Title of session:
Empowering Local Communities using Low-key Ecosystem Services Assessment and Valuation toolkits and methodology

Hosts:

<table>
<thead>
<tr>
<th>Host</th>
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Abstract:

Nature underpins all our lives in diverse ways and at a range of scales, from local communities through to the global population. However, worldwide, natural resources are being lost due to unsustainable use and human-induced environmental change—to such a degree that future generations are likely to suffer the repercussions of our excess consumption. Why do we continue to destroy natural habitats, undermining the very basis of our existence in pursuit of short-term gain? The problem lies in us not considering these vital services, many of which are provided for free, when land use decisions are made. While provisioning services, like the supply of food and water, have an obvious economic value, the vital regulating, supporting and cultural services provided by ecosystems, such as crop pollination, climate change mitigation, nutrient recycling and recreation, are often overlooked. By understanding, measuring and monitoring ecosystem services, we can demonstrate how the conservation of biodiversity and delivery of ecosystem services are interlinked and how, as a society, we can improve the sustainability of our actions to reduce biodiversity loss and prevent ecosystem damage.

BirdLife has helped to pioneer a standardized approach to assess and monitor ecosystem services at sites, through the implementation of the simple ‘toolkit’ of methods, The Ecosystem Services Site–Based Assessment (TESSA) that is accessible and low cost, yet delivers scientifically robust results. The application of TESSA has proved to be essential to enhance the understanding of ecosystem services, especially of local communities and stakeholders, and provided opportunities to support decision-making for conservation at local sites.

This session is designed to share the experiences of the practitioners and stakeholders on the application of low-key ecosystem services assessment toolkits, such as TESSA, their impacts and contributions to the management and conservation of ecosystem services where it has been applied across Africa.
Goals and objectives of the session:

The goals of this session is to show how TESSA, and other low–key Ecosystem Services Assessment methodology have been applied to the management and conservation of sites, and how they can contribute to the Sustainable Development Goals agenda.

1. Introduce and share with participants TESSA and/other low–key Ecosystem Services Assessment and Valuation Toolkit
2. To share with participants, the experiences of the application of TESSA and/other low–key methodology across sites in Africa and their results
3. To share with participants, the impacts of the outputs of TESSA and/other low–key methodology, where it they have been applied with specific emphasis on local empowerment

Planned output / Deliverables:

A session report including presentations, discussions and recommendations on low–key Ecosystem Services Assessment and Valuation and methodology vis–à–vis local engagement and empowerment

Voluntary contributions accepted: YES

2. SESSION PROGRAM

Date of session: Monday, November 21, 2016

Time of session: 14:30–16:15
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<td>14:30–14:45</td>
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<td>Introductory remarks</td>
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<td>14:45–15:05</td>
<td>BirdLife</td>
<td>International</td>
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<td>The Ecosystem Services Site Assessment Toolkit (TESSA)</td>
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<tr>
<td>15:05–15:50</td>
<td>Togarasei</td>
<td>Fakarayi</td>
<td>BirdLife Zimbabwe</td>
<td>Demonstrating Ecosystem Service Values in Africa: the example of Driefontein Grasslands Important Bird Area, Zimbabwe</td>
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<td>Benjamin</td>
<td>Emmanuel</td>
<td>BirdLife Zimbabwe</td>
<td>Can agroforestry payment for ecosystem services (PES) schemes promote sustainable development goal of gender equity in Sub-Saharan Africa?</td>
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<td>Jan Philipp</td>
<td>Schägner</td>
<td>Technical University of Munich</td>
<td>“Valuation and assessment of Ecosystem Services at different spatial scales: When Bottom–up meets Top–down”</td>
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<td>15:50–16:10</td>
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3. ABSTRACTS

Note: the abstracts are arranged alphabetically, in order of last name

Type of submission: Abstract: voluntary contribution

O3 Open topic/Special sessions

Can agroforestry payment for ecosystem services (PES) schemes promote sustainable development goal of gender equity in Sub-Saharan Africa?

First author(s): Emmanuel, Benjamin
Co-author(s): Oreoluwa Ola, Salliana Fondo, Gertrud Buchenrieder
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Payments for ecosystem services (PES) influence the success and sustainability of environmental conservation schemes, also with regard to agroforestry, and could contribute to achieving sustainable development goals (SDGs) especially gender equality. In rural sub-Saharan Africa, poor women often face constraints that limit their participation in such schemes while both monetary and non-monetary benefits usually accrue to men. Incorporating gender equity design into Agroforestry PES schemes could lead to a sustainable and profitable smallholder agribusiness as well as enhance women’s decision-making ability through access and control of resources, in other words, empower women economically. It remains to be seen if and how such schemes economically empower women and whether the women in question are the poorest of the poor? Few studies till date have investigated the socioeconomic of women smallholder empowerment, agroforestry PES and SDGs in agricultural systems in parts of Sub-Saharan Africa. We model an economic efficiency and empowerment framework for agroforestry PES schemes and a stochastic profit frontier for a female smallholder farmers (not) participating in the International Small Group Tree Planting Program (TIST) in Kenya. The theoretical framework suggests that gender equity and economic empowerment can be achieved in agroforestry PES programs and TIST participation can actually reduce profit inefficiency, however, the profit elasticity of farm size for TIST female smallholder farmers was ca. 68%. For non-TIST farmers, education and years of experience are the drivers of profit efficiency. Agroforestry PES schemes should target women with smaller farms and those that are more educated.

Keywords: Agroforestry, PES, Equity, Sub-Saharan Africa
Type of submission: Poster abstract

Environmental sustainability, eco-system safety and community agitations: implications for industrial regulation

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Contemporary studies in environmental sustainability seek to propose environmentally friendly policies that can be implemented without disrupting the activities of companies operating in the natural resource extraction sectors. However, operational inconsistencies from their exploration have degraded the ecosystem, thus continual community agitations persist. Policy makers have made efforts to bridge the effects of these defaults by restructuring existing operation policies in the extraction industry sector. We seek to investigate the outcome of these related policies to evaluate its sustainability in order to propose useful measure in accordance with prevailing phenomenon. The data set used for the analysis were collected from the organization of petroleum exporting countries (OPEC) statistical abstracts and the central bank of Nigeria (CBN) statistical bulletin. Basically, we adapted the logit regression model to evaluate the relative impact of the variables specified in the model. These include the growth of the economic worth of the rate at which gas is flared (EVDC), agricultural output growth (livelihood), the growth rate of GDP per capita measure by the levels of the Purchasing Power Parity (Welfare) and growth rate of the value of crude oil export (NOIL1). While PCS is the difference of the annual domestic gas flare output at the 1990 flare levels, representing permitted limits. In order to ensure that an adequate model was specified for this study, structural and policy changes in Nigeria due to community crisis (CAE) in the petroleum producing areas and the petroleum sector reform (GOVINTV) within the period of the study were encapsulated in the model. The estimated results show that changes in gas flare distort the growth in agricultural output, which in turn significantly represses welfare gains. Also, it inhibits the effect of policy transformation in the petroleum sector and intensifies communal agitations. Consequently, we proposed environmental sustainable energy strategies that will systematically reduce the effects of exploration on host communities and ensure energy security.

Keywords: Pollution, Fiscal policy, Poverty, Industrial regulation, Energy resource.
**Type of submission:** Abstract: voluntary contribution

**O3 Open topic/Special sessions**

**Demonstrating Ecosystem Service Values In Africa: The example of Driefontein Grasslands Important Bird Area, Zimbabwe.**

*First author(s):* Togarasei, Fakarayi  
*Co-author(s):* Ken Mwathe, Olivia Odhiambo  
*Affiliation:* BirdLife Zimbabwe  
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Ecosystems play a major role in meeting the basic needs of the poor. The value of ecosystem services, the goods and services or benefits that humans derive from ecosystems is rarely quantified. However since the Millennium Ecosystem Assessment 2005, some efforts have gone towards quantifying and attaching a value to ecosystem services. BirdLife Zimbabwe has applied a Toolkit for Ecosystem Services Site-based Assessment (TESSA) in Driefontein Grasslands Important Bird Area, Zimbabwe. The Driefontein Grasslands provides essential ecosystem services supporting a diverse of human livelihoods and biodiversity. However, there was a gap in knowledge on the value of ecosystem services in sustaining life. Using TESSA, three ecosystem services namely cultivated goods, harvested wild goods, and water services were assessed. The assessment was conducted at two sites, site in its current state (well managed) and alternative state (poorly managed) site. This study showed that benefits from ecosystem services in a well managed sited are higher than those in a poorly managed site. For instance, contribution of ecosystem services were valued at about US$1,364 and US$4,631 per hectare per year for maize and beans crops respectively in a current state, while for the alternative site contribution of ecosystem services were valued at about US$285 and US$2,923 for maize and beans respectively. Economic values of harvested wild goods followed similar trend, showing a total net economic provisioning services was high in a current state site as compared to alternative state. Our study value US$181 per household per year in a current state site and US$129 in an alternative state site. Water generated useful knowledge on ecosystem services which has been instrumental in promoting active stakeholder participation and policy influence towards biodiversity conservation at site and national levels.

*Keywords:* Ecosystem Services, TESSA, Driefontein Grasslands.
Type of submission: Abstract: voluntary contribution

O3 Open topic/Special sessions

Fetishes and talismans: a sustainable ecosystem services in the Tanalana society – southwest of Madagascar

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Each society has special concepts and practices built around the innate link between the nature and humankind. These concepts and practices are transmitted to future generations and typically determined by local traditions and cultural norms. In Southwest Madagascar, the fetish (tone) and the talisman (vo) are the materialization of these inseparable links between humans and the environment among the Tanalana, an agro-pastoral society living around the Tsimanampetsotse national park.

Tone is made up of plants, stones or wood products; it’s planted or placed around the house, in the fields or in the cattle enclosures. Vo is a small pouch worn as necklace or bracelet by men, women, adults, teenagers, and kids in the Tanalana community.

In this article, I describe the traditional methods for transmitting this practices and concepts to future generations. Through participatory observation and interviews conducted within the Tanalana society during one year, it was found that the fetish (tone) and the talisman (vo) play an important role in shaping personal and familial well-being. The vo are manufactured tools for protection against wickedness (e.g. harm caused by spirits or other people); they also act as a type of welfare, made through the forest products called volohazo: medicine derived from the flora or fauna. They are made through the divination art message translated by the traditional healer. This practice lives on in Tanalana society today, even as Christianity and effects of modernity have taken hold in recent years.

These mature are empowered by the traditional healer by calling the supernatural being (God, ancestor, spirit, or 'the destiny') for making collective or individual well-being. As such, these magic tools are the guarantors of well-being; each family transfers these concepts and practices on to their children.

Keywords: Fetishc, talisman, well-being, protection
Valuation and Assessment of Ecosystem Services at Different Spatial Scales: When Bottom-up Meets Top-down.

First author(s): Jan Philipp, Schägner
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Within the BIOPAMA and DOPA projects, we aim to address threats to biodiversity and to support sustainable development worldwide by enhancing effective and efficient management of protected areas (PA), while reducing poverty in communities in and around protected areas. Well designed and effectively managed PAs are a vital tool for biodiversity conservation and for the maintenance of ecosystem services supply. To achieve this, making the ecosystem service value of PAs explicit can be instrumental, as it raises awareness and provides decision-makers with quantitative data to guide land-use policies.

For the valuation of ecosystem services, we follow two contrary, but complementary approaches. First, we apply top-down meta-analytic value transfer functions for 11 different ecosystem services in order to predict ecosystem service values for PAs worldwide. Meta-analytic value transfer functions are estimated by combining statistical regression analysis using GIS. Value transfer has the advantage of generating ecosystem service value estimates for multiple case study areas relatively fast. However, it may introduce additional uncertainties to the value estimate due to prediction errors. This top-down meta-analytic value transfer relates to a bottom-up ecosystem service valuation, such as from the TESSA toolkit, in several aspects. The calibration and validation of our models depends on bottom-up ecosystem service valuation. Therefore, we aim at collecting additional valuation studies to make our global ecosystem service value database grow.

Second, we aim to explore the accuracy and policy relevance of our approach by comparing our top-down results with bottom-up ecosystem service assessments, such as from the TESSA toolkit. For several case study areas we aim at comparing the results, discuss policy implications and explore options for improving the valuation of ecosystem services.

Keywords: Ecosystem Service Value Mapping, Value Transfer, Protected Areas, Economic Valuation, Ecosystem Service Assessment
O. Open topic/Special sessions

Type of submission: Poster abstract

O3 Open topic/Special sessions

Mapping land use potential for ecosystem services supply in data-scarce peri-urban landscapes: A case of Nairobi-Kiambu transection, Kenya.

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Recent scientific developments are advancing to link land use and land use change with potential supply of ecosystem service (ES). The linkages take place in a geo-spatial environment, where land use/land cover (LULC) classes and quantitative values of ES are the main data inputs. After the analysis, the outputs are land geo-spatial maps indicating the potential of each LULC class in providing various ES. This study applies the matrix approach to generate potential maps of various LULC classes in supplying regulating ES in a peri-urban area of high data scarcity and high population density. The land use maps originated from LANDSAT-based maps for the years 1990, 2000 and 2010. Primary data emanated from local interviews and expert opinions. The quantitative values of ES from the interviews and expert opinions are recorded on a scale between 0 and 5. Results show a decrease in area between 1990 and 2010 for all LULC classes except settlements. There is a general trend of high intra- and inter-period variations and dynamics for most of the LULC classes between 1990 and 2010. Grassland, forests and wetlands have comparatively high potentials to supply regulating ES. The matrix approach is successfully applied to generate ecosystem services’ potential maps for different LULC classes in the area. Three main uncertainties are encountered; the inability to discern whether the interviewees were well informed about the subject and if they were ready to assign the quantity value for ES; the inability to verify the consistence of quantity values if the interview was repeated at a later date with the same interviewee; and the uncertainty about the extent to which the familiarity with an ES influences interviewee’s knowledge about the particular ES. In conclusion, sustainable ES supply in the rapidly urbanizing areas requires monitoring and responsive policies that address retrogressive LULC changes.

Keywords: Land use change, Matrix applicability, Data-scarcity, Knowledge combination, Uncertainties