Borassus akeassii facing societal and environmental challenges amid the Gouin society of southwestern Burkina Faso

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Abstract

Borassus akeassii Bayton, Ouédr. & Guinko is a multipurpose palm species historically central to the livelihoods of rural communities in southwestern Burkina Faso, particularly the Gouin society in Gouindougouba. Its traditional uses included the production of palm wine and handcrafted items from various plant parts. However, this longstanding tradition has undergone profound socio-economic changes, threatening the species' continued cultivation and presence.

Based on an ethnographic survey, an ecological assessment and participatory observations, this study reveals a marked decline in *B. akeassii* populations and use in a region where the species has played an important role for local livelihoods. The reduced economic and cultural importance of the species appears to be mainly linked to the decline in palm wine production, once the main product derived from the palm and a major driver of its cultivation. The decline is exacerbated by a rural population transitioning toward more profitable economic activities and distancing from traditional practices.

The erosion of cultural ties to *B. akeassii* can be framed within a broader societal transformation, including shifts in religious habits, changes in dietary patterns, and overall modernization, all of which contribute to the weakening of rituals and knowledge associated with the species. To ensure the sustainable use and conservation of *B. akeassii*, the study advocates for renewed interest in its cultivation and the promotion of its derived products. This promotion could be supported by government-led initiatives, particularly through plantation programs aimed at enhancing its presence in reforestation efforts and strengthening its role in local livelihoods.

Introduction

Borassus akeassii Bayton, Ouédr. & Guinko is a palm species native to the Sudanese and Sudano-Guinean savannahs. It has long been confused with *Borassus aethiopum* (Bayton et al. 2006). In Burkina Faso, the majority of *B. akeassii* populations are found in the southwestern part of the country, mainly in the provinces of Houet, Kénédougou, Léraba and Comoé (Thiombiano et al., 2012), where palm populations are among the most remarkable found in West Africa (Chevalier, 1930; Bellouard, 1950; Nicolas, 1959). These palm stands have been cultivated by local rural communities for centuries (Hébert, 1969). This plant evokes a cultural and economic richness deeply rooted in the region. and is associated with ancestral cultural practices and beliefs. Palm stands are the result of centuries-old farming practices that shaped the livelihood of local communities for centuries (Tauxier, 1933) and local know-how has developed around its cultivation, as well as an active socio-economic life (Vuattoux, 1968). The palm is much more than just a plant and embodies a living heritage at the heart of the cultural fabric of Burkina Faso's western region. Its multiple uses, ranging from food to handicrafts manufacturing, are part of the daily lives of the inhabitants of the region (Portères, 1964; Cassou et al., 1997; Yaméogo et al., 2008). As revealed in previous studies by Coulibaly (2017) and Béné & Fournier, 2021), this plant weaves a web of economic, cultural, and ecological interactions, reflecting a deep connection with traditions and

the environment. Thiombiano et al. (2012) describe the particular setting of southwestern Burkina Faso as especially favourable for the growth of the palm.

The current study focused around the Gouin society in the Gouindougouba village (Comoé province) due to its deep historical and cultural connection with *B. akeassii.* Initially utilized as food item, this species gradually became an essential asset for the Gouin society, where it progressively acquired multiple uses, as material for construction, for handcrafts and tools, but also for traditional ceremonies (Béné & Fournier, 2021). The Gouin have developed specialized knowledge around this palm species, passing it down through generations, making the palm inseparable from their cultural identity and practices.

Despite this large importance in the past, *B. akeassii* is now facing a significant neglect that is compromising the present of this species in the landscape. This case exemplifies how progressive socio-economic transformations, such as lifestyle changes, urbanization, and shifting aspirations, along with ecological shifts driven by agricultural expansion and deforestation, can contribute to the disappearance of a plant species (Laurance et al., 2014; Boonman et al., 2024). The Gouin thus serves as an insightful model for understanding broader societal changes in southwestern Burkina Faso and how these societal transformations heighten the threats and vulnerability of some plant species in the region (Béné et al., 2022).

This study delves into the complex interrelation of social and ecological dynamics that affect over time the importance of *Borassus akeassii* in the way of life of a Gouin rural society.

Material and Methods

Species and study areas

First described in Burkina Faso in 2006 (Bayton et al., 2006; Bayton and Ouédraogo, 2009), *Borassus akeassii* is a dioecious palm. Béné and Fournier (2021) provide insights into the origin and transmission of this palm species in the southwestern part of the country. The characteristics of this species have been meticulously detailed by Arbonnier (2002) and include fire resistance, an impressive height of 20 to 25 metres, and a straight, smooth, light grey trunk, measuring between 30 and 60 cm in diameter (Fig. 1). The fruit clusters, weighing between 25 and 50 kg at maturity, have a greenish hue and usually have three seeds per fruit.

The study was conducted in the southwest of Burkina Faso, in the Gouin society of Gouindougouba, a village located between latitudes 10°30'00" and 10°34'00" north, and longitudes 5°03'00" and 5°09'00" west, in the department of Soubakaniédougou, Comoé province, Cascades region (Fig. 2), about 60 km from Banfora, the capital of the Cascades region and Comoé Province. The village is located at an average altitude of 315 metres a.s.l, on a slightly hilly terrain crossed by temporary and permanent rivers, among which the two most important are the Comoé and the Leraba. The presence of a significant watercourse favors the practice of market gardening.

Gouindougouba literally means in “Bambara”, the local language, “great terroir of the Gouin”. The word is broken down as follows: “*Gouin*” designates the ethnic group, “*dougou”* means land, and “*ba”* translates as large or vast. The village is populated mainly by the Gouin ethnic group, together with other groups, including the Turka, Mossi, and Fulani, among others. According to data from the National Institute of Statistics and Demography (INSD, 2020), the current population of Gouindougouba is estimated at 2,527 inhabitants, with a predominance of women (ca. 51%), and represents an increase compared to 2006, when the inhabitants recorded were 1,954 (INSD, 2008). The local population is spread over seven neighborhoods (Table 1) and is engaged predominantly in agricultural and horticultural activities.

The Gouin are an ethnic group from southwestern Burkina Faso, primarily settled in the Cascades region. Traditionally agricultural, they are well known for cultivating the palm. Their social organization is based on lineage structures, and their cultural practices include animist rituals, although the influence of monotheistic religions is growing. The Gouin share historical and cultural ties with other groups in the region, notably the Toussian, Karaboro, and Turka.

Data collection and analysis

Data collection was mainly based on extensive field surveys conducted in the Gouindougouba village between March and June 2022. A mixed methodology, combining structured and informal interviews, participatory observations, and a literature review, were used to collect comprehensive information. To ensure a balanced representation of socio-cultural aspects related to the palm, the sampling was stratified, taking into account various groups within the targeted rural society, based on age, gender and roles. We conducted ethnographic surveys on practices and local perceptions of *Borassus akeassii*, following conventional methods that consist of free and semi-structured interviews, according to the approach proposed by Olivier de Sardan (2003).

Across the seven neighborhoods of the village, we interviewed 86 resource persons, targeting both men and women over 30 years of age and involving the most competent holders of material and spiritual knowledge, such as heads of households, traditional leaders and individuals making use of palm products (Table 1). These experts were identified through exchanges with customary and administrative authorities and through information obtained from other members of the local society.

The interview guide was based on the standard protocol developed by Cámara-Leret et al. (2015), which includes open-ended questions designed to promote a free and complete expression of the interlocutors. The questionnaire focused mainly on management practices and changes in the uses of *B. akeassii*. The interviews were conducted mainly in the Dioula language, more commonly used by inhabitants and, to a lesser extent, in the local Gouin language, with the support of a translator.

The analysis of responses focused mainly on practices with a direct influence on the dynamics of the palm stands. The interpretation of results involved also comparisons and cross-referencing of the discourses of the interviewees, considering the relative frequency of citations of specific elements and facts, particularly regarding the temporal dynamics of palm stands and local practices.

Table 1
Characteristics and distribution of resource persons interviewed in Gouindougouba.

Sex	Status	Neighbourhood	Number
Man	Village head	Guimtama	01
Man	Village advisor	Tontama	01
Man	Member of the local society (farmer, artisan, etc.)	All Neighborhood	34
Man	Palm wine extractors	Tontama, Guimtama	13
Man	Healer	Kangouetama	01
Man	Notable (*)	All Neighborhood	12
Man	Craftsmen	Guimtama, Guantama	02
Women	Basket makers	Dartama et Tiema	03
Man	Former palm wine extractors	Dablassso, Guantama	11
Women	Member of the local society (weaver, etc.)	Kangouetama, Tiema	08
Total			**86**

(*) We designate as “notable” those individuals who were indicated by other members of the society as “important” in the village.

Results

From subsistence cultivation to enthusiastic support

The survey results reveal significant shifts in the Gouin society’s reliance on the African fan palm (*Borassus akeassii*). Historically, the society began cultivating the palm between the late 18th and early 19th centuries, using seeds acquired from various donor society in the region. Initially valued for its nutritional benefits, particularly its fruit and palm wine, the plant gained prominence during periods of famine, when its products provided sustenance and relief to the rural society. By the 19th century, *B. akeassii* had become deeply integrated into local traditions, serving both economic and symbolic roles. Families established palm stands, and a household’s status was often measured by the number of palms owned. Elderly people aged 60 and above recall with nostalgia the enthusiasm associated with the establishment of new palm.

Throughout the 19th and early 20th centuries, *B. akeassii* became increasingly important in Gouindougouba, particularly under colonial rule. The colonial administration actively promoted the spread of the palm, distributing seeds and encouraging its cultivation to facilitate tax payments. Palm wine and other by-products were widely traded, making the palm a cornerstone of the local economy. The mid-20th century marked the peak of its importance, with palm-derived products playing a crucial

role in construction, toolmaking, and income generation. Despite the introduction of Islam, which discouraged the consumption of palm wine, *B. akeassii* remained central to the society's economic and cultural fabric well into the 1970s.

The past few decades have seen a sharp decline in interest in palm cultivation. Economic and social transformations since the 1980s, including the introduction of short-cycle cash crops, mechanized farming, and urbanization, have contributed to the tree's marginalization. The advent of plastic materials has reduced the demand for traditional basketry, while modern construction techniques have diminished the need for palm-derived building materials. As a result, the role of *B. akeassii* in the local economy has waned. Today, 95% of survey respondents report a noticeable disengagement from palm-related activities.

The generational divide in attitudes towards *B. akeassii* is particularly striking. Elders lament the loss of traditional knowledge and customs associated with the tree, whereas younger generations, drawn to new economic opportunities such as trade and cash crop farming, see little value in its cultivation. The shift towards more modern materials and new income-generating activities is evident also among artisans and farmers, who were historically the primary actors in its exploitation.

Nevertheless, *B. akeassii* continues to hold some cultural and ritual significance, mainly upheld by elders and certain notable figures within the society. In addition, while traditional practices linked to the palm are increasingly rare, modern initiatives, such as the semi-industrial palm wine bottling unit in Banfora, may offer an opportunity to revitalize use of the palm, even if this initiative has a limited impact on the safeguarding of this resource, give nits small scale.

Societal transformation and declining interest in the palm: between nostalgia and modernity

Once a cornerstone of social, cultural, and economic life, the palm and its products, particularly palm wine, are now in decline. Different reasons have been reported as driver of the progressive lack of interest in *B. akeassii* (Fig .3) According to 95% of respondents, the primary reason for the current neglect is the decreasing appeal of the plant and its products; regardless of the ranking, 96% of the respondents mentioned the reduced economic profitability as a cause of progressive abandonment of its cultivation.

Many respondents noted that income generated solely from traditional sap extraction and the sale of by-products (such as fibres, leaves, fruits, and handicrafts) is no longer sufficient to support families. Over 80% of respondents indicated that other more competitive income-generating opportunities are opening up at the expense of traditional exploitation of the palm. Younger generations, in particular, are turning away from sap extraction, which they find labour-intensive and unprofitable. Each palm must be prepared, and the sap-collecting container must be emptied three to four times a day, with each palm producing sap for only about a month. Given theis high labour demand concentrated in a short period, many young people are turning their attention to other activities such as market gardening, causing the number of "palm scratchers" (sap extractors) to dwindle.

The traditional use of palm products, including palm wine for social ceremonies (e.g., rites, weddings, and funerals) has also steadily declined. While palm wine was nearly universally consumed in the 1960s, only 5% of respondents indicated that they still drink it at social gatherings today. This decline has been further exacerbated by the growing influence of Islam, which discourages alcohol consumption.

Elders people nostalgically recall a time when the palm was central to daily life, providing vital resources and symbolizing the richness of their cultural heritage. However, the younger generations are attracted to modernity, prioritizing activities more aligned with contemporary economic and social dynamics. Young girls, for instance, are showing less interest in basketry, partly due to school commitments and the low profitability of the craft, and in other traditional activities based on palm products such as the crafting of beds and rafters. Moreover, the transmission of knowledge about the palm relies exclusively on oral tradition, which accelerates its gradual disappearance as older generations pass away. Furthermore, the gendered dimension of its use is apparent: men, particularly palm wine extractors and village notables, were long the main economic beneficiaries, while women, especially basket weavers and textile artisans, relied on its by-products for handicrafts.

Discussions with locals indicate that palm stands are perceived only by a minority to be negatively affected by changes in climate, while this is the case for annual crops Similarly, the expansion of residential areas due to population growth is considered to have a noticeable effect on palm stands by a minority of respondents.

The combined effects of economic diversification, changing cultural practices, and the erosion of traditional knowledge, as shown in Fig. 4, contribute to the declining importance of *B. akeassii* in the Gouin region.

Bond with the palm: from symbiosis to a growing disconnection

The relationship between the Gouin in Gouindougouba and the *Borassus akeassii* has undergone profound transformations over the past few decades (Fig. 5). The first signs of declining interest in the species emerged in the 1980s, coinciding with significant changes in land use (agricultural expansion, cultivation of new crops, the reduction of fallow), economic diversification, and technological advancements. The introduction of more profitable, short-cycle crops (especially the orchards of mango, cashew, and citrus species) led to land reallocation, limiting the space available for natural regeneration. Despite abundant natural germination, farmers frequently remove young palm shoots to reduce competition with annual crops, further threatening the species' presence, given that the majority of the palm stands are established in cultivated landscapes. Simultaneously, modern materials such as plastics and cement reduced the demand for traditional palm-based products like woven baskets and construction materials. Mechanized farming, urbanization, and the rise of alternative income sources, including trade, crafts, and cash crop farming, drew a significant portion of the population away from palm exploitation.

By the 1990s, beyond economic factors, the spread of Islam and evolving lifestyles further eroded traditional practices. Rituals and customs once closely linked to *B. akeassii* began to fade, diminishing the plant's symbolic and cultural value. This shift accelerated the decline in palm plantations, a trend that intensified in the 2000s. The palm, once a cornerstone of local livelihoods, particularly in financing weddings and paying colonial taxes, was gradually replaced by other economic sources. By the 2010s, exploitation of the palm had become sporadic, its role in daily life had significantly diminished and planting had become extremely rare, or absent.

Elders (aged 60 and above), notably village notables and former palm wine extractors, express regret over this transformation, lamenting the loss of traditional knowledge and the disappearance of sustainable sap extraction techniques. In contrast, younger generations, drawn to modern economic opportunities, increasingly view palm exploitation as labor-intensive and unprofitable. This decline is also evident among women, particularly basket makers, whose craft has been severely impacted by the widespread adoption of plastic alternatives.

Nevertheless, *B. akeassii* remains an integral part of certain cultural practices. Palm wine is still consumed during wedding ceremonies, and a semi-industrial palm wine bottling unit, "Bomba Techno," established in Banfora, offers a potential avenue for revitalizing the sector, despite its limited impact, which remains within the local society. Without renewed efforts to promote sustainable management and transmission of traditional knowledge, the long-term future of *B. akeassii* in the Gouin region is uncertain.

Respondents are fully aware of the gradual decline in interest in this species and its cultivation in southwestern Burkina Faso. However, they show little inclination to actively promote the planting of the palm or the revitalization of its traditional uses. While they express an implicit desire to see this trend reversed, they offer no concrete strategies to achieve it.

Discussion

Dynamics of palm cultivation in relation to social, economic and cultural factors

Social changes, including the gradual abandonment of traditions and the modernization of lifestyles, played a significant role in the decline in interest in the cultivation and use of *Borassus akeassii* among the Gouin of Gouindougouba. As indicated by other authors (Olivier de Sardan, 1995; Apraku et al., 2021; Mukhlis et al., 2022), societies and their practices evolve in response to economic and social changes by adapting their cultural traditions, livelihoods, and resource management strategies. This transformation often influences the way natural resources are utilized, leading to shifts in their conservation, exploitation, or abandonment, depending on emerging socio-economic and environmental dynamics. Cultural and socio-economic changes (Fairhead & Leach, 1994; Kouvouama, 2023), marked by the transition from a traditional to a contemporary Gouin society, affect palm cultivation, as illustrated in this study. These shifts devalue the cultural significance of the species (Neckebrouck, 1986). The information gathered from respondents in the village of Gouindougouba is consistent with findings from other

studies conducted in eastern Burkina Faso (Guissou et al., 2015), and illustrates how modernity increasingly influences local societies. In line with Thomas's (2011) observations on reflexive modernity, a concept referring to the process by which societies critically assess, adapt, and reorganize traditional structures in response to global changes and modern influences, these findings suggest that local communities are not passively absorbing external innovations, but are actively engaging with them, reshaping their cultural and socio-economic practices in the process.

The sustainability of *B. akeassii* is further threatened by the erosion of traditional knowledge due to the lack of skill transmission to younger generations, exacerbated by their disinterest in its cultivation. Oral tradition, once central to knowledge transmission in Africa (Fraser et al., 2015; Sinthumule, 2023), is waning, leading to the loss of associated practices (Akakpo, 2018). In Benin, Juhé-Beaulaton (2006) highlights similar neglect of traditional management rules in sacred groves. Research by Reyes-García et al. (2023) provides a framework for analyzing cultural loss linked to the decline of *B. akeassii*, while Zon et al. (2022) explore sociocultural factors affecting its conservation. The weakening of traditional palm wine extraction and associated rituals supports findings by Porcuna-Ferrer et al. (2024). This broader issue of traditional knowledge erosion extends beyond palm, as seen in the disappearance of the earth lentil due to the loss of ritual practices (Tamini, 1995). The decline of so-called magical plants in Africa, observed by Chevalier (1937), underscores the erosion of associated knowledge and rituals.

Furthermore, the declining economic value of *B. akeassii*, also influence its cultivation in the region. Historically significant both economically and socially (Mbuagbaw and Noorduyn, 2012), the introduction of more profitable alternative activities or crops has significantly depreciated its value. The transition from palm wine extraction to market gardening reflects Sow's (2003) observations on the impact of new activities on cultural practices. Heubach et al. (2013) demonstrate that a plant's conservation is often compromised by its diminishing economic value. The decline of the lentil (*Macrotyloma geocarpum* Maréchal & Baudet) stems primarily from reduced economic viability (Tamini, 1995), while in Togo, economic devaluation has put many food plant varieties at risk of extinction (Akpavi, 2010). Chevalier (1949) noted that many Africans ceased cultivating various plants due to a lack of market demand. Studies by Haesler (2011) and Sabourin (2013) further emphasize the social significance of objects in maintaining cultural bonds.

Additionally, the gradual conversion of the Gouin society to Islam has contributed to declining interest in the palm. Islam's influence on traditional rites has led to the marginalization or abandonment of certain practices deemed incompatible with Islamic precepts. Koné (1958) observed the transformation in palm use, particularly the decline of palm wine consumption once integral to community celebrations and rituals. Islam's prohibition of alcohol has reduced interest in this product, which was also a traditional source of income (Neckebrouck, 1986). Bell (2014) examines the impact of Islam on cultural and ritual practices related to the palm, while Langewiesche (2003) reports on customary leaders acknowledging tensions between tradition and Islamic values. This cultural shift has created intergenerational tensions, as younger generations, more aligned with Islamic values, abandon practices viewed as contradictory (Attané, 2007). However, Parrinder (1959) and Goody (1971) emphasized both the challenges and

opportunities of preserving and adapting palm culture amid religious and social transformation. Indigenous and local knowledge is vital for preserving plant biodiversity (Moussavou, 2014; Ogwu & Osawaru, 2022). The Global Environment Facility (FEM, 2010) advocates for recognizing cultural plant uses to support conservation efforts.

Beyond socio-cultural and economic factors, demographic growth and environmental variability also negatively impact palm stands, although they are less frequently discussed. Anthropogenic pressures on vegetation transformation including deforestation for agriculture, overgrazing, logging, and urbanization, in this region are well documented (Dévineau et al., 2009; Caillault et al., 2012; Nabaloum et al., 2022). In Senegal, Diallo et al. (2023) report that agricultural activities contribute to the degradation of palm stands, by reducing and fragmenting them. Environmental conditions also play a crucial role in palm development. According to Arbonnier (2002), palm stand expansion is influenced by water availability and soil quality, with well-drained, light soils and seasonally flooded areas being particularly favourable for their growth. However, Zon et al. (2025) indicate that *B. akeassii* is less sensitive to climate change.

What could be the prospects for *B. akeassii* conservation and sustainable use?

This case study raises important concerns regarding the conservation of a plant resource that wase once highly valued and now progressively abandoned. The transformations observed in the cultivation of *B. akeassii* in south-western Burkina Faso reflect a global phenomenon, common to many traditional societies. These changes stem from a combination of factors, including evolving socio-economic conditions, urbanization, and the growing influence of modern knowledge and media.

The surveys conducted reveal that although local populations are aware of these ongoing changes, they lack concrete proposals to revitalize the cultivation of *B. akeassii*. Responses concerning how to rekindle interest in the species tend to remain vague, often limited to general suggestions such as establishing dedicated plantations, without outlining clear strategies. In this context, it is legitimate to question which locally appropriate actions could be implemented to preserve this emblematic species.

To prevent the disappearance of *B. akeassii*, an integrated approach combining economic, social, cultural, and environmental strategies appears essential. First and foremost, the protection of the palm stands habitat is a prerequisite for the species' survival. Given that palm stands are often located within fields of annual crops, it is important to communicate to local populations the benefits of integrating palm cultivation with cropping systems. This would encourage the preservation of juvenile palms in farmlands, particularly given the species' high regeneration capacity. In response to increasing pressure on agricultural land, the creation of palm stands or small plantations may also represent a viable alternative, already favoured by some local inhabitants.

Any planting and conservation strategy must necessarily include the promotion of palm-derived products. Palm wine remains appreciated by certain segments of the population, including urban consumers, while the use of the stipe as a construction material presents another promising avenue.

Moreover, the leaves and petioles, which are already processed and exported at both national and international levels, could benefit from further market development.

It would also be relevant to support and revitalize local initiatives such as the enterprise “Bomba Techno”, which are actively working to promote the species. In addition, the development of high value-added products derived from the stipe, fronds or sap of the palm, with appropriate labelling and certification, could offer significant income-generating opportunities for local communities.

However, such initiatives alone are unlikely to be sufficient to fully revive interest in *B. akeassii* and ensure its long-term conservation. Additional support from local authorities, both administrative and traditional, will be crucial to securing the future of this species.

Finally, similar investigations to those carried out on the palm tree could profitably be extended to other cultivated plants, particularly annual species and tuber crops. In certain regions of Burkina Faso, notably the Centre-South and South-West, the cultivation of tubers such as yam (*Dioscorea alata*) and sweet potato (*Ipomoea batatas*) is also in decline, increasingly supplanted by vegetable farming, which has seen remarkable growth in recent years. The same trend affects the cultivation of fonio (*Digitaria exilis*) across West Africa. It would therefore be worthwhile to consider strategies aimed at revitalizing interest in these neglected yet formerly valued species.

Conclusion

This study builds on previous research conducted among other ethnic groups in southwestern Burkina Faso, further emphasizing the central role of human cultural practices in shaping the cultivation dynamics of *Borassus akeassii*. It reveals a notable decline in the species’ cultivation among the Gouin people, driven by shifting socio-economic interests and a diminishing attachment to this once-iconic palm.

Historically integral to the Gouin society’s social, cultural, and economic life, *B. akeassii* is now facing reduced engagement due to broader societal transformations. These include evolving livelihoods, the abandonment of ancestral practices, religious reorientations, and lifestyle modernization, all of which contribute to the erosion of traditional uses and values associated with the palm.

The study underscores the intrinsic link between the sociocultural significance of cultivated plant species and their long-term viability. By shedding light on the interplay between cultural change and plant conservation, it deepens our understanding of human–plant relationships and the socio-ecological consequences of cultural transitions.

Ultimately, this work contributes to discussions on sustainable development and cultural resilience. Its findings support the need for context-sensitive policies that promote the conservation of biocultural heritage while accommodating modern development goals. Preserving *B. akeassii* and similar species

requires integrative strategies that respect traditional knowledge systems while fostering socio-economic innovation.

Declarations

Data Availability

Survey notes and images can be made available by the corresponding authors upon request.

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Ethics declarations

Competing interests

The authors declare no competing interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics approval

All procedures involving human participants in the research adhered to the ethical standards of institutional and national research guidelines. The study received ethical approval prior to field data collection from National Center for Scientific and Technological Research Ethics Committee, Burkina Faso.

Consent to participate

Informed consent was obtained from each respondent, and confidentiality was ensured before conducting the interviews.

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Figures

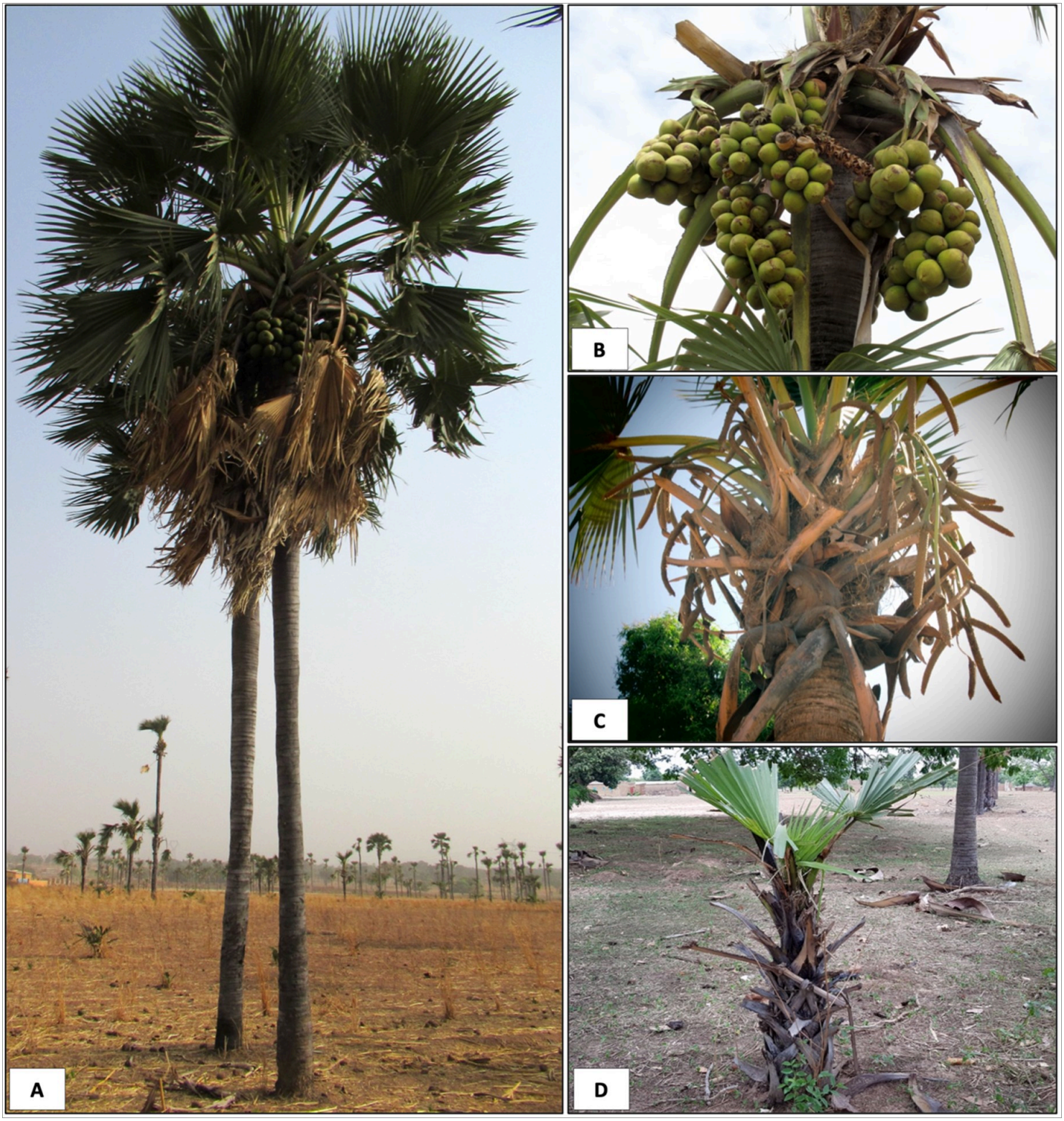

Figure 1

Characteristic features of *Borassus akeassii*: A. Adult individual, B. fruit, C. Male with inflorescence and D. Young plant

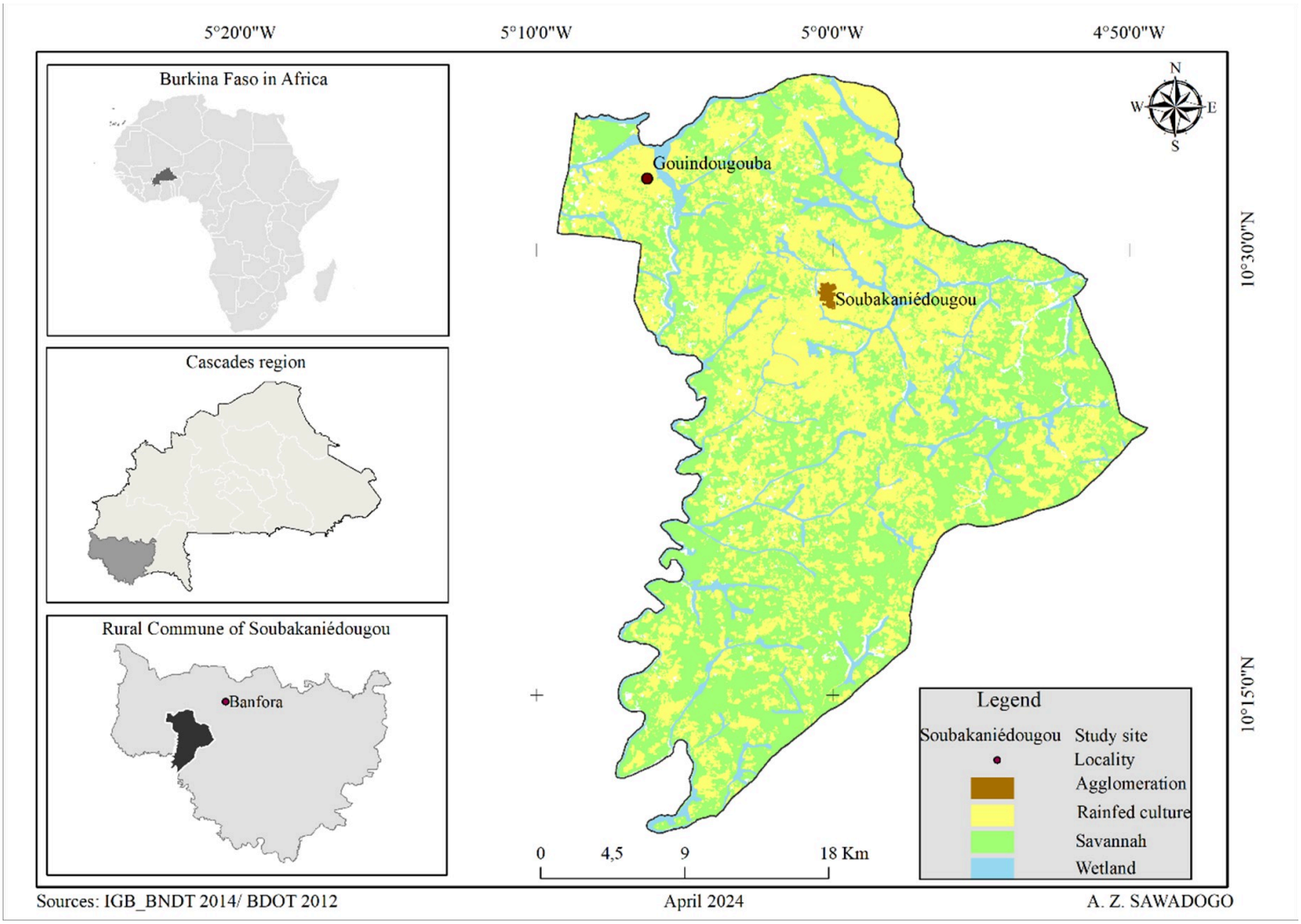

Figure 2

Location of Gouindougouba province and its landscape features

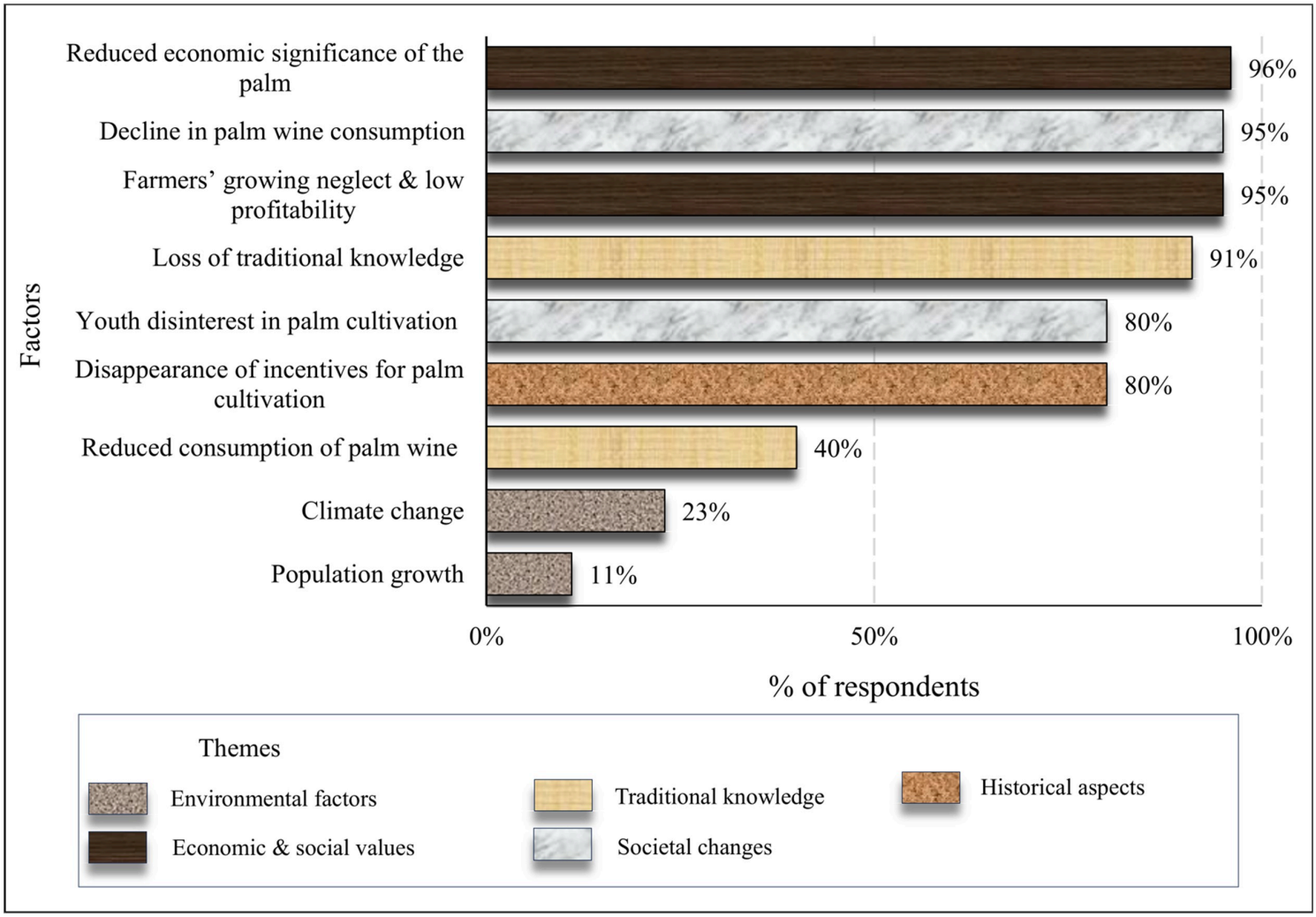

Figure 3

Major factors negatively influencing palm cultivation over time, according to respondents from the Gouin society

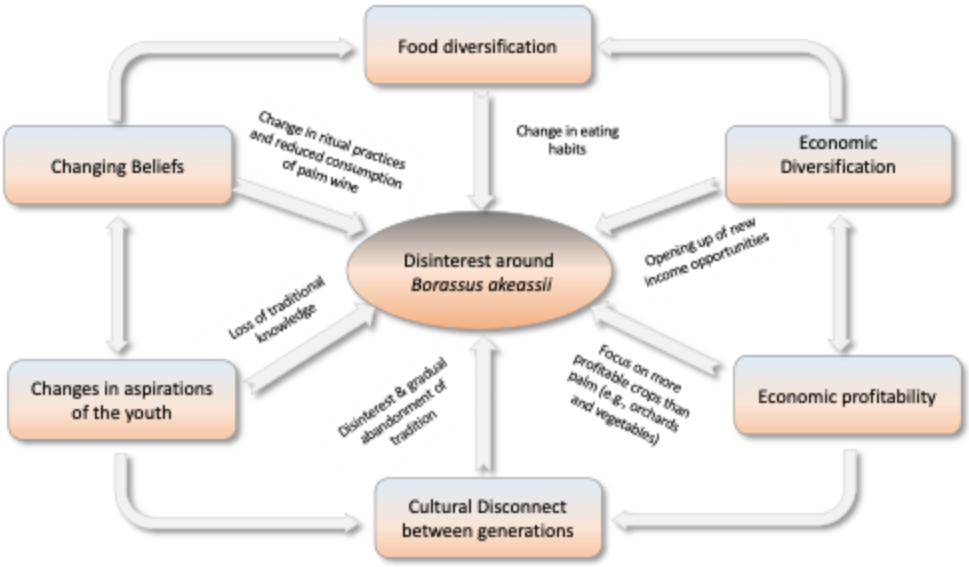

Figure 4

Framework with interrelations among the diverse factors affecting palm cultivation and use among the Gouin. Arrows indicate how the factors at play are interconnected and can act synergistically to influence the dynamics of palm occurrence in the landscape.

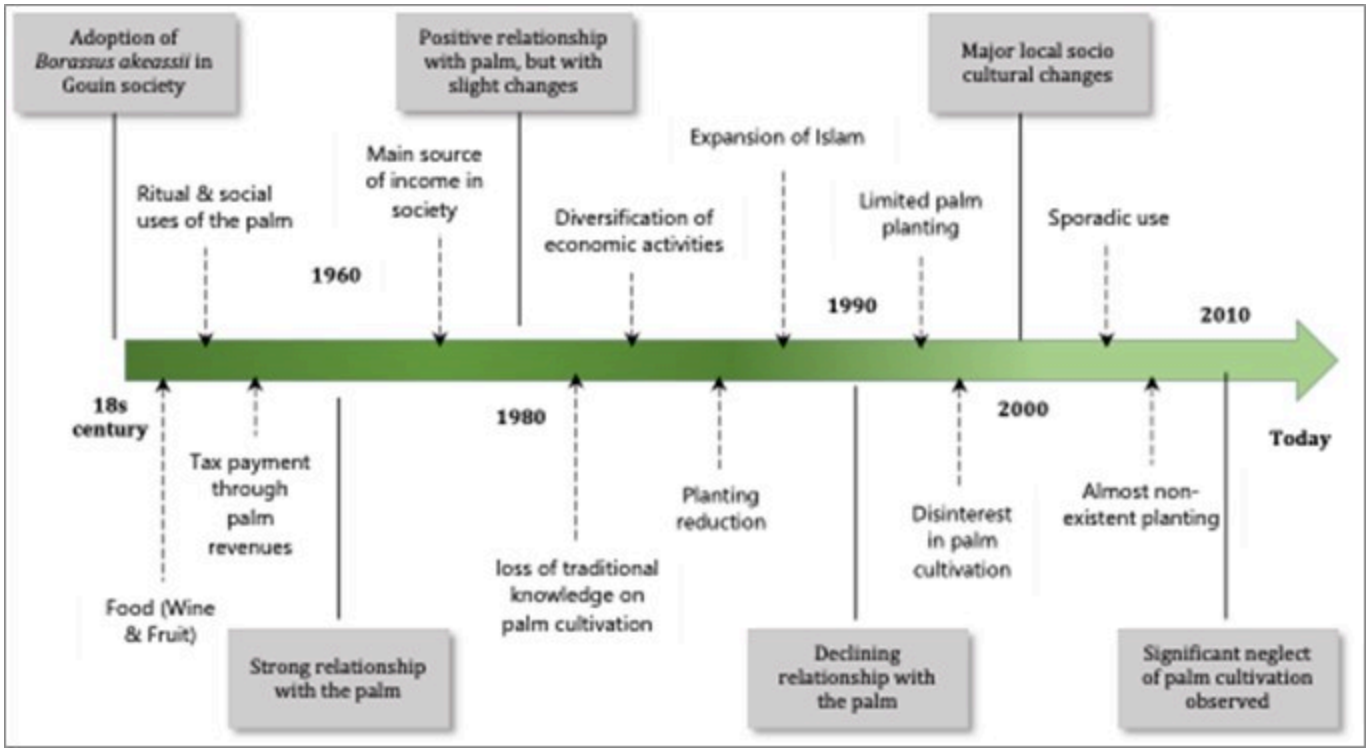

Figure 5

Timeline illustrating the evolution of interest in palm cultivation, based on survey results conducted