

Appendix 2

Glossary

!Kung (Ju/'hoansi) are one of the San peoples. They are former foragers who live mostly on the western edge of the Kalahari Desert of north-eastern Namibia, southern Angola, and northwestern Botswana. They gather-hunted traditional up until the 1970s but are mainly sedentarised today (Konner & Shostak 1987).

Aché (Guayaki) of Paraguay are one of the few remaining hunter-gatherers groups with a total population size of about 1,200 persons (Callegari-Jacques *et al.* 2008). Archaeological data suggest that they might have inhabited what is now eastern Paraguay for at least 10,000 years (Hill & Padwe 1999).

Aka see Pygmy

Anatomically modern human, AMH. There has been a controversial discussion on what constitutes 'anatomically modern' morphology (Pearson 2008). The skeleton of Omo-Kibish I (Omo I) from southern Ethiopia was the oldest anatomically modern human skeleton ($196,000 \pm 5,000$ BP) known up to recently (Hammond *et al.* 2017). New fossil finds, identified as *Homo sapiens*, from Jebel Irhoud, Morocco, dated $315,000 \pm 34,000$ BP show a mosaic of key modern human morphological features of early or recent AMH and more primitive cranial morphology (Hublin *et al.* 2017). The term typically contrasts to term 'archaic humans' which typically includes Neanderthals, Denisovans, *Homo rhodesiensis*, *Homo heidelbergensis* and others.

Arawakan is the most widespread family of languages that was spoken by Indigenous People in large parts of South and Central America and the Caribbean but has become extinct in some parts such as the Caribbean (Dixon & Aikhenvald 1999).

Banyangi (Bayang) are a Bantu people who are cash-crop farmers, hunters and gatherers. Together with the Mbo there are less than 10,000 people living in communities around the Banyang-Mbo Wildlife Sanctuary in southwest Cameroon (Willcox & Nambu 2007).

Baka see Pygmy

Batak is a collective term for related indigenous groups in Northern Sumatra, Indonesia, where they are the largest ethnic minority group, constituting about 6% of the population (Luskin *et al.* 2014).

Bakola see Pygmy

Bakossi live in Southwestern Cameroon including in the Banyang-Mbo Wildlife Sanctuary. They are subsistence farmers also producing farm cash crops, especially coffee and cocoa (Willcox & Nambu 2007).

Basossi ethnic group living around the Banyang-Mbo Wildlife Sanctuary in Southwestern Cameroon. Like the Bakossi they are subsistence farmers also producing farm cash crops especially coffee and cocoa (Willcox & Nambu 2007).

Biomass is the total quantity or weight of animals and plants in a given area or volume.

Bira, Ndaka and Lese are adjacent groups of originally immigrant farmers of Bantu (Bira, Ndaka) or Sudanic (Lese) speaking origin, living at the edge of the Ituri forest in the Democratic Republic of the Congo (Turnbull 2018). They came in contact with the Pygmies of the Ituri forest (Mbuti Efe and Swa) probably 2,000 years ago (Carpaneto & Germi 1989).

Body mass or body size of an animal is measured in terms of its weight. Body mass is an important character when studying interspecific variation in life-history patterns of living organisms and can be used to define assemblages of animal communities.

Buglé are a small indigenous group of about 20,000 people in Panama. They live in the same territories as the Ngöbe. Both indigenous people speak different, mutually unintelligible languages (Smith 2008).

Bushmeat see Box 1.1

Caiçaras are descendants of Amerindians and European colonizers with influences of other cultures such as from African slaves and Japanese immigrants. They live on the Southeastern coast area in Brazil. They practice artisanal fishery, small-scale agriculture and occasional hunting (Hanazaki *et al.* 2009).

Decision-makers involved in the exploitation of natural assets are individuals within an organization or management system who are responsible for making important pronouncements with regards to the fate of the resources used.

Defaunation is the global, local or functional extinction of animal populations or species from ecological communities.

Efe see Pygmy

Emerging zoonotic disease or emerging zoonosis is defined by the WHO, FAO and OIE as 'a zoonosis that is newly recognized or newly

evolved, or that has occurred previously but shows an increase in incidence or expansion in geographical, host or vector range' (WHO 2004b).

Endangered species is a species that is very likely to become extinct in the near future, either worldwide or in a particular political jurisdiction. The IUCN Red List registers the global conservation status of many species using various categories (see CR, EN, VU in the list of abbreviations).

Extraction when used in the context of hunted animals, e.g., game extraction, refers to the removal of animals in a defined area through hunting.

Fang are a group of southern Cameroon forest dwellers belonging to the Bantu ethnicity (Dounias 2016). They constitute a continuum of five ethnic groups, all speaking a Fang language characterized by mutual comprehension among speakers of the different languages. Fang populations of about 250,000 people are scattered widely and mixed with other linguistic groups in southern Cameroon and northern Equatorial Guinea and Gabon. They continue to live from slash-and-burn swidden agriculture, hunting and fishing.

Game is any animal hunted for food or sports.

Gravettian hunter-gatherers were widespread across most of Europe about 30,000 to 20,000 YA. They were specialized in the hunting of mammoths (Wojtal & Wilczyński 2015). The most distinctive features of the archaeological record of the Gravettian culture are stone tools and female figurines, often called 'Palaeolithic Venuses'.

Hadza are considered one of the last practicing hunter-gatherer tribes in Africa with approximately 1,300 people in 2012, living in the Rift Valley and in the neighbouring Serengeti Plateau of northern Tanzania (Skaanes 2015). They have lost between 75% and 90% of their land over the past 50 years. The minority still live almost exclusively from hunting and gathering, whilst the majority shift between foraging and various other activities including tourism and farm labour (Marlowe 2002).

Huaorani (Waorani) were a semi-nomadic Indigenous People living in South-Central Ecuador living from hunting, fishing, collecting and rotating agroforestry. First contacted by missionaries in 1958, they were granted the Huaorani Ethnic Territory Reserve adjacent to the Yasuní National Park. Today, the community of about 2,000 people (Moloney 2019) is largely sedentarised but they continue to hunt. However, hunting technology has rapidly changed with a switch from blowpipes to firearms and the introduction of dogs (Mena *et al.* 1999).

Hunter-gatherer see Box 1.2

Inujuamiut are the Inuit residing in and around the village of Inujuak in Northern Quebec. Whilst 600 Inuit are settled in Inujuak, many families continue to camps in the warmer summer months along the coast, hunting, fishing and carving soapstone (Smith 1979). Today, Inuit mainly practice a mixed economy of traditional food procurement, fishing and hunting, and a modern market economy (e.g. Wenzel 2019).

Katu are an ethnic group living in forested areas of eastern Laos and central Vietnam. They have traditionally relied on wildlife utilization for their livelihood and continue hunting (MacMillan & Nguyen 2014).

Katukina is a generic term for what was at the beginning of the twentieth century five and today only three linguistically distinct and geographically proximate groups of Indigenous People in Northwestern Brazil (Coffaci de Lima 2021).

Kaxinawá (Huni Kuin) are an Indigenous People of about 1,300 persons inhabiting the tropical forest of eastern Peru and Northwestern Brazil. Hunting is widespread but the traditional bow and arrow was supplemented by firearms in the 1960s (Kensinger 1995b; Lagrou 2021).

Kichwa are a group of different Indigenous People in the Ecuadorian Amazon who all speak different Quechuan dialects. Amongst them are the Canelos Kichwa, who emerged as a fusion between various Amazonian Indigenous Peoples including the Shuar as a result of the activities of Catholic missionaries in the area by sedentarisation of Indigenous Peoples. They live from shifting cultivation, hunting and fishing. They also hunt for ceremonial purposes as part of a festival, celebrated annually until recently, which is a mixture of indigenous culture and Catholic religion (Sirén 2012).

Konabembe are a Bantu tribe living in Southeastern Cameroon. Around the Nki and Boumba-Bek National Park, they are the major farming communities living alongside communities of Baka Pygmies (Bobo *et al.* 2015). They practice small-scale subsistence and cash-crop farming but also hunt using mainly snares and firearms (Hirai 2014; Yasuoka *et al.* 2015).

Lamalera is a village on the island of Lembata, Indonesia. The people of Lamalera are complex marine foragers with revolves around cooperative hunting for large marine mammals, in particular sperm whale (Alvard & Gillespie 2004).

Lese see Bira

Machiguenga (Matsigenka) are an Indigenous People living in and outside the Manu National Park in the Amazon Basin of Southeastern Peru (Ohl-Schacherer *et al.* 2007). There are a settled Machiguenga population, poorly known and isolated Machiguenga and related communities, and unknown numbers of uncontacted hunter-gatherers (Shepard *et al.* 2010). Some remote communities have emerged from isolation since 1990, suffering from numerous respiratory epidemics as a consequence. The Machiguenga engage in hunting, fishing, foraging and swidden agriculture.

Markets of wild meat (sometimes known as bushmeat markets) refer to the regular gathering of people for the purchase and sale of live, dead processed (smoked, dried) wild animals brought to such localities by hunters themselves or by intermediaries who sell these to the market sellers. See also Wet markets.

Martu are indigenous, contemporary hunter-gatherers in Australia's Western Desert with a population size of about 1,000 people (Bird *et al.* 2009)

Mayangna and Miskito are two Indigenous People in the northeast regions of Nicaragua and Honduras. Along with the Rama, they are two of the last surviving Indigenous groups in the region, having lived there for more than 4,500 years (Perez & Longboat 2019). They live in relative isolation, e.g., in the Bosawas Biosphere Reserve, which has allowed them to preserve their culture and language. There is considerable intermarriage between the Mayangna and the Miskito. Currently, they are threatened by the rapidly increasing number of, often armed, colonists, extractive industries, commercial agriculture, forestry and cattle ranching (Perez & Longboat 2019). They are sedentary swidden horticulturalists but hunting and fishing provides the primary protein supply (Koster *et al.* 2010). They have adapted modern hunting technology, in particular dogs and firearms (Koster 2008b).

Mbo are a Bantu people who are almost exclusively hunters and gatherers. Together with the Banyangi there are less than 10,000 people living in communities around the Banyang-Mbo Wildlife Sanctuary in southwest Cameroon (Willcox & Nambu 2007).

Mbuti see Pygmy

Meriam Islanders are one of five distinct Indigenous Peoples of Melanesian origin living on a number of inner eastern Torres Strait Islands, Australia, including Mer. They are hunter-fisher-gatherers (Bliege Bird *et al.* 2001)

Middle Pleistocene: Since 2020 known under the name Chibanian as defined by the International Union of Geological Sciences. It is estimated to span the time between 770,000 and 126,000 years ago.

Minangkabau are an indigenous group in Western Sumatra, Indonesia, where they are, after the Batak, the second largest ethnic minority constituting about 5% of the population (Luskin *et al.* 2014).

Miskito see Mayangna

Mvae are a Bantu-speaking population in Cameroon. In coastal areas, they live sympatric with Bakola Pygmies and Yassa. They live from agriculture and hunting (mainly trapping) (Koppert *et al.* 1993).

Nambiquara are an Indigenous People inhabiting the tropical forest of eastern Peru and Northwestern Brazil (Miller 2021). Population size was about 5,000 to 10,000 at the beginning of the twentieth century but crashed to 1,300 people in 2002. They live in villages and practice swidden agriculture and hunting.

Ndaka see Bira

Ngöbe (Ngäbe) are the largest indigenous group in Panama. Smaller communities live also in Costa Rica. In the same territories lives a smaller indigenous group, the Buglé, who speak a different language. Total population size is about 200,000–250,000.

Overexploitation: the harvesting of species from the wild at rates that cannot be compensated for by reproduction or regrowth.

Panoan is a family of languages spoken by Indigenous People in Peru, western Brazil and Bolivia (de Araujo Lima Constantino *et al.* 2021).

Piro are Piro-speaking, an Arawakan language, Indigenous People in the lowland rainforests of southeastern Peru in an area which contains the Manu National Park. They are hunter–fisher–farmers and cultivate manioc and plantains. Most of the protein stems from hunting and fishing (Alvard 1993a). The Piro live in larger villages outside the Manu National Park, where they have access to non-traditional hunting technology, but also in traditional lifestyle in small riverside in and outside the National Park. Different Piro groups inhabit different river sheds including the Mashco-Piro tribe which has only recently emerged from isolation (Drake 2015; Gow 2012).

Pygmy People are an ethno-linguistically diverse group of hunter–gatherers or former hunter–gatherers which now have variable access to wild forest resources. These forager cultures are profoundly varied but some similarities exist. Most have a strong identity and association with the forest. Not all Pygmies are hunter–gatherers or foragers all year. Despite this, 80% or more of the Pygmy groups recognized by some authors (e.g. Bahuchet 2014) live in rainforests, and most groups

are forest foragers and hunter–gatherers, even though some have taken up some form of agriculture. For example, from about the 1960s onwards, Baka in Cameroon became sedentarised following missionary activities and the ‘development assistance’ programmes by the State after independence (Bahuchet, McKey & de Garine 1991; Bailey, Bahuchet & Hewlett 1992; Leclerc 2012) although the adoption of agriculture and semi-sedentary lifestyle has been rather voluntary (Froment 2014). After relocation from the forest, Baka have opened their own plots growing crops such as plantain, banana, and cassava (Kitanishi 2003; Knight 2003; Leclerc 2012; Yasuoka 2012). Pygmy groups have witnessed the gradual reduction of access to forest resources (Pemunta 2019). However, the preeminent traditional way of life is associated with forest hunting and gathering.

They are broadly subdivided into Western groups, including Baka in Cameroon and Gabon, the Bakola of the coastal regions of Cameroon, and the Aka in the Republic of Congo and the Central African Republic, and Eastern groups including Mbuti in the Northeast of the Democratic Republic of Congo. Mbuti Efe and Mbuti Swa are two sub-groups in the Ituri forest who are distinguished from each other according whether they preferentially use bows and arrows or net hunting, respectively (Carpaneto & Germe 1989, 1992; Ichikawa 1983; Terashima 1983). The demographic and evolutionary split between Pygmy and non-Pygmy populations is amongst the oldest for modern humans with the divergence estimated from genetic data to roughly between 60,000 and over 100,000 years ago and the split between Western and Eastern Pygmy groups about 20,000 years ago (Hsieh *et al.* 2016; Lopez *et al.* 2018; Patin & Quintana-Murci 2018). Although numerous alternative terms to Pygmy have been used to refer the rainforest hunter–gatherers of the Congo Basin, none have been agreed upon by academics or the people themselves to replace it. Although some academics and Central African government officers feel the term Pygmy is derogatory or does not adequately represent the people, the term Pygmy *sensu lato* to refer to all hunter–gatherer groups in Central Africa, is widely used by a broad group of people in Europe, Japan, the United States and Africa (e.g. Bahuchet 2014; Berrang-Ford *et al.* 2012; Betti 2013; Bozzola *et al.* 2009; Dounias & Leclerc 2006; Hewlett 2014; Hsieh *et al.* 2016; Jackson 2006; Meazza *et al.* 2011; Migliano *et al.* 2013; Patin *et al.* 2009; Ramírez Rozzi & Sardi 2010; Verdu *et al.* 2009). Moreover, international and local NGOs use the term in their titles or literature, e.g., Pygmy Survival Alliance, Forest Peoples’ Programme.

- Survival International, Rainforest Foundation, Réseau Recherches Actions Concertées Pygmées, Centre d'Accompagnement des Autochtones Pygmées et Minoritaires Vulnérables and the Association for the Development of Pygmy Peoples of Gabon. Congo Basin conservation groups, such as World Wildlife Fund and Wildlife Conservation Society and international human rights groups working in the region, such as UNICEF and Integrated Regional Information Networks (IRIN), also regularly use the term Pygmy in their literature.
- Resilience analysis focuses on the ability of a system to withstand stressors, adapt, and rapidly recover from disruptions.
- San self-identify as hunter-gatherers but today the vast majority are small-scale agro-pastoralists, or hold other small jobs residing in both rural and urban areas. They live mainly in Botswana and to a smaller extent in Namibia, Angola, Zambia, Zimbabwe, Lesotho and South Africa. They are very diverse and speak different languages from different language families. The San are the first inhabitants of Southern Africa living there for at least the last 44,000 years (d'Errico *et al.* 2012a). San are also known as 'Bushmen', a name given by European colonialists, but this name is considered derogatory.
- Semaq Beri are a small group of Indigenous People, numbering about 1700 persons, in Peninsular Malaysia, ethnically belonging to the Senoi, one of the three major categories of the Malayan aboriginal people, the Orang Asli (Kuchikura 1988). Some are nomadic hunter-gatherers, some are semi-nomadic practicing farming with shifting cultivation and some are settled farmers.
- Shuar are Indigenous People of the neo-tropical lowland Amazonas region of Southeastern Ecuador, numbering about 40,000 to 110,000 people. They have traditionally lived in small, scattered households living from horticulture, foraging, hunting and fishing. Since the 1940s, centralized villages were gradually formed after Christian missionization, but some communities continue to practice a largely traditional way of life (Urlacher *et al.* 2016).
- Siona-Secoya are an Indigenous People of the northwest Amazon in Ecuador, Colombia and Peru, numbering about 1,000 people at the beginning of the 1990s. They speak closely related and mutually intelligible dialects and both groups are descended from the Encabellado, a once large ethnic population in the Northwestern Amazon. They live in scattered households or small villages and practice a traditional subsistence economy of slash-and-burn gardening, hunting, fishing and collecting (Vickers 1994).

Sustainability is a widely applied concept that is often not specifically defined. The definitions can vary widely (e.g. Moore *et al.* 2017), especially when applied to different contexts such as ecological, socio-political and economic sustainability. Perhaps the broadest and most used political vision of sustainability was expressed in the Brundtland Commission, as ‘*development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs*’ (Brundtland 1987). A useful definition for sustainable wildlife use was coined by the US Wild Bird Conservation Act of 1992, federal regulation 50CFR Part 15: ‘*Sustainable use means the use of a species in a manner and at a level such that populations of the species are maintained at biologically viable levels for the long term and involves a determination of the productive capacity of the species and its ecosystem, in order to ensure that utilization does not exceed those capacities or the ability of the population to reproduce, maintain itself and perform its role or function in its ecosystem.*’ Recommendations and strategies for wild meat management might differ when approached from the angle of ecological, socio-political or economic sustainability.

Swa Mbuti see Pygmy

Therianthropes are representations of people with animal features.

Wai Wai are an Indigenous People in Brazil and Guyana. In Guyana, they are the smallest Indigenous tribe with a single community (Edwards & Gibson 1979; Shaffer *et al.* 2017). They live off swidden horticulture of mainly cassava supplemented by hunting and fishing (Shaffer *et al.* 2017).

Wet markets are typically marketplaces selling fresh meat, fish, produce and other perishable goods in contrast to dry markets that sell durable goods. Not all wet markets sell live animals but because wet markets stock together animals of different kinds often in unsanitary conditions, these are potential breeding grounds for zoonotic diseases, such as COVID-19, SARS, and MERS. Wet markets are common in many parts of the world, but mostly associated with the Asia-Pacific.

Wild meat see Box 1.1

Yanomami are the largest relatively isolated Indigenous tribe in South America, living in the Amazon Basin of northern Brazil and southern Venezuela. They maintain a traditional lifestyle of hunting, fishing, gathering and swidden horticulture (Albert & Le Tourneau 2007).

Yassa are a Bantu-speaking population in coastal Cameroon. They live sympatrically with Bakola Pygmies and Mvae. They are principally a fishing population but also practice subsistence agriculture (Koppert *et al.* 1993).

Yuqui are an Indigenous People of the Amazon Basin in Eastern Bolivia.

Having adopted a settled life-style and practicing some agriculture since the 1960s, they continue to rely on hunting as their sole source of protein (Stearman & Redford 1995).

Zoonotic diseases are defined by the WHO and FAO as '*those diseases and infections which are naturally transmitted between vertebrate animals and man*' (Joint FAO/WHO Expert Committee on Zoonoses *et al.* 1959).