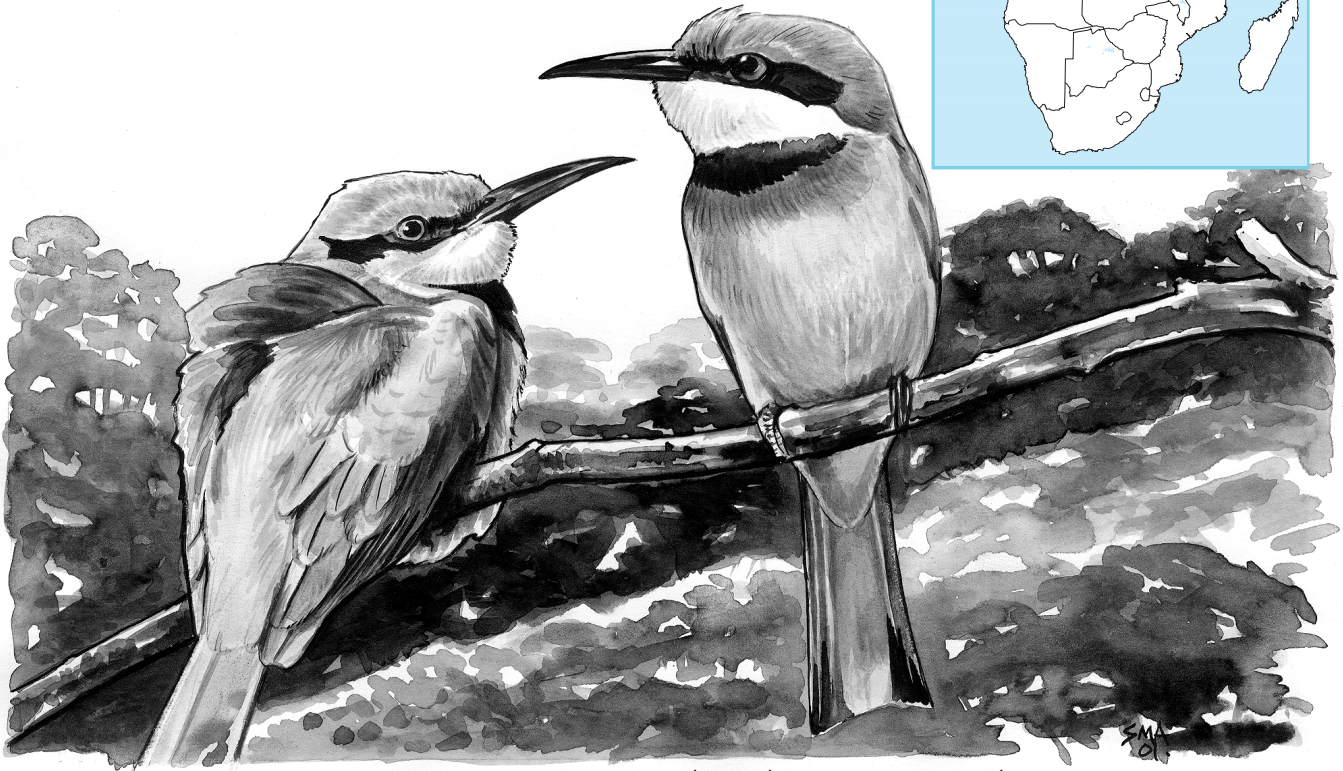


RWANDA

SAMUEL KANYAMIBWA



Cinnamon-breasted Bee-eater *Merops oreobates*. (ILLUSTRATION: MARK ANDREWS)

GENERAL INTRODUCTION

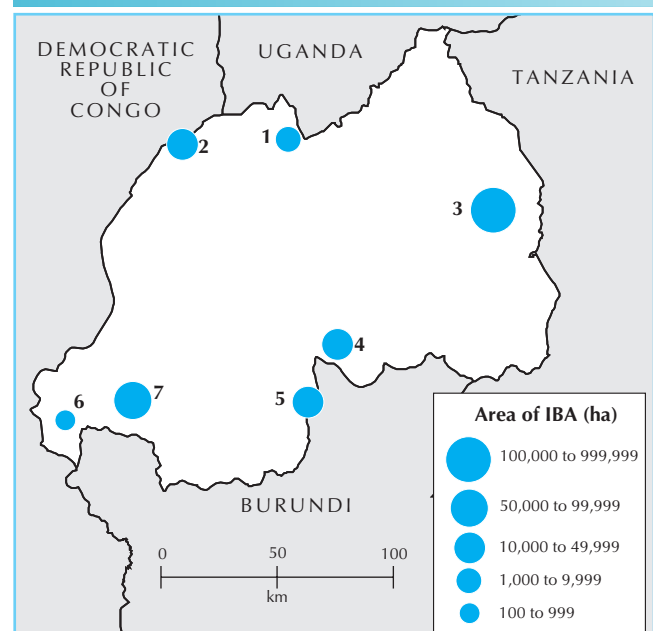
The Republic of Rwanda is a small, mountainous, landlocked country of 26,328 km² located in the equatorial highlands of the Western or Albertine Rift Valley. It is bordered by the Democratic Republic of Congo (DR Congo) to the west, Burundi to the south, Uganda to the north and Tanzania to the east. With an average of 300 inhabitants/km² the country has one of the highest human population densities in Africa. The total population was estimated to be 7.5 million in 1993. During the civil war in 1994, more than 500,000 people were killed and many thousands of refugees left the country. However, around this time there was also a large influx of people returning from a diaspora that occurred in the 1960s and there has since been a mass repatriation of refugees from Tanzania (early 1996) and, following the civil war there, from DR Congo (early 1997).

In general, the topography of the country is rugged with an exceptional degree of relief. The west is mountainous, the east is mainly rolling terrain. The lowest-lying part of the country (800 m) is in the south-west, in the area around Bugarama, and is an extension of the Imbo region of Burundi. The western half of the country is dominated by the Congo–Nile watershed or divide, a chain of highlands running north–south at between 2,000–3,000 m, on which the remaining montane forests occur. The northernmost part of this highland is of volcanic origin and includes Karisimbi, one of Africa's highest mountains (summit 4,507 m). To the west of these mountains, the land falls steeply to Lake Kivu on the floor of the rift valley. The centre of the country, east of the mountains, is dominated by a plateau at 1,500–2,000 m, dissected by many rivers. Finally, in the eastern and south-central parts are the savanna regions of the Akagera basin and Bugesera, lying between 1,300–1,600 m, which merge into the extensive wetlands and papyrus swamps that lie along the international border with Tanzania.

As a result of the varied topography, Rwanda contains a remarkable diversity of habitat-types. Two major phytochoria occur (White 1983); the Afromontane region between 1,800 m and 4,500 m

and the Lake Victoria regional mosaic below 1,800 m, which, in Rwanda, includes elements of Guineo–Congolian and Sudanian vegetation. Most of Rwanda's forests lie in the Afromontane region where they form part of the forests of the Albertine Rift, the flora and fauna of which show a high degree of endemism. Until recently, there were four main montane forests in Rwanda, Nyungwe, Gishwati, Mukura and Volcans, located in the west of the country, where they effectively form the boundary between the Guinea–Congo lowland rainforests of the DR Congo and the Lake Victoria

Map 1. Location and size of Important Bird Areas in Rwanda.



IBA code	Site name	Administrative region	Criteria (see p. 11; for A2/3 codes, see Tables 2/3)					
			A1	A2 106	s057	A05	A3 A06	A07
RW001	Rugezi marsh	Ruhengeri	✓	✓			✓	
RW002	Volcans National Park	Gisenyi, Ruhengeri	✓	✓				✓
RW003	Akagera National Park	Umutara, Kibungo	✓		✓		✓	
RW004	Nyabarongo wetlands	Gitarama, Kigali	✓				✓	
RW005	Akanyaru wetlands	Butare, Gitarama	✓				✓	
RW006	Cyamudongo forest	Cyangugu	✓	✓				✓
RW007	Nyungwe forest	Cyangugu, Gikongoro	✓	✓		✓		✓
Total number of IBAs qualifying:			7	4	1	1	4	3

Basin to the east. They are characterized by their high altitudes (2,000 m on average, varying from 1,600 to 4,500 m) and the clearings and dense understorey typical of montane forests. Human disturbance, largely in the form of agriculture and grazing, may have contributed to explain this structure. Indeed, in the submontane zone below 2,000 m, natural vegetation has generally been replaced by secondary forest mosaics. According to FAO (1995), natural forest in Rwanda in 1990 covered 164,000 ha, while total forest and other wooded land occupied an area of 946,000 ha. However, these figures are probably overestimates.

The savannas of the Lake Victoria regional mosaic occur mainly in the eastern part of Rwanda and comprise five distinct natural zones, known as Mutara, Buganza, Mubari-Migogo, Gisaka and Bugesera. Levels of endemism are low, reflecting the transitional composition of the vegetation.

Akagera National Park lies largely in the Mubari–Migongo subregion, where a long dry season has resulted in a xerophilous vegetation in which *Acacia senegal*, *Albizia petersiana*, *Lansea humilis*, together with other species typical of more humid savannas, are major elements. The topography of the area includes abrupt hills in central and southern parts with woodland and short grasslands on hilltops. In the flood-plain to the east, woodland and shrubby vegetation are more common. To the north of Akagera is the Mutara subregion where the vegetation is dominated by open grasslands in which *Themeda*, *Hyparrhenia* and *Cymbopogon* spp. predominate, grasses characteristic of traditional pastoralism and repeated bush fires. The western part of Akagera lies within the Buganza subregion, an undulating plateau covered by *Combretum* woodland, with *Acacia sieberana vermoeseni* at lower altitudes. To the south of the Buganza, the Gisaka subregion is wetter. The vegetation is here composed of a mosaic of mesophilous woodland and wooded grassland with *Combretum*, *Parinari curatellifolia* and *Dalbergia nitidula*, together with species of more humid conditions in valleys. The Bugesera subregion occurs in the far south-east where the vegetation is *Acacia*- and *Combretum*-dominated woodland.

Wetlands occupy almost 10% of the country. It is said that Rwanda is made up of a thousand hills, and between each of these there are small rivers and wetlands. There are three extensive areas of swamp; Akanyaru on the border with Burundi, Mugesera–Rugwero in the south-east, and the Kagera swamps along the Tanzanian border in the east. Smaller swampy areas occur in the high valleys and in the form of many extensive bogs in the mountains and on the central plateau. Some 90% of the water of the country drains into the Nile Basin with only a small proportion flowing into the Congo river system. Many wetlands in Rwanda are under considerable pressure from agricultural expansion.

Rwanda has an equatorial climate moderated by altitude. Average annual rainfall varies from 600 mm in the east to 1,200 mm in the central plateau and 2,400 mm on the Congo–Nile divide. Much of the country experiences four seasons; a major dry season from June to September, a short rainy season from October to December, a shorter dry season from January to February and a long wet season from March to June. However, the rainy season extends for nine months in the western montane forests. Temperatures are generally mild and stable, with annual means ranging from 14°C to 21°C. However, climate depends locally on various factors such as altitude, exposure, latitude, etc. In the east

for example, the short dry season often extends for longer than the long dry season. Frosts may occur in the mountains along the Congo–Nile divide and snow falls periodically on the highest peaks of the Volcans mountains.

The Rwandan economy is based on agriculture; 95% of the population is rural. There are about 1.2 million ha of arable land, of which 1 million ha is cultivated. Some 87% of cultivated land is devoted to subsistence crops, of which a wide variety is grown. Indeed, apart from the National Parks and other reserves, Rwanda resembles a large garden dominated by bananas and other crops. Principal cash-crops are coffee, tea and, to a lesser extent, pyrethrum, cotton and quinine. These are produced for export and,

Table 2. The occurrence of restricted-range species at Important Bird Areas in Rwanda. Sites that meet the A2 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**.

106 – Albertine Rift mountains Endemic Bird Area (25 species in Rwanda; four sites meet the A2 criterion)				
IBA code:	001	002	006	007
<i>Francolinus nobilis</i>		✓		✓
<i>Musophaga johnstoni</i>		✓	✓	✓
<i>Phodilus prigoginei</i>				?
<i>Glaucidium albertinum</i>				✓
<i>Caprimulgus ruwenzorii</i>		✓	✓	✓
<i>Indicator pumilio</i>				✓
<i>Zoothera tanganjicae</i>		✓		✓
<i>Alethe poliophrys</i>		✓		✓
<i>Cossypha archeri</i>		✓		✓
<i>Kupeornis rufocinctus</i>				✓
<i>Apalis ruwenzorii</i>		✓	✓	✓
<i>Apalis personata</i>		✓	✓	✓
<i>Apalis argentea</i>			✓	✓
<i>Bradypterus graueri</i>	✓	✓		✓
<i>Graueria vittata</i>				✓
<i>Hemitesia neumanni</i>				✓
<i>Phylloscopus laetus</i>		✓	✓	✓
<i>Melaenornis ardesiacus</i>				✓
<i>Muscicapa lendu</i>				?
<i>Batis diops</i>		✓	✓	✓
<i>Parus fasciiventer</i>		✓		✓
<i>Nectarinia alinae</i>		✓		✓
<i>Nectarinia regia</i>		✓		✓
<i>Nectarinia rockefelleri</i>				?
<i>Nectarinia purpureiventris</i>				✓
<i>Cryptospiza jacksoni</i>		✓		✓
<i>Cryptospiza shelleyi</i>		✓		✓
<i>Ploceus alienus</i>		✓	✓	✓
Number of species recorded	1	17	8	25
?	Needs confirmation			
s057 – Dry woodlands west of Lake Victoria Secondary Area (one site meets the A2 criterion)				
IBA code:				003
<i>Lybius rubrifacies</i>				✓

Table 3. The occurrence of biome-restricted species at Important Bird Areas in Rwanda. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**. Any other species with a restricted range are highlighted in blue.

A05 – Guinea–Congo Forests biome (23 species in Rwanda; one site meets the A3 criterion)					A07 – Afrotropical Highlands biome ... continued (74 species in Rwanda; three sites meet the A3 criterion)							
IBA code:	003	005	006	007	IBA code:	001	002	003	004	005	006	007
<i>Accipiter erythropus</i>			✓		<i>Andropadus nigriceps</i>		✓					✓
<i>Spizaetus africanus</i>				✓	<i>Laniarius poensis</i>		✓				✓	✓
<i>Sarothrura pulchra</i>	✓			V	<i>Telophorus dohertyi</i>		✓					✓
<i>Columba unicincta</i>				V	<i>Zoothera tanganjicae</i>		✓					✓
<i>Psittacus erithacus</i>				✓	<i>Alethe poliophrys</i>		✓					✓
<i>Bubo poensis</i>				✓	<i>Pogonocichla stellata</i>		✓					✓
<i>Glaucidium tephronotum</i>				✓	<i>Sheppardia aequatorialis</i>		✓				✓	✓
<i>Caprimulgus nigriscapularis</i>	??				<i>Cossypha roberti</i>							✓
<i>Phoeniculus castaneiceps</i>				✓	<i>Cossypha archeri</i>		✓					✓
<i>Ceratogymna subcylindricus</i>			✓	✓	<i>Illadopsis pyrrhoptera</i>		✓	✓				✓
<i>Trachyphonus purpuratus</i>				V	<i>Pseudoalcippe abyssinica</i>						✓	✓
<i>Indicator willcocksi</i>				V	<i>Kakamega poliothorax</i>							✓
<i>Campethera nivosus</i>	?			V	<i>Kupeornis rufocinctus</i>							✓
<i>Phyllastrephus scandens</i>	?				<i>Cisticola chubbi</i>		✓				✓	✓
<i>Stiphornis erythrothorax</i>				V	<i>Apalis ruwenzorii</i>		✓				✓	✓
<i>Camaroptera chloronota</i>	?				<i>Apalis personata</i>		✓				✓	✓
<i>Hylia violacea</i>				✓	<i>Apalis argentea</i>						✓	✓
<i>Parus funereus</i>			✓	✓	<i>Apalis porphyrolaema</i>		✓				✓	✓
<i>Nectarinia seimundi</i>			✓	✓	<i>Bradypterus graueri</i>	✓	✓					✓
<i>Nectarinia cyanolaema</i>				✓	<i>Bradypterus cinnamomeus</i>		✓					✓
<i>Nectarinia rubescens</i>	?				<i>Chloropeta similis</i>		✓				✓	✓
<i>Nigrita fusconota</i>				✓	<i>Graueria vittata</i>							✓
<i>Ploceus nigerrimus</i>		✓			<i>Sylvietta leucophrys</i>		✓					✓
Number of species recorded	1	1	4	11	<i>Hemitesia neumanni</i>							✓
? Presence now uncertain following recent habitat fragmentation					<i>Phylloscopus laetus</i>		✓				✓	✓
?? Identification unconfirmed					<i>Phylloscopus umbrovirens</i>		✓					✓
V Only known from 1 or 2 records; possibly now locally extinct					<i>Dioptornis fischeri</i>		✓				✓	✓
					<i>Melaenornis ardesiacus</i>							✓
					<i>Muscicapa lendu</i>							?
					<i>Batis diops</i>		✓				✓	✓
					<i>Trochocercus albiventris</i>							✓
					<i>Trochocercus albonotatus</i>		✓					✓
					<i>Parus fasciiventer</i>		✓					✓
					<i>Nectarinia alinae</i>		✓					✓
					<i>Nectarinia graueri</i>		✓					✓
					<i>Nectarinia preussi</i>		✓				✓	✓
					<i>Nectarinia regia</i>		✓					✓
					<i>Nectarinia rockefelleri</i>							?
					<i>Nectarinia purpureiventris</i>							✓
					<i>Nectarinia kilimensis</i>		✓	✓			✓	✓
					<i>Nectarinia johnstoni</i>		✓					✓
					<i>Serinus frontalis</i>	✓	✓	✓		✓	✓	✓
					<i>Serinus striolatus</i>		✓		✓		✓	✓
					<i>Serinus burtoni</i>	✓	✓	✓	✓	✓	✓	✓
					<i>Linurgus olivaceus</i>							✓
					<i>Cryptospiza reichenovii</i>		✓				✓	✓
					<i>Cryptospiza salvadorii</i>							✓
					<i>Cryptospiza jacksoni</i>		✓					✓
					<i>Cryptospiza shelleyi</i>		✓					✓
					<i>Euschistospiza cinereovinacea</i>							✓
					<i>Estrilda melanotis</i>		✓	✓			✓	✓
					<i>Ploceus baglafaecht</i>	✓	✓	✓	✓	✓	✓	✓
					<i>Ploceus melanogaster</i>			✓			✓	✓
					<i>Ploceus alienus</i>		✓				✓	✓
					<i>Ploceus insignis</i>							✓
					<i>Poeyoptera stuhlmanni</i>						✓	✓
					<i>Onychognathus walleri</i>		✓				✓	✓
					<i>Onychognathus tenuirostris</i>	✓	✓				✓	✓
					<i>Cinnycincclus sharpii</i>		✓				✓	✓
					<i>Oriolus percivali</i>		✓				✓	✓
Number of species recorded	5	53	7	3	3	33	71					
? Needs confirmation												

with tourism, constitute the main source of foreign currency. The country's main source of energy is firewood. The decline in Rwanda's forest-cover has resulted mainly from agricultural expansion, itself caused by demographic expansion.

Like some of its neighbours, Rwanda's history has been marked by ethnic conflicts which have, at times, been bloody. The 1994 civil war is considered one of the greatest tragedies of the twentieth century.

The most critical factor in the conservation of Rwanda's biodiversity is how biological resources are valued and used by local people living in and around protected areas. Perhaps nowhere is this more true than in Rwanda, where the demographic pressures on biodiversity are so intense. Rural Rwandans living near forests harvest timber, fuelwood, bamboo, honey, medicinal plants, thatch and bush-meat. There is a need for ecologically and socially acceptable levels of use to be identified. Appropriate policies and mechanisms for regulation need to be developed.

Natural habitats provide tremendous economic benefits to the country in times of peace. Tourism in Volcans National Park provided Rwanda with US\$4–6 million in 1989, in direct and indirect revenues, and an estimated US\$0.5–1.0 million from tourism in Nyungwe forest in 1990. Tourism is now increasing again, but security concerns remains a major deterrent; at present, bookings for gorilla tourism are at about 30% capacity, while recent visitors to Volcans have each had to be escorted by strongly armed guards.

ORNITHOLOGICAL IMPORTANCE

Some 666 bird species are known to occur in Rwanda, of which 475 are presumed to be resident and 117 are regular seasonal migrants. A number of additional species have been reported, but details have not been published. The avifauna includes 17 species of global conservation concern. Five of these are non-breeding migrants, four from the Palearctic: *Circus macrourus* (NT), *Falco naumanni* (VU), *Gallinago media* (NT) and *Glareola nordmanni* (NT) while the fifth, *Ardeola idae* (NT), breeds in Madagascar. The breeding species include eight Albertine Rift endemics: *Glaucidium albertinum* (VU), *Indicator pumilio* (NT), *Malaconotus lagdeni* (NT), *Zoothera tanzanicae* (NT), *Kupeornis rufocinctus* (NT), *Apalis argentea* (VU), *Bradypterus graueri* (VU) and *Cryptospiza shelleyi* (VU). Of the remainder, two are species of papyrus swamps, *Laniarius mufumbiri* (NT) and *Chloropeta gracilirostris* (VU), while the others are *Balaeniceps rex* (NT) and *Lybius rubrifacies* (NT), both of which occur in the savanna–wetlands complex of Akagera. The presence of a further three species in Rwanda, all Vulnerable, remains to be confirmed: *Phodilus prigoginei*, *Muscicapa lendu* and *Nectarinia rockefelleri*.

There are no birds endemic to Rwanda, but the montane forests and associated habitats hold 25 of the 37 species of Albertine Rift Endemic Bird Area (EBA 106), while the three species of uncertain status mentioned above, *P. prigoginei*, *M. lendu* and *N. rockefelleri*, also belong to this EBA. In addition, *L. rubrifacies* is also a restricted-range species whose distribution defines the Dry woodlands west of Lake Victoria Secondary Area (s057).

Parts of three biome-restricted assemblages occur. A small element of the Guinea–Congo Forests biome (A05) occurs at lower altitudes in forests in the west, with 23 species known from Rwanda out of the out of the 278 species restricted to the biome. Much of the east of the country falls within the Lake Victoria Basin biome (A06) and 11 of its 12 species occur nationally. The montane forests of the Congo–Nile watershed hold at least 74 species of the Afrotropical Highlands biome (A07); the presence of a number of other species have yet to be confirmed. Approximately 280 bird species are known from these forests; the majority are found in Nyungwe, the most important site for biodiversity conservation in Rwanda.

There are no recent records of a number of species on the Rwandan list and it is thought they may have become nationally extinct, presumably due to the destruction of their habitat. These include *Phyllastrephus scandens*, *Cossypha cyanocampter* and *Camaroptera chloronota* from gallery forests north of Akagera National Park, *Trachyphonus purpuratus*, *Stiphronis erythrothorax* and *Muscicapa cassini* from lower-altitude forest in Nyungwe, and

Hyliota flavigaster and *Anthreptes orientalis* from the Rusumo region.

CONSERVATION INFRASTRUCTURE AND PROTECTED-AREA SYSTEM

The first National Park in Africa, Virunga, was created in north-western Rwanda in 1925 for the protection of the mountain gorilla *Gorilla gorilla beringei*. The park was administered as part of Albert National Park from Rumangabo in Kivu province, Belgian Congo (now Democratic Republic of Congo). In 1929 the Parc National des Volcans was separately established in Rwanda. The Institut des Parcs Nationaux of the Belgian Congo was set up in 1934 and Akagera National Park was created in the same year. Prior to independence in July 1962, National Parks were administered from Brussels.

Since 1962, protected areas have been the responsibility of the Ministère de l'Agriculture et des Forêts (Ministry of Agriculture and Forestry). Current protected-area legislation is set out in the Décret-Loi présidentiel (presidential decree) of 18 June 1973, which established the Office Rwandais du Tourisme et des Parcs Nationaux (ORTPN). ORTPN is responsible for the management of National Parks, Special Reserves and Hunting Reserves. ORTPN is administratively and financially autonomous and under the direct control of the President of the Republic. Until 1997, about 15% of the country was included in National Parks and reserves. That year, the largest national protected area (Akagera National Park) was reduced to about 40% of its original size. Today, the protected-area system covers 8% of the country. Four categories of protected area are currently recognized:

- Parc national—a National Park is designated as an area exclusively reserved for the propagation, protection, conservation and management of flora and fauna, as well as protecting geological formations of scientific or aesthetic value.
- Domaine de Chasse—a Hunting Reserve is defined as an area set aside for conservation, management and protection of wild animals and their habitat. Hunting within and entry to these areas is controlled, while all other exploitation is prohibited. With the recent degazettement of the Hunting Reserve that bordered Akagera, for the resettlement of refugees, there is now no domaine de chasse in Rwanda.
- Réserve Spéciale (also called Réserve Partielle or Sanctuaire)—Special Reserves can be created by Presidential Decree to protect characteristic communities of animals or threatened plant or animal species, together with the habitat essential for their survival. In general, the level of protection of these areas is comparable to that for National Parks. No Special Reserves have been created to date.
- Forêts Classées—there are also a number of Forest Reserves, of which Nyungwe is one, although this is in the process of being designated as a National Park.

Responsibility for the environment has successively come under the Ministère de la Santé (Ministry of Health), the Ministère du Plan (Ministry of Planning), the Ministère de l'Environnement et du Tourisme (Ministry of Environment and Tourism) and the Ministère de l'Agriculture, Élevage et Développement (Ministry of Agriculture, Livestock and Development). Currently it lies with the Department of the Environment in the Ministry of Lands, Human Resettlement and Environment Protection. ORTPN falls under the Ministry of Tourism and Industry.

INTERNATIONAL MEASURES RELEVANT FOR THE CONSERVATION OF SITES

Rwanda has ratified the Convention on Biological Diversity, the Convention on International Trade in Endangered Species, the Convention on Climate Change, the World Heritage Convention and the Convention to Combat Desertification, and also participates in UNESCO's Man and Biosphere Programme, under which one site, Volcans National Park, has been designated as a Biosphere Reserve. Regionally, Rwanda is a contracting party to the African Convention for the Conservation of Wildlife and Natural Resources.

OVERVIEW OF THE INVENTORY

A total of seven Important Bird Areas (IBAs) have been identified in this inventory, covering 2,538 km² or c.9.6% of the area of the country (Map 1, Table 1). Of these sites, two are National Parks, two are Forest Reserves and three are unprotected. Three are montane forests and three are wetlands, while Akagera National Park is a mixture of savanna woodland and wetland. All sites qualify under the A1 criterion. Four sites qualify under the A2 criterion, for the Albertine Rift mountains Endemic Bird Area (EBA 106), between them holding all 25 of the restricted-range species of this EBA that have been confirmed from Rwanda (Table 2). One site qualifies under the A3 criterion for the Guinea–Congo Forests biome, holding 11 of the 23 species restricted to the biome that have been recorded nationally, as well as a further six species for which there are only one or two records (Table 3). Four sites have been selected for the Lake Victoria Basin biome (A06), collectively holding all 11 species on the national list, while the three sites selected for the Afrotropical Highlands biome hold 73 of the 74 species confirmed for Rwanda (Table 3).

COMMENTS ON THE INVENTORY

The civil war of April 1994 and its aftermath prevented planned assessments being made of the ornithological importance of a number of sites. These events also mean that surveys are required of all sites included here in order to establish their current status

and to update information. However, surveys carried out in 1999 by the Wildlife Conservation Society, revealed that two forest sites, originally identified as IBAs, now no longer qualify. Gashwati forest has been reduced to a few isolated trees while Mukura forest has been substantially reduced in size and what remains is heavily disturbed. Both therefore have been dropped from this inventory. More positively, a WCS survey of Nyungwe forest and regular monitoring of birds since 1995 has shown the forest still to be in good condition with bird species-richness fairly constant (A. Plumtre pers. comm.). Potential additional sites also need to be investigated. One such, Bugesera military area, is located in south-east Rwanda and covers c.5,000 ha. It includes parts of Lakes Cyohoha, Mugesera and Rweru shores, and extends to the Akanyaru valley.

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SITE ACCOUNTS

Rugezi marsh

Admin region Ruhengeri

Coordinates 01°29'S 29°51'E

Area 8,500 ha Altitude 2,050 m

RW001

A1, A2 (106), A3 (A06)

Unprotected

Site description

Rugezi marsh is located in an inundated valley in the north of Rwanda, to the east of Lake Burera on Uganda border. The vegetation of the marsh is dominated by *Miscanthidium violaceum* with stands of *Cyperus latifolius* around the fringes and an area of papyrus *C. papyrus* near the point of outflow. Average annual rainfall is estimated at 1,200 mm.

Birds

See Box and Tables 2 and 3 for key species. Some 43 species have been recorded from the marsh and its immediate vicinity, including five of the Afrotropical Highlands biome (see Table 3). This site is important for *Bradypterus graueri* and is unusual in that this species occurs together with *B. carpalis*.

Key species

A1	<i>Laniarius mufumbiri</i>	<i>Chloropeta gracilirostris</i>
	<i>Bradypterus graueri</i>	
A2 (106)	Albertine Rift mountains EBA: One of the 25 species of this EBA that occur in Rwanda has been recorded at this site; see Table 2.	
A3 (A06)	Lake Victoria Basin biome: Six of the 11 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

The marsh has no legal protection and is under pressure from agriculture. The vegetation of the marsh is cut and burned during the dry season, resulting in progressive habitat degradation. The need to conserve Rugezi is urgent. A management programme involving local communities is required.

Further reading

Vande weghe (1981, 1983).

Volcans National Park

Admin region Gisenyi, Ruhengeri

Coordinates 01°30'S 29°26'E

Area 15,000 ha

Altitude 2,400–4,507 m

RW002

A1, A2 (106), A3 (A07)

National Park,
Biosphere Reserve

Site description

The Parc National des Volcans is located in the north-west Rwanda, on the joint border with Uganda and DR Congo, where it is contiguous with Mgahinga Gorilla National Park (UG001) and Virunga National Park (CD010). The park contains eight Pleistocene volcanic peaks which form part of the watershed between the Nile and Congo river systems, and includes Karisimbi (4,507 m). The terrain is often difficult and broken, with steep slopes. The vegetation varies considerably with altitude; at lower elevations (2,400–2,500 m) there is montane forest with *Neoboutonia*, above which there is a zone of bamboo *Arundinaria alpina* between 2,500 and 3,200 m, replaced on more humid slopes in the west and south by *Hagenia–Hypericum* forest. Some open areas are occupied by montane bogs. Subalpine vegetation with lobelias, evergreen bushland and thicket occurs between 3,500–4,000 m, while above 4,000 m there is an Afro-alpine vegetation of heath and thicket grassland. Average annual rainfall at Karisoke (3,100 m) is c.2,000–2,400 mm.

Birds

See Box and Tables 2 and 3 for key species. The park holds a rich avifauna which includes many of the Albertine Rift endemics. Records come mainly from areas around the Karisoke Research Centre; other areas have been worked by comparatively few ornithologists.

Key species

A1	<i>Malaconotus lagdeni</i>	<i>Bradypterus graueri</i>
	<i>Zoothera tanganjicae</i>	
A2 (106)	Albertine Rift mountains EBA: 17 of the 25 species of this EBA that occur in Rwanda have been recorded at this site; see Table 2.	
A3 (A07)	Afrotropical Highlands biome: 53 of the 74 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	

Other threatened/endemic wildlife

The park is best known for the mountain gorilla *Gorilla gorilla beringei* (CR), a subspecies endemic to the Virunga mountains and Bwindi

Forest in Uganda. Other threatened mammals include *Cercopithecus mitis kandti* (EN) and *Loxodonta africana* (EN).

■ Conservation issues

The park was created in 1929, although legislation for its current protection derives from a 1974 Decree, when it was reduced by about half to its current size. The park was designated as a Biosphere Reserve in 1983. Although human pressure around the park is very high, it is the best-protected park in Rwanda. Threats include demand for agricultural land, gorilla poaching, encroachment, illegal wood- and bamboo cutting and feral dogs. Karisoke Research Centre, created by Diane Fossey, is among the oldest primate field research stations in Africa. Efforts have been made to extend research and tourism activities to other elements of the park. Public-awareness campaigns have been conducted around the periphery of the park, aimed at promoting understanding of the park and stimulating support within the local population.

■ Further reading

Harcourt and Fossey (1981), Wilson (1986).

Akagera National Park

Admin region Umutara, Kibungo

Coordinates 01°45'S 30°38'E

Area 100,000 ha Altitude 1,300–1,825 m

RW003

A1, A2 (s057), A3 (A06)

National Park

■ Site description

Akagera National Park is located in the north-east of Rwanda, on the Tanzanian and Ugandan borders. It now covers an area of 100,000 ha, following a recent reduction of its original size of 250,000 ha. The excised areas are mainly from the eastern and northern parts of the park's original limits. The park was contiguous to the north-west with the Mutara Hunting Reserve (34,000 ha), degazetted in 1997. The topography of the park is characterized by rolling sandstone hills in the west, cut in places by deep, narrow valleys. In the east, flood-plains and swamps are predominant. The extensive lakes and swamps of Akagera river valley cover an area of c.100,000 ha. The highest point in the park is Mount Mutumba (1,825 m). The vegetation of the park is extremely varied and, indeed, has been described as the most heterogeneous savanna ecosystem in the region. Open savannas are dominated by three typical grasses, *Themeda triandra*, *Hyparrhenia filipendula* and *Cymbopogon afronardus*. Though *Acacia* spp. and *Combretum* spp. predominate, more than 250 tree species occur in the park. The relatively steep hills of central and southern parts support a denser tree- and bush-cover. Towards the lake borders to the east, the savanna becomes more heavily wooded, with gallery forest occurring along lake edges. Gallery forest species include *Albizia* spp., *Acacia polyacantha* and some *Ficus* spp. Flood-plain and marsh vegetation occur in the river valley, with marshes dominated by *Cyperus papyrus*, *Cladium* and *Miscanthidium*.

■ Birds

See Box and Tables 2 and 3 for key species. At least 525 species are known from the park, reflecting the extremely wide diversity of habitat. These include 44 species of raptor, *Balaeniceps rex* and many Palearctic migrants, amongst which *Falco naumanni*, *Gallinago media* and *Glareola nordmanni* have been recorded. The park represents the northern limit of distribution of a number of Zambezi biome (A10) species, including *Lanius souzai*, *Myrmecocichla arnotti* and *Cisticola angusticauda*. In addition, one species of the Guinea–Congo Forests biome (A05) and seven of the Afrotropical Highlands biome (A07) also occur (see Table 3). However, all these data need to be reviewed in the light of the recent reduction in size of the park, which means that some species are no longer likely to occur within it, e.g. species of gallery forests (e.g. *Camaroptera chloronota*, *Cossypha cyanocampter*) and montane forests (e.g. *Illadopsis pyrroptera*, *Cisticola chubbii*).

Key species

A1	<i>Ardeola idae</i>	<i>Lybius rubrifacies</i>
	<i>Balaeniceps rex</i>	<i>Laniarius mufumbiri</i>
	<i>Circus macrourus</i>	

A2 (s057) Dry woodlands west of Lake Victoria Secondary Area: *Lybius rubrifacies* has been recorded at this site.

A3 (A06) Lake Victoria Basin biome: Nine of the 11 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.

■ Other threatened/endemic wildlife

More than 50 species of mammal are known from the park, including *Lycan pictus* (EN), now thought to be locally extinct. *Diceros bicornis* (CR) and *Loxodonta africana* (EN) were introduced to the park in 1958 and 1975 respectively.

■ Conservation issues

Akagera National Park and the formerly contiguous Mutara Hunting Reserve were protected by Decrees dating from 1934 and 1957 respectively. Compared with other parts of Rwanda, the park is not heavily populated. At least, it has not been in recent decades; its previous inhabitants were displaced on the creation of the park. Following social unrest in the country in the 1960s, there was uncontrolled poaching and grazing and many guards were killed. In 1969, 3,800 ha were degazetted from the park as were 8,400 ha from the Hunting Reserve. Following the recent civil war, the park came under further pressure, as a result of occupation by many thousands of pastoralists, which resulted in 60% of the park being degazetted in 1997. Furthermore, there is a plan to build a hydroelectric dam on the Rusumo falls on the Akagera river. This represents a serious threat to the wetland ecosystems of the park and all surrounding areas.

■ Further reading

Dzwonko and Kornas (1994), Kanyamibwa (1998), Vande weghe (1981, 1990).

Nyabarongo wetlands

Admin region Gitarama, Kigali

Coordinates 02°16'S 30°16'E

Area 10,000 ha Altitude 1,350 m

RW004

A1, A3 (A06)

Unprotected

■ Site description

The site is located in the south-east of the country, south-east of Kigali, and includes swamps and marshes in part of the flood-plain of the Nyabarongo river, the longest river in Rwanda. The vegetation is composed of *Cladium* and *Typha* spp., *Cyperus latifolius*, *C. papyrus* and *Echinochloa pyramidalis*. Average annual rainfall is estimated to be 950–1,100 mm.

■ Birds

See Box and Table 3 for key species. Around 50 species have been recorded from the wetlands, including *Ardeola idae* and *Circus macrourus*. In addition, three species of the Afrotropical Highlands biome (A07) have been reported (Table 3).

Key species

A1	<i>Laniarius mufumbiri</i>	<i>Chloropeta gracilirostris</i>
A3 (A06)	Lake Victoria Basin biome: Eight of the 11 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

Nyabarongo wetlands are under serious pressure from agriculture and are completely unprotected.

■ Further reading

Vande weghe (1981).

Akanyaru wetlands

Admin region Butare, Gitarama

Coordinates 02°30'S 29°55'E

Area 30,000 ha Altitude 1,350 m

RW005

A1, A3 (A06)

Unprotected

■ Site description

Akanyaru wetlands are located in the south of Rwanda, north-east of Butare, on the international border with Burundi, and lie close to Rwiwinda Lake Nature Reserve in Burundi (BI001). The vegetation consists of a variety of marshy habitats and papyrus swamp. Early successional stages are occupied by floating vegetation dominated by *Pistia stratiotes*, *Leersia hexandra* and *Oryza barthii*. Intermediate

stages are a mixture of *Typha australis*, *Miscanthidium violaceum*, *Cladium jamaicense* and some papyrus. More complex habitats are occupied by *Typha australis*, *Miscanthidium violaceum*, *Cyperus denudatus*, *C. latifolius* and *Echinochloa pyramidalis*. There are expanses of papyrus, either as pure stands or combined with shrubby vegetation. Average annual rainfall is estimated to be c.800 mm.

■ Birds

See Box and Table 3 for key species. At least 54 species of wetland habitats have been recorded from Akanyaru and include migrant *Ardeola idae*, *Circus macrourus* and *Gallinago media*. *Falco naumanni* has been reported. In addition, one species of the Guinea–Congo Forests biome (A05) and three of the Afrotropical Highlands biome (A07) have been recorded (see Table 3).

Key species

A1	<i>Laniarius mufumbiri</i>	<i>Chloropeta gracilirostris</i>
A3 (A06)	Lake Victoria Basin biome: Nine of the 11 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	

■ Other threatened/endemic wildlife

The mammal *Tragelaphus spekii* (LR/nt) is known to occur.

■ Conservation issues

Akanyaru wetlands are unprotected and are under pressure from agriculture. Marsh vegetation is cut and burned during the dry season, resulting in progressive habitat degradation. A management programme is necessary for the conservation of Akanyaru, which must involve local communities.

■ Further reading

Kanyambwa (1986, 1993), Vande weghe (1981).

Cyamudongo forest

Admin region Cyangugu
Coordinates 02°34'S 28°59'E A1, A2 (106), A3 (A07)
Area 300 ha Altitude 1,700–2,000 m Forest Reserve

RW006

■ Site description

Cyamudongo forest is a small relict forest located in the far south-west of the country, close to the town of Nyakabuye near the border with the DR Congo. Historically, it was connected to Nyungwe forest (site RW009) to the east, but its vegetation is more dense, with fewer clearings. Common tree species include *Chrysophyllum gorungosanum*, *Croton* spp., *Newtonia buchananii*, *Alangium chinense* and *Leptonychia melanocarpa*.

■ Birds

See Box and Tables 2 and 3 for key species. Although impoverished due to its small size, compared with nearby Nyungwe, Cyamudongo forest holds many species typical of the Albertine Rift forests, including *Apalis argentea*, *Musophaga rossae*, which is not found in Nyungwe, is common in Cyamudongo, while the only Rwandan record of *Accipiter erythropus* is from here. In addition, four species of the Guinea–Congo Forests biome (A05) have also been recorded (Table 3).

Key species

A1	<i>Apalis argentea</i>
A2 (106)	Albertine Rift mountains EBA: Eight of the 25 species of this EBA that occur in Rwanda have been recorded at this site; see Table 2.
A3 (A07)	Afrotropical Highlands biome: 33 of the 74 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.

■ Other threatened/endemic wildlife

The primate *Pan troglodytes* (EN) occurs and the site is known for its high diversity of butterfly species.

■ Conservation issues

The site was established as a Forest Reserve in 1933, but has suffered much from clearance and fragmentation for agriculture while illegal cutting of wood occurs commonly. The remaining forest is under some protection by the local public administration, but there is little surveillance.

■ Further reading

Dowsett-Lemaire and Dowsett (1990), Fischer and Hinkel (1993), Kanyambwa (1992).

Nyungwe forest

Admin region Cyangugu, Gikongoro
Coordinates 02°30'S 29°14'E A1, A2 (106), A3 (A05), A07
Area 90,000 ha Altitude 1,700–2,950 m Forest Reserve

RW007

■ Site description

Nyungwe forest is situated in south-west Rwanda between Lake Kivu and the international border with Burundi, where it is contiguous with Kibira National Park (BI002). Nyungwe is divided north–south by a line of mountains that reach 2,600–2,900 m and which form part of the Congo–Nile watershed. As a result, Nyungwe is composed of two areas differing in pedology, vegetation, water-flow and biodiversity. The soils in the western section are schists and support dense forest between 1,700–2,000 m. The eastern part, on granitic soils, lies higher (2,200–2,500 m) and the vegetation here is, characteristically, secondary forest with many clearings. Over 250 tree species have been recorded. The forest is dominated by *Chrysophyllum*, *Entandophragma* and *Newtonia* at lower altitudes. *Syzygium guineense*, *Carapa grandiflora*, *Parinari excelsa*, *Strombosia*, *Symphonia*, *Beilschmiedia* and *Ocotea usambarensis* are found in mature forest. *Macaranga*, *Maesa* and *Harungana* and *Neoboutonia* occur in secondary areas, while *Hagenia* is found along roads and around the eastern depression. On the summits and rocky soils the forest is dominated by *Philippia benguellensis* and *Erica kingaensis*. Extensive stands of bamboo *Arundinaria alpina* occur in the south-east. Numerous montane bogs occur, of which the largest, in Kamiranzovu Crater in the west, is c.900 ha. Average annual rainfall is in the range 1,500–2,500 mm; amounts decline from west to east, with the south-west the wettest.

■ Birds

See Box and Tables 2 and 3 for key species. A total of 275 species have been recorded in Nyungwe, reflecting the wide habitat diversity and altitudinal range. The presence or status of some species requires confirmation including, in particular, that of *Phodilus prigoginei*, *Muscicapa lendu* and *Nectarinia rockefelleri*, which are all globally threatened, restricted-range and biome-restricted. An additional six species of the Guinea–Congo Forests biome are known from Nyungwe from one or two records only and may no longer occur (Table 3). After the Itombwe mountains (CD013) in eastern DR Congo, Nyungwe is the probably most important forest for the conservation of montane birds in the region; it is certainly the most important in Rwanda.

Key species

A1	<i>Glaucidium albertinum</i>	<i>Kupeornis rufocinctus</i>
	<i>Indicator pumilio</i>	<i>Apalis argentea</i>
	<i>Malaconotus lagdeni</i>	<i>Bradypterus graueri</i>
	<i>Zoothera tanganjicae</i>	<i>Cryptospiza shelleyi</i>
A2 (106)	Albertine Rift mountains EBA: All 25 species of this EBA that occur in Rwanda have been recorded at this site; see Table 2.	
A3 (A05)	Guinea–Congo Forests biome: 11 of the 23 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	
A3 (A07)	Afrotropical Highlands biome: 71 of the 74 species of this biome that occur in Rwanda have been recorded at this site; see Table 3.	

■ Other threatened/endemic wildlife

Although plant diversity is high, the level of endemism is low, with *Pentadesma reindersii* and a few herbaceous species and orchids currently only known from Nyungwe. Thirteen species of primate occur including *Pan troglodytes* (EN), *Colobus angolensis ruwenzorii* (VU), *Cercopithecus lhoesti* (LR/nt), *C. hamylni* (LR/nt) and, although very rare here, *C. mitis kandti* (EN). One species, *Cercopithecus ascanius*, is almost extinct locally due to the clearance of the lower-altitude forest; Nyungwe is the only site in Rwanda from which it was known.

Nyungwe holds many Albertine Rift endemics, including seven of the 12 species of Soricidae, one species of bat, *Rousettus lanosus*, two species of squirrels, *Funisciurus carruthersi* (VU) and *Heliosciurus ruwenzorii*, five of the 12 species of Muridae and the chameleleon

Chamaeleo johnstoni). An amphibian is endemic to Nyungwe, the caecilian *Boulengerula fischeri*. Two species of butterfly are endemic to Nyungwe (*Bebearia dowsetti* and *Acraea turlini*) while *Papilio leucotaenia* (VU), restricted to a small area of the Albertine Rift, occurs commonly in Nyungwe.

■ Conservation issues

The forest was reduced in size, from 114,000 ha in 1958 to 97,100 ha in 1979, mainly at the expense of forest below 1,700 m. This led to the local extinction of some animal and plant species. No fewer than 40 bird species are confined to forest below 2,000 m. Several mammals, mainly ungulates, have been much reduced or exterminated by overhunting—*Syncerus caffer* is extinct, a few *Loxodonta africana* survived until 2000 when the last one was killed for its ivory, and duikers *Cephalophus* spp. are very rare. Large carnivores have declined dramatically, probably due to the loss of habitat and prey reduction.

Nyungwe also suffers from exploitation for firewood, charcoal and timber for woodwork. Gold mining is a further problem; small alluvial gold lodes, worked by local people, require the cutting of forest along watercourses. Poaching often accompanies the gold mining. A conservation plan for Nyungwe has been drawn up (Stebler *et al.* 1984), which identified a number of different zones, including a core area (40%) for strict protection. This is in the process of being revised because Nyungwe is currently being considered for National Park status.

■ Further reading

Dowsett (1990), Dowsett and Dowsett-Lemaire (1990), Dowsett and Monfort (1990), Dowsett-Lemaire (1990a, b), Dowsett-Lemaire and Dowsett (1990), Elbl *et al.* (1966), Hinkel and Fischer (1990), Hutterer *et al.* (1987), Joris-Mayence and Monfort (1989), Kanyamibwa (1992), Monfort (1985), Monfort (1987), Stebler *et al.* (1984).

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