

## **Nature, Resources, and Power**

### **Towards a Socio-Environmental and More-than-Human History of Congo**

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#### **Abstract**

This review article surveys selected literature on Congolese history centered on the themes of wildlife management, agriculture, and mining – three key sectors of the (post)colonial economy – and points towards a set of debates that have significance beyond Congo itself. It indicates how the integration of environmental history, social history, and more-than-human approaches renews historical perspectives, methodologies, and narratives. It contends that the analytical categories necessary to grasp the distribution of socio-environmental inequalities must transcend traditional dichotomies between precolonial/colonial/independence regimes, colonisers and colonised, local and global, North and South, nature versus human populations. In this respect, historians must complicate categories concerning environmental uses. Finally, it posits that socio-environmental and more-than-human narratives draw attention to the nature, impact, and historical legacies of human policies, thereby helping us to deconstruct rather than reproduce historically-contingent discourses, paradigms, and categories that have become dominant ever since the colonial era.

**Keywords:** agriculture; animal history; conservation; environmental justice; medical history; mining; pollution

#### ***Environnements, ressources, pouvoirs. Vers une histoire socio-environnementale et plus qu'humaine du Congo***

#### **Résumé**

Cet article analyse les recherches sur l'histoire du Congo centrées sur la gestion de la faune, l'agriculture et l'exploitation minière, trois secteurs clés de l'économie (post)coloniale, à l'aune de perspectives socio-environnementales et met en évidence un ensemble de débats historiographiques dépassant ce seul cas. Il entend montrer comment l'intégration de l'histoire environnementale, de l'histoire sociale, et de perspectives d'histoire plus-qu'humaine renouvelle les approches, méthodes et récits. Il soutient que les catégories analytiques nécessaires à l'appréhension des inégalités socio-environnementales ne peuvent reposer uniquement sur les dichotomies traditionnelles entre régimes précoloniaux/coloniaux/nationaux, colonisateurs et colonisés, local et global, nature et populations humaines, et que les historiens et historiennes doivent affiner les catégories concernant les usages environnementaux pour appréhender ceux-ci plus finement. Il souligne de plus que les récits d'histoire socio-environnementale et plus-qu'humaine permettent de mieux appréhender la teneur, les incidences et les héritages historiques des politiques humaines, formant ainsi de précieux adjutants pour déconstruire plutôt que reproduire des discours, paradigmes et catégories historiquement contingents mais devenus dominants depuis l'ère coloniale, y compris dans les récits académiques.

**Mots-clés :** agriculture ; conservation ; développement ; histoire animale ; histoire de la santé ; industrie minière ; justice environnementale ; pollution



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The Democratic Republic of Congo is one of the most biodiverse countries in the world, with ecosystems ranging from savannah grasslands to tropical rainforests.<sup>1</sup> The country, as Theodore Trefon aptly describes, has “the resources the world needs.”<sup>2</sup> Historically, the management of natural resources, including rainforests, wildlife, rivers, and minerals, has informed the fortunes of the Congolese state and its inhabitants. Tracing the history of the Bantu expansion, which started some 5,000 years ago, Jan Vansina afforded human-environment interactions a central role in Congo’s early history.<sup>3</sup> Interdisciplinary research has shown, for instance, that the Bantu expansion “avoided unfamiliar rainforest habitats by following savannah corridors that emerged from the Congo rainforest, probably from climate change.”<sup>4</sup> A period of warming, approximately 2,500 years ago, created pathways through the rainforest along which Bantu language speakers spread.<sup>5</sup> The dynamism of how Batwa hunter-gatherers and agriculturalists engineered environments, interacted with more sedentary Bantu agriculturalists, and how rulers tried to control environmental resources has been acknowledged as a key element of longue durée history.<sup>6</sup> The presence or absence of acephalous societies, chiefdoms, and centralised states proved to be intimately related to regional resources, patterns of trade, and the ways in which polities extracted wealth from their environments.<sup>7</sup> The ivory trade, for example, spurred both the rise and demise of Msiri and Hamid bin Muhammed el Murjebi-Tippu Tip’s polities in the nineteenth century. The interaction between people and the environment was thus dialectical: whereas environmental factors fundamentally shaped human polities, patterns of agricultural production, and forms of cultural expression, human actions also decisively altered environments, though not always as they had initially intended.<sup>8</sup>

The environment has remained deeply politicised throughout the colonial and post-colonial periods. Colonial rule was premised on resource and social control and involved intimate attempts at environmental management.<sup>9</sup> While the Congo Free State and the Belgian Congo regimes derived profits from ivory, rubber, and other finite resources requiring high degrees of mobility until at least the 1930s, the focus by the turn of the twentieth century switched to environmental management policies and large-scale plantations of cotton, coffee, and palm oil, as well as copper mining.<sup>10</sup> After independence, the one-party state continued to rely on further developing the conservation policies devised under colonial rule and on extracting wealth from Congo’s natural resources, such as timber, cobalt, and gold. The distribution of this wealth has sparked long-standing conflicts between local, national, and international actors. Paradoxically, ostensible environmental ‘wealth’ has coincided with widespread poverty and precarity, compounded by climate change.<sup>11</sup> This shows that, despite centuries-long attempts to control Congolese environments and extract wealth from the country’s natural resources, environments remain ‘rebellious’, as Esther Marijnen has so eloquently argued.<sup>12</sup>

This review article traces how environments have constantly been contested within complex and overlapping political and social landscapes of power. We selectively survey literature on Congolese history

<sup>1</sup> Harrison Ian J., Brummett Randall and Stiassny Melanie L.J. (2018), “Congo River Basin”, in C. M. Finlayson *et al.* (eds.), *The Wetland Book II: Distribution, Description, and Conservation*, Dordrecht, Springer, pp. 1199-1216.

<sup>2</sup> Trefon Theodore (2016), *Congo’s Environmental Paradox: Potential and Predation in a Land of Plenty*, London, Zed Books.

<sup>3</sup> Vansina Jan (1990), *Paths in the Rainforests: Toward a History of Political Tradition in Equatorial Africa*, Madison, The University of Wisconsin Press.

<sup>4</sup> Grollemund Rebecca *et al.* (2015), “Bantu Expansion Shows that Habitat Alters the Route and Pace of Human Dispersals”, *PNAS*, 112(43), pp. 13296-13301.

<sup>5</sup> Bostoen Koen (2018), “The Bantu Expansion”, *Oxford Research Encyclopedia of African History*. Online. Accessed October 28, 2024. URL: <https://doi.org/10.1093/acrefore/9780190277734.013.191>.

<sup>6</sup> Klieman Kairn A. (2003), ‘The Pygmies Were our Compass’. *Bantu and Batwa in the History of West Central Africa, Early Times to c. 1900 C.E.*, Portsmouth, Heinemann, pp. 170-177; Vansina Jan (2004), *How Societies Are Born: Governance in West Central Africa Before 1600*, Charlottesville, University of Virginia Press; De Luna Kathryn M. (2016), *Collecting Food, Cultivating People: Subsistence and Society in Central Africa*, Yale University Press; Mathys Gillian (2014), “People on the Move: Frontiers, Borders, Mobility and History in the Lake Kivu Region 19<sup>th</sup>-20<sup>th</sup> Century”, PhD Thesis, Ghent University.

<sup>7</sup> Vansina J., *Paths in the Rainforests...*, *op. cit.*

<sup>8</sup> Bostoen K., “The Bantu Expansion...”, *op. cit.*

<sup>9</sup> Ross Corey (2017), *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World*, Oxford, Oxford University Press.

<sup>10</sup> Jewsiewicki Bogumil (1982), “Rural Society and the Belgian Colonial Economy”, in D. Birmingham and P. Martin (eds.), *History of Central Africa*, 2, New York, Longman, pp. 95-125.

<sup>11</sup> Trefon T., *Congo’s Environmental Paradox...*, *op. cit.*

<sup>12</sup> Marijnen Esther (2021), “Lakes as Rebellious Landscapes: From ‘Fishing Rebels’ to ‘Fishy State Officials’ in DR Congo,” *Geoforum*, 133, pp. 208-216.

centered on the themes of wildlife management, agriculture, and mining – three key sectors of the (post)colonial economy. We zoom in particularly on the twentieth century, a period of dramatic socio-environmental upheaval, to indicate how the integration of environmental and social history renews historical perspectives, methodologies, and narratives. We utilise the framework of environmental justice, which allows historians to better understand the relationship between environmental changes and power relations by shedding light on “the socio-spatial distribution and recognition of environmental benefits and burdens within human populations.”<sup>13</sup> Furthermore, we integrate more-than-human perspectives within socio-environmental historical narratives, with the aim to foreground the materiality and impact of environmental changes and to critically address the production of (colonial) knowledge and epistemic categories about environmental changes as a product of power relations with lasting influence, including in our own discipline.<sup>14</sup>

Congolese environmental history holds importance for African and global environmental history in several respects – and we will return to these arguments in the conclusion. First of all, Congolese examples show how environmental injustice has been produced historically, intensifying particularly in the colonial period. Secondly, by integrating more-than-human perspectives within socio-environmental historical narratives the question of agency in Congolese history can be reopened and meta-narratives based on environmental justice perspectives can be refined. Thirdly, Congolese environmental history elucidates discourses about ‘development’ and ‘sustainability’ and the socio-environmental effects these had on ecosystems, multispecies assemblages, and power relations. Finally, a focus on Congolese environmental history sheds light on debates about ‘coloniality’, thereby questioning periodisations of precolonial/colonial/postcolonial and also placing regional boundaries in sharper relief. This article foregrounds the rich historiography that has been produced on Congolese environmental history. While our survey is definitely not exhaustive, it does point towards a set of coherent debates that have significance beyond Congo itself and speak to the Anthropocene at large. We conclude by examining broader academic discussions as well as stimulating research pathways emerging from the cross-fertilisation of socio-environmental and more-than-human historical perspectives.

## The Politics of Wildlife Management

By exploring the complex and contested history of wildlife appropriation and conservation since the late nineteenth century, this section sheds light on how schemes to manage wildlife populations could – in some cases – heighten violent exploitation. Animals have historically played a key role in the rise and demise of Congolese polities. The increase in the regional trade of wildlife products, especially ivory, in Central Africa from the fifth century CE fostered the formation of territorial chiefdoms, and later centralised regimes. From the sixteenth century onwards, the economies of ivory and slavery flourished in Central West Africa, feeding the increasing Western demand for ivory and the Atlantic slave trade.<sup>15</sup> In the eighteenth- and nineteenth-century Congo River basin, African extractive networks interweaving slavery and ivory extraction disrupted socio-political structures and furthered internal social inequalities. While Bangala, Bobangi, Boloki, and Bateke chiefs and entrepreneurs involved in the trade concentrated wealth, social prestige, and political and military power, the system also fed Western economies<sup>16</sup> and opened the door to more intensive forms of exploitation. In the last decades of the nineteenth century, ivory exploitation reached industrial proportions in Central Africa, driven by global demand and facilitated in the West by European traders and in the East by ivory caravans and Zanzibari colonisation. In the Lake Tanganyika region, Tippu Tip captured stocks of ivory previously amassed by headmen whom he conquered, further developed the ivory and slave networks from Kasongo from the 1870s, and built a commercial empire allowing him to obtain ivory from tribute. Populations and African middleman in Manyema, the heart of Tippu Tip’s empire, and along the Congo River, opposed resistance to looting and occupation by the ivory traders but endured violent reprisals. The mass slaughtering of elephants associated with both the Atlantic and Zanzibari networks caused the ivory

<sup>13</sup> Massard-Gilbaud Geneviève and Rodger Richard (eds.) (2011), *Environmental and Social Justice in the City: Historical Perspectives*, Cambridge, The White Horse Press; Nygren Anja (2013), “Eco-Imperialism and Environmental Justice”, in S. Lockie, D. A. Sonnenfeld and D. R. Fischer (eds.), *Routledge International Handbook of Social and Environmental Change*, London, Routledge, pp. 58-69.

<sup>14</sup> See Davis Diana K. (2015), “Historical Approaches to Political Ecology”, in T. Perreault, G. Bridge and J. McCarthy (eds.), *The Routledge Handbook of Political Ecology*, Oxon/New York, Routledge, pp. 263-275.

<sup>15</sup> Klieman K. A., ‘The Pygmies Were our Compass’, *op. cit.*, pp. 170-177; Harms Robert W. (1981), *River of Wealth, River of Sorrow: The Central Zaire Basin in the Era of the Slave and Ivory Trade*, New Haven, Yale University Press.

<sup>16</sup> Harms R. W. *River of Wealth...*, *op. cit.*

frontier to move westward. Thus, the depletion of animals was entwined with the further expansion of the trade and the related upheavals in the neighbouring villages. In the late nineteenth-century, European colonial conquest relied on the socio-environmental disruptions associated with these trade networks. As argued by Tamara Giles-Vernick for the Sangha River basin, the colonial extraction of game and ivory continued and intensified “earlier... patterns of game exploitation.” After allying itself with the ivory traders and brokers, the Congo Free State overpowered them through alliances, confiscations, and armed conflicts. Despite the anti-slavery rhetoric, the Congo Free State’s agents resorted to looting, raiding for food, ivory, captives and slaves, violent attacks, and killings.<sup>17</sup>

Hunting played a pivotal role in colonial occupation, feeding the members of large expeditions while allowing hunters and soldiers to test, claim, and assert their symbolic and material dominance over hunted animals, territories, and people. Despite the symbolic importance of colonial hunting, the provision of game meat largely relied on African hunters.<sup>18</sup> Other animal resources – primarily ivory – fed the expansion of the Congo Free State. The regime developed a monopoly-oriented appropriation of ivory based on the appropriation of so-called ‘vacant’ lands (see part 2), taxes in kind, and forced labour.<sup>19</sup> The exploitation of wild rubber from the Congo basin forests constituted another economic pillar of the regime. The gathering of large amounts of rubber in the concessions and *terres domaniales*, predicated on forced labour, violence and torture, was met by adaptations as well as by flight, resistance, and revolts which were brutally repressed. Several decades ago, Robert Harms had demonstrated how the depletion of wild rubber vines associated with the Congo Free State’s predatory economy, which accelerated when pressurised workers had to cut the vines to meet the required quotas, as well as the related resistance and rebellions, played a key role in the decline of rubber production, even before the rise of (inter)national criticism on the rubber system. Such works, which foreshadow environmental justice analyses, show that colonial agents, rubber companies, their shareholders, the Congo Free State, and, in a lesser way, African collaborators – among them former slaves –, captured short-term rubber incomes while the Congolese collectors were being forced to venture further and further into the forest as the rubber frontier was receding. Furthermore, the destruction of villages in the rubber areas, the marked decrease in food crop production, and the associated food shortages, a chronic state of stress and fear, as well as work in and emigration to unhealthy environments, contributed to the general weakening and demographic decline of the population while land grabbing and new work patterns further disrupted political and socio-environmental structures.<sup>20</sup> Thus, because multispecies assemblages of wild animals and plants underpinned the economy of the Congo Free State, socio-environmental perspectives shed additional light on the distribution of the benefits and burdens associated with the regime’s exploitation and the material structures of the latter. To date, however, few studies have integrated the impact of the depletion of Congo’s animals and landscapes into social and political history perspectives.

<sup>17</sup> Sherif Abdul (1987), *Slaves, Spices & Ivory in Zanzibar*, Oxford, James Currey, pp. 185-195; Harms R. W. *River of Wealth...*, *op. cit.*; Harms Robert W. (2019), *Land of Tears. The Exploration and Exploitation of Equatorial Africa*, New York, Basic Books; Nelson Samuel H. (1994), *Colonialism in the Congo Basin. 1880-1940*, Athens, Ohio University Center for International Studies, pp. 42-78; Likaka Osumaka (1994), “Rural Protest: The Mbole against Belgian Rule”, *The International Journal of African Historical Studies*, 27(3), pp. 589-617; Exenberger Andreas and Hartmann Simon (2013), “Extractive Institutions in the Congo. Checks and Balances in the *longue durée*,” in E. Frankema and F. Buelens (eds.), *Colonial Exploitation and Economic Development. The Belgian Congo and the Netherland Indies Compared*, London/New York, Routledge, pp. 18-40; Giles-Vernick Tamara (2002), *Cutting the Vines of the Past. Environmental Histories of the Central African Rain Forest*, Charlottesville, The University Press of Virginia, pp. 169-170; Van Schuylbergh Patricia (2020), *Faune sauvage et colonisation. Une histoire de destruction et de protection de la nature congolaise (1885-1960)*, Brussels, Peter Lang, pp. 47-60; Macola, Giacomo and Hogan, Jack (2020), “Guerrilla Warfare in Katanga: The Sanga Rebellion of the 1890s and Its Suppression,” in M. Lawrence (ed.), *Insurgency and Counterinsurgency in the Nineteenth Century. A Global History*, London, Routledge, pp. 872-894.

<sup>18</sup> Harms, R. W., *Land of Tears...*, *op. cit.*; Arzel Lancelot (2014), “À la guerre comme à la chasse? Une anthropologie historique de la violence coloniale dans l’État indépendant du Congo (1885-1908),” in C. Lanneau, P.-L. Plasman and P. Van Schuylbergh (eds.), *l’Afrique belge aux XIX<sup>e</sup> et XX<sup>e</sup> siècles. Nouvelles recherches et perspectives en histoire coloniale*, Brussels, Peter Lang, pp. 145-159; Gissibl Bernhard (2016), *The Nature of German Imperialism: Conservation and the Politics of Wildlife in Colonial East Africa*, New York, Berghahn Books; Van Schuylbergh P., *Faune sauvage...* *op. cit.*, pp. 40-47, 67-76.

<sup>19</sup> Likaka O., “Rural Protest,” *art. cit.*; Van Schuylbergh P., *Faune sauvage...* *op. cit.*, pp. 60-66, 84-90.

<sup>20</sup> Harms Robert (1975), “The End of Red Rubber: A Reassessment,” *The Journal of African History*, 16(1), pp. 73-88; Vangroenweghe Daniel (2010 [1986]), *Du sang sur les lianes. Léopold II et son Congo*, Brussels, Aden; Ngbwakwa Te Mobusa (1993), “L’exploitation du caoutchouc par l’État indépendant du Congo dans le territoire de Banzyville, district de l’Ubangui (1900-1908),” *Civilisations*, 41 (93), pp. 291-306; Likaka O., “Rural Protest,” *art. cit.*; Nelson S. H., *Colonialism in the Congo Basin...*, *op. cit.*, pp. 96-112; Harms, R. W. *Land of Tears...*, *op. cit.*, pp. 361-447.

The same is true for the impact of conservation measures. The Congo Free State implemented fauna protection laws in 1901, as a means of ensuring the perennial exploitation of wildlife and in order to meet growing international concern in the wake of the London International Convention for the Preservation of Wild Animals, Birds, and Fish in Africa (1900). The laws passed by the Congo Free State and the Belgian Congo governments aimed to develop the settling and the social and economic control of African populations by governing hunting and fishing practices and restricting the latter mainly to the subsistence economy, thus disregarding regional and transcontinental trade networks,<sup>21</sup> as well as patterns of cohabitation and conflict between rural communities and wild animals.<sup>22</sup> While the constant iterations of the legal framework mirrored, and failed to counter, the development of a routine economy of ‘poaching’<sup>23</sup> the latter was not considered as a major issue as long as the transcultural exploitation of wildlife continued to benefit the state through the supply of meat to soldiers and workers, or the collection of revenues from hunting licences and taxes. Statistical tables drawn up by Patricia Van Schuylenbergh reveal annual ivory export levels for the Belgian Congo period that were regularly equivalent to, or higher than, those of the Leopoldian regime.<sup>24</sup> The numerous continuities between the Congo Free State and the Belgian Congo regimes therefore also include the predatory commodification of Congolese wildlife despite, and even through, conservation law.<sup>25</sup>

Recent “animal-sensitive history” perspectives,<sup>26</sup> which consider animals as individuals and agents, rather than only as populations and species, have shed further light on the intertwining of protection policies with extraction schemes. They show that the fauna protection law also allowed the development of new, colonial, scientific and recreational uses of wildlife, including of the most protected species, as is attested by the export of specimens and trophies to Western zoos, colonial exhibitions, museums, and scientific institutions. In this case also, the development of extractive networks relied on African intermediaries, informants, and workers who were officially prohibited from accessing protected species.<sup>27</sup> Thus, complex dynamics of conflict, engagement, and collaboration, in line with wider socio-political dynamics, complicated the dichotomy between rulers and ruled.<sup>28</sup> Accordingly, the inefficiency of the protection law seemed to result not only from disciplinary shortcomings, such as understaffing, as is often argued in the historiography of Belgian Congo as well as other colonial states in Africa. It also stemmed from the utilitarian ethos that permeated the legal framework, which intrinsically bore the seeds of (illegal) appropriation. Thus, fauna management and protection measures changed patterns of animal exploitation rather than slowing down its pace.

An important pillar of colonial protection consisted of reserving tracts of land under different legal statuses, from hunting and forest reserves to national parks, established during the interwar period and characterised by their stricter status. Historians have placed the development of Congo’s national parks within the framework of transnational and transimperial epistemic networks which allowed for the framing of the parks as both pre- and ahistorical landscapes and cosmopolitan ‘labscapes’, which would allow international scientists to study an imagined, naturalised, past-and-present.<sup>29</sup> Such a definition of the parks implied the exclusion of use and land rights within their borders. The eviction of thousands of inhabitants from national parks provoked latent tensions and sharp conflicts. As demonstrated by Joseph Nzabandora Ndi Mubanzi

<sup>21</sup> Nzabandora Ndi Mubanzi Joseph (2003), “Histoire de conserver. Évolution des relations socio-économiques et ethnoécologiques entre les parcs nationaux du Kivu et les populations avoisinantes (RD Congo),” PhD thesis, Université Libre de Bruxelles; Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit., pp. 103-109.

<sup>22</sup> See for instance: Vangroenweghe D., *Du sang sur les lianes...*, op. cit., p. 264.

<sup>23</sup> Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit., pp. 112-114, 233-245, 249-251; Van Schuylenbergh Patricia (2009), “Entre délinquance et résistance au Congo belge: l’interprétation coloniale du braconnage,” *Afrique & Histoire*, 7(1), pp. 25-48.

<sup>24</sup> Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit., pp. 84-90, 238, 251-53. On the supply of meat: Van Schuylenbergh P., “Entre délinquance et résistance,” art.cit., pp. 33-38.

<sup>25</sup> Pouillard Violette (2016), “Conservation et captures animales au Congo belge (1908-1960). Vers une histoire de la matérialité des politiques de gestion de la faune,” *Revue historique*, 679, pp. 577-604.

<sup>26</sup> Swart Sandra (2016), “Writing Animals into African History,” *Critical African Studies*, 8 (2), p. 97.

<sup>27</sup> Pouillard Violette (2019), *Histoire des zoos par les animaux. Impérialisme, contrôle, conservation*, Ceyzérieu, Champ Vallon, pp. 236-286. See also Jacobs Nancy (2006), “The Intimate Politics of Ornithology in Colonial Africa,” *Comparative Studies in Society and History*, 48(3), pp. 564-603; Steinhart Edward I. (2006), *Black Poachers, White Hunters: A Social History of Hunting in Colonial Kenya*, Athens, Ohio University Press, pp. 108-109, 113-137; Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit., pp. 140-166.

<sup>28</sup> Cooper Frederick (1994), “Conflict and Connection: Rethinking Colonial African History,” *The American Historical Review*, 99(5), pp. 1516-1545. See also Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit.

<sup>29</sup> De Bont Raf (2021), *Nature’s Diplomats: Science, Internationalism, and Preservation, 1920-1960*, Pittsburgh, University of Pittsburgh Press; Van Schuylenbergh P., *Faune sauvage et colonisation...*, op. cit., pp. 189-223, 258-295.

in his study of the Albert/Virunga National Park, the colonial epistemologies which informed the park's policies were absolutely foreign to the Kivu population. The park privatised inalienable collective lands as well as sacred ancestral sites which played a central role in the communities' socio-political cohesion and economic prosperity, resulting in a loss of independence and land-based socio-political status. Furthermore, since the expropriation procedures took advantage of asymmetrical power relationships, they sowed the seeds of intractable legal conflicts.<sup>30</sup>

The historiography has insisted on the official definition of the parks as "enclaves totally or partially excluded from colonial politics and agendas," through "a sanctuarisation of nature dedicated to science."<sup>31</sup> However, animal history perspectives, because they give importance to minor gestures such as the collection of rodents, help to deconstruct such official definitions of nature protection by shedding light on the impact of colonial scientific, recreational, and touristic uses of animals within the parks, among them the collection of millions of animal specimens.<sup>32</sup> The case of Congo appears particularly interesting because Congo's national parks were labelled as *réserves naturelles intégrales*, the strictest nature reserves in Africa, in which touristic and economic uses of animals were much less developed than in other national parks.<sup>33</sup> By paying attention to the close relationship between exploitation and protection schemes, animal studies also encourage us to reconsider the role of protected areas within the colonial economy at large. National parks certainly acted as a conservationist counterweight to economic development. However, they also helped to legitimise the rise of export-oriented industrial and agricultural activities outside their borders. In Kivu, the development of the Albert National Park paralleled the implementation of large-scale plantations of cotton, coffee, tea, pyrethrum, and cinchona.<sup>34</sup> By focusing either on nature reserves or on development schemes, rather than on regional socio-environmental landscapes, the historiography reproduces colonial forms of territorialisation and tends to overlook the convergence between reserves and economic development schemes.<sup>35</sup> The fact that local authorities and colonial economic actors driven by productivist motives often offered only half-hearted support for land conservation schemes<sup>36</sup> may have encouraged such an academic compartmentalisation.

As a result of academic compartmentalisation and limited interest for the history of non-human actors involved in protection schemes, historical and political ecology studies on (post)colonial wildlife protection policies in Congo, and in Africa more broadly, have tended to portray the interests of humans and (protected) animals as intrinsically opposed. The meta-narrative of eco-imperialism, based on a number of sophisticated case studies,<sup>37</sup> posits that (post)colonial protectors of nature in the Global South, "place the well-being of nature above the well-being of human populations" and "value the protection of endangered species more than the well-being of local people."<sup>38</sup> While such works have importantly shed light on the colonial roots of coercive environmental policies, socio-environmental and more-than-human perspectives allow us to complicate dualistic narratives which differentiate national parks as sanctuarised spaces and protected species as preserved species on the one hand, and anthropogenic exploitation on the other.

Finally, the unique combination of environmental, economic, and political assets offered by the colonial wildlife protection framework helps to explain why Congolese political leaders, backed by international organisations and NGOs, renewed their support for national parks and species protection after independence.

<sup>30</sup> Nzabandora Ndi Mubanzi J., "Histoire de conserver," *art. cit.*, pp. 148–276; Van Schuylenger P., *Faune sauvage et colonisation...*, *op. cit.*, pp. 299–325.

<sup>31</sup> Van Schuylenger P., *Faune sauvage et colonisation...*, *op. cit.*, pp. 227–228, 327 (translation by authors).

<sup>32</sup> Pouillard Violette (2024), "The socio-environmental footprint of natural history collections: colonial conservation policies and animal extraction", in S. Van Beurden, D. Gondola and A. Lacaille (eds.), *(Re)Making Collections. Origins, Trajectories & Reconnections*, Tervueren, MRAC, pp. 179–188. See also, on the utilitarian nature of national parks management: Van Schuylenger Patricia (2009), "Congo Nature Factory. Wetenschappelijke netwerken en voorbeelden van Belgisch-Nederlandse uitwisselingen (1885–1940)," *Jaarboek voor Ecologische Geschiedenis*, pp. 95–96, 101.

<sup>33</sup> Shanguhyia Martin S. (2018), "Colonialism and the African Environment," in M. S. Shanguhyia and T. Falola (eds.), *The Palgrave Handbook of African Colonial and Postcolonial History*, New York, Palgrave Macmillan, p. 60.

<sup>34</sup> Nzabandora Ndi Mubanzi J., "Histoire de conserver," *op. cit.*, p. 218; Likaka Osumaka (1997), *Rural Society and Cotton in Colonial Zaire*, Madison, The University of Wisconsin Press.

<sup>35</sup> This is not the case with the historiography of neoliberal conservation, whose attention to *longue durée* nevertheless remains limited. See also, for the Sangha River basin (CAR), Giles-Vernick T., *Cutting the Vines of the Past...*, *op. cit.* However, this work focuses on conservation policies from the 1990s and pays limited attention to colonial conservation measures.

<sup>36</sup> Van Schuylenger P., *Faune sauvage et colonisation...*, *op. cit.*, pp. 278–279, 297–325.

<sup>37</sup> See for instance Neumann Roderick P. (2002), *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa*, Los Angeles, University of California Press.

<sup>38</sup> Nygren A., "Eco-imperialism," *art. cit.*

While open resistance against the parks increased after the Second World War and fueled independence claims, the park model proved to be particularly tenacious.<sup>39</sup> Mobutu Sese Seko's regime further developed the national park schemes, by implementing new parks based on former colonial reserves, promoting park tourism, and strengthening exclusionary, coercive measures, which now involved 'shoot-to-kill' policies against poachers. To this day, national parks have remained contested landscapes affected by violent conflicts with deep historical roots.<sup>40</sup> As argued by political ecologists Judith Verweijen and Esther Marijnen, the conservation narratives surrounding the Kivu parks overemphasise violent armed insurgency, while criminalising acts of subsistence poaching and political resistance, and downplaying legal forms of protest, in an area marked by economic and refugee crises, wars, as well as by long-term land grabbing, increasing population density, and farm land scarcity (see part 2)<sup>41</sup>.

The complex and contested history of wildlife exploitation and conservation illuminates the socio-environmental conflicts resulting from top-down policies which have reshaped historical patterns of resource management by both imposing constraints and prohibitions and paving the way for the development of new forms of exploitation. The historiography has partly reproduced colonial spatialisation logics, by focusing either on protected areas or on wildlife exploitation and agricultural or mining programmes. By simultaneously addressing the intertwined development of nature parks as well as extractive and agro-industrial schemes, all of which exacerbated the lack of access to land and livelihoods for rural communities, we can generate new historical insights about the production of social inequalities and environmental disruptions. Thus, the themes of agriculture and mining are addressed in the next sections to highlight how environmental injustices emerged from combined environmental management schemes.

## Agriculture, Land, and Production

Agricultural production has been a sphere in which attempts at environmental management have played out particularly clearly. The wealth derived from the land through agricultural production has been the basis of virtually all Congolese polities since Bantu speaking groups founded more sedentary agricultural settlements in the first millennium CE.<sup>42</sup> Paired to varying extents with hunting, fishing, animal husbandry, and the foraging of a range of wild produce, shifting agriculture enabled livelihood provision, but it also informed cultural practices, rituals, and political organisation.<sup>43</sup> In the late nineteenth century, influential rulers such as Tippu Tip and Msiri owned vast fields which were worked by their extended households and a servile population. The Zanzibari slave plantations established to supply the long-distance coastal trade caused significant social disruption. Thus, on the eve of colonisation, the existing patterns of agricultural production had already been fundamentally transformed in many regions. Alongside the ivory trade, such disruptions facilitated colonial conquest, which brought with it further erosion of the land tenure system.<sup>44</sup>

The majority of recent works on the history of colonial agriculture in Congo approach the topic from social history, rural history, science studies, commodity studies, or development studies perspectives. Different from older academic works,<sup>45</sup> environments mostly appear as a historical background, briefly mentioned to acknowledge the entanglement of "labour, land, and ecology" in rural production, or to allude

<sup>39</sup> Van Schuylenger P., "Entre délinquance et résistance," art. cit., pp. 41-42. See also Beinart William (2000), "African History and Environmental History," *African Affairs*, 99(395), p. 282; Blanc Guillaume (2020), *L'Invention du colonialisme vert. Pour en finir avec le mythe de l'Éden africain*, Paris, Flammarion.

<sup>40</sup> Nzabandora Ndi Mubanzi J., "Histoire de conserver," art. cit., pp. 344-377; Marijnen Esther and Verweijen Judith (2016), "Selling Green Militarization: The Discursive (Re)Production of Militarized Conservation in the Virunga National Park, Democratic Republic of the Congo," *Geoforum*, 75, pp. 274-285; Marijnen Esther (2018), "Public Authority and Conservation in Areas of Armed Conflict: Virunga National Park as a 'State Within a State' in Eastern Congo," *Development and Change*, 49(3), pp. 790-814; Trogisch Lisa and Fletcher Robert (2022), "Fortress tourism: exploring dynamics of tourism, security and peace around the Virunga transboundary conservation area," *Journal of Sustainable Tourism*, 30 (2-3), pp. 352-371. See also Ross C., *Ecology and Power...*, op. cit., pp. 394-396; Gissibl Bernhard, Höhler Sabine and Kupper Patrick (2012), "Introduction. Towards a Global History of National Parks," in B. Gissibl, S. Höhler and P. Kupper (eds.), *Civilizing Nature. National Parks in Global Historical Perspective*, New York/Oxford, Berghahn, pp. 1-27.

<sup>41</sup> Marijnen E. and Verweijen J., "Selling Green Militarization," art. cit.

<sup>42</sup> Bostoen K., "The Bantu Expansion," art. cit.

<sup>43</sup> Vansina J., *Paths in the Rainforest...*, op. cit.; Nelson S. H., *Colonialism in the Congo Basin...*, op. cit.

<sup>44</sup> Jewsiewicki Bogumil (1983), *Modernisation ou destruction du village africain: L'économie politique de la "modernisation agricole" au Congo Belge*, Brussels, CEDAF.

<sup>45</sup> See for instance Jewsiewicki Bogumil (1979), "Introduction," *African Economic History*, 7, pp. 2-8.

to the (lack of) consideration for environmental factors such as soil types in colonial planning.<sup>46</sup> While the socio-environmental history of agriculture in Congo is still largely awaiting its historians, the historiography offers stimulating insights into the intertwined dimensions of authoritarian power, agricultural patterns and, albeit often implicitly, associated environmental disturbances.

The Congo Free State regime appropriated allegedly ‘vacant’ land, which constituted “the basis for collective security and social mobility” for rural communities, and converted it into *terres domaniales*, large parts of which were granted to concessionary companies.<sup>47</sup> While “it is impossible to speak of a Leopoldian agricultural policy,” the Belgian colonial state further restructured land tenure by granting land concessions to Europeans, and banned itinerant agriculture, which “was adapted to the interrelated activities of hunting, fishing and food-gathering,” to harness land and labour.<sup>48</sup> It imposed sedentary agriculture, including compulsory cultivation (*cultures obligatoires*), which was enforced from 1917 through head taxes and the collaboration of headmen and colonial intermediaries.<sup>49</sup> In both concession areas and settler-managed estates, African smallholders were increasingly excluded from independent economic production in order to minimise competition and to integrate them into colonial labour regimes.<sup>50</sup>

The large-scale restructuring of land uses and the land-labour nexus provoked significant environmental changes that beg further study. Colonial cultivation schemes required large-scale land clearing, including the felling of ancient forests. The destruction of peasant cultivation systems and the development of monocultures provoked soil erosion and exhaustion and increased the spread of plant diseases and crop pests.<sup>51</sup>

From the Congo Free State era, and even more so after the inception of the colonial Department of Agriculture (1910), colonial services attempted to scientifically ‘improve’ African agriculture by relying on transimperial epistemic networks. Concern gradually extended to colonial agriculture itself, whose socio-environmental risks became increasingly clear from the 1940s.<sup>52</sup> The role of technical expertise further expanded following the foundation of the National Institute for Agronomic Research in the Congo (INEAC) in 1933.<sup>53</sup> However, the associated technical ‘improvements’ also contributed to the entrenchment of the concession system.<sup>54</sup> Furthermore, programmes that aimed to ‘rationalise’ agricultural practices, to rectify previous (colonial) failures and/or ease peasant resistance, could in turn trigger failures and ecological disruptions.<sup>55</sup> INEAC played an important role in the development of the *paysannats* scheme, which exemplifies the agricultural reforms of the post-Great Depression era and was further expanded in the framework of the Ten Year Development Plan to counter rural exodus and the environmental risks associated with colonial monocultures. Although the *paysannats* – which remained limited in scope, encompassing less than 10% of the rural population by the mid-1950s – improved farmers’ incomes, they relied on a top-down scientific

<sup>46</sup> Likaka O., *Rural Society and Cotton...*, *op. cit.*, p. 12; Nelson S. H., *Colonialism in the Congo Basin...*, *op. cit.*; Van Melkebeke Sven (2020), *Dissimilar Coffee Frontiers: Mobilizing Labor and Land in the Lake Kivu Region, Congo and Rwanda (1918-1960/62)*, Leiden, Brill, pp. 13, 78.

<sup>47</sup> Van Acker Frank (2005), “Where Did All the Land Go? Enclosure & Social Struggle in Kivu (D.R. Congo),” *Review of African Political Economy*, 32(103), p. 83.

<sup>48</sup> Jewsiewicki B., “Rural Society,” *art. cit.* pp. 99, 112.

<sup>49</sup> Clement Piet (2013), “The land tenure system in the Congo, 1885-1960. Actors, motivations, and consequences,” in E. Frankema and F. Buelens (eds.), *Colonial Exploitation and Economic Development. The Belgian Congo and the Netherland Indies Compared*, London/New York, Routledge, pp. 88-108; Likaka O., *Rural Society and Cotton...*, *op. cit.*; Likaka O., “Rural Protest”, *art. cit.*

<sup>50</sup> Likaka O., *Rural Society and Cotton...*, *op. cit.*; Clarence-Smith William G., “Rubber cultivation in Indonesia and the Congo from the 1910s to the 1950s. Divergent paths,” in E. Frankema and F. Buelens (eds.), *Colonial Exploitation and Economic Development. The Belgian Congo and the Netherland Indies Compared*, London/New York, Routledge, pp. 193-210; Van Melkebeke S., *Dissimilar Coffee Frontiers...*, *op. cit.*, pp. 38-42, 94-95; Henriet Benoît (2021), *Colonial Impotence. Virtue and Violence in a Congolese Concession (1911-1940)*, Berlin/Boston, De Gruyter.

<sup>51</sup> Jewsiewicki B., “Introduction,” *art. cit.*, p. 4; Mokili Danga Kassa Jeannott (1998), *Politiques agricoles et promotion rurale au Congo-Zaire (1885-1997)*, Paris, L’Harmattan, pp. 118, 155-158; Likaka O., *Rural Society and Cotton...*, *op. cit.*; Van Melkebeke S., *Dissimilar Coffee Frontiers...*, *op. cit.*, p. 15; Clement Piet (2014), “Rural Development in the Belgian Congo. The Late-colonial ‘Indigenous Peasantry’ Programme and its Implementation in the Equateur District (1950s),” *Bulletin des Séances de l’Académie royale des Sciences d’Outre-Mer*, 60(2), pp. 251-286; Henriet B., *Colonial Impotence...*, *op. cit.*

<sup>52</sup> Menge Wemo (2001), *Le Transfert du savoir agricole au Congo-Zaire*, Paris, L’Harmattan; Van Schuylbergh P., “Congo Nature Factory,” *art. cit.*; Vekemans, Charlotte and Segers, Yves (2020), “Settler farming, agricultural colonisation and development in Katanga (Belgian Congo), 1910-1920,” *Historia Agraria*, 81, pp. 195-226.

<sup>53</sup> Menge W., *Le Transfert du savoir...*, *op. cit.*

<sup>54</sup> Likaka O., *Rural Society and Cotton...*, *op. cit.*, pp. 37-38.

<sup>55</sup> Clement P., “Rural Development,” *art. cit.*, p. 265; Vekemans, C. and Segers, Y. “Settler farming,” *art. cit.* See also Henriet B., *Colonial Impotence...*, *op. cit.*, ch. 6.

ideology and on the authoritarian control of rural life through resettlement policies, obligations to comply with INEAC planning, and price fixing mechanisms. While the programme paid more attention to African agricultural techniques, the latter were incorporated *within* colonial planning and technical development.<sup>56</sup> Thus, although historiography on science production in colonial Africa has insisted on the “interpenetration of knowledge,”<sup>57</sup> hybridity had a limited impact in Congo due to the pervasiveness of top-down ideologies and associated agro-economic programmes.

The “systematic dismantling of the rural economy” resulted in an increase in environmental and health risks.<sup>58</sup> Labour-intensive compulsory cultivation, alongside other mandatory work and wage labour, competed with subsistence cultivation, gathering, hunting, and fishing, which resulted in labour bottlenecks and disrupted food production patterns, as was the case during the rubber regime.<sup>59</sup> African peasants revolted both openly and clandestinely against the imposition of colonial programmes and adapted by resorting to collective solidarity mechanisms or the continuation of peasant practices, for instance by intercropping mandatory cash crops with food crops. However, they could not always avoid labour diversion resulting in malnutrition and food shortages. Osumaka Likaka mentions the marginalisation and abandonment of staple crops such as nutrient-rich millet and eleusine by Azande peasants, who were forced to cultivate cotton, despite the fact that these food crops played an important role in child nutrition. In the longer term, however, peasant resistance forced the colonial authorities to ease the most coercive aspects of agricultural production so as not to impinge upon economic productivity.<sup>60</sup>

(Limited) colonial technical developments encompassed mechanisation as well as the use of chemical fertilisers from the mid-1930s and insecticides and pesticides from the 1950s onwards.<sup>61</sup> Sven Van Melkebeke provides us with a powerful example of the associated side effects by mentioning that in the 1950s in the Belgian-mandated Ruanda, women who, alongside children, played a key role in both smallholder and plantation cultivation, “in some cases [...] even brought their babies while treating [coffee] bushes with insecticides containing hazardous materials.”<sup>62</sup> Thus, both the economic risks and environmental and health externalities associated with export-oriented agricultural schemes rested mainly on peasant shoulders and intersected with social, racial, and gender inequalities. Further research into environmental and health risks in rural areas could improve our understanding of socio-environmental inequalities associated with ‘development’ schemes, and in so doing help us to reframe ‘improvement,’ ‘rationalisation,’ and (soil) conservation programmes as part of, and a condition for, the continuation of older production models – as was the case for wildlife conservation programmes.<sup>63</sup> While much has been written on the socio-environmental effects of agricultural intensification,<sup>64</sup> such a perspective is still largely missing in the historiography of Congo, which often remains imbued with a modernising, developmentalist, and scientific ethos.<sup>65</sup>

As was the case for wildlife management, the asymmetries in the distribution of the benefits and burdens associated with the exploitation of agricultural resources developed further after independence. As underlined by Jean-Philippe Peemans, “the ideology of modernisation was shared by many categories of African

<sup>56</sup> Jewsiewicki B., “Rural society,” art. cit., p. 116; Menge W., *Le Transfert du savoir...*, *op. cit.*; Danga Kassa M., *Politiques agricoles...*, *op. cit.*, pp. 167-180; Clement P., “Land tenure”, art. cit., pp. 102-103; Clement P., “Rural Development,” art. cit., pp. 251-286.

<sup>57</sup> Beinart William, Brown Karen and Gilfoyle Daniel (2009), “Experts and Expertise in Colonial Africa Reconsidered: Science and the Interpenetration of Knowledge,” *African Affairs*, 108(432), pp. 413-433. The “interpenetration of knowledge” refers to how scientists participated in “global, and quite unpredictable, flows of information” and that “local networks, practices, and discussions could also influence their work,” p. 424.

<sup>58</sup> Peemans Jean-Philippe (2016), “La question de la place du monde paysan dans le développement rural en RDC : une perspective historique de longue période,” *Cahiers africains, Conjonctures congolaises* 2015, 87, p. 120.

<sup>59</sup> Likaka O., *Rural Society and Cotton...*, *op. cit.*; Nelson S. H., *Colonialism in the Congo Basin...*, *op. cit.*, pp. 173-174.

<sup>60</sup> Jewsiewicki B., “Rural society,” art. cit., pp. 118-123; Likaka O., *Rural Society and Cotton...*, *op. cit.*; Likaka O., “Rural Protest,” art. cit.; Van Melkebeke S., *Dissimilar Coffee Frontiers...*, *op. cit.*; Nelson S. H., *Colonialism in the Congo Basin...*, *op. cit.*, p. 174. See also Benoît Henriet’s ERC research project *FORAGENCY, Foraging, Fishing and Hunting as Agency in Colonial Central Africa (c. 1885 - c. 1960)*. Online. Accessed October 28, 2024. URL: <https://ercforagency.eu/>.

<sup>61</sup> Mokili Danga Kassa J., *Politiques agricoles...*, *op. cit.*; Likaka O., *Rural Society and Cotton...*, *op. cit.*, pp. 31, 39-41; Van Melkebeke S., *Dissimilar Coffee Frontiers...*, *op. cit.*, pp. 15-16, 214.

<sup>62</sup> Van Melkebeke S., *Dissimilar Coffee Frontiers...*, *op. cit.*, p. 237. On the (hidden) role of women and children in colonial agriculture, see also Likaka O., *Rural Society and Cotton...*, *op. cit.*; Henriet B., *Colonial Impotence...*, *op. cit.*, ch. 4.

<sup>63</sup> See Shanguhya’s discussion “Colonialism and the African Environment,” art. cit., pp. 61-63.

<sup>64</sup> See for instance De Keyzer Maïka (ed.) (2023), *Tot de bodem. De toekomst van landbouw in Vlaanderen*, Leuven, Leuven University Press; Ross C., *Ecology and Power...*, *op. cit.*, pp. 382-391.

<sup>65</sup> Notable exceptions include Bogumil Jewsiewicki’s and Jean-Philippe Peemans’ works.

elites, and therefore the anti-peasant vision had become widespread.”<sup>66</sup> If during the colonial era many peasants maintained access to their land, from 1973, Zairianisation policies as well as land policies aiming to modernise and control agricultural production and commercialisation led to further land grabbing in favour of private actors accumulating land as political and economic capital.<sup>67</sup> As in the case of conservationist enclosures, land-based conflicts have often been reframed in terms of ethnic conflicts, militarisation, and the collapse of the state, despite their position in a complex, multi-layered historical past.<sup>68</sup> Notable is the leading role of Congolese peasant organisations in attempting to secure land tenure, developing economic projects, and lobbying the government.<sup>69</sup>

## Mining and Urban Environmental Change

Congo is world-renowned for the diversity and richness of its mineral deposits. In 1892, the Belgian mineral prospector Jules Cornet famously referred to the southern region of Katanga as a “geological scandal.”<sup>70</sup> Copper, cobalt, gold, uranium, diamonds, lithium, and other minerals can all be extracted in large amounts, particularly in the south and the east of the country. Industrial and artisanal resource extraction have both been studied from a range of perspectives, including attention for labour organisation, economic fluctuations, political economy, state power, and issues such as the social life of mining communities.<sup>71</sup> Yet, surprisingly, environmental issues have received relatively little attention so far from historians. This is remarkable, as mining causes profound and blatant effects: air pollution from smelters, acid spills in rivers that kill fish, widespread occupational diseases, such as bronchitis, asthma, and skin rashes, and wilted or absent vegetation in the vicinity of processing plants have been evident for decades. Whereas conservation measures can protect wildlife and agricultural yields can be sustained for decades under prudent conditions, “sustainable mining” has proven to be an oxymoron. This section therefore reviews what environmental historians can contribute to the rich literature on mining in Congo.

From as early as the sixth century CE, copper deposits have been worked in Congo’s Katanga region. Standardised ingots (*croisettes*) fed into the long-distance trade, reaching the Indian and Atlantic Ocean coasts from the fourteenth century onwards.<sup>72</sup> While copper mining generated considerable wealth and allowed centralised political entities to emerge, the environmental impacts of this type of decentralised mining remained relatively limited. The emergence of large-scale, industrialised, colonial copper mining at the turn of the twentieth century marked a real rupture in this respect. Archival research reveals that mining engineers and colonial officials were acutely aware of the consequences of industrial mining and of issues of pollution, even at the start of the twentieth century. In 1936, *Union Minière du Haut-Katanga* engineers noted that monthly 2,500 tons of sulphur dioxide were emitted by Lubumbashi’s copper smelter. Still, complaints by surrounding residents about “the inconvenience of the fumes” were dismissed as “strongly exaggerated.”<sup>73</sup> Although UMHK managers could have minimised the smoke nuisance using chemical methods or by building a higher chimney for dilution, they instead proposed to transfer operations and “desulfurise the

<sup>66</sup> Peemans Jean-Philippe (2014), “Land Grabbing and Development History: The Congolese (RDC) Experience,” in A. Ansoms and T. Hilhorst (eds.), *Losing Your Land: Dispossession in the Great Lakes*, Oxford, James Currey, p. 13.

<sup>67</sup> Mokili Danga Kassa J., *Politiques agricoles...*, *op. cit.*, pp. 331-343, 352-375, 407-421; Van Acker F., “Where Did All the Land Go?,” *art. cit.*; Peemans J.-P., “Land Grabbing,” *art. cit.*; Peemans J.-P., “La question de la place du monde paysan”, *art. cit.*, pp. 121-128; Fairhead James (2005), “Transnational Dimensions to Environmental Resource Dynamics. Modes of Governance and Local Resource Management in Eastern DRC,” in Q. Gausset, M. A. Whyte and T. Birch-Thomsen (eds.), *Beyond Territory and Scarcity: Exploring Conflicts Over Natural Resource Management*, Nordiska Afrikainstitutet, pp. 195-215; Van Leeuwen Mathijs and *al.* (2022), “From Resolving Land Disputes to Agrarian Justice – Dealing with the Structural Crisis of Plantation Agriculture in Eastern DR Congo,” *Journal of Peasant Studies*, 49(2), pp. 309-334.

<sup>68</sup> Van Acker F., “Where Did All the Land Go?,” *art. cit.*, pp. 94-96; Peemans J.-P., “Land Grabbing,” *art. cit.*, pp. 21-23.

<sup>69</sup> Mokili Danga Kassa J., *Politiques agricoles...*, *op. cit.*, pp. 476-480, 511-533; Van Leeuwen M. and *al.*, “From Resolving Land Disputes,” *art. cit.*

<sup>70</sup> Cornet Jules (1916), *Bibliographie géologique du bassin du Congo*, Liège, H. Vaillant-Carmanne.

<sup>71</sup> For Katanga, this literature is surveyed in Larmer Miles *et al.* (eds.) (2021), *Across the Copperbelt: Urban & Social Change in Central Africa’s Borderland Communities*, Oxford, James Currey.

<sup>72</sup> Nikis Nicolas and Livingstone Smith Alexandre (2017), “Copper, Trade and Polities: Exchange Networks in Southern Central Africa in the 2<sup>nd</sup> Millennium CE,” *Journal of Southern African History*, 43(5), pp. 895-911.

<sup>73</sup> Archives générales du royaume (AGR) II, UMHK, 316, “Fumées des usines de Lubumbashi, Justification et examen des conséquences du transfert éventuel des opérations de grillage à Kipushi”, 19 June 1936.

minerals" in the smaller town of Kipushi where "the risks of criticism are less severe" than in Lubumbashi.<sup>74</sup> The silencing of environmental concerns continued well into the post-colonial period, underpinned by economicistic considerations of profit maximisation and a repressive political climate under Mobutu's one-party regime. Even a 2009 study by Célestin Lubaba Nkuluba et al. could still argue that "the human health impact of the historic and current mining and processing of non-ferrous metals in the African Copperbelt is not known."<sup>75</sup> Using biomonitoring, this study revealed that metal exposure, including lead, cadmium, and uranium, especially in children, was substantially elevated, with significant health effects as a result. The urinary cobalt concentrations were "the highest ever reported for a general population." Much interdisciplinary research has been conducted since then, which has clarified the health and environmental risks of living in such a heavily industrialised area.<sup>76</sup> A later study found that the consumption of polluted vegetables and fish, as well as the ingestion of dust and contaminated drinking water, all incurred significant health risks.<sup>77</sup> Studies by Yannick Useni Sikuzani and François Munyemba Kankumbi have used aerial photographs to map deforestation patterns in Katanga, around Lubumbashi specifically. Noting a steady trend of deforestation over time, they identified agriculture, charcoal production, urban expansion and population growth, and mining as the main causes of decreased forest cover.<sup>78</sup> The work of Sarah Katz-Lavigne and Timothy Makori has, meanwhile, innovatively focused on artisanal mining that feeds off industrial mining, sometimes even utilising its waste dumps directly. They have shown, in nuanced ways, why artisanal mineworkers knowingly risk their health for the profits of copper and cobalt extraction.<sup>79</sup>

In the mines in Eastern Congo interdisciplinary research has equally been conducted, focusing on the environmental and health effects of industrial and artisanal mining. Bossissi Nkuba, Lieven Bervoets, and Sara Geenen show, for example, why artisanal miners continue to use mercury in gold extraction, despite its known negative environmental and health effects.<sup>80</sup> They emphasise the attractiveness of short-term economic benefits over long-term health and environmental gains which might accrue from giving up mercury use. Others have shown how a push to ensure "conflict-free minerals" and "green solutions", particularly of cobalt which is a crucial mineral to enable the "green transition", might paradoxically lead to more disarticulation, dispossession, and deadly pollution.<sup>81</sup> The resulting "decarbonisation divide", meaning that Europe and the US can decarbonise and "go green" using Congo's cobalt and copper while leaving mining communities in Katanga and Kivu with severe pollution, underlines the pernicious and long-lasting effects of "toxic colonialism."<sup>82</sup> This is a feature of what Theodore Trefon calls "Congo's environmental paradox": Congo has many of the resources needed to fuel the globalised economy, but it appears to be trapped in the "resource curse" which merely harms its environment.<sup>83</sup> Prudent natural resource governance and adherence to international environmental norms is instead advocated to reverse this vicious cycle.

What can environmental history add to these interdisciplinary perspectives? Primarily, environmental historians can challenge the chronology and concept of 'development.' Whilst political economy perspectives emphasise economic boom and bust or regime change as the main turning points in Congo's extractive

<sup>74</sup> Peša Iva (2021), "Between Waste and Profit: Environmental Values on the Central African Copperbelt," *The Extractive Industries and Society*, 8(4), pp. 1-8.

<sup>75</sup> Lubaba Nkuluba Célestin et al. (2009), "High Human Exposure to Cobalt and Other Metals in Katanga, a Mining Area of the Democratic Republic of Congo," *Environmental Research*, 109(6), pp. 745-752.

<sup>76</sup> Mushagalusa Balasha Arsene and Peša Iva (2023), "They Polluted Our Cropfields and Our Rivers, They Killed Us: Farmers' Complaints about Mining Pollution in the Katangese Copperbelt," *Heliyon*, 9(4), pp. 1-14; Marijse Simon and Munga Mwisha Thierry (2022), "Taming Air and Water: The Fight against *Shimoke* in Artisanal and Small-Scale Gold Mining in South Kivu," *The Extractive Industries and Society*, 12, pp. 1-12.

<sup>77</sup> Cheyns Karlien et al. (2014), "Pathways of Human Exposure to Cobalt in Katanga, a Mining Area of the D.R. Congo," *The Science of the Total Environment*, 15(490), pp. 313-321.

<sup>78</sup> Useni Sikuzani Yannick et al. (2017), "Le rayon de déforestation autour de la ville de Lubumbashi (Haut-Katanga, R.D. Congo)", *Tropicultura*, 35(3), pp. 215-221.

<sup>79</sup> Katz-Lavigne Sarah (2020), "Qui ne risque rien, n'a rien": Conflict, Distributional Outcomes, and Property Rights in the Copper- and Cobalt-Mining Sector of the DRC," PhD Thesis, University of Groningen ; Makori Timothy (2017), "Mobilizing the Past: Creuseurs, Precarity and the Colonizing Structure in the Congo Copperbelt," *Africa*, 87(4), pp. 780-805.

<sup>80</sup> Nkuba Bossissi, Bervoets Lieven and Geenen Sara (2019), "Invisible and Ignored? Local Perspectives on Mercury in Congolese Gold Mining," *Journal of Cleaner Production*, 221, pp. 795-804.

<sup>81</sup> Radley Ben and Vogel Christoph (2015), "Fighting Windmills in Eastern Congo? The Ambiguous Impact of the 'Conflict Minerals' Movement," *The Extractive Industries and Society*, 2(3), pp. 406-410.

<sup>82</sup> Sovacool Benjamin K. et al. (2020), "The Decarbonisation Divide: Contextualizing Landscapes of Low-Carbon Exploitation and Toxicity in Africa," *Global Environmental Change*, 60, pp. 1-19.

<sup>83</sup> Trefon T., *Congo's Environmental Paradox...*, *op. cit.*

histories, environmental historians can offer an alternative chronology. Rather than adhering rigidly to turning points such as colonialism/decolonisation or democratisation after Mobutu's rule, environmental history underlines the gradual and incremental nature of "slow violence."<sup>84</sup> Legacies of toxicity, constantly intensifying since the start of industrialised resource extraction under colonialism, could not be simply reversed through political decision-making. Despite rhetoric about 'sustainable mining' and adherence to international rules, such as emissions quota and Environmental Impact Assessments, the deleterious effects of resource extraction have deepened in the twenty-first century. Secondly, and related to issues of chronology, paying attention to environmental change provides a different view of what development entails. Whilst accounts of Congolese history have often been structured around the long period of economic decline after the slump in copper prices in the late 1970s, and the fledgling recovery since copper prices rose again in 2004 which attracted multinational and particularly Chinese investment, environmental histories paint a different picture.<sup>85</sup> Histories of urban agriculture, notably by Alex Nyumbaiza Tambwe, detail how urban residents in the Copperbelt made a living by growing crops.<sup>86</sup> Vegetable marketing enabled households to weather the economic crisis of the 1990s and made forms of urbanism possible, which were independent of mining.<sup>87</sup> This suggests that forms of development were possible beyond waged employment and that historical change should not simply be measured according to the boom and bust of mining cycles, even in quintessential 'mining communities.'

## Concluding Remarks

There is a broad historical consensus that colonialism "speeded up the process of transformation" of African environments.<sup>88</sup> The development of transcontinental commodification networks had already sharply accelerated this transformation process since the fifteenth century. However, the pace and impact of resource capture increased to such an extent during the colonial period that it marked a socio-environmental turning point.<sup>89</sup> By connecting the socio-environmental threads of older peasant studies and more recent environmental history works, by building on critical political ecology insights and reading between the lines of development studies, by drawing from interdisciplinary insights and addressing life science works as historically situated products, and dominant scientific and conservationist paradigms as colonial products, this article has shown how socio-environmental and more-than-human histories of Congo contribute to shed light on the way the intertwined economic, environmental, and health risks associated with patterns of resource exploitation have intersected with and reinforced (racially-structured) social, gender, age-related, and intergenerational inequalities, leading to deep asymmetries in the distribution of benefits and burdens. Such forms of environmental injustice operate on a range of intersecting scales, from the local to the global level, due to the multiscalar character of the commodification of Congolese resources, as demonstrated by the marketing networks of export-oriented agricultural, wildlife, and mining products. The analytical categories necessary to grasp the distribution of the associated socio-environmental inequalities cannot rely only on traditional dichotomies between precolonial/colonial/national regimes, colonisers and colonised, rulers and ruled, local and global, North and South, and "the well-being of nature" versus "the well-being of human populations."<sup>90</sup> Political economy categories must be refined to include complex patterns of conflict and collaboration (for instance between peasants, headmen, and colonial/postcolonial authorities). Accordingly, historians must complicate categories concerning environmental uses, for example by distinguishing between subsistence-oriented poaching and elite-dominated poaching, between sustainable and predatory uses, and between invasive wildlife conservation programmes, aiming to develop new forms of environmental appropriation, and non-invasive protection policies.<sup>91</sup> In so doing, socio-environmental and more-than-human

<sup>84</sup> Nixon Rob (2011), *Slow Violence and the Environmentalism of the Poor*, Cambridge, Harvard University Press.

<sup>85</sup> Rubbers Benjamin (ed.) (2021), *Inside Mining Capitalism: The Micropolitics of Work on the Zambian and Congolese Copperbelts*, Suffolk, James Currey.

<sup>86</sup> Nyumbaiza Tambwe Alex, Rudolph Michael and Greenstein Ran (2011), "Instead of Begging, I Farm to Feed my Children": Urban Agriculture – An Alternative to Copper and Cobalt in Lubumbashi," *Africa*, 81(3), pp. 391-412.

<sup>87</sup> Peša Iva (2020), "Crops and Copper: Agriculture and Urbanism on the Central African Copperbelt, 1950-2000," *Journal of Southern African Studies*, 46(3), pp. 527-545.

<sup>88</sup> Shanguhyia M. S., "Colonialism and the African Environment," art. cit., p. 45.

<sup>89</sup> Ross C., *Ecology and Power...*, *op. cit.*

<sup>90</sup> Nygren A., "Eco-imperialism," art. cit.

<sup>91</sup> Likaka O., *Rural Society and Cotton...*, *op. cit.*; Titeca Kristof *et al.* (2020), "Conservation as a Social Contract in a Violent Frontier: The Case of (Anti-)Poaching in Garamba National Park, Eastern DR Congo," *Political Geography*, 78, pp. 1-9; Marijnen

perspectives can help to demonstrate the intimacy of environmental and social inequalities, and of socio-environmental inequalities and environmental destruction.<sup>92</sup>

Secondly, while many social sciences narratives focus on human actors, historical research integrating non-human actors and agents as part of the social world draws attention to the substance, impact, and historical legacies of human policies.<sup>93</sup> In so doing, more-than-human narratives can help us to deconstruct rather than reproduce colonial discourses over protection and development policies and to contextualise and re-examine historically-contingent paradigms that have been dominant since the colonial era, and which as a result have influenced the framing of many academic studies. For instance, from the colonial era, discourses on both productivity and sustainability are often imbued with top-down ‘development’ and technical-scientific ideologies.<sup>94</sup> In the area of conservation, the protection of taxa and enclosures dominates, thereby further marginalising other options such as the protection of animals as sentient beings and the protection of socio-environmental landscapes. Paying attention to non-human historical actors and agents thus helps to excavate alternative historical options and knowledge regimes, including by paying more attention to vernacular knowledge – an aspect that needs to be developed much further.

This leads to a third point. Several socio-environmental historical studies reviewed in this article encourage the thorough exploration of marginalised historical paths such as small-scale farming, urban agriculture, or popular wildlife protection policies. By paying attention to demographically-dominant yet politically-excluded actors, such as small-scale farmers (both men and women) and residents of mining areas and protected areas, several works shed light on the way production-oriented and ‘development’ schemes attempted to marginalise rural knowledge as part of the dynamics of land and labour control and at the same time could not avoid relying on the skills and expertise of rural hunters, peasants, and workers.<sup>95</sup> These works attest to the resilience of these historical actors, whose role deserves more attention.

Additionally, deconstructing dominant ‘development’ and conservationist paradigms also requires re-connecting threads between areas of intervention that colonial/postcolonial policies, and many academic studies in their wake, have typically compartmentalised.<sup>96</sup> For instance, this article has pointed out that the exclusion of rural communities from access to land and natural resources in certain areas of the east and south of Congo results from historical colonial and postcolonial processes of land grabbing associated with both conservation programmes and economic exploitation. Local and regional socio-environmental studies are important to better understand how compartmentalised but connected policies reinforce each other in increasing competition and conflicts for access to natural resources.

Thus, much remains to be explored through regional socio-environmental histories. Furthermore, this contribution has only addressed a few themes within the rich and expanding field of research which examines the intersections of environment and society in Congo. Other important themes include forestry management, botany and plant transfers,<sup>97</sup> fishing,<sup>98</sup> livestock farming,<sup>99</sup> urban ecologies, water resource management, and health-related governmentality<sup>100</sup>. Exploring these intertwined histories also requires fostering a critical interdisciplinary collaboration within human and social sciences, and between the latter and life sciences, as environmental history is marked by entanglements between past and present dynamics, local and global scales, as well as human and non-human actors. Finally, the environmental history of Congo has

E., “Lakes as Rebellious Landscapes,” art. cit.; Pouillard V., *Histoire des zoos par les animaux...*, *op. cit.*

<sup>92</sup> Massard-Gilbaud R. and Rodger R. (eds.), *Environmental and Social Justice...*, *op. cit.*

<sup>93</sup> Swart S., “Writing Animals...”, art. cit.; O’Gorman Emily and Gaynor Andrea (2020), “More-Than-Human Histories,” *Environmental History*, 25(4), pp. 711-735.

<sup>94</sup> Peša Iva (2022), “Mining, Waste and Environmental Thought on the Central African Copperbelt, 1950-2000,” *Environment and History*, 28(2), pp. 259-284.

<sup>95</sup> See the special issue edited by Twagira Laura Ann (2020), “Introduction: Africanizing the History of Technology”, *Technology and Culture*, 61(2 Supplement), pp. 1-19.

<sup>96</sup> See for instance Neumann Roderick P. (2015), “Nature Conservation,” in T. Perreault, G. Bridge and J. Mc Carthy (eds.), *The Routledge Handbook of Political Ecology*, London, Routledge, pp. 391-405.

<sup>97</sup> See Denis Diagré’s works.

<sup>98</sup> See Van Schuylenbergh Patricia (2022), “Pisciculture in the Belgian Congo. Sustainable Development *Avant la Lettre?*,” *BMGN – Low Countries Historical Review*, 137(4), pp. 65-86.

<sup>99</sup> See Samuel Cögé’s ERC research project *CATTLEFRONTIERS, (Post)Colonial Cattle Frontiers: Capitalism, Science and Empire in Southern and Central Africa, 1890s-1970s*.

<sup>100</sup> See Lyons Maryinez (2010), *The Colonial Disease. A Social History of Sleeping Sickness in Northern Zaire, 1900-1940*, Cambridge, Cambridge University Press.

focused on the colonial era, and this article has addressed post-colonial patterns mainly by building on the works of historically versed political ecologists and economists. Much remains to be investigated on the pre- and postcolonial eras in order to shed further light on transcultural modes of exploitation which lie at the basis of colonial/postcolonial environmental management, as well as to offer a refined analysis of the colonial era as a socio-environmental watershed.<sup>101</sup>

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<sup>101</sup> See however Jan Vansina’s works.

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