, Faro and Bouba Njidah National Parks, Mt Kupe, Mt Manenguba, Mt Nlonako, Bakossi area and Yabassi area. CBCS/BirdLife International surveys undertaken under the umbrella of the Important Bird Areas (IBA) programme have covered over 30 sites and although key results are incorporated in a book on IBA of Africa (Fishpool & Evans 2001), the bulk of the information is contained in unpublished reports and checklists (as is the case for WWF reports). Among the main sites surveyed by the IBA programme are Rio del Rey, Campo Ma'an NP, Mengame Sanctuary, Bamenda Highlands (including Mt Mbam), several sites around Yaoundé and Ngovayang, Mapé Reservoir, Plaine Tikar, Mbam and Djerem NP, Tchabal Ngandaba, Mt Alantika, the Adamawa Plateau, Gashiga Demsa, Mayo Louti FR, Mozogo Gokoro FR and Kalfou FR. Another important addition is the fieldwork supported by German Technical Cooperation Agency (GTZ, now GIZ) in Takamanda, Mone and Nta Ali FRs. Finally, it is worth mentioning the excellent work that summarises the results of five years of field study by Ralph Buij on raptors in northern Cameroon, which has led to a significant improvement of our knowledge of the status of birds of prey (Buij & Croes 2014).

One important element of these field studies is that they not only give information on distribution and status of species in Cameroon but also recommendations for the conservation of birds in Cameroon, an aspect that was not covered in previous works.

The Bateleur is a bird of prey of northern Cameroon, now largely confined to protected areas (Nik Borrow)

3 Cameroon: geography, climate and vegetation belts

A description of Cameroon and its geography and climate in relation to its avifauna are given in details in two works (Louette 1981a, Fishpool & Evans 2001) and I invite the reader to consult those detailed accounts, as it is unnecessary to repeat the same here.

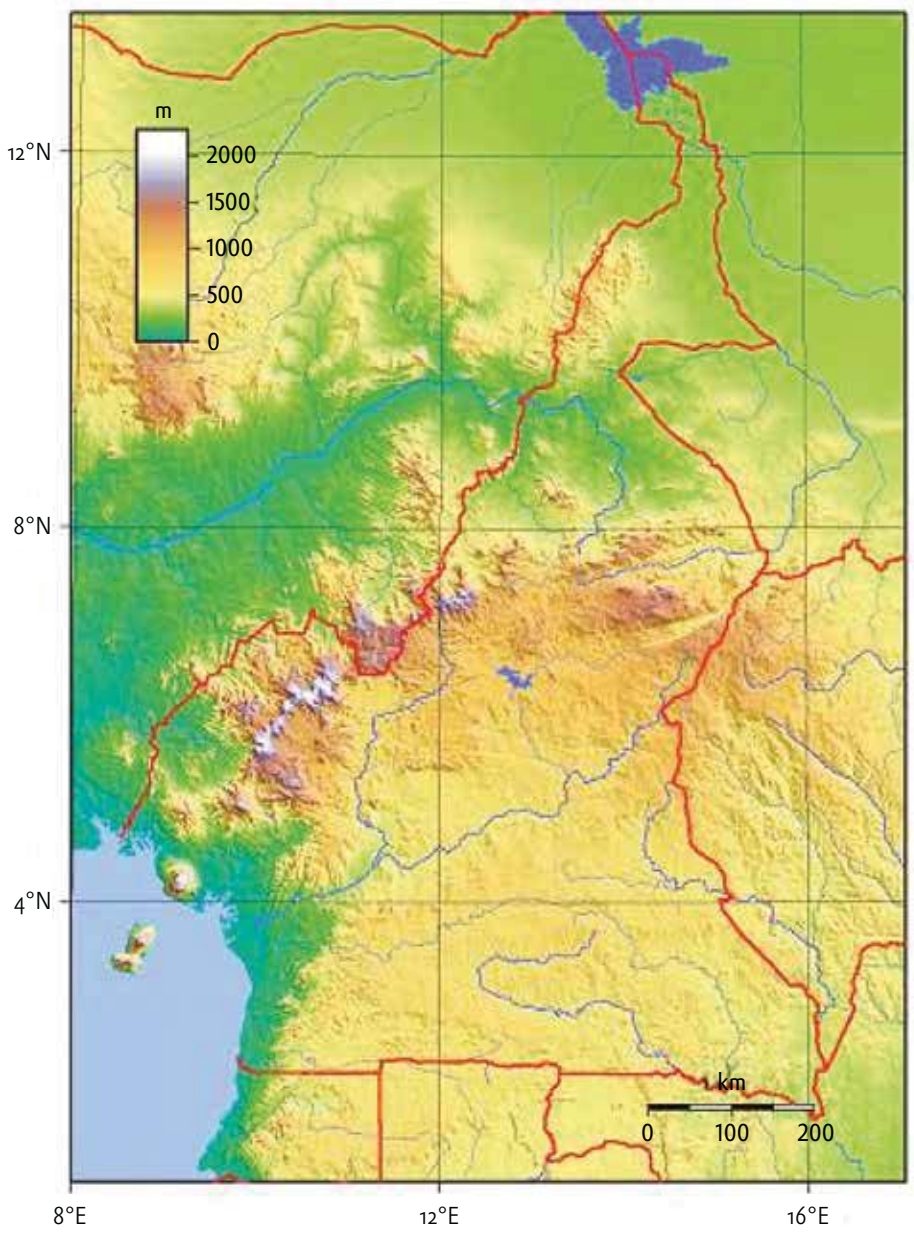
3.1 Key geographical features

Topography

One of the key geographical features of Cameroon is the range of mountains running south to north in the southwestern part of the country (**Fig. 2**). This chain is volcanic and part of a larger system that extends from Annobon in the Gulf of Guinea (through the islands of São Tomé and Príncipe and Bioko) to the Mandara Mountains along the Cameroon-Nigeria border. The summit of Mt Cameroon, at 4040m, is not only the highest point of the chain but also of Cameroon and indeed the whole of sub-Saharan western and central Africa.

This chain is an important element of the ornithological landscape of Cameroon, as it constitutes an Endemic Bird Area, with endemic species largely confined to Afromontane forest,

Fig. 2 Cameroon: topography



as well as many species shared with the mountains of East Africa, and the Albertine Rift in particular.

The southern half of the country is mostly low lying, from sea level in the west (covered by the Atlantic Forest) rising to a plateau in the east that averages 500–600m in altitude (covered by the Congolian Forest).

Further north, the Adamawa Plateau divides the country into two parts with its undulating terrain at 900–1100m, with some higher peaks at 2000–2300m. North of the Adamawa Plateau, the terrain is again low lying from the Bénoué Plain at 200–300m northwards through the Logone River floodplain at about 300m, ultimately dropping to Lake Chad at 280m in the far north.

3.2 Hydrography and climate

Hydrography

Cameroon has eight major river basins, the main ones being the Congo River (southeast), the Sanaga River (south and centre), the Bénoué River (north) and the Lake Chad (extreme north). The Sanaga River is a key feature as it constitutes an important bio-geographical limit for several taxa, including primates, and to a lesser extent, birds. Fig. 3 shows the main rivers of Cameroon that are mentioned in the text.

Fig. 3 The main rivers of Cameroon.

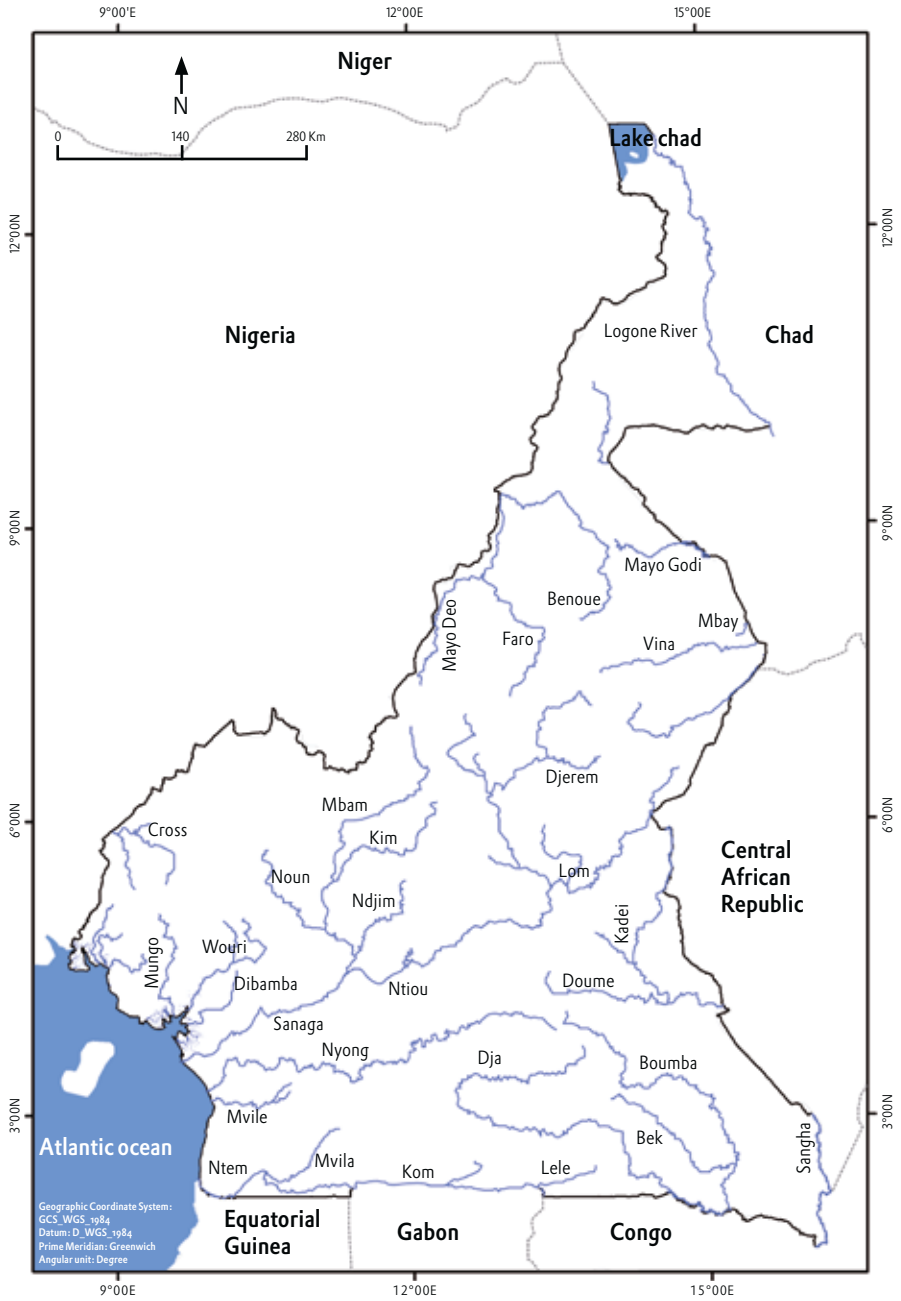
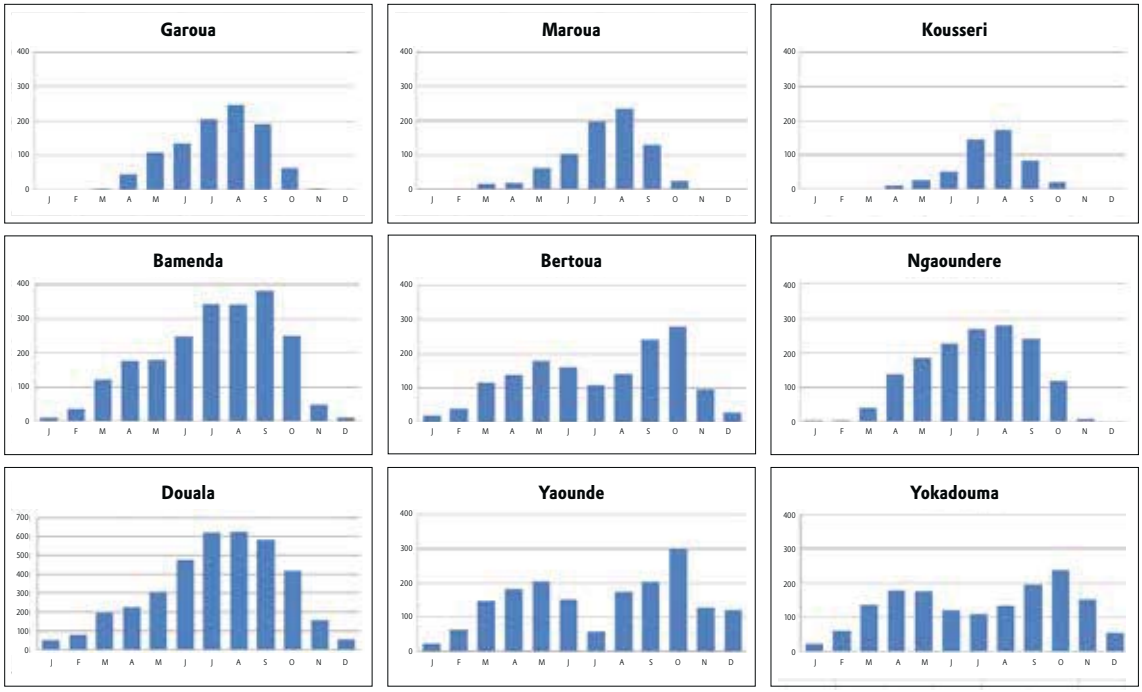


Fig. 4 Average monthly rainfall (mm) for nine cities in Cameroon, arranged north to south.

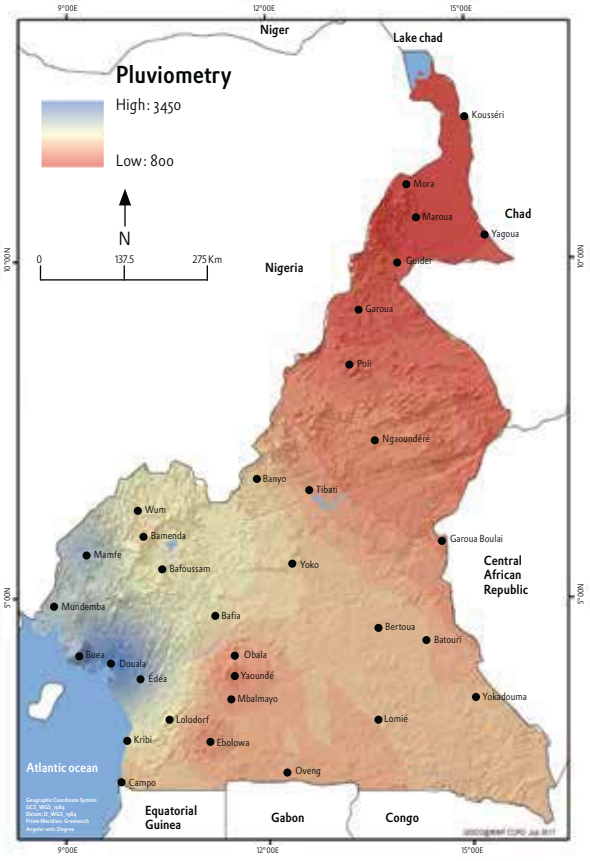


Cameroon is situated just north of the equator and is generally hot and humid in the south and hot and dry in the north. Average daytime temperatures vary between 20 and 28 degrees Centigrade, with an increase as one moves north (with the local exception of the Adamawa Plateau, being generally cooler due to its relatively high elevation).

The rainfall and alternation of wet and dry seasons are crucial elements to understanding the breeding seasons of birds in Cameroon, as well as the movements of intra-African migrants (**Figs 4** and **5**).

The pattern of rainfall in Cameroon is largely dictated by the passage of the Intertropical Convergence Zone (ITCZ) that brings moisture and rain. The ITCZ crosses the equator twice a year (March and September), reaching the tropic of Capricorn (in southern Africa) in December-January and the Tropic of Cancer (in northern Niger-Chad) in July-August. As a result, areas close to the equator (i.e. southern Cameroon) experience two ITZC passages, hence two rainy seasons peaking in April-May and again in September-October, and consequently two dry seasons firstly in December-February and secondly around July. Areas further north are only affected by the ITZC once, in June-August, which corresponds to the peak of their rainy season. The topographical relief and the Atlantic Ocean heavily influence the southwest part of the country, giving it a rainfall pattern somewhat similar to northern Cameroon, but with a longer rainy season, which brings much heavier rains that normally runs from April to October broken by a shorter dry season from November to February.

Fig. 5 Average annual rainfall (mm)



3.3 Landcover and main vegetation 'districts'

Fig. 6 The main landcover classes of Cameroon.

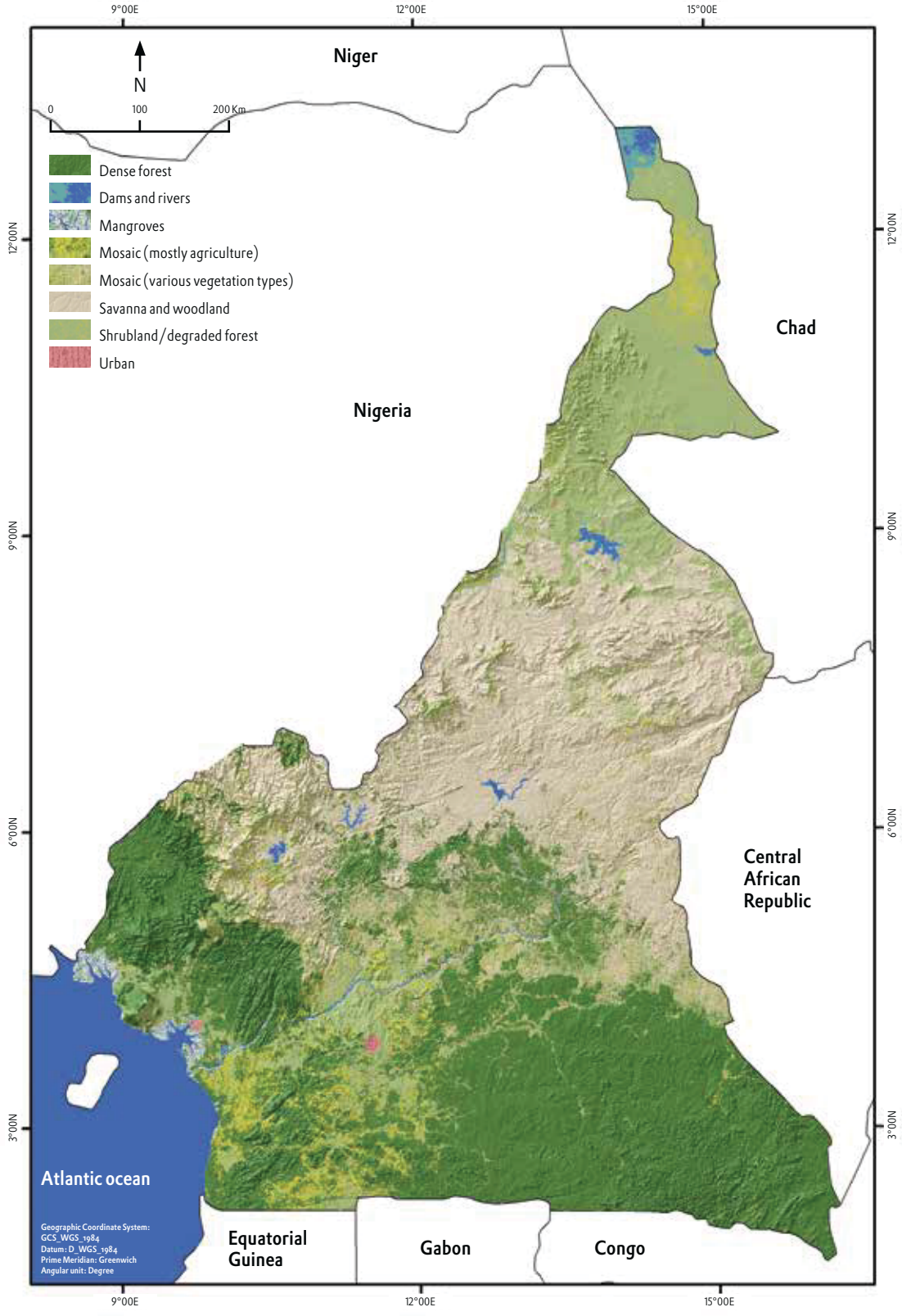


Fig. 6 shows in broad terms the landcover in Cameroon. Only the Congolian Forest, in the south-eastern area of the country, remains relatively intact, while the forest more to the west has suffered a relatively high degree of fragmentation. As one moves north, the forest is replaced by a mosaic of forest and humid savanna and further north by dry savanna and scrubland.

I have largely followed Louette (1981a) in organising the country into vegetation 'districts' or vegetation 'belts'. These zones represent in fact a mix of broad vegetation units and geographical features; they are selected because many species of birds have ranges, which correspond to the limits of these districts (**Fig. 7**).

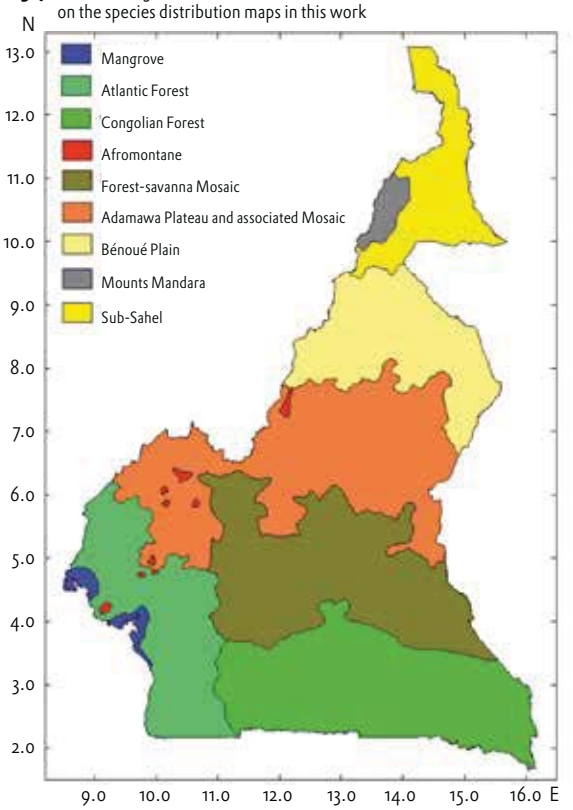
They comprise of:
Mangrove
Lowland Forest, which I have further divided into the Atlantic Forest and the Congolian Forest
Forest-savanna Mosaic
Afromontane District (from Mt Cameroon to Tchabal Ngandaba)
Adamawa Plateau and associated Mosaic
Bénoué Plain
Mandara Mountains
Sub-Sahel Zone (including the Inundation Zone of the Logone River).

While it is not my intention to further discuss the exact limits of these units, the following comments are relevant to understanding the distribution of birds.

The Montane District is difficult to map, since it depends on where one decides to put the lower altitudinal limit of the Afromontane forest; an added difficulty, especially in the Bamenda Highlands, is that different biomes intergrade (lowland forest into submontane and then montane forest, montane grassland and savannas etc.). On the maps, only the highest peaks are shown but the Afromontane District is actually larger than depicted. Tchabal Mbabo is certainly considered part of the Afromontane biome of Cameroon and is mapped so. Tchabal Ngandaba (further north, lower in altitude and in a drier climate), Ngang Ha and Hosséré Vokré are not shown as part of the Montane District, although it is acknowledged that they share similarities with it.

The Forest-savanna Mosaic is, by definition, a mixture of forest and savannas. However, one can clearly recognise three major 'digitations' of the lowland forest block extending to the north: one is the forest on Plaine Tikar, another one is the extension in Mbam and Djerem NP (where true lowland primary forest is found) and the last one is the Pangar and Djerem Forest. As will appear on the maps, the cores of these three 'digitations' deserve to be included into the lowland forest, but here again the delimitation between a forest block that is an outlier, and a very large gallery forest is not clear-cut.

Fig. 7 The main vegetation 'districts' of Cameroon whose limits are shown on the species distribution maps in this work



The savanna areas around Bamenda Highlands, in particular those to the east, might actually deserve a special status. Because of its complex composition (some very dry areas in the rain shadow of the Bamenda Highlands, some moister savannas, some large gallery forests intergrading into the forest of Plaine Tikar), it is difficult to decide whether this area should be part of the Forest-savanna Mosaic, be seen as an extension of the Adamawa Plateau or be treated yet differently again. It is worth pointing out that several species that are more typical of the Adamawa Plateau actually tend to 'spill over' into the area east of the Bamenda Highlands.

Regarding the Adamawa Plateau, it is important to stress the particular case of Hosséré Vokré, that has a climate and vegetation shared with the plateau but is actually an 'island' within the Bénoué Plain. Here again I have not tried to map Hosséré Vokré as part of the Adamawa Plateau although it must be considered so.

The area north of 09°30'N is considered as the 'Sub-Sahel' Zone and (besides the Mandara Mountains, which I maintain as distinct) it includes the inundation zone of the Logone River (simply referred to in this work as 'the Inundation Zone').

Seashore near Seme New Beach (J. van der Waarde)

Coastline in Bakassi, with mangrove forest (J. van der Waarde)