BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: S1

Enhancing Ecosystems Services in Tree Commodity Agroecosystems in Africa

Hosts:

	Title	Name	Organisation	E-mail
Hosts:	Dr.	Priscilla Wainaina	World Agroforestry Centre	P.Wainaina@cgiar.org
	Dr.	Peter Minang	World Agroforestry Centre	A.Minang@cgiar.org
Co-host:	Dr.	Lalisa Duguma	World Agroforestry Centre	L.Duguma@cgiar.org

Abstract:
Tree commodities in Africa, including cocoa, coffee, oil palm, shea butter, rubber, tea, on-farm timber, contribute significantly to the economies of most African countries, both at macro and micro level. These commodities support the livelihoods of millions of people and constitute an important part of the African economies. At least ten countries in Africa are single tree commodity-dependent economies. Even at the global level, African countries contribute significantly to the production of these commodities. Approximately, 75% of the total global cocoa is produced in West Africa, Kenya is the leading black tea exporter in the world, and Ethiopia contributes significantly to the global coffee exports, among others.

There is a growing global demand for most of these crops, which calls for increased production. Over the last three to four decades, increase in production for most of the crops, mainly tea, coffee, cocoa and oil palm has primarily been achieved through increasing area under production. There is also evidence that these commodity systems have flourished at the expense of forests and come with several other externalities- social (e.g. land conflicts, land grabbing), climate (e.g. greenhouse gas emissions) and environmental (e.g. biodiversity loss- including soil micro-organisms; human health impacts from pesticides use). Climate change, in turn, poses a significant threat to some of the commodities in parts of Africa. As global demand for these commodities continues to soar, expansion is also being limited by land scarcity – necessitating innovations in the production systems. These innovations ought to go beyond intensification practices aimed at increasing yields through the use of fertilizers and pesticides since these practices left unchecked also harms the ecosystems. Massive innovations will be needed for these systems to respond to today's climate change as well as social, economic and environmental challenges. In addition to innovations within the production systems, policies, regulations,

standards, and other incentives intended to enhance and/or support sustainable practices ought to be promoted within African countries. The sustainability of these commodities goes beyond the producing countries to export countries. Hence, the need for sustainable value chains if ecosystem services within tree commodities are to be enhanced.

Goals and objectives of the session:

1. To bring together first-hand experiences on the major innovations around sustainable tree commodities systems within Africa.

2. To discuss how different policies, practices, standards, regulations and agreements can be implemented at country-level, continent-level or even at a global level to enhance ecosystem services within these commodities in Africa.

3. To present first-hand findings based on a book on Tree commodities in Africa currently being developed by World Agroforestry Centre (ICRAF); the book is in the final stages of development.

Planned output / Deliverables:

1. Based on the session, an opinion piece shall be developed, jointly with session participants.

2. Summarized and well-informed policy briefs will be designed based on the discussions and shared with policymakers in the respective African countries.

Related to ESP Working Group/National Network:
Sectoral Working Groups: SWG 1 – ES in Agricultural production systems

II. SESSION PROGRAM

Date of session: Wednesday, 8 June 2022

Time of session: 16:00–17:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
16:00–16.15	Dr. Brahim	Haddane	Association Marocaine pour la Protection de l'Environnement et le Climat ASMAPEC IUCN–Member	Argan Forest ecosystem: Services & challenges
16:15–16:30	Thomas	Aneni	Nigerian Institute for Oil Palm Research	Sustainable Ecosystem Services: Pheromones for Insect Pest Control in Agriculture

Time	First name	Surname	Organization	Title of presentation
16:30-16:45	Christo	Marais	PraxisNR & ASSET Research	South Africa's Biodiversity Stewardship Programme: A Value Proposition

III. ABSTRACTS

Abstracts are ordered based on the session program. The first author is the presenting author unless indicated otherwise.

1. Type of submission: Abstract

S. Sectoral Working Group sessions: S1 - Enhancing ecosystems services in tree commodity agroecosystems in Africa

South Africa's Biodiversity Stewardship Programme: A Value Proposition

Presenting author: Christo Marais

Other author(s): Jenny L Clover, James N Blignaut, Mary Maluleke, Rozanne Peacock

Affiliation: PraxisNR & ASSET Research

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South Africa is among the most biodiverse countries in the world and houses approximately 10% of all plant species and 7% of all reptile, mammal and birds. Almost half of all SA's 1,021 ecosystems are threatened with ecological collapse. The national target for protected areas is 17% of the country's surface area, or 20,7 million ha. Biodiversity Stewardship (BDS) is a cost-efficient way to achieve the target. For BDS to achieve a C:B ratio of 1:17, it must declare areas under formal stewardship of between 511 600 & 1,314 million hectares. The cost of BDS expressed as a percentage, declines as the area increases beyond the 511 600 due to economies of scale. This would equate to an assurance of supply of ecosystem services (ES) to the value of between R1,65 and R4,23 billion per year. The C:B ratio is projected to decline to 0,39 -1,01% of the value of ecosystem services secured should it be able to close the current protected areas shortfall of 9,454 million hectares.

BDS can also make contributions to both wildlife protection and the protection of its strategic water resources. It is estimated that the wildlife ranching R14,4 billion to the country's economy while supporting between 65 000 and 105 000 jobs directly and indirectly. BDS supports the wildlife sector and can therefore make a significant contribution to economic growth and job creation.

By mainstreaming stewardship into ecological restoration, significant returns on investment can be generated. By restoring areas invaded by alien plants the B:C ratio is projected to be 7,8:1 over a projected project period of 37 years. The B:C ratio for bush encroachment is 4,1:1 and revegetation of denuded areas is 2,4:1. As many as 45 000 job opportunities can be created wile restoring a projected 3.25 million ha.

Keywords: Biodiversity Stewardship, cost effectiveness, ecosystem services, B:C ratios, ecological restoration

2. Type of submission: Abstract

S. Sectoral Working Group sessions: S1 - Enhancing ecosystems services in tree commodity agroecosystems in Africa

Argan Forest ecosysteme : Services & challenges

Presenting author: Brahim HADDANE

Affiliation: Association Marocaine pour la Protection de l'Environnement et le Climat ASMAPEC IUCN-Member

Contact: bhaddane@gmail.com

One knows Morocco as the country of « the South, sun and sand », ventures and desert, with the palm tree as its symbol. And this idea is geographically and statistically true. Hardly there is another Morocco, related to the accentuated relief of the country, appears in transparency, a green northern and mountainous Morocco, whose symbol, this time, is the Cedar-Aok trees, another emblematic trees. But between mountain and desert steppe, there is at least a third Morocco, as old and essential as the other two, but more human : that of the Argan and Acacia trees, where more than 4 million inhabitants, (12% of the overall Moroccan population) live

today. There, more than anywhere else, men received from the land as much as they gave. But today, men livelihood changes, and this Morocco is being abandoned if not sacrificed.

Keywords: Argania spinosa, Morocco, ecosystem services ,desertification conservation,

3. Type of submission: Abstract

S. Sectoral Working Group sessions: S1 - Enhancing ecosystems services in tree commodity agroecosystems in Africa

Sustainable Ecosystem Services: Pheromones for Insect Pest Control in Agriculture

Presenting author: Thomas Aneni
Affiliation: Nigerian Institute for Oil palm Research, Nigeria
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Environmentally friendly biosynthetic demand for pheromone based lures aligns with global sustainable ecosystem protection objectives. Field trials were conducted at Okomu oil palm field, Extension 2, to detect and trap Rhynchophorus phoenicis through use of 3-litre bucket traps containing 9mg/day Rhynchophorus phoenicis pheromone, impregnated with 20ml insecticide (Cypermethrin) and a control bucket (with only 300ml water). The bucket traps were attached directly to palm fronds. Observations were made once a week for 12 weeks after pheromone application. In the pre-pheromone assessment survey, fields H, I and G were observed to have been most attacked by Rynchophorus phoenicis. Observations were made once a week for 6 weeks after pheromone application. During the pheromone treatment period under review, adult Rynchophorus phoenicis trapped were a total of 915. Week 7 had the highest number (164) of trapped insects, while week 12 had the lowest tapped insects (17). The control trap without pheromone caught nothing. The P-value of the analysis of variance (0.0000378) indicates that there is a significant difference ($P<0.05$) among the fields in the number of adult R. phoenicis collected due to the pheromone treatment. It was observed that fields G and H had the highest distribution of R. phoenicis. This implies that more attention should be paid to these fields. This study confirms the effectiveness of the pheromone for sustainable control of the adult Rynchophorus phoenicis with minimal insecticidal use, and

benefit to human and environmental safety thereby enhancing Sustainable agricultural landscapes.

Keywords: Rhynchophorus phoenicis, Pheromone, Sustainable Ecosystem, Environmental safety