BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: T4b

Using Ecosystem Services to prioritise conservation action.

Format: Hybrid

Hosts

	Name	Organisation	E-mail
Host	Carlos Canales-Cerro	Lemu earth SpA	carlos@le.mu
Co-Hosts	Stephan Michael Funk	Lemu earth SpA	stephan@le.mu
	Alexandra Castañeda	Lemu earth SpA	alexandra@le.mu

Abstract

The valuation of ecosystem services, ES, has generated a significant impact in changing policies that support urban and landscape planning, the establishment of management plans and spatial prioritisation for conservation. Due to the unequal spatial distribution of biodiversity, its threats and the economic resources available, the prioritisation of sites for conservation from the local to the global scale is essential for the strategic allocation of resources, minimising the loss of biodiversity and maintaining or maximising ES. On a global level, the correlation between ES and biodiversity patterns remain unclear. Turner at al. 2007 find that published global priority maps for biodiversity conservation harbour a disproportionate share of estimated terrestrial ecosystem service. In contrast, Naidoo et al. (2008) show that regions selected to maximise biodiversity provide no more ecosystem services than regions chosen randomly. Furthermore, spatial concordance among different services, and between ecosystem services and established conservation priorities, varies widely. Three studies have utilised ES for global conservation priority setting jointly with taxonomic, functional and phylogenetic biodiversity. However, approaches and the underpinning data differ. Girardello et al. 2019 assigned 75% to ecosystem services and 25% to taxonomic, functional and phylogenetic biodiversity of mammals and birds only. Jung et al. 2021 used a weight of a third for biodiversity considering plants, amphibians, mammals, reptiles, birds and two thirds for ES. Funk et al. (2022) balanced the weight of ES and biodiversity, assigning them both 50%, and used plants, amphibians, mammals, reptiles, birds. Similarly, on local and regional levels, much variation occurs in the methodology. In

this context, the proposed session seeks to address the use of Ecosystem Services in spatial prioritization for conservation actions at a local and global scale. This will be addressed through a standard session of presentations accompanied by a final time for discussion and conclusions. The session will be made up of 4 talks by invited experts speakers and 4 selected participants based on abstracts submitted. The invited experts speakers participants, and public, may participate in person or online, and make their presentations in Spanish or English. The total duration of the section is estimated to be 2 hours and 30 minutes.

Goals & Objectives

Goal:

Bring together diverse people who wish to share their experiences in the use of Ecosystem Services as a fundamental element in prioritise conservation actions.

Objectives:

- Provide a space where invited experts in the use of Ecosystem Services to prioritise conservation actions can share their work.
- Give the opportunity for new approaches, ideas, and methodologies in the area of use of SE to prioritise conservation actions to be shared with the community.
- Encourage people who are beginning their research and work on the use of Ecosystem Services to prioritise conservation actions to share their experiences.

Planned Output

Each participant whose work will be accepted to participate (does not apply to invited experts speakers), must write an extended abstract, of maximum 1,000 words, which details its highlight, background, work methodology, results and final conclusions. All these abstracts will be compiled in a digital document (PDF) that will be available to each session participant.

Session Format

The session will be oriented to share knowledge about the use of Ecosystem Services for the prioritization of conservation actions. It will consist of the presentation of 4 invited experts speakers (15 min presentation + 5 min questions), and the presentation of 4 short presentations selected from abstracts submitted (5 min presentation + 5 min questions). The determination of the works that will be presented will be carried out through the review of the submitted abstracts. Three people (host and two co-host) will analyze each work and select the 4 works that stand out based on their suitability with the session theme (Using ecosystem services to prioritise conservation action), the novelty of the methodology used, and the impact of the work on nature conservation. At the end of all the presentations, there will be 30 minutes for final discussions and conclusions regarding everything shown during

the session, and the expert opinion. This session will allow the participation in-person and digital participation. The total estimated time for this session is 2 hours and 30 minutes.

Acceptance of voluntary contributions

Yes, I allow any abstract to be submitted to my session for review.

Relation to ESP Working Groups or National Networks

Thematic Working Groups: TWG 4 - Mapping ES.

II. SESSION PROGRAMME

Date of session: Tuesday 7, November 2023
Time of session: 11:00 - 12:30 and 14:00 - 15:30
Timetable speakers

Time	First name	Surname	Organization	Title of presentation
11:00-11:15	Carlos	Canales-Cerro	Lemu Earth SpA	Comparative review of Spatial Prioritizations Based on Ecosystem Services at different spatial scales, and their relationship with biodiversity conservation.
11:15-11:30	Adalid Vicente	Alfaro Flores	Center for Advanced Studies in Arid Zones (CEAZA)	Evaluación de los servicios ecosistémicos generados por comunidades microbianas en la cuenca del río Elqui, Chile
11:30-11:45	Victor	Marin	Universidad de Chile	El agua para beber como servicio ecosistémico en peligro en la cuenca del río Maipo (Chile)
11:45-12:00	Ximena	Vergara		Integrating ecosystem services, pressures and resilience to prioritize conservation efforts in marine social-ecological systems
12:00-12:15	Aracely	Burgos Ayala	Universidad de Santiago de Chile	Grupos de Servicios Ecosistémicos en la gestión ambiental en Colombia
12:15-12:30	Megan	Critchley	UNEP-WCMC	Assessing ecosystem service vulnerability to prioritise

Time	First name	Surname	Organization	Title of presentation
				nature-based solutions, a case study in Ecuador
14:00-14:15	Kremena	Gocheva	Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Science	Balancing the data: towards a Whole System data architecture to reduce assessment biases for biodiversity conservation and ecosystem services
14:15-14:30	Jean	Hugé	Open University of the Netherlands, ULB & VUB	Opportunities & challenges of an ecosystem services perspective on Galapagos Giant Tortoise conservation
14:30-14:45	Alicia	Correa	Justus Liebig University	How multidimensional assessment of ecosystem services can inform spatial decision-making in a transboundary catchment?
14:45-15:00	Matías	Moreno-Faguett	University of Seville	Planificación Espacial de Acciones de Conservación para la Gestión del Riesgo Ecosistémico
15:00-15:15	Millena	Barreto Hoffmann	Universidade Federal do Rio Grande do Sul	Impact of invasive alien species on the ecosystem services on the archipelago of Fernando de Noronha, Brazil

III. ABSTRACTS

1. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Integrating ecosystem services, pressures and resilience to prioritize conservation efforts in marine social-ecological systems

First author(s): Ximena vergara

Presenting author: Ximena vergara

Other author(s): Laura Nahuelhual, Cristobal Jullian, Gonzalo Campos, Jonathan Arcos, Vanessa Pizarro, Nicolas Segovia

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Traditionally, nature conservation efforts have predominantly focused on biodiversity, recognizing its intrinsic value and ecological functions. However, it is now widely acknowledged that biodiversity alone does not fully capture the diverse values and benefits that ecosystems provide to human societies and may not adequately address the multifaceted challenges and needs of sustainable development. In this study, we conducted a comprehensive assessment of marine and coastal ecosystem services (ES) and benefits, anthropic pressures, and resilience using the

conceptual framework of the ocean health index. Spatial indicators derived from official sources were employed to analyze marine conservation priorities specifically for Chile. The assessment

integrated nine ecosystem services and benefits, namely food from artisanal fisheries and mariculture, natural products, water quality, recreation and tourism, artisanal fishing opportunities, sense of place, coastal livelihoods and economies, coastal protection, and carbon storage. Additionally, biodiversity indicators related to habitats and species were considered,

along with six anthropic pressures including climate change, pollution, fishing pressure, habitat destruction, alien species, and social pressures. Furthermore, three types of resilience—ecological, social, and regulatory effort—were evaluated. Spatial and non-spatial data (2017 to 2021) came from official sources and was complemented by expert opinion. By comparing conservation priorities based solely on biodiversity criteria to those derived from the integrated framework, we identified significant spatial differences. While biodiversity

hotspots are generally under protection, we observed extensive areas that support important ecosystem services but experience high levels of pressures without adequate conservation measures. This integrated approach facilitates the evaluation of trade-offs, synergies, and dependencies across various components and dimensions of ocean sustainability. By incorporating these multiple criteria into conservation planning and management, decision-makers can make more informed and effective choices that promote the long-term health and well-being of marine and coastal ecosystems while addressing the diverse needs and challenges of sustainable development.

Keywords: systematic conservation, conservation planning, multi target conservation, ocean health, ocean governance

2. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Evaluación de los servicios ecosistémicos generados por comunidades microbianas en la cuenca del río Elqui, Chile

First author(s): Adalid Vicente Alfaro Flores

Presenting author: Adalid Vicente Alfaro Flores

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El Río Elqui es una de las principales fuentes de agua potable para la población y la agricultura en la región de Coquimbo, asimismo las comunidades microbianas que habitan en la cuenca proveen importantes servicios ecosistémicos relacionados al ciclado de nutrientes y la detoxificación de metales pesados, entre otros.

No obstante, este cuerpo de agua es altamente vulnerable a los efectos del cambio climático y la actividad antrópica relacionada a la minería, extracción de agua y urbanización. Debido a esto, es necesario realizar una evaluación de los servicios ecosistémicos que ofrece la cuenca para diseñar estrategias y priorizar áreas de conservación en la zona.

Para alcanzar este objetivo y como parte del Programa de Investigación para la Planificación de la Acción Climática (CLAP), se tomaron 22 muestras de agua y sedimento a lo largo de la cuenca del río Elqui durante las cuatro estaciones del año (528 muestras en total). Posteriormente, se realizó extracción de ADN ambiental y mediante la técnica de amplicon sequencing (NGS) se amplificaron y secuenciaron fragmentos del gen 16S RNA y doce genes funcionales: arsC, czcC, hzsB, merA, merD, merC, narG, nifH, nirS, nosZ, pitA y zntA. En base a estas secuencias se caracterizó la diversidad filogenética y funcional de las comunidades microbianas presentes en las muestras, estos parámetros no solo cuantifican los servicios ecosistémicos, sino también predicen el potencial adaptativo y la resiliencia del ecosistema.

El análisis integral de los resultados nos permite identificar zonas en el río Elqui donde las comunidades microbianas tienen mayor diversidad filogenética y funcional con un alto potencial evolutivo. Esta información puede servir de base para desarrollar programas de conservación que prioricen áreas donde las comunidades bióticas sean capaces de proveer servicios ecosistémicos y a la vez responder a cambios ambientales.

Keywords: Servicios ecosistémicos, Diversidad funcional, Diversidad filogenética, Conservación, Río Elqui

3. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Assessing ecosystem service vulnerability to prioritise nature-based solutions, a case study in Ecuador

First author(s): Megan Critchley

Presenting author: Megan Critchley

Other author(s): Arnout van Soesbergen, Calum Maney, James Vause, Frida Diaz Almeyda

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Climate and land use change will likely reduce the functioning of ecosystems underpinning services that communities depend on for their livelihoods, health and wellbeing. While the risk of climate change is increasingly well recognised on the global agenda (such as the Loss and Damage outcomes at UNFCCC COP27), there are few studies assessing both changes in ecosystem service supply and changes to populations or other socio-economic drivers of use. This is needed to fully assess the vulnerabilities of communities to climate change and identify the appropriate interventions to mitigate, and adapt to, these risks.

Well-designed Nature-based Solutions can support human health and wellbeing, resilience to climate change, biodiversity conservation and ecosystem services. This is particularly important in Ecuador, where the impacts of extreme weather events resulting from a changing climate and human-driven activities such as deforestation are already being felt. Spatial modelling of ecosystem services can identify risks to the provisioning of services from land use and climate change, whilst identifying where services may become stressed or unable to meet the needs of communities' dependant on them.

This study aims to produce spatial maps that can support the identification of priority areas for enhancing climate change resilience and adaptation in Ecuador. Our approach acknowledges the interlinkages between nature, biodiversity conservation, human health and wellbeing, and global climate regulation. We will identify ecosystem service(s) whose provision can be mapped and modelled using climate and land use scenario data coupled with the InVEST and WaterWorld ecosystem services models. By linking the results to beneficiaries, we will assess projected changes to the supply and demand of these services (e.g. clean water provisioning or flood risk). Results from this modelling can be used to support spatial national planning and produce frameworks for the implementation of nature-based solutions that supply resilient, nature-positive socioeconomic transitions.

Keywords: Ecosystem services, modelling, climate change, socioeconomic, spatial planning, nature-based solutions

4. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Planificación Espacial de Acciones de Conservación para la Gestión del Riesgo Ecosistémico

First author(s): Matías Moreno-Faguett

Presenting author: Matías Moreno-Faguett

Other author(s): Virgilio Hermoso, José Salgado-Rojas, María José Martínez-Harms, Bárbara Larraín-Barrios, Eduardo Álvarez-Miranda

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Los ecosistemas proporcionan beneficios naturales, conocidos como servicios ecosistémicos, que desempeñan un papel fundamental en la promoción del bienestar humano. Sin embargo, las actividades humanas han causado la degradación de los ecosistemas, lo que representa un riesgo significativo para ellos. Por lo tanto, es necesario evaluar y gestionar eficazmente estos riesgos para garantizar la preservación de los ecosistemas.

Una de las metodologías más utilizadas para la evaluación de riesgos es el modelo InVEST-Habitat Risk Assessment (HRA). Sin embargo, aunque estas técnicas proporcionan información valiosa sobre posibles soluciones de gestión para mitigar el riesgo, no identifican dónde ni cómo implementar estas soluciones.

En este trabajo, presentamos un marco de optimización matemática diseñado para gestionar el riesgo del ecosistema de forma explícita, teniendo en cuenta las limitaciones geográficas del contexto de planificación. Para ello, combinamos el modelo InVEST-HRA con una herramienta de planificación espacial basada en programación matemática denominada prioriactions. Aplicamos nuestra metodología en un estudio de caso centrado en los bosques de Algas Gigantes (Macrocystis Pyrifera) de la Patagonia Chilena, debido a su importancia para la biodiversidad y los servicios ecosistémicos costero-marinos.

Los resultados mostraron que es posible reducir efectivamente el riesgo ecosistémico bajo diferentes restricciones geográficas. Además, se demostró que es posible lograr el mismo objetivo de reducción utilizando diferentes configuraciones espaciales de esfuerzos de conservación.

Este enfoque de gestión de riesgos puede aplicarse en diferentes contextos de planificación, incluyendo áreas terrestres. Al considerar explícitamente el riesgo del ecosistema y las

limitaciones geográficas, podemos formular planes efectivos de gestión que contribuyan a la preservación de los ecosistemas y la provisión continua de servicios ecosistémicos.

Keywords: Riesgo Ecosistémico; InVEST-HRA; Planificación de la Conservación; prioriactions

5. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

El agua para beber como servicio ecosistémico en peligro en la cuenca del río Maipo (Chile)

First author(s): Victor Marin

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La cuenca del río Maipo es un sistema hidrográfico considerado en este estudio como un sistema socioecológico complejo. La cuenca provee de importantes servicios ecosistémicos (e.g., provisión de agua para beber, turismo de intereses especiales) a la sociedad de la Región Metropolitana (RM) de Chile. El cambio climático, el crecimiento de la población humana y el desarrollo económico de la RM en las últimas décadas, han generado un aumento en la demanda de agua en la región. Estas presiones han producido un estado ecológico no deseado de la cuenca (e.g., contaminación, escasez hídrica) e impactos socioecológicos. Ante ello, la respuesta política más importante hasta la fecha ha sido el desarrollo de una Norma Secundaria de Calidad de Aguas de la Cuenca del Río Maipo (2014). El DS N°53/2013 establece la protección de las aguas continentales superficiales de esta cuenca, teniendo como objetivos conservar o preservar los ecosistemas hídricos y sus servicios ecosistémicos a través de la mantención o mejoramiento de la calidad de las aguas de la cuenca. Sin embargo, en la actualidad solo se monitorea la calidad química del agua y no los servicios ecosistémicos. Este trabajo tuvo como objetivo identificar los servicios ecosistémicos que provee la cuenca del río Maipo y determinar cuál de estos presenta una mayor amenaza a su conservación. Para ello realizamos un mapeo de los ecosistemas de la cuenca y realizamos una clasificación de expertos para los servicios ecosistémicos que esta provee. Los resultados muestran que el servicio ecosistémico que se encuentra en peligro de conservación es el de agua para beber para los habitantes de la cuenca, afectando su calidad de vida y bienestar.

Keywords: Cuenca del río Maipo, servicio ecosistémicos, norma secundaría de calidad de agua

6. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Balancing the data: towards a Whole System data architecture to reduce assessment biases for biodiversity conservation and ecosystem services

First author(s): Kremena Gocheva

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A great variety of disbalances and data biases exists both in assessing biodiversity and ecosystem services. Examples include cognitive biases (overly focusing on a single ecosystem component, e.g. biodiversity, focusing on iconic or easier to observe species rather than on the full spectrum of interactions between species such as food chains, etc.), spatial biases (focusing on ecosystems important for provisioning services), temporal biases (much more data is available now than decades ago, while paleoecological data is sparce and far between).

One of the possible approaches to alleviating such biases is to observe the ecosystem and its interactions with humans (Whole system approach). It is at the core of the International Long-Term Ecosystem Research network as well as its member networks in Europe (eLTER) and Bulgaria (LTER-BG). By adopting standardized observations on the site scale, eLTER and LTER-BG aim at fusing data to produce local, regional and continental scale scientific services. In addition, the Bulgarian Methodological Framework for mapping and assessment of ecosystems and their services also adopts the Whole System approach, bringing explicite synergies to ecosystem services assessment.

However, such an approach quickly hits a limit of its applicability when collecting data using over 50 different protocols, necessitating a semantically sound data architecture. We detail the process:

- data science approach to legacy data collected for decades in Bulgarian LTER sites by different methods and with different equipment
- data normalization and methods of gap filling by data type
- collection and processing of external data

Based on these steps, we present the current stage of creating an information architecture that allows semantically meaningful fusion of heterogeneous, fuzzily linked data on, inter alia, ecosystem condition and services, its outline at the current stage of development and steps of scientific services co-design together with core stakeholders from institutional and the society at large.

Keywords: Whole System approach, Semantic coherence, Data fusion, Fuzzy clustering

7. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Grupos de Servicios Ecosistémicos en la gestión ambiental en Colombia

First author(s): Aracely Burgos Ayala

Presenting author: Aracely Burgos Ayala

Other author(s): Amanda Jiménez Aceituno, Megan Meacham, Daniel Vásquez, María Mancilla García, Juan Rocha, Alexander Rincón-Ruíz

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Los servicios ecosistémicos (SE) son hoy un interés clave de las iniciativas ambientales globales que involucran ciencia y política. Múltiples académicos han analizado cómo los SE se integran en las políticas, planes y evaluaciones estratégicas ambientales. Sin embargo, falta información sobre cómo los países traducen estas políticas, planes y evaluaciones en acciones concretas de gestión ambiental que integren un enfoque explícito de SE. Para ayudar a llenar este vacío, analizamos cómo las Corporaciones Autónomas Regionales de Colombia (RAC) han utilizado el enfoque de SA en sus proyectos de gestión ambiental implementados entre 2004 y 2015. Utilizamos el análisis de contenido de los informes de los RAC y el análisis estadístico para explorar si los RAC utilizan explícitamente el concepto ES. Este estudio tiene como objetivo analizar el tipo y la diversidad de SE gestionados por los RAC, así como las sinergias, las compensaciones y los paquetes de SE priorizados por ellos. Nuestros resultados mostraron que la mención explícita de SE fue limitada. Los SE priorizaron de manera similar el aprovisionamiento, la regulación y los SE culturales. Los servicios de regulación mostraron un potencial notable para las sinergias, y hubo un patrón de compensaciones entre la cultura y algunos servicios de regulación y suministro. Encontramos tres paquetes de SE: “Restauración y conservación de agrosistemas”, “Mosaico de servicios” y “Cultivo y fibras” ocupando respectivamente, el 9, 36 y 55% del área total de Colombia. Nuestros resultados muestran que múltiples SE son objeto y afectados por acciones de gestión ambiental, sin embargo, SE como provisión de agua o regulación de suelos no son bien tratados en Colombia, por falta de acciones, a pesar de que están en papel en las políticas.

Keywords: mapeo de servicios ecosistémicos, política ambiental, sistemas socioecológicos, sinergias, compensaciones

8. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Opportunities & challenges of an ecosystem services perspective on Galapagos Giant Tortoise conservation

First author(s): Jean Hugé

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Galapagos Giant Tortoises (Chelonoides species) are widely recognized as iconic wildlife, as symbols of the world famous Galapagos archipelago and, being the islands' only native large herbivore, they also act as 'ecosystem engineers' effectively creating and maintaining a mosaic of habitats in the landscape of the various islands where they occur. While all Chelonoides species are formally protected on all islands (whether they are roaming inside or outside the boundaries of the Galapagos National Park), tortoise poaching for meat and international trade and negative interactions with people encountering tortoise-caused damage to their agricultural crops, occur regularly, although with varying frequencies across islands. Indeed people have different relations with the tortoises on the islands of Santa Cruz, Isabela and San Cristobal, reflecting different experiences, values and socio-ecological context. Hence Galapagos Giant Tortoises are at the center of a conservation conflict, which is mostly latent but has ignited before and can ignite again if not properly managed. We propose a species-centered ecosystem services perspective to map and manage this conservation conflict. Building on past and current research on human-tortoise co-existence in Galapagos we propose a framework which identifies ecosystem services (and disservices) generated by Galapagos Giant Tortoises. We subsequently critically reflect on some assumptions by broadening the ecosystem services perspective using a plural valuation of nature-lens. This contribution aims to identify key research topics which may help mitigate and manage conservation conflicts in Galapagos and beyond. The unicity of the Galapagos social-ecological system, the high conservation value of tortoises and the UNESCO Biosphere Reserve status of the archipelago, leads to both site-specific and generalizable recommendations to address conservation conflicts.

Keywords: Galapagos, Tortoises, ecosystem services, plural valuation of nature

9. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Impact of invasive alien species on the ecosystem services on the archipelago of Fernando de Noronha, Brazil

First author(s): Millena Hoffmann, B.

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Invasive alien species (IAS) represent a global problem for the conservation of biodiversity, and a growing concern involving IAS is related to their impacts on ecosystem services. However, their effects on ecosystem services in insular ecosystems are poorly known, which are of particular relevance due to the fragility and resource limitation in these areas. Thus, this study aimed to investigate the effect of IAS on ecosystem services in the archipelago of Fernando de Noronha, Brazil. The approach was applied to four IAS: black rat (Rattus rattus), domestic cat (Felis catus), tegu lizard (Salvator merianae), and river tamarind (Leucaena leucocephala). For this, an ecosystem service worksheet was prepared considering as management units the subdivisions used for zoning the local protected areas. Additionally, two quantitative approaches were used, one to assess the positive and negative effects of IAS on ecosystem services, based on a questionnaire applied to experts (INSEAT), and the other to estimate the impact risk of IAS (InVEST). In total, 21 ecosystem services, 41 benefits, and 10 groups of social actors benefited were identified in Fernando de Noronha. In general, all IAS presented risks to the ecosystem services, especially F. catus and R. rattus. The negative effects were more pronounced on the provisioning and cultural ecosystem service groups. On the other hand, a positive effect of the river tamarind on regulating ecosystem services was indicated, although with a low impact index. Except for the Urban Area, all management units showed a high risk of being impacted by IAS, especially the Primitive Area. The main social actors impacted by the IAS were the local community, the floating population, and the Administration. Finally, the present study combines different quantitative techniques and represents a set of guidelines that can be applied when considering ecosystem services and prioritazation of conservation actions.

Keywords: Conservation, Protected areas, Island ecosystems, INSEAT and InVEST.

10. *Type of submission*: Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T4b - Using Ecosystem Services to prioritise conservation action

Comparative review of Spatial Prioritizations Based on Ecosystem Services at different spatial scales, and their relationship with biodiversity conservation.

First author(s): Carlos Canales-Cerro

Presenting author: Carlos Canales-Cerro

Other author(s): Alexandra Castañeda, Franco Magni-Pérez, Stephan Michael Funk

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Biodiversity is a fundamental element for the fulfillment and availability of Ecosystem Functions and Ecosystem Services (ES). That is why the loss of biodiversity due to overexploitation and extinction affects the capacity of nature to provide the services on which people depend. Therefore, there is a close relationship between the conservation and restoration of natural environments and obtaining ES.

The valuation of ecosystems and their services has generated a significant impact in changing the policies that support urban and landscape planning, the establishment of management plans, and spatial prioritization for conservation. However, most conservation measures tend to be local or national because people tend to care more about what is close to them. Due to countries with less economic wealth tend to contain the most biodiverse sites that are also the most threatened sites, the prioritization of sites for conservation from the local to the global scale is essential for the strategic allocation of resources, minimizing the loss of biodiversity and maintaining the ES.

In this study, based on a systematic review, we seek to analyze the diversity of spatial prioritization based on Ecosystem Services to understand which have been the most used ES, the approaches of the studies, its relationship with biodiversity, the methodologies used, and how these changes depending on the area of the world and the spatial scale in which the studies have been developed. The importance of this information lies in the need to know which are the best methodologies that contribute to decision-making, in the adequate distribution of resources for biodiversity conservation and the enjoyment of ES by people.

Keywords: prioritization; ecosystem services; biodiversity; conservation; systematic review