Bird-friendly chocolate in Africa

Towards cocoa agriculture that benefits humans and wildlife

Cocoa cultivation and its effect on birds

Cocoa is the fastest expanding export-oriented crop in the Afrotropics, driven by a booming market in Europe. Cocoa cultivation has caused mass deforestation in countries such as Côte d'Ivoire, where it is now mostly grown industrially in full sun monocultures. Cocoa can be grown under a wide range of conditions, from shady low-intensity agroforestry to full sun monocultures (Rice & Greenberg, 2000; Tscharntke et al., 2011; Fig. 1). In the former, cocoa trees are usually planted under a thinned canopy of existing native rainforest trees, or under a canopy of native and non-native trees planted by farmers (for instance fruit trees, trees planted for timber, or trees with other functions such as medicinal; Rice & Greenberg, 2000; Fig. 1). In the latter, the rainforest is clear cut and then cocoa trees are planted in full sun. This wide range of conditions under which cocoa can be grown (0 – 100% shade cover) results in very different conditions and opportunities for wildlife communities.

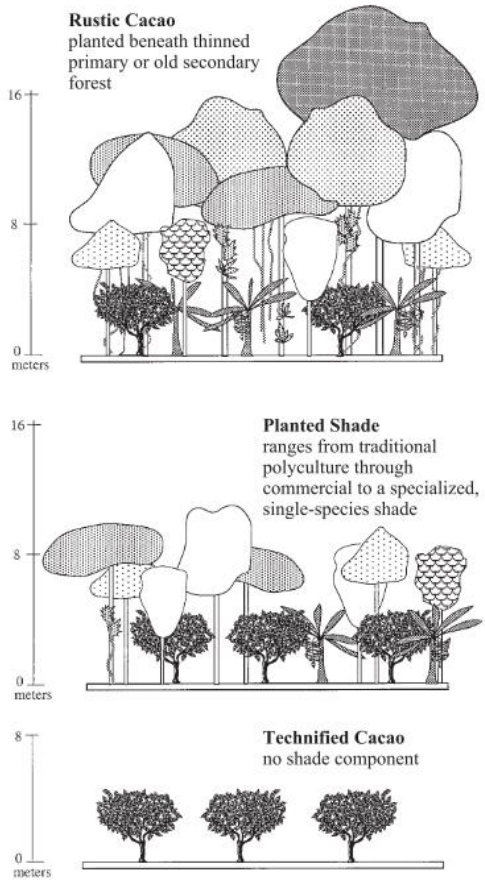

Figure 1 From Rice & Greenberg (2000): different management strategies for cocoa, from shaded agroforestry ('Rustic cacao') to intensified full-sun monocultures ('Technified cacao').

Shaded cocoa agroforestry systems often maintain a high diversity of rainforest shade trees, that may resemble the rainforest they replaced. Partly due to this, studies have shown that cocoa agroforestry systems contain considerably higher biodiversity than intensive cocoa plantations. However, most studies on cocoa are from the Neotropics and South-East Asia. Scientists have highlighted the lack of research on the capacity of African cocoa agroecosystems to maintain biodiversity.

Figure 2 Removal of shade trees in cocoa farm in Cameroon.

Additional information

Specifically, we know little regarding vertebrate animals, and how they are affected by farm management practices. The few studies that have surveyed birds in African cocoa farms find that forest-dependent species were more common in abandoned than actively managed farms, and that forest-dependent species diversity increased with increasing canopy cover, especially when the landscape surrounding the farms was deforested (Jarrett et al., 2021; Sanderson et al., 2022).

Additionally, a recent study by Bennett et al (2021), that compiled data from many researchers across the globe, showed that cocoa farms with a denser canopy cover and higher shade tree diversity had higher diversity of birds. Above >30% canopy, they found that cocoa farms had a similar bird diversity to forest fragments; however, certain groups such as endemic species, frugivores and insectivores were underrepresented compared with forest sites. The findings from this meta-analyses motivated the creation of the Smithsonian Bird-friendly cocoa certification scheme, which certifies cocoa farms in Central and South America if they follow guidelines designed to benefit bird communities.

Figure 3 Cocoa pods piled in farm after the harvest season in Cameroon.

Figure 4 African blue flycatcher *(Elminia longicauda)* encountered in a cocoa agroforest in West Africa.

With regards to migratory birds, several studies from the Neotropics provide evidence that cocoa farms serve as wintering habitat for species that breed in N America. Additionally, we have some records of Afro-Palearctic migrants over-wintering in cocoa farms in Cameroon. In West Africa however, we know little about the specific characteristics of cocoa farms that may benefit migratory species. With this project, we aim to fill this research gap, and then implement bird-friendly management actions in a range of cocoa farms in Côte d'Ivoire.

Project partners

1) **Swiss Ornithological Institute:** we will coordinate the project, providing support and training for local partners, as well as over-seeing research and implementation activities.

2) Ornithology research group at the **University Félix Houphouët-Boigny (FHB)**: the group will be in charge of the research aspects of the project, in collaboration with the Swiss Ornithological Institute.
3) **Groupe National de Travail pour la gestion durable des forêts et la certification forestière de Côte d'Ivoire (GNT-CI)**: GNT-CI is an umbrella NGO connecting research, government, local representatives and conservation organisations. Since its establishment, GNT-CI has led an EU-funded project on sustainable forest management, as well as several smaller projects relating to habitat restoration and reforestation. For the cocoa project, GNT-CI will act as local partner, providing administrative support and budget management, logistical support, and the deployment of outreach and implementation activities.
4) **Group Anouanzè cooperative (GA)**: the Group Anouanzè is an Ivorian cocoa cooperative, representing >3,000 cocoa farmers. Group Anouanzè is involved in several certification schemes and sustainability programmes, including Rainforest Alliance certification and Cacao-Trace. Group Anouanzè will provide the contact with farmers, support logistics in the field, conduct outreach activities in local communities, and deploy implementation activities.

Research aims:

- Understand how cocoa farm management influences the bird community, including abundance, diversity and community composition. We will consider several aspects of farm management, including shade tree density, shade tree community composition, chemical application, canopy cover.
- Determine management actions that could increase the value of cocoa farms for birds (e.g, planting specific shade trees, maintaining a certain degree of shade cover).
- Identify bird species that can act as indicators of the identified 'bird-friendly' management, such as species that only occur in farms with a certain degree of shade cover.

Implementation aims:

- Conduct training and sensibilisation of farmers and cooperative workers about biodiversity-friendly management, sustainable forest management (e.g., shade tree ownership).
- Implement bird-friendly cocoa management actions determined by research in cocoa farms. This could include the distribution of shade tree seedlings, the substitution of chemical inputs, etc.
- Train local stakeholders (e.g., cooperative workers) to identify and monitor indicator bird species (in collaboration with research team).

References and further reading:

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Additional information

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