Rice production and social-ecological resilience in Isla Mayor, Andalusia, Spain

Sherman Farhad

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Sherman Farhad
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Supervisors
Dr. Miquel A. Gual Font
Dr. Esteban Ruiz Ballesteros

آب را گل نکنیم:

در فرودست انگار، کفتری می خورد آب.
یا که در بیشه دور، سیره ای پر می شوید.

دست درویشی شاید نان خشکیده فرو برده در آب.

مردمان سر رود آب را می فهمند.
گل نکردندش، ما نیز
آب را گل نکنیم.

سهراب سپهری

Let's not muddy the water:

Somewhere downstream, a pigeon may be drinking,
Or in a distant wood a goldfinch may be washing her feathers.

Perhaps a dervish has dipped his dry bread in it.

The people upstream appreciate the water.
They have not muddied it.
Let's also keep the water clear.

Sohrab Sepehri
Translated from the Persian by Karim Emami
(The lover is always alone, Sokhan Publishers, Tehran, 2004)

تقدیم به کاوه، پدر و مادرم و خواهرزاده ام امیرعلی

A mi Kaveh, mis padres y mi sobrino Amirali,

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ABSTRACT

Social-ecological dynamics are investigated in this thesis through a case study approach conducted in Isla Mayor, a rice-producing municipality in southern Spain. An Epistemology of complexity and post-normal science portraits a social-ecological complex as a set of recursive interactions among socio-economic and other cultural activities, governance configurations and ecosystem services. Three fundamental papers on different but coherent aspects of social-ecological resilience in Isla Mayor have been developed. In **Paper I,** the relationship between governance configurations and ecosystem services has been explored, identifying those institutions and rules that triggered transformations in the supply and demand of ecosystem services. Findings indicate the evolution of rice activity's governance configuration towards a new multi-level co-managed system, where vertical, horizontal and cross-scale interactions together with bridging institutions have resulted in improvements in the generation of three key ecosystem services: (1) paddies as suitable living and feeding space for birds, (2) provision of quality rice, (3) local-based tourism principally aimed at bird watching in paddies and gastronomy. In **Paper II,** the link between adaptive co-management and general/specified resilience is analyzed. The outcomes provide evidence of adaptive co-management in rice farming, which has fostered rice activity's specified resilience. However, the lack of socio-economic diversification and general adaptive capacity corroborate evidence regarding the weakness of general resilience in Isla Mayor. In **Paper III,** the relationship between community and environment through the symbolic appropriation in the development of emerging local-based tourism is researched. Results show that rice, as the main dominating activity with considerable economic benefits and highly technified processes, has created a peculiar socio-economic context, so that common objectives do not go beyond what is required for the rice activity. This context prevents diversification and explains the absence of appropriation and lack of touristic activity. From theoretical and methodological perspectives three significant contributions have been made in this thesis: (1) the proposal to incorporate governance configuration analysis in the ecosystem services framework, (2) to suggest using adaptive co-management as an opportunity to navigate the trade-offs between specified and general resilience, (3) the combination of ethnography and

Ostrom's rules framework to detect key elements of social-ecological interaction. Finally, the results of this dissertation could provide useful insights to policymakers and authorities interested in considering socio-economic diversity, bridging institutions, multi-level governance, co-management and trans-disciplinarity as key elements for resilience and long-term sustainability.

RESUMEN

Esta tesis es una investigación sobre dinámica socio-ecológica a través de un caso de estudio en Isla Mayor, municipio del sur de España caracterizado por la producción de arroz. A partir de una epistemología compleja y de la ciencia post-normal se aborda lo socio-ecológico como un conjunto de relaciones recursivas entre las dimensiones socio-económica y culturales, las configuraciones de gobernanza y los servicios de los ecosistemas. En relación a ello se han elaborado tres artículos que tratan de forma articulada diferentes aspectos de la resiliencia socio-ecológica en Isla Mayor. El **artículo I** estudia la relación entre las configuraciones de gobernanza y los servicios de los ecosistemas, identificando las instituciones y reglas que han generado transformación en la oferta y la demanda de los servicios ecosistémicos. Los resultados indican la evolución de la configuración de gobernanza de la actividad arrocera hacia un nuevo sistema de comanejo multinivel, donde las interacciones verticales, horizontales y entre escalas, junto con las instituciones puente, han resultado en mejoras en la generación de tres servicios ecosistémicos clave de la zona: (1) arrozales como hábitat y zona de alimentación de aves, (2) provisión de arroz de calidad, (3) turismo de base local principalmente dirigido a la observación de aves en los arrozales y a la gastronomía. El **artículo II** examina el vínculo entre el comanejo adaptativo y la resiliencia general/específica. Los resultados proporcionan evidencia sobre el comanejo adaptativo en el cultivo de arroz, lo cual ha fomentado la resiliencia específica de la actividad arrocera. No obstante, la falta de diversidad socio-económica y de capacidad adaptativa general corroboran la debilidad de la resiliencia general en Isla Mayor. El **artículo III** analiza la relación entre la comunidad y el medio ambiente a través de la apropiación simbólica en el desarrollo del incipiente turismo de base local. Los resultados muestran cómo el arroz, en tanto que actividad dominante de la zona con considerables beneficios económicos y un proceso de trabajo altamente tecnológico, ha creado un contexto socio-económico peculiar de manera que los objetivos comunes no van más allá de lo requerido para la actividad arrocera. Este contexto impide la diversificación y explica la ausencia de apropiación y la falta de actividad turística. Desde un punto de vista teórico y metodológico, esta tesis presenta tres contribuciones principales: (1) propone incorporar el análisis de la gobernanza en el

marco de los servicios de los ecosistemas; (2) sugiere utilizar el comanejo adaptativo como una oportunidad para navegar los trade-offs entre resiliencia específica y general; (3) recomienda articular la etnografía con el marco de reglas y normas que propone E. Ostrom para estudiar la gobernanza. Los resultados de la presente tesis pueden ser de utilidad para autoridades y personal técnico interesados en considerar la diversidad socioeconómica, las instituciones puente, la gobernanza multinivel, el comanejo y la transdisciplinariedad como claves para resiliencia y sostenibilidad a largo plazo.

1. INTRODUCTION

1.1. Introduction and Objectives

Human life on this planet depends, in a very fundamental way, on the health of ecosystems. That is the reason why “the ecosystem services framework” (Millennium Ecosystem Assessment, 2003) has gained widespread recognition as an analytical tool in diverse disciplines such as Ecology, Economics, Anthropology, Politics and, generally, interdisciplinary studies. From an anthropological perspective, we need to understand the dominant organism on this planet in order to better understand ecosystems (Abel and Stepp, 2003). In fact, long-term sustainability of ecosystems and their ability to generate services is not merely a biophysical issue, but increasingly, even mostly, a socio-cultural and political one. This implies, as Wilson (1998) put it, “consilience”, as the need to transcend disciplines and make mutually compatible our knowledge about how social and biophysical systems work.

This doctoral thesis focuses on investigating social-ecological dynamics through a complex systems perspective. As a first essential step in this endeavour, the present research discusses and emphasizes the need to incorporate governance configuration analysis (Ostrom, Gardner, & Walker, 1994) in the ecosystem services framework. This is because governance configurations, representing perceptions about the environment, local stewardships, power relationships and the whole institutional organization of each system’s socio-economic activity, are known to play a crucial role in the generation of ecosystem services, as well as in the trade-offs between different types of services.

Moreover, continuous changes and increasingly complex challenges are basic characteristics of life on this planet. Resilience thinking (Folke et al., 2010; Walker & Salt, 2006) provides a necessary approach to analyse the sustainability of interacting systems of humans and nature through a complex, integral and non-linear perspective. In this respect, this research contributes to deepening the knowledge about different types of resilience, general vs. specified, and the role each one may play in maintaining long-term sustainability of social-ecological systems.

The peculiarity of each contingent governance configuration, ecosystem characteristics and resilience development requires a profound and careful analysis of the corresponding social-ecological system. At an empirical level, this research adopts a case study approach (Yin, 1994), focusing on a large-scale rice producing municipality in the southwest of Spain. This municipality, known as Isla Mayor, is located in a marsh ecosystem surrounded by the Guadalquivir River, and part of its district lies inside Doñana's National Park influence area. Of great ornithological value, it is one of the main routes between Europe and Africa for migratory birds. This territory has gone through different types of land uses, but rice specialization marked a historical turning point. Rice cultivation and industry as the main socio-economic activity of the area changed everyday practices, institutional organization and the biophysical characteristics of the system.

Fieldwork mainly focused on rice activity, and it was carried out from April 2010 to July 2013, in three intensive periods of four months each and extensive monitoring over the remaining time. Additional fieldwork was conducted in 2015 and 2016, undertaking several field visits to collect data about secondary activities, especially tourism. The methods used included: literature and document analysis, inventories of key ecosystems functions and services, semi-structured and in-depth open-ended interviews, participant observation, and a participatory workshop and questionnaire. Key informants included: rice farmers, fishermen, leading local figures such as the town mayor, the rice cooperative's director, water managers, the Seville Rice Farmers Federation's director, the president of the Fishermen's Association, stakeholders in tourism, and university experts. Initial local contacts were expanded using a snowball sampling technique. A more detailed description of the methodology in each phase of the research may be consulted in the related article.

This fieldwork was possible thanks to my participation in SCARCE project[1] and the project "Retóricas de la naturaleza y turismo de base local"[2]. In the first case, it allowed us to review the Ecosystem Services and Commons literature, and develop an analytical framework for the study of rice governance in Isla Mayor. In the second case, ethnography became the main methodology to explore the concepts of

[1] Consolider - Ingenio CSD 2009-00065, financed by the Spanish Ministry of Economy
[2] I+D CSO2012-33044, financed by the Spanish Ministry of Economy

appropriation, resilience and adaptive co-management in the context of rice and tourism activities in Isla Mayor. Moreover, the participation in these projects facilitated the presentation of my thesis work at several international congresses[3], which greatly improved the quality of our methods and results with feedback from international scholars.

Finally, a three-month research stay at the University of Manitoba[4], Canada, working with professor Fikret Berkes, provided me the opportunity to review and deepen my epistemological and theoretical knowledge about the concept of social-ecological resilience. This experience drastically changed my view about the possibility of applying this concept to specific social-ecological interactions, giving way to the discussion on general and specified resilience, as developed in chapter 2.2.

The general and specific objectives of the thesis can be summarized as follows:

General objective:

- To deepen the analysis and comprehension of social-ecological systems from a complex systems perspective; integrating governance, ecosystem services and ethnographic studies in order to improve our understanding of sustainability as a process of social-ecological resilience.

Specific objectives:

- To analyse and use the concept of resilience (general vs. specified) as an analytical strategy for the study of Isla Mayor social-ecological system's sustainability. (Chapter 2.2.)
- To identify governance configuration related to the rice activity, in terms of all formal and informal rules, power structures and decision-making processes, which govern this specific activity and define its effects on the ecosystems of the zone. (Chapters 2.1., 2.2.)

[3]European Society for Ecological Economics, European Association of Social Anthropologists, The International Association for the Study of Commons, Resilience, Congreso Internacional de Antropología AIBR, Canadian Society for Ecological Economics, etc.

[4] Scholarship by the Pablo de Olavide University Research Plan

- To identify the key ecosystem services in the study area and the effects of the rice related governance configuration in their generation. (Chapter 2.1., 2.2.)
- To explore the secondary activities of the area, such as fishing and tourism, in terms of their relations with the rice activity. (Chapter 2.2., 2.3.)
- To analyse the role of symbolic appropriation in the development of local-based tourism in Isla Mayor, and the possible effects of rice activity's evolution in this process. (Chapter 2.2., 2.3.)
- To study the current challenges facing the territory and the possible new scenarios such as gastronomic and ornithological tourism as a possibility for diversification of activities, and the further effects of diversification on the social-ecological resilience. (Chapter 2.2., 2.3.)

1.2. Summary Structure

The thesis has been developed following an article compilation style format, consisting of 3 Scopus journal articles, of which two are 1st Quartile JCR journals. It was a three-step research process, where each phase is discussed and presented in the corresponding article. A theoretical framework synthesis is provided preceding these articles, as an epistemological and contextual way of introducing the reader to the main concepts and processes described throughout the thesis.

The essential role rice plays in Isla Mayor's social-ecological system justifies Article's I (chapter 2.1.) main objective. That is, to study the interactions and feedback-loops between human systems and ecosystems, focusing on the effects human activities, and particularly the institutions and rules governing them, have on the generation of ESs and vice versa, in this case study. This is done, examining the evolution of the social ecological system governance configuration related to rice activity. More specifically, exploring how changes in formal and informal institutions and rules have triggered transformation in the supply of local ecosystem services.

Considering adaptive co-management as an appropriate management approach in complex and uncertain social-ecological systems, in article II (chapter 2.2.) the link between adaptive co-management and general/specified resilience is

examined. Considering Isla Mayor's secondary activities, it is proposed that the adaptive co-management framework be used to navigate the trade-offs between general and specified resilience.

Finally, owing to the importance of socio-economic activities' diversification versus specialization in the resilience of social-ecological systems, in article III (chapter 2.3.), we focus on tourism as a new emerging activity in Isla Mayor. In particular, the article investigates the role of symbolic appropriation processes by the local society in the development of local-based tourism. It highlights how rice as the main dominating activity of the area has influenced the overall appropriation process.

A summary of main results and a discussion about the limitations of this thesis as well as the implications for future research are presented in chapter 3.

Finally, in chapter 4, conclusions are presented.

1.3. Theoretical Framework Synthesis

This chapter focuses on the main epistemological and theoretical concepts that have guided the development of this research. It presents the theoretical background of the thesis by analyzing its key concepts and investigating their progress.

1.3.1. Social-ecological systems

Various integrated concepts, such as eco-social, socio-ecological, socio-ecosystems, coupled human and natural systems, social-ecological linkages and social-ecological systems have been used by diverse scholars to blur the nature-culture dichotomy. Social-ecological system, the concept used in this thesis, was first employed by (Berkes and Folke, 1998) with the aim of giving equal weight to both social and ecological dimensions, and making emphasis on the integrated concept of human-in-nature.

Social-ecological systems are integrated systems in which human society, and its multiple cultural, political, social, economic, institutional and technological

expressions, interact with ecosystems. In fact, social and natural systems are closely connected, and therefore the delineation between them is artificial and arbitrary (Berkes and Folke, 1998). In other words, the social and ecological components are identifiable but they cannot easily be parsed for either analytic or practical purposes (Walker et al., 2006).

Social-ecological systems' concept has its roots in various works carried out throughout the 20th century in interdisciplinary areas such as human ecology, ecological anthropology, human geography, cultural ecology, ecological economics, environmental history and ethnoecology, among others. According to several authors (Harvey, 1996; Ingold, 1980; Wolf, 1982), the first attempts at this articulation are attributed to Karl Marx (Davidson-Hunt and Berkes, 2003). Moreover, the progress of philosphy and epistemology of science during the last century, and particularly, the General Systems Theory (Von Bertalanffy, 1968), Science of Complexity (Costanza et al., 1993; Holland, 1995; Kauffman, 1993; Levin, 1999) and Complex Thinking (Morin, 1992), have all paved the way for the development of this framework.

Social-ecological systems are considered complex adaptive systems (Berkes et al., 2003; Gunderson and Holling, 2002; Holling, 2001; Janssen and Ostrom, 2006; Liu et al., 2007), and a variety of conceptual frameworks have been proposed by diverse authors to analyse them. For example, Berkes and Folke (1998) present a framework, consisting of four key elements, which describe the characteristics and interactions of social-ecological systems: (1) ecosystem, (2) people and technology, (3) local knowledge and (4) property right. From another perspective, (Berkes et al., 2003) focus on the dynamics of links among the ecosystems, knowledge (as reflected in management practices), and institutions. Using an institutional approach, (E. Ostrom, 2009) framework consists of four subsystems: (1) Resource system, (2) Resource units, (3) governance systems and (4) users. The present research is also conducted from an institutional perspective, with specific focus on governance configurations. The framework used in this thesis is presented in figure one of the first article (chapter 2.1.).

1.3.2. Ecosystem services

Ecosystem services are defined as the benefits people obtain from ecosystems (Millennium Ecosystem Assessment, 2003). Although the term is popularized by the United Nations Report of the Millennium Ecosystem Assessment, it is in fact derived from two previous definitions. First, according to Daily (1997: 3) “ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. They maintain biodiversity and the production of ecosystem goods, such as seafood, forage timber, biomass fuels, natural fibre, and many pharmaceuticals, industrial products and their precursors”. Second, Costanza et al. (1997: 253) provide the following description: “ecosystem goods (such as food) and services (such as waste assimilation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions”.

Different classification systems for ecosystem services have been developed by diverse authors (Costanza et al., 1997; De Groot et al., 2002; Millennium Ecosystem Assessment, 2003; TEEB, 2010). Following the Millennium Ecosystem Assessment Report, ecosystem services may be classified in four categories (Millennium Ecosystem Assessment, 2003):

(1) Provisioning services or products obtained from ecosystems, such as food, fresh water, fuelwood, fibre, biochemical and genetic resources among others.
(2) Regulating services or benefits obtained from regulation of ecosystem processes, such as climate regulation, disease regulation, water regulation and water purification among others.
(3) Cultural services or nonmaterial benefits obtained from ecosystems, such as spiritual and religious, recreation and ecotourism, aesthetic, inspirational, educational, sense of place and cultural heritage among others.
(4) Supporting services or services necessary for the production of all other ecosystem services such as soil formation, nutrient cycling and primary

production among others.

The concept of ecosystem services has helped to raise population awareness about the value of both, natural systems and the societal dependence on ecosystems. Furthermore, it has increasingly taken an important place in policy agendas to the extent that different methodologies have been developed for the monetary valuation of ecosystems services (Costanza et al., 1997). Markets for ecosystems (Bayon, 2004) or payments for ecosystem services (Engel et al., 2008; Pagiola, 2008; Wunder, 2005) are examples of the incorporation of this concept in decision-making processes.

However, this unidirectional approach of the ecosystem services framework, in terms of what ecosystems contribute to human well being, has been widely criticised. Contemplating nature and ecosystems as capital stock (Costanza and Daly, 1992) or capital assets (Daily et al., 2000) and considering human beings as the sole beneficiaries, lead us to consider a simplistic stock-flow analysis, which blinds us to the complexity of social-ecological interactions and coevolution (Norgaard, 2010).

“The interplay of ecosystem services, generating synergies and trade-offs, will depend greatly on the human dimension of any social–ecological system” (Paavola and Hubacek, 2013: 3). In fact, human actions, and particularly their corresponding institutions, values, knowledge, technology and power relationships, are shaping the capacity of ecosystems to generate services. In other words, they are not merely the result of ecosystem functions, but rather the outcome of integrated social-ecological system functions.

Following a systemic approach, some scholars have focused on the other direction, in terms of what human/social systems contribute to ecosystems. For example, (Escalera-Reyes, 2013) highlights the key role of feelings that humans express towards the integrated elements of their environment. He believes that knowledge, learning and human intelligence could be considered as the services provided by humans for the maintenance of ecological functions, diversity and resilience of ecosystems. In this respect, Berkes and Turner (2006) also underline the role of knowledge and learning of local people about the ecosystems to which they belong. In a similar way, the present research has attempted to use the

ecosystem services framework from a critical perspective, focusing on the key regulating and mediating role that governance plays within a social-ecological system, in managing socio-economic activities and describing their effects on ecosystems.

1.3.3. Governance and adaptive co-management

The definition of governance has evolved significantly over the years. It refers not only to government and their agencies, but rather to a higher number of actors in decision-making processes. “Governance is defined as a social function centred on steering human groups toward mutually beneficial outcomes and away from mutually harmful outcomes” (Brondizio et al., 2009: 255). “It is a process by which self-organized citizen groups, NGOs, government agencies, businesses, local communities and partnerships of individuals and organizations are part of a stewardship process” (Kofinas, 2009: 77).

In view of the above definitions and following the institutional and rules perspective proposed by Ostrom et al. (1994), governance configurations, in terms of a wide spectrum of involved stakeholders at different scales and their relations and interactions through a range of formal and informal rules, becomes a core element in the analysis of social-ecological systems. Accordingly, different configurations can give rise to different types of governance, such as multi-level governance (Armitage, 2008; Brondizio et al., 2009), adaptive governance (Folke, Hahn, Olsson, & Norberg, 2005), polycentric governance (V. Ostrom, 1972; E. Ostrom, 2010) among others.

The concept adopted in this thesis is multi-level governance defined as “a form of governance involving distinct but interlinked components at two or more levels of social organizations” (Brondizio et al., 2009: 269). Such configuration should connect different types of management (traditional and scientific, community-based and government) and facilitate the sharing of knowledge and dialogue (Armitage, 2008).

Another focus of the present thesis is on adaptive co-management, which is considered as a novel and innovative governance to sustain social-ecological systems (Plummer, 2009). “Adaptive co-management is about power sharing,

institution building, social learning, problem solving, and (good) governance" (Berkes, 2007: 33). According to Ruitenbeek and Cartier (2001: 8) adaptive co-management is "a long-term management structure that permits stakeholders to share management responsibility within a specific system of natural resources and to learn from their actions".

Adaptive co-management is the result of the evolution of co-management and adaptive management toward a common ground. Adaptive management (Holling, 1978) focuses on learning-by-doing whereas co-management (Berkes, 2009; The World Bank, 1999) emphasizes on power sharing arrangements. Despite having diverse historical trajectories, the fusion of adaptive management and co-management has been necessary, as adaptive management without collaboration lacks legitimacy, and co-management without learning-by-doing does not develop the ability to address emerging problems (Berkes, 2009).

1.3.4. Social-ecological resilience (general vs. specified)

Sustainability of social-ecological systems from a complex perspective could be analyzed through the resilience lens. Resilience is the capacity of a system to absorb disturbance while maintaining its essential structure, functions, feedbacks, and therefore identity (Gunderson et al., 2002; Holling, 1973; Walker and Salt, 2006). It is considered, therefore, as a kind of "creative conservation" (Escalera-Reyes and Ruiz-Ballesteros, 2011).

We live in a complex world characterized by continuous changes and surprises. The ability to handle changes is therefore key to the sustainability of life on this planet. Embracing change lies at the heart of resilience thinking (Walker and Salt, 2006). The resilience framework is used to address changes in the real world and to study the dynamics of social-ecological systems. A resilient system is able to provide both reactive and proactive responses. It is reactive as it is ready to respond to disturbances after they have happened; but it is also proactive because it has the capacity to act before a shock arises.

The roots of the resilience perspective lie in ecology and more specifically in the studies carried out by Buzz Holling in the 1960s and early 1970s. However, it quickly started to influence fields outside ecology, such as anthropology (Vayda and McCay, 1975), ecological economics (Common and Perrings, 1992; Perrings et al., 1992), and human geography (Zimmerer, 1994) among others.

Being resilient may be positive/desired or negative/undesired from the human point of view (Escalera-Reyes and Ruiz-Ballesteros, 2011). Moreover, it could be considered desirable for a group of people and undesirable at the same time for another group. Whose desires should be prioritized? It is therefore important to understand who benefits and who loses, and whose definitions and narratives count, in the context of each social-ecological system and its rapid changes (Nayak et al., 2016)

In fact, resilience is also a normative concept, since it refers to the maintenance of a desired system configuration in the face of change. In other terms, a bundle of ecosystem services that are being generated by a system reflect an inherent valuation of a specific set of services by specific groups of people at particular time and place (Robards et al., 2011). Resilience thinking "has to be situated in the context of complex, contested, and changing human interests, and the uncertainty of the outcomes of human interactions" (Armitage and Johnson, 2006: 14). This, in turn, highlights "the critical role of human interactions mediated through adaptive co-management processes" (Plummer and Armitage, 2007: 66).

When discussing resilience, it is necessary to draw a distinction between two different types of resilience: specified vs. general. In other terms, "resilience as an approach for analyzing, understanding, and managing change in social-ecological systems is different from resilience as a property of a social-ecological system" (Folke, 2016: 8). Specified resilience refers to the resilience of some particular part of a system to one or more identified kinds of shocks; whereas general resilience is the resilience of any and all parts of a system to all kinds of shocks, including novel ones (Folke et al., 2010). The *Resilience of What to What* (Carpenter et al., 2001) is a question that could lead us to assess specified resilience in a specific social-ecological system. General resilience analysis, however, requires the evaluation of the system's capacity in handling uncertainties.

There are conditions that enable or support the development of general resilience, such as diversity, modularity, openness, reserves, feedbacks, nestedness, monitoring, leadership and trust (Carpenter et al., 2012). According to Yu et al., (2016: 70), “social capacity to learn and revise shared goals or assumptions in a flexible way through monitoring and evaluation is necessary for enhancing the general resilience of social-ecological systems”.

Scholars concur that diversity is one of the key conditions in enabling general resilience (Biggs et al., 2012; Carpenter et al., 2012) as it fosters adaptive capacity. From this perspective, general resilience becomes -mainly- a normative concept. While it is clear the interests of a specific group are being prioritized to maintain or enhance specified resilience, it is especially important to include all possible stakeholders in general resilience analysis for a broad diversity of actors and wider deliberation. “In other terms, the empowerment of varied stakeholders in the governance configuration is a key issue in general resilience’s analysis” (Farhad et al., 2017: 269).

There is a trade-off between specified and general resilience. In other terms, excessive focus on specified resilience will reduce general resilience. Therefore, long-term sustainability requires taking into consideration both types of resilience.

1.3.5. Appropriation as an objectification process

Appropriation refers, in the context of this thesis, to a particular form of relationship between communities and their touristic products; a certain type of link between locals and touristic objects based on a collective projection-identification process (Ruiz-Ballesteros et al., 2008) that is deeply rooted in daily life and the emotional dimension of community members (Ruiz Ballesteros, 2007).

To fully understand the meaning of appropriation, it is necessary to deal with the process of objectification that accompanies it. “Objectification turns experience and the cultural and environmental elements naturalized by daily practice into objects for reflection and, potentially, into resources for the tourist market” (Ruiz-Ballesteros and Hernández-Ramírez, 2010: 213).

Objectification and therefore appropriation have two diverse conceptual dimensions, which are distinguished according to their leading agent or protagonist. The key questions are: who carries out the objectification process? Who has control over appropriation? Who is the main protagonist of the objectification-appropriation processes?

According to anthropological literature on tourism (Adams, 1995; Brown, 1999; Carrier and Macleod, 2005; Kirtsoglou and Theodossopoulos, 2004), appropriation is basically considered as a way of relating to objects led by markets or/and tourists that produces the disempowering of local actors. Notwithstanding, the present thesis follows a less common conceptualization of appropriation, in terms of a more conscious and intentional relationship, where objectification is carried out by the community and locals themselves (Ruiz-Ballesteros et al., 2008; Ruiz-Ballesteros and Hernández-Ramírez, 2010; Ruiz Ballesteros, 2007).

Appropriation explains the foundations of an organizational model of tourism that, to a greater or lesser extent, shows a collective character (Ruiz-Ballesteros et al., 2008). Therefore, appropriation could serve as an analytical framework to study the emergence and development of specific types of touristic activity, such as community based tourism, and the integration of these types of touristic activities in the community's everyday life.

Appropriation is in fact reflected in the acts and attitudes (Ruiz Ballesteros, 2007). In other terms, as a process embedded in a community daily life and as a communicative element between subjects and touristic objects, appropriation is represented in different practices and narratives of the community members.

Appropriation provides us the opportunity to understand the process through which community and environment are compounded and separated. It is under this point of view that appropriation helps us to approach the concept of social-ecological system (Berkes and Folke, 1998) or the whole-organism-in-its-environment that could lead us to a genuine ecology of life (Ingold, 2000).

1.4. References

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Linking governance and ecosystem services: The case of Isla Mayor (Andalusia, Spain)

Sherman Farhad [a,c,*], Miquel A. Gual [a], Esteban Ruiz-Ballesteros [b,c]

[a] Departamento de Economía, Mét. Cuantitativos e Hª Económica, Universidad Pablo de Olavide, Ctra. Utrera, Km 1, 41013 Sevilla, Spain
[b] Departamento de Antropología Social, Psicología básica y Salud Pública, Universidad Pablo de Olavide, Spain
[c] Grupo de Investigación Social y Acción Participativa, Universidad Pablo de Olavide, Spain

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ABSTRACT

The widespread use of the Ecosystem Services (ESs) Framework in research studies has highlighted the fundamental role ecosystems play in the provision of human well-being. However, the long-term maintenance of healthy and resilient ecosystems requires more attention to the role played by human systems and their management practices on ecosystem functions. In this paper, we aim at advancing the understanding of how governance configurations relate to ESs. We focus on identifying institutions and rules that have triggered transformation in the supply and demand of ESs. For our case study, we have chosen Isla Mayor's social–ecological system, a small southern Spanish municipality with an intensive rice cultivation tradition, territorially linked (adjacent) to the bigger marshland National Park in the EU: "Doñana". Our empirical analysis points to an enhancement of, and increased interaction among different ESs: (1) paddies as suitable living and feeding space for birds, (2) provision of quality rice, (3) local-based tourism principally aimed at bird watching in paddies and gastronomy. These improvements come with a co-managed multi-level governance system facilitating within and cross-scale interactions and the development of bridging institutions. Particularly, the way in which local actors adapt to new governance structures and rules, developing their own paths, becomes an essential explanation for the development of – apparently – more sustainable practices.

Introduction

The ecosystem services (ESs) approach has gained widespread recognition as a framework to study the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life (Daily, 1997). Over the past decade, and particularly following the publication of the Millennium Ecosystem Assessment (MA, 2003), there has been an exponential growth in the number of papers addressing ESs (Fisher et al., 2009). At present, some of the proposed classification systems (de Groot et al., 2002; MA, 2003) are being used as the starting point for numerous research projects in this field. The application of this framework has undoubtedly made certain ecosystem characteristics and values, and their enormous contribution to human well-being more visible to society (Costanza et al., 1997; TEEB, 2010). However, some challenges have been identified regarding this unidirectional[1] stock and flow analysis about what ecological systems contribute to human systems. This view has mostly contributed to a highly controversial utilitarian approach, strongly biased towards monetary valuation as the most relevant method to quantify the benefits of different ESs. This "focus on monetary valuation and payment schemes has contributed to attract political support for conservation, but also to commodify a growing number of ESs and to reproduce the Neoclassical economics paradigm and the market logic to tackle environmental problems" (Gómez-Baggethun et al., 2010: 1209). Furthermore, there is a problem of fit between ecosystems and institutions (Folke et al., 2007), which requires a shift of focus from the unidirectional analysis towards an all-compassing vision of the whole system, with particular attention to interactions and processes.

By drawing attention to the whole social–ecological system (Berkes and Folke, 1998), the goal of this paper is to study the interactions and feedback-loops between human systems and

* Corresponding author at: Departamento de Economía, Mét. Cuantitativos e Hª Económica, Universidad Pablo de Olavide, Ctra. Utrera, Km 1, 41013 Sevilla, Spain.
E-mail addresses: sfar@upo.es, shermanfarhad@gmail.com (S. Farhad), mgual@upo.es (M.A. Gual), eruibal@upo.es (E. Ruiz-Ballesteros).

[1] Excessive focus on one direction: from ecological systems to human systems.

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ecosystems. Thus, the focus of our analysis is on the effects human activities, and particularly institutions and rules[2] governing them, could have on the generation of ESs and vice versa.

Our case study, seeks to provide evidence on the relationship between governance configurations and the generation of ESs (Power, 2010; Zhang et al., 2007). In particular, we find that the effects of a governance scheme go well beyond a specific ES, and describe some trade-offs and/or synergies in the connected network of ESs.

The paper is structured as follows: Section "Social–ecological systems, ecosystem services and governance configurations" is focused on the theoretical underpinning of social–ecological systems governance. Section "Study context and research methodology" is devoted to explain the study context and research methodology undertaken. In Section "The evolution of SES governance configuration related to the rice activity", we analyze the evolution of the coupled social–ecological system's (SES) governance configuration relative to rice activity. Main results and findings are presented in Section "Results: governance effects on ESs" corresponding to three relevant events: (1) paddies as suitable living and feeding space for birds, (2) provision of quality rice and, (3) local based tourism principally aimed at bird watching in paddies and local gastronomy. Finally, in Section "Conclusion" we provide a summary of main findings and conclusions.

Social–ecological systems, ecosystem services and governance configurations

To analyze the interactions between governance systems and ESs, we take a social–ecological systems (SESs) approach (Berkes and Folke, 1998). The term SES is used to emphasize the integrated concept of *human-in-nature*, and to underline the view that social and ecological systems are in fact linked, and that the delineation between them is artificial and arbitrary (Berkes and Folke, 1998). The concept of SES provides a new analytical framework that attempts to undermine the nature–culture dichotomy, illustrating instead their entwined relationship.

SESs are considered integrated systems in which human society, and its multiple cultural, political, social, economic, institutional and technological expressions, interact with ecosystems. So, they "are neither humans embedded in an ecological system nor ecosystems embedded in human systems (Westley et al., 2002), but rather a different thing altogether. "Although the social and ecological components are identifiable, they cannot easily be parsed for either analytic or practical purposes" (Walker et al., 2006: 13).

At epistemological and theoretical levels, SES analyses are usually proposed from a perspective of complex adaptive systems (Holling, 2001; Gunderson and Holling, 2002; Berkes et al., 2003; Janssen and Ostrom, 2006; Liu et al., 2007), posing characteristics such as reciprocal effects and feedbacks loops, nonlinearity and thresholds, surprises, legacy effects and time lags, resilience and heterogeneity (Liu et al., 2007). This complexity, however, can sometimes be made more comprehensible by concentrating in processes rather than in systems interactions, through co-evolutionary perspectives (Norgaard, 1981, 1994; Gowdy, 1994; Gual and Norgaard, 2010; Kallis and Norgaard, 2010).

These characteristics of SESs, their dynamic patterns, evolving nature and hierarchical structure, called "panarchy" (Holling, 2001), highlights the importance of "adaptive management" as a strategy, focused on "learning to live with changes", rather than "controlling" them. In this regard, and since the main focus of the present paper is the governance of SESs, our study is to be carried out from an institutional perspective (Anderies et al., 2004; Janssen and Ostrom, 2006). This institutional and rules perspective (Ostrom et al., 1994) looks at how changes in governance configurations, in terms of formal and informal institutions and rules, may define social–ecological interactions, including changes in the provision of ESs. This approach would serve to figure out those types of institutions that respond to environmental feedbacks and support the generation of ESs.

Despite significant and growing research on ESs, the framework still faces some important challenges. Aside from critical views about its utilitarian approach and commodification consequences (Martínez-Alier, 2002; McCauley, 2006; Robertson, 2004, 2006; Spash, 2008; Norgaard, 2010; Kosoy and Corbera, 2010), the main challenge for its possible applicability to real world phenomena has to do with an adequate link to specific human activities and governance configurations.

In fact, there is a problem of fit, which "is a matter of the match or congruence between biophysical systems and governance systems" (Young, 2008: 26). "The fit is not only about "fitting" ecosystem dynamics, our priorities concerning these, and what rules fit these issues. It is also about motivations and human interaction" (Vatn and Vedeld, 2012), which is itself dependent upon other institutions (Vatn, 2005; Vatn and Vedeld, 2012).

There is a set of social processes embedded in the functioning of ecosystems that could not be neglected. Primmer and Furman (2012: 86) point that the ESs approaches "do not provide direct solutions to ES governance because they do not take existing administrative and governance structures and practices as a starting point". In fact, these authors suggest that existing policies and institutional contexts condition the use of ESs framework as much as ecological or socioeconomic factors.

Some scholars have considered nature and the world's ecosystems as capital stock (Costanza and Daly, 1992) or capital assets (Daily et al., 2000) that yield a flow of valuable services. By means of this metaphor, they helped describe our relation to nature and the need to protect and conserve it. Nevertheless, the simplicity of this stock-flow framework has blinded us to the complexity of challenges we actually face (Norgaard, 2010). Hence, in order to avoid this mechanistic stock-flow analysis, the ESs approach should be accompanied by a historical, environmental, and institutional contextualization (Ferrer et al., 2012).

"The interplay of ecosystem services, generating synergies and trade-offs, will depend greatly on the human dimension of any social–ecological system" (Paavola and Hubacek, 2013). In fact, human actions, and particularly their corresponding institutions, values, knowledge, technology and power relationships, are shaping the capacity of ecosystems to generate services. Thus, "ESs are a function of complex interactions among species and their abiotic environment, complex use and utilization patterns; and various perceptions by beneficiaries" (Fisher et al., 2009: 651). In other words, they are not merely the result of ecosystem functions, but rather the outcome of a whole SES functions.

Following this perspective and as shown in Fig. 1, we suggest that governance configuration plays a key "regulating role" within a SES, in managing socio–economic activities and describing their effects on the ecosystems. Moreover, governance configuration also holds a "mediating role", between SES and main drivers such as climate change and markets, in buffering (or not) their effects on ecosystems. The challenge, of course, is to detect how and why a given configuration of organizations, institutions and rules works (or not) in the sustainable management of ecosystems, facilitating the maintenance and enhancement of ESs. Of critical importance

[2] According to Ostrom, rules are "commonly understood, normative statements that specify who must, must not, or may take some action or affect some outcome at a particular node in a decision tree" (Ostrom, 2001: 777). The notion of institution "refers to many different types of entities, including both organizations and the rules used to structure patterns of interaction within and across organizations" (Ostrom, 2010: 262).

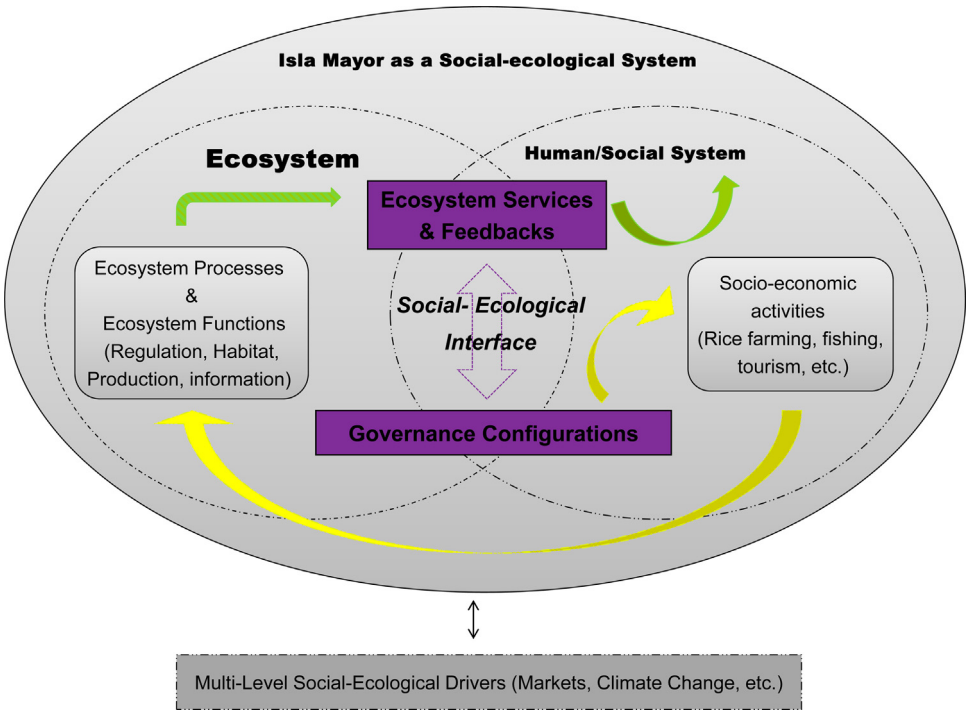

Fig. 1. Governance configuration as a key regulating and mediating element in social–ecological system.

is the ability to monitor, interpret, and respond to ecosystem feedbacks (Gadgil et al., 1993; Berkes et al., 2003; Olsson et al., 2004). So, "how can we stimulate the development of institutions that respond to environmental feedbacks and that safeguard the capacity of ecosystems to generate essential resources and ESs?" (Folke et al., 2007: 26).

The inherent complexity of SESs and the multilevel nature of problems and their solutions, suggest the need for integrated and flexible governance configurations, allowing the co-existence of self-governing rules and practices at the community level with higher-level norms and institutions (Ruiz Ballesteros and Gual, 2012). Accordingly, multilevel governance defined as "institutional arrangements that facilitate the coproduction, mediation, translation, and negotiation of information and knowledge within and across levels" (Brondizio et al., 2009: 255) increasingly becomes a key concept in ecosystem-based management. Actors' involvement and collaborative learning are thus critical means of instilling behavioural adaptation (Clark and Clarke, 2011). By this means, a reference to actors and the possibilities for them to get involved in processes of designing and administrating policies becomes a helpful key for the analysis of a social–ecological fit (Mann and Absher, 2014).

Since ecosystems are too complex to be governed effectively by a single agency, their governance requires the joint action of multiple parties. Henceforward, co-management, or the sharing of power and responsibility between the government and local resource users, is an arrangement whereby a public–private–civil society partnership can come about (Berkes, 2009). In this regard, bridging institutions and leadership are considered two key issues for dynamically linking organizations across multiple levels, and thus enhancing the fit between ecosystems and governance systems (Olsson et al., 2007). As Folke et al. (2005: 441) put it, "the emergence of bridging institutions seem to lower the costs of collaboration and conflict resolution, and enabling legislation and government policies can support self-organization while framing creativity for adaptive co-management efforts". By providing an evolving and place-specific governance approach that supports strategies that help respond to social and ecological feedbacks, adaptive co-management orients SES towards sustainable trajectories (Armitage et al., 2007).

Study context and research methodology

Study context

Isla Mayor is a municipality in the province of Seville, with a surface area of 114.4 km^2 and a population of 5948 inhabitants, located northeast of the Doñana National Park marshes (SIMA, 2012). It is an isle surrounded by the Guadalquivir, the longest river in the region that provides a variety of social uses (domestic, agriculture, hydropower, industry, fishing, navigation, etc.), of which 87% is dedicated to the agriculture and livestock sector (CHG, 2012). The physical environment provides privileged topography and climate characteristics for rice cultivation (Moral, 1993; González Arteaga, 2005), which is the main land use in the area. Water for paddies comes from this river. The basin presents a typical Mediterranean climate, with temperate-warm temperatures (16.8 °C annual average) and irregular precipitation (annual average 550 l/m^2) (CHG, 2012).

Guadalquivir River marshes, given their cycles of drought and flood, salinity, and illness, represented for many centuries a far away indomitable and demographically empty space (Sabuco Cantó, 2004). These lands had been limited to some husbandry and recollection, with a few attempts to cultivate, soon abandoned because of water salinity levels. Although some foreign investment agricultural projects took place in the first decades of the XX century, the definitive human settlement of what today is Isla Mayor came during Franco's regime. After the Spanish civil war (1936–1939), the National Institute for Colonization (Ministry of Agriculture) began important hydrology works necessary for the development of a rice industry. The town became known as Villafranco del Guadalquivir (currently Isla Mayor), and at the time, many people from the region of Valencia (already a rice-producing region) migrated to this new promising location. By this means,

rice activity as the turning point in the history of this town made it possible to pass from a natural and empty area to the one that is perceived by its inhabitants as their own (Sabuco Cantó, 2005).

Today, total land devoted to highly mechanized paddy in Isla Mayor is estimated over 9,175 ha, representing almost 80% of its total territory (SIMA, 2012), so that rice production undoubtedly is the region's most important provisioning ES.

This provisioning service is intertwined through a positive feedback with some crucial ESs of the region, such as bird habitat, incipient tourism and crawfish, thereby making almost all activities of the municipality being related to rice in some way.

Spanish southwest marshes, due to their singular geographical location, are the route for several migratory bird species between Europe and Africa, featuring a fabulous diversity with a total of 370 recorded species that make of this spot Spain's most important bird area (Junta de Andalucía., 2008). Consequently, the paddies of the region are contributing to a crucial living and feeding space for birds and generating habitat/supporting services.

Since rice fields as human-made wetlands, could provide an alternative habitat for water birds (Elphick, 2000), rice is considered by some authors as the world's most important agricultural crop for these kinds of species (King et al., 2010). In other words, even though humans have largely transformed and degraded natural marshes, rice activity may have paradoxically contribute to the maintenance of these ecosystems and, more specifically, as habitat for water birds.

Additionally, paddies and particularly the unparalleled opportunity they provide for bird-watching, together with specific gastronomy based on local products such as rice, duck, crawfish, caridean shrimp, etc., are giving rise to new ESs such as recreation and ornithological and gastronomic tourism. Accordingly, there has been recently an attempt, mostly supported by the municipal government, to diversify economic activities by developing tourist businesses around seasonal bird watching in the context of rice paddies (Hernández Ramírez, 2011). This newly emerged ES, partly considered as a by-product of both previously mentioned ESs, is in fact providing a new economic resource for local people. Even though tourism in Isla Mayor still is an incipient activity with a reduced flow of visitors, tourist products are already being conceived to complement rice paddy cultivation and bird habitat, apparently reinforcing the evolving SES.

The key characteristics of the study context point to the importance of water management. A specific study conducted in Isla Mayor on the role of rice paddies in the maintenance of bird food, breeding sites, and biodiversity has registered, during three consecutive seasons starting in 2005, a significant reduction on average bird abundance as a result of the experienced reduction on cultivated rice areas (EBD-CSIC, 2009), which was itself, the result of a drought period and lack of access to irrigation water.

Specific geographic location of the paddies, close to the mouth of the river, makes them highly vulnerable to ocean tides and their effect on water salinity. The problem could be even more severe in drought situations, when there is less flow of water down the river. According to the deep interweaving and synergies among the mentioned ESs, the effects of drought on paddies would spill over other services such as bird habitat.

In addition, a new project to dredge the river to make possible the arrival of huge cruises to Seville city for commercial and touristic purposes, could result in considerable trade-offs. Despite the potential increase in Seville tourism, the consequential increase in water salinity as a result of the dredging project could have negative effects on paddies, posing a big challenge to Isla Mayor's ESs. Therefore, controlling salinity and access to sufficient amounts of water have become key governance issues.

Aside from the crucial issue of water, it is also the impact of chemical products that generate a clear trade-off between rice as a provisioning service and, for instance, bird habitat service. The use of certain plant protection products and chemical fertilizers enhance the rice provisioning service in quantitative terms, however, as it has been recorded in past times, they usually have caused direct toxicological effects to rice field birds, as well as indirect ones, such as reduced prey populations and habitat changes (Parsons et al., 2010). Furthermore, these negative effects on rice quality and bird habitat could also affect local tourism. Thus, controlling chemical fertilizers and pesticide consumption in the fields is one of the most important management issues to balance the above-mentioned trade-offs among ESs.

Aside from the above mentioned activities, there is another source of employment and income, which is closely related to social–ecological interactions involving an invasive species, since in the mid nineteen seventies, 500 kg of red swamp crawfish (*Procambarus clarkia)* from Louisiana (USA) were introduced for prospective commercial purposes. Today, having previously obtained permission from rice farmers, fishermen access the fields in order to catch crawfish from irrigation channels and paddies.[3]

The importance of rice and crawfish, as principal elements fostering community cohesion, are also reflected in Isla Mayor's major celebrations. The role of symbolic actions as strategic elements promoting community building (Escalera, 1996) is quite visible in this town; as we can find a formal holiday, such as "the day of Andalusia", used as the perfect excuse to celebrate the "day of rice" or "Patron Saints feast day" along with the "day of red swamp crawfish". Thus, far from sovereignty proclaims, these celebrations-based on social–ecological features-foster horizontal social relations, favouring a sense of community.

Currently, rice cultivation in this region is highly mechanized with many tasks, such as seeding and spraying operations, being mostly carried out by airplanes. Flooding is the irrigation system used for rice cultivation in southern Spain. It allows a continuous circulation of water during the whole vegetative cycle through a network of distribution and drainage channels. According to data for 1999, the land tenure structure shows that 72.5% of agricultural holdings is operated by owners, whereas 26% is rented and a small portion of 1.5% is considered as sharecropping farms. Holdings vary in size, ranging from small lands with less than 5 ha to bigger farms of 100 or even more ha. However, the majority of Isla Mayor's rice producers have an average size farm of 10–20 ha (SIMA, 2012) (Fig. 2).

Research methodology

To study the relevance of governance configurations in SES, we follow Ostrom et al. (1994) adapting their rules classification as a method to unveil key social–ecological interactions, and to explain the effects of different governance configurations on ecosystems.

The exploratory case study approach (Yin, 1994) was conducted over a period of 36 months during 2010–2013, including various research techniques such as literature review, in-depth open-ended interviews, participant observation, and participatory workshop.

Literature review covered two main issues: (1) policy documents and legislation related to rice activity, including: water governance, rice integrated production, the European Union (EU) common agricultural policy for rice cultivation, and rice

[3] Crawfish exploitation is definitively representing another provisioning service of the region with its own particularities and complexities, ranging from fishermen conflicts with fish-farm prices or access regulation to rice-paddies. The introduced-species nature of this provisioning service makes it a more complex case, which would deserve its own paper, exploring species interactions and its adaptation impact on the ecosystem.

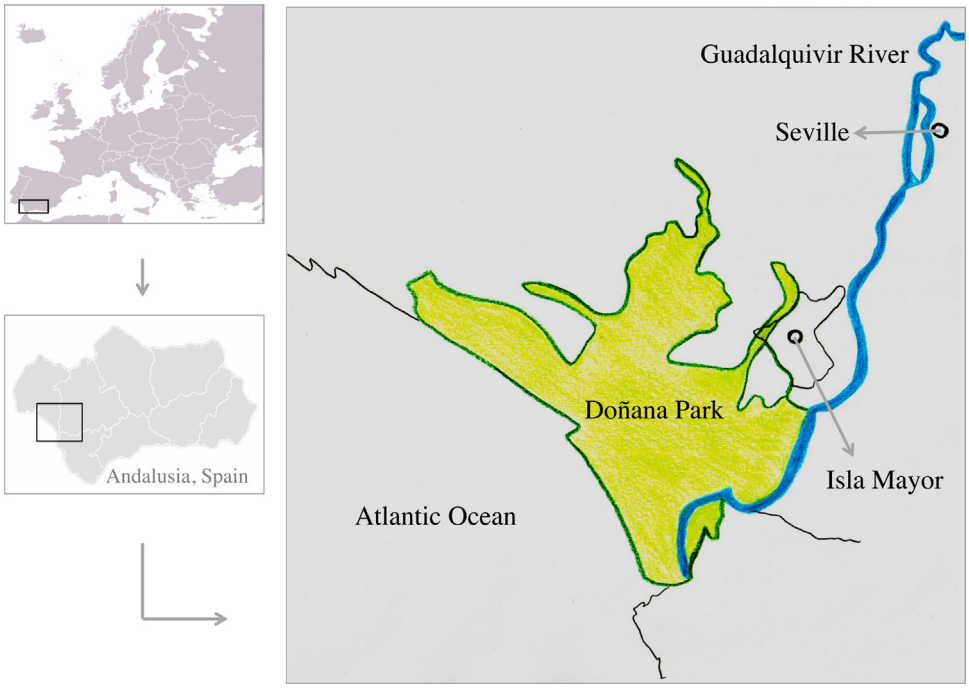

Fig. 2. Map of the study area.

processing and marketing; (2) research studies and documents reported on Isla Mayor.

In-depth open-ended interviews were conducted with key actors, aimed at capturing the interviewees' experiences regarding the evolution of rice activity, along with a historic approach to formal and informal institutions, relevant for the management of this activity, and the possible associated biophysical effects of each governance configuration.

Participant observation took place in meetings, conferences, workshops and even celebrations, in which various actors including rice farmers, fishermen, ecosystem managers, university experts, etc. were participating, discussing and debating, and thus enabling a viewpoint that could be captured only by insiders. Furthermore, a participatory workshop was organized so as to find out the perceptions of local stakeholders about the ESs provided by the Guadalquivir River.

The evolution of SES governance configuration related to the rice activity

Almost three decades ago, Seville's paddies were considered the main cause of some of the region's serious environmental problems such as birds' deaths and worsen water quality, increasing the perception that rice paddies had become a significant threat to Doñana National Park. The current panorama, however, is quite different so that paddies and the Park are deemed to be complementary to one another (Muñoz Sánchez, 2009). This social–ecological transformation (Olsson et al., 2004) is being facilitated by the evolution of the governance system towards a new multi-level ecosystem-based management. For a more accurate understanding of this process, it becomes necessary to point out the dynamics of formal and informal rules[4] that govern this activity and outline their significant effects on ecosystems.

Eight main institutions (I), and 5 hierarchically dependent organizations at different levels of governance make up this activity's institutional configuration. These institutions relate to each other through a web of at least 13 formal rules (R), 5 informal rules (IR), and 4 sub-rules[5] that are derived from specific rules. The crucial purpose of this section is to map the interplay between these relevant institutions and actors (Fig. 3).

Integrated rice management: local practice and institutional support

At the core of the governance system's evolution lies the emergence of Integrated Production (IP), a farming system that relies on more environmentally friendly techniques, limited use of fertilisers and plant protection products, and a constant field supervision by specialized technicians. IP started in 1998 in Seville and expanded rapidly, currently covering up to 98% of paddies in the province. Earlier conventional farming systems had as a main, and almost sole objective the attainment of high crop yields which, in a far less restrictive context, promoted the intensive use of synthetic-chemical fertilizers and pesticides. On the contrary, nowadays IP systems are not just focusing on high crop yields, but also take into consideration other production and environmental factors, as well as the interrelationships among them.

A comparative analysis of these two periods, which is shown in Table 1, reveals a radical change in the consumption of chemical products. As there was no reference data from an earlier period, the information was collected in interviews with main stakeholders, principally the director-general of the Rice Farmers Federation.

The basic reason for implementing this policy has been closeness to Doñana National Park (I2-1-1). As Biggs et al. (2010:1) point out, "on-going environmental degradation, increasing environmental

[4] We use these terms in the paper to refer to: (1) formal rules as "constitutions, laws and regulations" (Skoog, 2005: 20), (2) informal rules as "behavioural norms, codes of conduct and routines" (Skoog, 2005: 20).

[5] Sub-rules: we have used it to refer to rules deriving from a specific rule. It's just the case of the River Basin Management Plan where several basic issues related to water use in rice activities are defined by this plan.

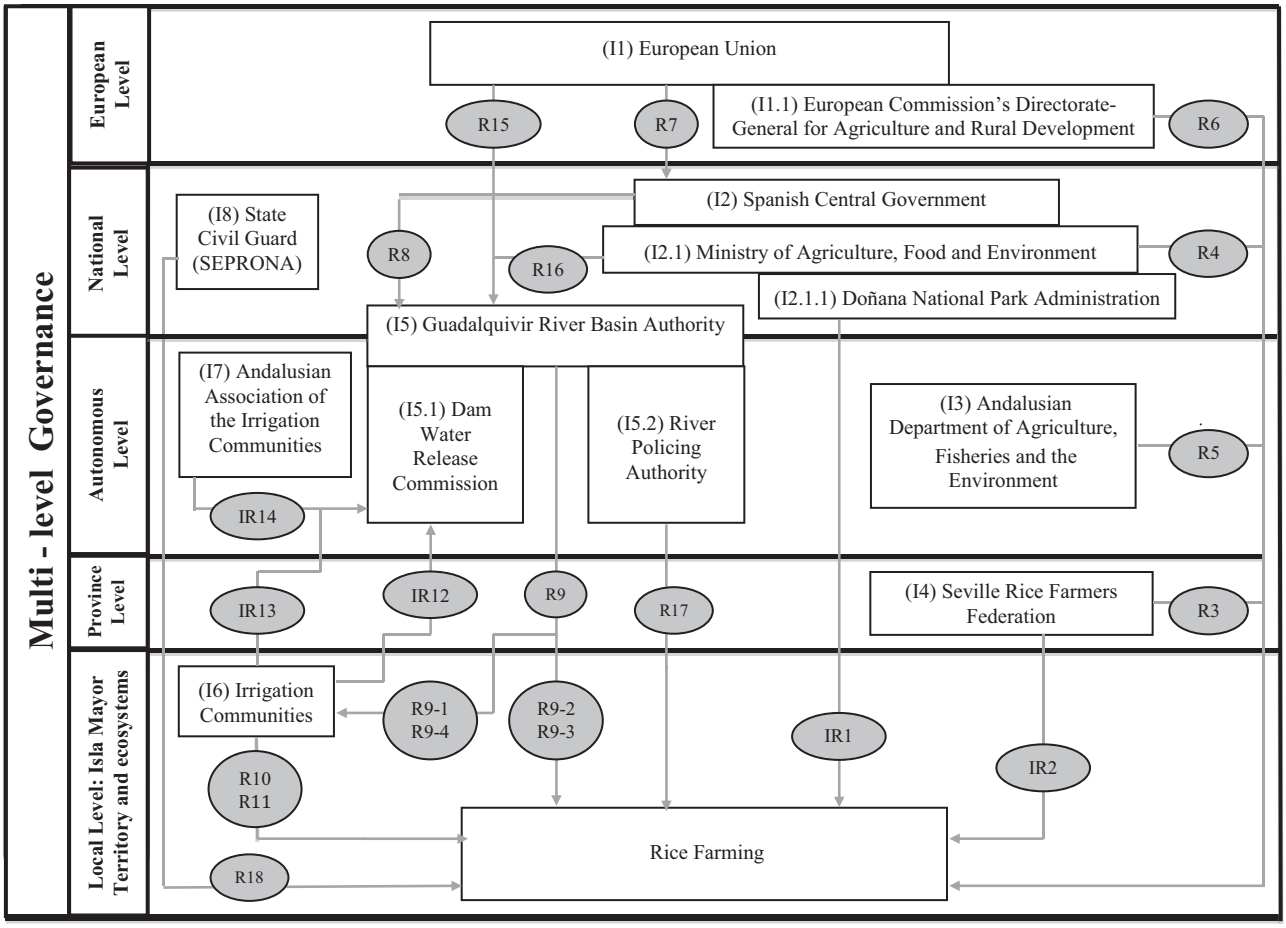

Fig. 3. Institutions and rules in rice cultivation.

awareness, and shifting societal values are creating fertile ground for the emergence and adoption of new approaches to ecosystem management". In this regard, Doñana National Park Administration (I2-1-1) has been a key institution in revealing the negative environmental effects of the rice activity, mainly on bird habitat. Farmers have been under constant pressure (IR1) and forced to carry on agricultural practices that are more respectful with the environment. Many local people consider Doñana as the main reason for integrated farming implementation.

> Being a neighbour of Doñana has triggered all this process. We were compelled to change our farming system to one more respectful with the environment. So, the changing process started: first, the lands located inside the Park and then those that were located in the surroundings. (Manuel)

Another principal element has been self-organization of farmers into "Seville Rice Farmers Federation" (I4). This organization, constituted in 1986 that is taking part even in some of the EU's meetings on agricultural issues, is a lobby representing rice farmers' unity defending the sector's interests (IR2). Since 1998, the year in which IP started in Seville, this Federation (I4) has mainly coordinated and managed the performance of this farming system, conducting, training and recruiting field technicians, as well as performing

Table 1
Comparative analysis of the chemical product consumption in the Seville rice fields 1998: reference year, determined according to the application of Integrated Farming System.

Two major rice pests of the region	Current treatment (post integrated management) (% of the total Seville rice field area)	Past treatment (prior to integrated management)
Chirinomadae (red and white worms)	62.4%: no treatment 37.6%: treated *of which, 92% just one treatment, and 8% two treatments*	"The entire surface was treated with at least 2 liters of malathion per hectare. After a one-week, if we observe a red worm again in the paddy, we put other 2 liters of malathion without thinking and counting. Because there wasn't any control" (Manuel).
Eysarcoris inconspicuous (white-spotted stink bug)	85.88%: no treatment 14.12%: treated *of which, 75.4% just one treatment* *24.6% two treatments*	"Not the rice farmer but the administration itself was in charge of realizing treatments. In the case of receiving complaints from farmers regarding problems of this kind of pest in the paddies, official treatment by airplanes was applied to the whole 36,000 has, pouring 2 litres of malathion–trichlorfon mix for each ha" (Manuel).

Source: Own elaboration based on Seville Rice Farmers Federation's annual report (FAS, 2004) and the interview with Manuel Cano, Director-General of FAS.

Table 2
Relevant institutions and rules in rice integrated crop management in Isla Mayor.

Governance issue	Relevant institution(s)	Relevant rule(s)
Integrated rice management	I1-1. European commission's Directorate-General for Agriculture and Rural Development	R6. Europe's agriculture and rural development policy
	I2-1. Ministry of Agriculture, Food and Environment	R4. National legislation for integrated farming
	I2-1-1. Doñana National Park Administration	IR1. Pressure on rice farmers to carry out environmentally friendly practices
	I3. Andalusian Department of Agriculture, Fisheries and the Environment	R5. Specific technical regulations for integrated rice farming in Andalusia
	I4. Seville Rice Farmers' Federation	IR2. Unity of the sector and defence of its interests R3. Coordination and management of the integrated farming system

analytical newsletters (R3). However, recently, other entities considered "IP clusters",[6] are also providing field technicians.

In fact, the union of the sector under the Seville Rice Farmers Federation has made it easier to spread the new management system among all its associated farmers. This has been possible not only because of an increasing environmental awareness, but mostly due to economic incentives (subsidies) that partly compensate increased production costs, as detailed in the following paragraphs. Besides, by maintaining this unity at local level, and participating and defending the sector's interests in other levels, I4 is playing key bridging functions, promoting dialogue among various levels of governance and facilitating inter-organizational relationships.

Currently, there is no European regulation framework on integrated farming; however, several European countries have developed their own legislations. In the case of Spain, this production system is supported by some national decrees (R4) promulgated by the Ministry of Agriculture, Food and Environment (I2-1). Nevertheless, there are more specific technical regulations for each crop type at the autonomous community level (R5) enacted by the Andalusian Department of Agriculture, Fisheries and the Environment (I3) standardizing various activities such as the use of fertilizers, pesticides, certified seeds and so on.

In fact, specific technical regulations define three types of agricultural practices for each crop: compulsory, prohibited and recommended. Each agricultural holding have a farm registry, where all season farming practices are noted. Furthermore, the holding has an on-going professional technical service. In the case of rice, IP technicians, who can monitor up to 500 ha, are responsible for leading and controlling all IP practices. Final certification is proof that both, the obtained product and the whole process of production fulfil specific requirements of current IP legislations.

As we have previously mentioned, institutional support, principally the EU's key policies in favour of environmentally friendly products (R6), undoubtedly, has been another powerful force pushing for change. It has been also mentioned during the interviews by some local farmers:

> The EU's financial support for integrated rice farming was the main motivation for farmers to change their farming system. (Angel Luis)

Currently, direct aid received by rice farmers is approximately 1300 €/ha, from which, around 250 € correspond to IP subsidies. Thus, European Commission's Directorate-General for Agriculture and Rural Development (I1-1) who is responsible for the implementation of Europe's agriculture and rural development policy (R6) has been another key institution in this process (Table 2).

[6] "Agrupaciones de Producción Integrada" in Spanish.

Water: essential element of the evolving governance system

In spite of the spectacular role of IP in SES transformation, a crucial evolution of Spanish water governance towards a multi-level participatory-based system has also been an essential complement.

Historically, the predominant goal of the Spanish water management model has been resource augmentation, which has impacted the system's overall vulnerability, the discourse of scarcity, the conceptualization of risk, and the stakeholders' interests and their approach to risk (Giansante et al., 2002). The 20th century hydrological paradigm has been characterized by a supply-based policy with huge hydraulic constructions, leaving virtually no room for quality, aquatic environment and groundwater considerations (Ramos Gorostiza, 2001).

However, over recent decades, this model has had a crucial evolution towards a multi-level and participatory-based system. This process has provided the integration of rice farmers and local water related organizations in decision-making processes and power relationships related to water allocation. While this is true, it should be noted that the participation in water management discussions has been restricted to certain stakeholders (Pérez-Díaz and Mezo, 1998).

From an internal perspective, the Spanish transition to democracy and its gradual territorial decentralization to regional governments (Autonomous Communities) could be considered as the turning point, marking a before and an after in Spanish water policy. The 1985 Water Act could then be considered as the cornerstone of this new water policy era. It adapted water legislation to the modern democratic and constitutional framework, and gave way to a decentralized political system. According to this law, river basin authorities became the main water management agencies in each basin.

Throughout this evolutionary process, the Guadalquivir River Basin Authority (created in 1927) has passed from a hydrotechnical agency devoted to the construction of dams and water conveyance facilities, to an integrated water resource management agency with combined responsibility for physical infrastructure and water use management (Blomquist et al., 2005)

The 57,527 km^2 of the Guadalquivir river basin expand through four Autonomous Communities, where Andalusia holds over 90% (CHG, 2012). As a result, the Guadalquivir River Basin Authority (I5), corresponding to an inter-regional basin, directly depends on the central government (I2), particularly on the Ministry of Agriculture, Food and Environment (I2-1); whereas in the case of intra-regional basins, this responsibility is fully transferred to regional governments.

From an external point of view, the turn of the century could be contemplated as the starting point of a new water policy framework. To cope with serious water problems such as excessive use and quality decrease coming from decades of growth and weak water management controls, in 2000, the European Union (I1) introduced a new legislative approach (2000/60/CE) called the

Table 3
Relevant institutions and rules in water governance for rice cultivation in Isla Mayor.

Governance issue	Relevant institution(s)	Relevant rule(s)
Water for rice cultivation	I1. European Union	R7. European Water Framework Directive (WFD) R15. European legislations related to the pollutants derived from runoff/discharges from irrigated agriculture
	I2. Spanish Central Government I2-1. Ministry of Agriculture, Food and Environment	R8. Transposition of WFD into Spanish law R16. National legislations related to the pollutants derived from runoff/discharges from irrigated agriculture
	I5. Guadalquivir River Basin Authority (GRBA)	R9. River Basin Management Plan in force (1998) R9-1. Licenses and permits for water use R9-2. General order of preferences in water allocation R9-3. Water allocations for rice cultivation R9-4. Water tariffs (First component)
	I5-1. Dam Water Release Commission	IR12. Negotiation mechanisms for water allocation, during drought situations
	I5-2. River Policing Authority	R17. Water quality control
	I6. Six Irrigation communities corresponding to Isla Mayor municipality	R10. Management of Isla Mayor irrigation districts IR13. Outstanding representation in I5-1, and a so far power in decision making R11. Water tariffs (Second component)
	I7. Andalusian Association of the Irrigation Communities	IR14. Unity of the irrigation sector, and its so far power in decision making
	I8. State Civil Guard	R18. Water quality control

Water Framework Directive (WFD) (R7). Correspondingly, by 30th December 2003, the Spanish central government (I2) transposed the WFD into Spanish law by the article 129 of Law 62/2003 (R8).

WFD reinforces the role of river basin authorities, making them responsible for the preparation of their own action programmes. In the present case study, the Guadalquivir River Basin Authority (GRBA) (I5) was demanded to prepare a management plan until late 2009. Most recently, in May 2013, this new plan has finally come into force. In our study, however, we mostly refer to the previous plan (R9), elaborated in 1998 in compliance with the 1985 National Water Act, as it has played a fundamental role in our case study. Several basic issues related to water use in rice activities are defined by this plan and will be described below, as sub rules of R9.

At the same time, the whole basin is divided into several irrigation districts and each single district is managed (R10) by a so-called "irrigation community" (I6), a crucial institution under the supervision of the GRBA. Irrigation communities (I6) manage water supply operations to farmers' plots. Six of these irrigation communities relate to our case study, covering different surface areas, and ranging from 450 to 6433 ha. However, some of them also cover irrigation parcels of neighbourhood villages. Moreover, we can find a very limited number of independent farmers, holding private water allocations, managing and getting the water on their own.

According to article 22 of the plan, GRBA grants permits for water use (**R9-1**) principally to irrigation communities, excluding those few mentioned independent farmers. This grant is based on a general order of preferences established by article 16 of the plan (R9-2), in which "irrigation" is third, just after "public supply" and the "minimum water flow environmentally required". This ordering somehow shows the great importance (and lobbying power) of agricultural activities and irrigation allocation grants in the region (Table 3).

The gross and net irrigation water allocations for rice cultivation are defined in article 11 of the basin plan (R9-3) to a maximum of 14,000 m^3/h and 12,000 m^3/h, respectively. Besides this large water volumes, it is worth mentioning that the very crucial location of Guadalquivir rice paddies, just on the final stretches of the river, makes them extremely sensible to tides. As a result, during rice irrigation periods (April–September), large volumes of water must be released from upstream reservoirs to maintain the estuary's salinity under control. Consequently, during drought periods, this required release of water is a source of conflict between rice growers and the rest of the basin's irrigation farmers.

Water charges are composed of two components: (1) provision costs to each irrigation community, which are defined by a general irrigation water tariff, imposed by GRBA (R9-4), (2) management operations and distribution costs to the plot of each rice farmer, carried out and defined by each irrigation community (R11). The fact is that water itself, as a resource, is considered to be almost free of charge. Thus, prices paid for water use are only aimed at recovering, partially or completely, the costs of provision, transportation, or treatment, but never to pay for the resource in itself (Giansante et al., 2002).

The key issue related to water tariffs is that the price for water use in rice irrigation, as in most other irrigated zones, is not established in volumetric terms, but rather as a per hectare fee; something that apparently affects the efficient use of water.

In Isla Mayor, rice farmers have to pay a 30% supplementary fee on top of the general canon due to their down-stream location. The actual average canon (including this supplementary fee) is about 85 €/hectare as defined by the GRBA. However, adding distribution, operation and maintenance costs carried out by irrigation communities (I6), the final amount paid by rice farmers almost doubles.

Tackling drought, especially in rice farming, is for sure one of the major challenges in water management. In such situations, two main institutions have the principal role in the Andalusian water governance scheme: the Dam Water Release Commission (I5-1) and the mentioned irrigation communities (I6). In spite of the fact that water allowances by crop-type have been well-defined in the plan, particular mechanisms exist within the participatory bodies of the GRBA that allow for a "certain degree of negotiation" (IR12) in resource allocation to different sectors during droughts. In fact, according to the National Water Act, and through the approval of a drought decree, they have the authority to take extraordinary measures and impose temporal restrictions and reductions on granted water allowances. Within the GRBA, the body in charge of discussing these issues is the Dam Water Release Commission [DWRC].

Water users have some representatives among DWRC members, but the key point is that they are appointed according to used water

volumes. Thus, the irrigation sector makes up the vast majority of this Commission becoming, de facto, an important force in water decision-making (IR13).

Moreover, a non-profit and politically independent "Andalusian Association of the Irrigation Communities" (I7), born in 1994 as a result of severe consecutive droughts in the region, also contributes to the sector's unity and to the maintenance of its decision-making power (IR14).

Discharges management into water bodies, particularly those related to pollutants derived from runoff/discharges from irrigated agriculture, is strictly subject to European and National legislations (R15 and R16). At the basin's level, water quality control (R17) is responsibility of the "River Policing Authority" (I5-2) from the GRBA, and it is carried out through two monitoring networks (SAICA[7] since 1994 and DMA[8] since 2008), in both cases, broadly following the criteria established by the European Water Framework Directive. In addition, the State's Civil Guard Nature Protection Service (SEPRONA) (I8) collaborates in water quality inspection tasks[9] (R18).

Results: governance effects on ESs

The interplay among individual actors, organizations, and institutions at multiple levels is central in transitions towards ecosystem-based management (Olsson et al., 2008). For this purpose, the previous section was focused on understanding how the multi-level organization of rice activity is managed; who are the main actors, in what way they interact among and within levels and, finally, how key decisions are being made. Next step, therefore, is to analyze the relationship between specific governance configurations and the provision of ESs.

In order to study this connection in our focused SES, three ESs have been chosen because of their social relevance and their intertwined character. These are:

1. Paddies as suitable living and feeding space for birds.
2. Provision of quality rice.
3. Local based tourism principally aimed at bird watching in ricefields and local gastronomy.

The main target of the present section is to improve our understanding of how changes in formal and informal institutions and rules trigger social and ecological transformations, having a significant impact on the provision of these three ecosystem services.

Paddies as suitable living and feeding space for birds

Wetland ecosystems, including rice fields, offer key habitat/supporting services for many plants and animals, providing suitable living spaces for many species of birds and contributing to preserve biological and genetic diversity. Unfortunately, many wetland-dependent species, including water birds, are in worldwide decline. Of the 1138 water bird biogeographic populations whose trends are known, 41% are in decline (MA, 2005).

Having established that farming practices affect aquatic bird communities, and considering that rice fields today represent what were earlier extensive natural freshwater marshes, the correct management of these areas is essential to guarantee the conservation of water birds (Lourenço and Piersma, 2009).

In our case study, about three decades ago, this issue was considered as the most important environmental problem associated with rice activity so that there was a considerable trade-off between rice provisioning and bird habitat. However, comparing the prior situation with the actual one, we find a significant positive shift, mainly as a result of controlled consumption of chemical products in rice fields, which in itself is a function of an adapting governance scheme, promoting integrated farming systems.

The former situation was so serious that it has remained in the memory of many as the "ecological tragedy", "cruel slaughter", and "Doñana crime" of the time (Díaz, 1993). The principal reason was the massive waterfowls' death registered in 1973 (Díaz, 1993; Garrido, 2007), and a worse one in 1986 (Díaz, 1993; Garrido, 2007; Lanzarot Freudenthal, 2008) with estimates ranging from 15,000 to 20,000 deaths, or even more than 30,000 according to some reports. In both cases, rice farmers were blamed for pesticide (mainly Methyl Parathion) misuse in the paddies.

Moreover, studies on water quality, conducted before the application of integrated farming systems, are another evidence of dangerous pesticide consumption in rice fields. They reported on above normal concentrations of mercury (Hg) in the lower Guadalquivir River making unavoidable its entrance into Doñana National Park. Mine activities, and the use of mercurial pesticides in rice field were the main suspects (Fernández et al., 1991; Arambarri et al., 1996).

The remarkable change in the use of chemical products (Table 1) has surely contributed to an improved water quality as well as bird habitat conditions. A comparative analysis on exposure levels to cholinesterase (ChE)-inhibiting pesticides carried out in Doñana's integrated rice farming (south Spain) and in a non-integrated rice farming in Larache and Sidi Allal Tazi (north west Morocco), has recorded a significantly higher Cholinesterase activity in the case of birds—Black-winged Stilts (*Himantopus himantopus*) —in the non-integrated paddies of Morocco. Consequently, this study confirms that integrated management has successfully reduced the exposure of birds to pesticides (Toral et al., 2012).

In fact, the evolution of SES governance, particularly the emergence of IP management and its multi-level configuration, in which various institutions and rules (I1-1, I2-1, I3, I4, IR2, R3, R4, R5, and R6) are taking part, has been a key factor not just in regulating the trade-off but also generating positive feedbacks between rice provisioning and habitat ESs.

Moreover, some other key institutions and rules, in boosting the implementation of IP (I2-1-1, IR1), improving (I4, IR2) and supporting (I1, R6) it's functioning, have also been fundamental pillars of the new governance system and its corresponding positive effects on the generation of ESs. However, it needs to be taken into consideration that the implementation of IP could have had side effects, such as the requirement (by both IP regulation and EU's agricultural granting system) to use certified seed, which indeed benefit huge rice industry companies that mainly provide and distribute these seeds.

Provision of quality rice

Provisioning services, such as rice production, are the type of ES that best suits the ESs framework due to their direct and tangible contribution to human welfare. This excessive emphasis on provisioning services has frequently led to declines in other ESs (MA, 2005; Bennett et al., 2009). This was evident in earlier scenarios of our case study, where the higher provision of rice was at the cost of reduced habitat for water birds. Surprisingly, however, this negative relationship has shifted into actual meaningful synergy between the mentioned services.

[7] SAICA stands for "El Sistema Automático de Información de Calidad de las Aguas" in Spanish.

[8] DMA stands for "Water Farmework Directive" or "Directiva Marco de Agua" in Spanish.

[9] It is up to SEPRONA to guard, monitor and report any aggression to the environment, including water resources.

Table 4
Evolution of rice surface and production in Andalusia, Spain.

Year	Surface (ha)	Production (t)	Average yield (t/ha)
1994–1997	19,519	145,785	7.5
1998	36,869	293,688	8.0
2000	38,000	318,000	8.4
2002	39,218	335,700	8.6
2004	39,432	344,200	8.7
2006	28,865	210,100	7.3
2008	20,253	146,500	7.2
2010	39,177	353,800	9.0

Source: Prepared by the authors based on data from MARM (2013) and CAPMA (2013).

As shown in Table 4, the productivity of actual integrated rice farms in comparison to prior periods under conventional systems, has increased by approximately 12% in the last fifteen years. This is mainly due to the specific regulations of Rice IP that have served as a guidebook of worthy cultural practices (Aguilar Portero et al., 2007). In fact, the compulsory use of certified seeds, the provision of continuous technical advise, and targeted technical assistance with on-site visits to rice fields have been fundamental contributing factors for increasing the average yield from 7.5 t/ha in 1994–1997 to 9.2 t/ha in 2011. Nevertheless, having access to sufficient good quality water for irrigation has always been the main key to this success. As we can observe in Table 4, in the periods of drought in Andalusia, like the 2005–2008 phase, reduced availability of water has led to increased levels of salinity in water, and thus to minor productivity in rice fields.

The application of IP methods has also had advantages in qualitative terms, both for consumers and farmers. In fact, certified IP rice suppose a quality assurance for consumers as well as a higher value added product for rice farmers.

Once more, the IP system and its relative institutions and rules has been the cornerstone of the changing governance configuration, which has resulted in positive effects in the provisioning service of rice and, at the same time, an improvement in habitat services, as it has been shown in the preceding section.

Furthermore, having into account the relevance of water salinity in productivity levels, the role of other institutions and rules that have played an essential role in rice governance and its corresponding effects on the provisioning service are worth mention: (1) the Dam Water Release Commission (I5-1) for its negotiation mechanisms for water allocation (IR12); (2) the Irrigation Communities (I6) for their outstanding representation in DWRC (IR13) and, (3) the Andalusian Association of Irrigation Communities (I7) for maintaining the sector's unity and its—so far informal—power in decision-making (IR14).

However, it should be pointed out again that the functioning of some institutions involved has probably had some side effects. For example, Dam Water Release Commission (I5-1) in fact acts as a forum to discuss the main issues, objectives, values and problems of irrigation farmers representing, as some authors suggest, an important mechanism to institutionalize the hegemony of values and objectives of this sector in general water policy (Giansante et al., 2002).

Local based tourism principally aimed at bird watching in paddies and local gastronomy

Previous mentioned services (provisioning and habitat) have together resulted in the emergence of new cultural services. These new cultural services, providing a new economic resource for local people, are opening a window of opportunity for novelty and innovation against future uncertainties (Folke et al., 2010) and also a policy window that can move issues onto the political agenda and into formal policy (Farley et al., 2007).

In contrast to its previous image as a wild uninhabitable territory, nowadays Isla Mayor is considered a place where paddies and birds fit together in a landscape spiced with a particular gastronomy based on high quality local products. In turn, this new perception increasingly attracts new visitors.

Besides the already mentioned institutions and rules in previous sections that have had indirect effects on this cultural service, there are other relevant institutions, from outside the rice activity, which are taking a leading role in promoting ornithological tourism. The key institution fostering this cultural ES is being Isla Mayor's City Council, principally by its recent project called "Island of Birds" aimed at promoting this kind of tourism. Nevertheless, this initiative is part of a package of projects aimed at revitalizing the Guadalquivir River and more specifically, energizing tourism in the Doñana area, which is fruit of the collaboration agreement between the Andalusian Department of Tourism and Trade and the Province of Seville Council.

Once again, the relevance of a bridging local institution such as the City Council, and the institutional support from other levels of governance may proof to be another success story in linking people and their activities to ecosystem services.

Conclusions

The view of Isla Mayor as a complex SES has served us to better understand social dynamics in a functional ecosystem. The empirical analysis of social–ecological relationships unveils the relevance of changing governance configurations related to crop production processes and water management, and their impact on the generation of ESs.

Systematic learning and innovation under conditions of uncertainty are more likely to emerge through meaningful interactions of multiple stakeholders (Armitage et al., 2007). Our bottom–up approach reveals that the transformation of governance systems to a multi-level structure is crucial for the successful management of ecosystems. The results also confirm the particular appropriateness of multi-level arrangements in solving problems of complex adaptive systems (Olsson et al., 2007).

Within a multi-level structure, bridging institutions play a key role, coordinating "the interactions among a range of actors at different levels of society and nodes of expertise and a diversity of experiences and ideas for solving new problems" (Olsson et al., 2007: 12). In fact, the role of these organizations is critically important in the coordination of numerous tasks that enable co-operation (Berkes, 2009). The case of Isla Mayor also suggests that addressing formal and informal rules and specifically power relations in decision-making is a fundamental issue in ESs analysis.

Our exploratory case study highlights the strategic importance of local-level institutions and rules in ecosystem-management. Nevertheless, it also becomes clear that support from upper levels of governance is an essential complement to local-level initiatives. This coupling and connectivity is indeed facilitating a co-management approach of the SES.

The incorporation of governance analysis in ESs framework is pertinent, as we have observed that the effects of specific changes in governance configurations go well beyond a particular ES, spreading through the network of interconnected services. Furthermore, a process of diversification of economic activities has taken place in Isla Mayor thanks to the emergence of a new service (tourism), which is, in part, fruit of an adapting governance system (Hernández Ramírez, 2011). This diversification, in turn, is a window of opportunity for building social–ecological resilience to future uncertainties and perturbations (Folke, 2006).

Whatever the case maybe, the results of our study suggest that the integration of human/social dimensions in the ESs framework is of utmost importance, as reveals that services are not just the result of "natural ecosystems", but rather, in many cases, the emergence of a highly interconnected social and ecological system.

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How does adaptive co-management relate to specified and general resilience? An approach from Isla Mayor, Andalusia, Spain

Sherman Farhad[a,c,*], Miquel A. Gual[a], Esteban Ruiz-Ballesteros[b,c]

[a] Departamento de Economía, Mét. Cuantitativos e Hª Económica, Universidad Pablo de Olavide, Ctra. Utrera, Km 1, 41013, Sevilla, Spain
[b] Departamento de Antropología Social, Psicología básica y Salud Pública, Universidad Pablo de Olavide, Sevilla, Spain
[c] Grupo de Investigación Social y Acción Participativa, Universidad Pablo de Olavide, Sevilla, Spain

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ABSTRACT

Resilience provides a framework to study the dynamics of social-ecological systems (SESs). The inherent complexity and uncertainty of SESs reveals the necessity for new approaches in management, such as adaptive co-management (ACM). The objective of the present research is to analyse the link between ACM and specified/general resilience debate. For the empirical analysis, a qualitative case-study approach is conducted in Isla Mayor, a southern municipality of Spain with an intensive rice cultivation tradition and a few limited secondary activities such as fishing and tourism. First, we explore five different faces of ACM in Isla Mayor's rice farming: (1) institution building, (2) power sharing, (3) governance, (4) problem solving, and (5) knowledge co-production, social learning and adaptation. Secondly, we analyse specified and general resilience from two perspectives: (1) stakeholders' perceptions, (2) adaptive capacity and self-organization. The results highlight the existence of a task-oriented process aimed at solving problems related to the rice activity. This process has contributed to shape a new multi-level governance system and sharing of power between public authorities and local rice farmers, seemingly contributing to an improved rice cultivation specified resilience. However, the lack of collective power and vertical/horizontal links in the governance framework of the remaining socio-economic activities in the region have given rise to some difficulties in their management and interactions with the rice sector, thereby raising barriers to diversify activities and enhance general resilience. The case shows that ACM can provide the opportunity to navigate the trade-offs between specified and general resilience.

1. Introduction

A constantly changing environment, its complexity and uncertainty, all demand new complex, integrative and holistic approaches. We need theoretical and methodological proposals that bring about a continuum between nature and culture (Ruiz-Ballesteros, 2013), which is to say, *the integration of an organism in its environment* (Ingold, 2000) or *humans-in-nature* (Berkes and Folke, 1998).

The concept of social-ecological systems (SESs) provides a new analytical framework, entailing the view that social and natural systems are in fact linked and the delineation between them is artificial and arbitrary (Berkes and Folke, 1998). They are defined as "systems, in which cultural, political, social, economic, ecological, technological, and other components interact" (Resilience Alliance, 2010). SESs as complex adaptive systems (Janssen and Ostrom, 2006) hold characteristics such as reciprocal effects and feedbacks loops, nonlinearity and thresholds, surprises, legacy effects and time lags, resilience and heterogeneity (Liu et al., 2007).

Resilience, as the capacity of a SES to absorb disturbance while maintaining its essential structure, functions, feedbacks, and therefore identity (Gunderson et al., 2002; Holling, 1973; Walker and Salt, 2006), provides us with a framework to analyse complex and dynamic social-ecological relationships (Folke et al., 2010). Embracing change and appreciating what's needed for a system to absorb unexpected disturbances are in fact the pillars of resilience thinking (Walker and Salt, 2006). Unlike the conventional natural resource management approaches focused on individual components of natural resource systems (Clark and Dickson, 2003), resilience requires a dynamic systems' view. Sustainability of SESs, in terms of long-term maintenance and/or enhancement of their resilience capacity as well as their ability in generating ecosystem services (ES) (Millennium Ecosystem Assessment, 2003), requires new management approaches such as adaptive co-management (ACM).

ACM is the result of the evolution of co-management (CM) and adaptive management (AM) toward a common ground. AM has emerged from applied ecology literature dealing with uncertainty in

* Corresponding author at: Departamento de Economía, Mét. Cuantitativos e Hª Económica, Universidad Pablo de Olavide, Ctra. Utrera, Km 1, 41013, Sevilla, Spain.
E-mail addresses: shermanfarhad@gmail.com, sfar@upo.es (S. Farhad), mgual@upo.es (M.A. Gual), eruibal@upo.es (E. Ruiz-Ballesteros).

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natural resources management (Holling, 1978). It focuses on learning-by-doing and takes place over the medium to long term through cycles of learning and adaptation (Plummer et al., 2012). CM, however, is mostly associated with the commons literature. It is defined by The World Bank (1999, p. 11) as "the sharing of responsibilities, rights and duties between the primary stakeholders, in particular, local communities and the nation state, a decentralized approach to decision-making that involves the local users in the decision-making process as equals with the nation-state". In other terms, CM of common-pool resources depicts some kind of power sharing arrangements between the State and a community of resource users (Carlsson and Berkes, 2005). Despite having diverse historical trajectories, the fusion of AC and CM has been necessary, as AM without collaboration lacks legitimacy, and CM without learning-by-doing does not develop the ability to address emerging problems (Berkes, 2009). This union, represented as ACM is defined as "a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, on-going, self-organized process of learning by-doing" (Folke et al., 2002).

Maintenance and/or enhancement of resilience in complex and uncertain SESs demand new management approaches. This is why many scholars have focused on the relationship between ACM and resilience. Olsson et al. (2004) propose that the process of ACM development has the potential to expand desirable stability domains and make SESs more resilient. In fact, resilience is also a normative concept, since it refers to maintenance of a desired system configuration in the face of change. Whose desires should therefore be prioritized? Resilience thinking "has to be situated in the context of complex, contested, and changing human interests, and the uncertainty of the outcomes of human interactions" (Armitage and Johnson, 2006). This in turn highlights "the critical role of human interactions mediated through adaptive co-management processes" (Plummer and Armitage, 2007).

Nevertheless, most research on the relationship between ACM and resilience does not make distinction between the two types of resilience: general and specified. Specified resilience (SR) refers to the resilience of some particular part of a system to one or more identified kinds of shocks; whereas general resilience (GR) is the resilience of any and all parts of a system to all kinds of shocks, including novel ones (Folke et al., 2010). The *Resilience of What to What* (Carpenter et al., 2001) is a question that could lead us to assess SR in a specific SES. GR's analysis, however, requires the evaluation of the system's capacity in handling uncertainties and, therefore, the broad vs. restrictive perception of possible shocks among stakeholders. This ability to manage shocks is in fact related to the system's adaptive capacity, which is an important key to GR (Walker and Salt, 2012). In other terms, "social capacity to learn and revise shared goals or assumptions in a flexible way through monitoring and evaluation is necessary for enhancing the general resilience of SESs" (Yu et al., 2016; p. 70). Scholars concur that diversity is one of the key conditions in enabling general resilience (Biggs et al., 2012; Carpenter et al., 2012) as it fosters adaptive capacity. From this perspective, GR becomes-mainly- a normative concept. While it is clear the interests of a specific group are being prioritized to maintain or enhance SR, it is especially important to include all possible stakeholders in GR's analysis for a broad diversity of actors and wider deliberation. In other terms, the empowerment of varied stakeholders in the governance configuration is a key issue in GR's analysis.

So, does ACM contribute to GR and/or SR? As it has been analysed, the literature on ACM highlights a basic pattern: research mainly focuses on only one specific resource or environmental aspect of the system. From 108 revised articles, the three most frequent resource-types were related to forestry, fisheries, and water resources (Plummer et al., 2012). These excessively one-resource oriented ACM approaches could be enhancing knowledge on how SR works, but could also hinder knowledge about the system's GR. As suggested by Cifdaloz et al. (2010) through a robustness-vulnerability trade-off framework, institutional arrangements that are very well tuned to cope with specific shocks may generate vulnerability to novel shocks. However, "distinguishing between robustness and rigidity traps is not inherently clear in resilience thinking, as rigidity trap from one perspective can represent another's robustness" (Robards et al., 2011). Trade-offs between SR and GR are therefore of particular significance and ACM needs to take these two notions of resilience into account.

This paper aims (1) to analyse how an ACM scheme relates to SR and/or GR and (2) to study the trade-offs between both types of resilience analytical scales. To carry out these objectives, we use a case study form Isla Mayor (Andalusia, Spain), where rice farming has basically shaped the municipality's socio-economic structure, while fishing and tourism represent minor secondary activities in the area. The specific goals of this paper are: 1) to explore and characterize ACM in rice farming, 2) to analyse and discuss SR in rice farming and GR in the whole Isla Mayor SES, and 3) to discuss the trade-offs between SR and GR through the ACM lens.

2. Study area and research methodology

2.1. Study area

Isla Mayor is a municipality located in the province of Seville in the southwest of Spain. Part of the Autonomous Community of Andalusia, Isla Mayor is approximately 40 kilometres from the city of Seville. It has a surface area of 114.4 km^2 and a population of 5938 (SIMA, 2015). It is an island surrounded by the Guadalquivir River with an 87% of water uses dedicated to agriculture and livestock sectors (CHG, 2012). Given its particular geographical situation close to the mouth of the river in the last segment of the Guadalquivir estuary, it is highly affected by salinity resulting form the Atlantic Ocean tides. The entire municipality is located northeast of the Doñana National Park within the Guadalquivir marsh ecosystem. These marshes support great bird diversity and are used as a migration route for a total of 370 species, migrating between Europe and Africa (Junta de Andalucía, 2008). The physical environment of the area provides exceptional topography and climate for rice cultivation (González-Arteaga, 2005; Moral, 1993), which occupies about 85% of the entire territory and is the primary land use of the area (SIMA, 2014).

Isla Mayor is a relatively recent municipality and rice has been a central factor in its creation. People began to settle permanently in the zone just after the Spanish Civil War (1936–1939), when the National Institute for Colonization (Ministry of Agriculture) started a vast hydraulic infrastructure, and thus enabled the development of rice farming in the region. With 9.711 ha of rice paddies in 2015, rice farming is considered the main socio-economic activity at Isla Mayor. Consequently, as the only provider of water, the Guadalquivir River plays a central role in this town. Flooding is the area's irrigation system and this permits a continuous circulation of water during the whole vegetative cycle through a network of distribution and drainage channels.

At present, Isla Mayor's rice farming is highly mechanized so that seeding and spraying operations are mostly carried out by airplanes. The final product is labelled as *Integrated Production (IP)*. IP is a relatively environmentally friendly farming system that implements constant field supervision by specialized and authorized technicians, as well as a limited use of pesticides and fertilizers. It is regulated by national decrees and specific technical guidelines of the Autonomous Community of Andalusia. It also receives grants from the European Union. The IP system was first used in Seville's rice farms in 1998 and developed so rapidly that currently 98% of province's paddies use the IP system. Since its start, the Seville Rice Farmers Federation has mainly coordinated the IP farming system at the local level. This federation was founded in 1986 and is currently a lobby, which represents rice farmers' unity and defends their interests. The region's rice paddies, specially the environmentally friendly IP ones, are significantly contributing to maintain the region's rich diversity of birds. According to a study in this regard (EBD-CSIC, 2009), the reduction of cultivated rice areas in three

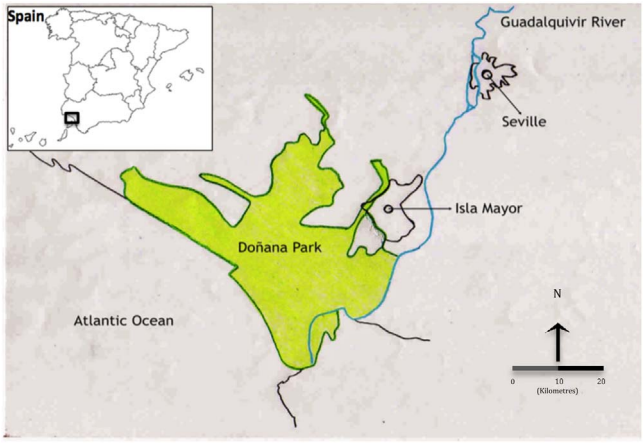

Fig. 1. Map of the Study Area.

consecutive seasons starting in 2005 positively correlates with a clear reduction in bird population.

In addition to rice farming, there are two secondary activities in the area. One of them is fishing, primarily red crawfish trapping as well as caridean shrimp and European eel among others. In fact, Isla Mayor's fishermen do not dedicate their time exclusively to this activity; they also work in other activities, most commonly rice cultivation. Despite initial conflicts between rice farmers and fishermen, rice farmers today give fishermen free access to their fields in order to trap red crawfish in rice paddies or irrigation channels, and ultimately sell them to fish processing and marketing companies of their municipality. The other socio-economic activity, which has recently emerged, is ornithological and gastronomic tourism, which includes bird watching at rice paddies and experiencing the local foods including rice, fish, duck and shrimp. These forms of emerging tourism are being supported by local and national governments as well as the European Union. In fact, both of these secondary activities also depend highly on the river, and have strong ties to rice farming (Fig. 1).

2.2. Methods

Research presented in this paper was carried out through an exploratory case study approach (Yin, 1994). Data collection took place during various field visits form 2010–2013 and a few months in 2015–2016.[1] Multiple research techniques were applied to collect data: literature and document review, in-depth open-ended interviews, participant observation as well as a participatory workshop and questionnaire. An in-depth literature review was conducted to describe and characterize the area's main socio-economic activities and their evolution over time, the potential ESs provided by the river, and legislation regarding water management, IP production and the European Union common agricultural policy. Semi-structured interviews (n = 34) were conducted with key actors including rice farmers (n = 10), fishermen (n = 6), leading local figures such as the town mayor (n = 1), the rice cooperative's director and other agents (n = 2), water managers (n = 2), the Seville Rice Farmers Federation's director (n = 2), the president of the Fishermen's Association (n = 1), stakeholders in tourism (n = 8) and university experts (n = 2). The interviews aimed to collect information on: (1) informal rules and power relationships in the management of main socio-economic activities, (2) stakeholders' perceptions regarding valuable and vulnerable ESs as well as potential drivers, (3) locals' capacity to adapt to new challenges. Participant observation took place in meetings, workshops, celebrations, demonstrations, and informal gatherings to identify how people carry out their socio-economic activities and how they value their environment and ESs. Additionally, a one-day participatory workshop was organized in which a total of 19 people participated including rice farmers, fisherman, representatives from the rice cooperative and irrigation communities, one person from the only tourism company in the area and one university professional. The objective of the workshop was to conduct a group discussion on their perceptions of the values, threats and potential drivers regarding the Guadalquivir River and its provided ESs. Participants were also asked to answer a brief questionnaire at the beginning of the workshop with the goal of collecting their individual insights in order to compare them with their collective responses during the workshop.

Furthermore, we followed Berkes's (2009) framework considering seven characteristics or faces of CM, adapting it with the aim of analysing ACM in our study area: (1) as power sharing, (2) as institution building, (3) as trust building, (4) as process, (5) as learning and knowledge co-production, (6) as problem solving, and (7) as governance.

Finally, in order to study resilience and to provide evidence on the development of specified or/and general resilience capacity in Isla Mayor's SES, we have conducted our analysis from two perspectives:

(1) Stakeholders' perceptions about values, threats and potential drivers towards natural capital assets and ESs.

Values and threats analysis, in fact, provide an answer to the crucial question in the analysis of specified resilience: Resilience "of What to What" (Resilience Alliance, 2010). Therefore, we have focused on the three following questions:

- What are the SES's specific focal points of interests for local stakeholders?
- What are the actors' main concerns: specific, known changes or a broader range of shocks that the system could face?
- What has the potential, according to the community, to cause a shift in the system, from desirable to undesirable state?

(2) Historical evidence of adaptive capacity and opportunity for self-organization. Due to the centrality of adaptive capacity in general resilience, we have carried out our study from this perspective, focusing specifically on the following question:

- Which kind of shocks the stakeholders have been able to manage in order to maintain the system's identity?

3. Results

3.1. Diverse faces of paddies ACM in Isla Mayor

3.1.1. ACM as institution building

According to Ostrom (2010, p. 262) the notion of institution "refers to many different types of entities, including both organizations and the rules used to structure patterns of interaction within and across organizations". Preparation for CM often involves institution building at both local and government levels (Trimble and Berkes, 2013). The key, however, lies in the arrangement and configuration of institutions and rules as a whole, which may contribute positively or negatively to the sustainable management of ecosystems.

Institutional building in Isla Mayor has been based on two fundamental pillars. One was the creation of the Seville Rice Farmers Federation in 1986. This federation that emerged as a self-organised rice-farmers' pressure group, has enhanced their unity, not just at Isla Mayor, but also at Seville's province level. As a result of this improved organization, the participation and influence of the rice-sector has increased in different related organizations.

Another critical element has been linked to water management, where there are no new formal organizations to be highlighted, but

[1] This data was partly collected and used for the following research projects: (1) SCARCE (Consolider-Ingenio CSD2009-00065) and (2) "Retóricas de la Naturaleza y Turismo de Base Local" (I+D CSO2012-33044).

definitively, as Ostrom (1990) would suggest, new institutions as rules-in-use have developed. The Spanish transition to democracy gave rise to a decentralized political system in which the Guadalquivir River Basin Authority (created in 1927) became the main corresponding water management agency. By this means, it went from a hydro-technical agency devoted to the construction of dams and water conveyance facilities, to an integrated water resource management agency with combined responsibility for physical infrastructure and water use management (Bhat et al., 2005). This new Guadalquivir River Basin Authority role was reinforced in 2000 by the establishment of the Water Framework Directive, a legislation of the European Union, by which the Basin Authority became responsible for the preparation of its own action program. These two elements have undoubtedly laid the foundations for the emergence of a paddies ACM scheme.

3.1.2. ACM as power sharing

As it has been described, power sharing is considered a key element for successful ACM configurations. However, as Carlsson and Berkes (2005) propose, power sharing would be better considered as the result, and not the starting point of a CM process. In fact, state legitimization and formalized arrangements seem to pave the way for power sharing (Berkes, 2009, 2007) and this is, in effect, what seems to have happened in Isla Mayor's Rice Farmers Federation's institution building process.

Although IP of rice is subject to national and specific autonomous legislations, this farming mode has mainly been coordinated and managed by the Seville Rice Farmers Federation at the local level through an on-going field monitoring by professional technicians. This key role has made possible and necessary the Federation's participation at various related decision-making spheres, including Common Agricultural Policy meetings at the EU. The unity of the sector has also been a critical element for the creation of Arrozua, the most important rice cooperative in Seville with its own mill, and an increasing -even international- market influence. Moreover, the new water governance system has allowed more space for local stakeholders such as the Seville Rice Farmers Federation and local irrigation communities to participate in water allocation meetings at the basin level, where they are playing an important role with their informal negotiation power. In fact, the Dam Water Release Commission, a body within the Basin Authority in charge of discussing water allocation issues, especially during the periods of droughts, acts as a forum to discuss the main issues, objectives, values and problems of irrigation farmers. This represents, as some authors suggest, an important mechanism to institutionalise the hegemony of values and objectives of this sector in general water policy (Giansante et al., 2002).

3.1.3. ACM as governance

ACM as governance involves a diversity of players, including public and private actors, linked to one another through a variety of relationships (Trimble and Berkes, 2013). This kind of governance implies the joint action of multiple actors. Integrated and flexible governance configurations, allowing the co-existence of self-governing rules and practices at the community level with higher-level norms and institutions might be considered multi-level governance schemes (Brondizio et al., 2009; Ruiz-Ballesteros and Gual, 2012) but probably, in many cases, are also good examples of ACM.

ACM as governance has been fulfilled by the transition from a top-down system towards a multi-level one where meaningful interactions are taking place among multiple stakeholder at different governance levels (European, National, Autonomous, Province and local) in both pillars of local rice activity: IP and water management (Farhad et al., 2015). On one hand, we observe a multi-level configuration for IP management, where main action is taken by local stakeholders, basic formal rules (as related legislations) are being defined at autonomous and national levels, while main financial support come from the European Common Agricultural Policy (CAP). Consequently, bridging organizations as connecting elements are definitively playing a vital role within this governance system. By maintaining the unity at local level, and participating and defending the sector's interests in other levels, Seville Rice Farmers Federation has played a key bridging function, promoting dialogue among various levels of governance, facilitating inter-organizational relations and some conflict resolutions.

Moreover, the evolution of water governance towards a multi-level and more participatory-based system, in which rice farmers and local water related organizations have been cooperating in decision-making processes, is another evidence of ACM as governance. Although there are numerous players that participate at different water governance levels, it is noteworthy that irrigation related actors have more executive decision-making power compared with, for example, environmental organizations, which basically assume advisory and counselling roles or, when in conflict, control and protest ones.

3.1.4. ACM as problem solving

"Co-management is the logical approach to solving resource management problems through partnership" (Carlsson and Berkes, 2005). The use of certain pesticides and chemical fertilizers could cause direct toxicological effects on animal species inhabiting rice paddies, as well as indirect ones, such as reduced prey populations and habitat changes (Parsons et al., 2010). This was exactly the main problem associated with rice activity in our case study about three decades ago. A massive waterfowls' death was recorded in 1973 (Díaz-Díaz, 1993; Ramo et al., 2007) and a worse one in 1986 (Díaz-Díaz, 1993; Lanzarot Freudenthal, 2008; Ramo et al., 2007) with estimates ranging from 15.000 to 20.000 deaths, or even more than 30.000 according to some reports (Ramo et al., 2007). In both cases, rice farmers were blamed for pesticide (mainly Methyl Parathion) misuse in the paddies. These incidents have remained in the memory of many as the "ecological tragedy", "cruel slaughter", and "Doñana crime" of the time (Díaz-Díaz, 1993). ACM of paddies through IP has been able to change this perception, solving the most significant pesticide related problems. A comparative analysis on exposure levels to cholinesterase (ChE)-inhibiting pesticides carried out in Doñana's integrated rice farming (south Spain) and in a non-integrated rice farming in Larache and Sidi Allal Tazi (north west Morocco), has recorded a significantly higher Cholinesterase activity in the case of birds —Black-winged Stilts (*Himantopus himantopus*)— in the non-integrated paddies of Morocco. Consequently, this study suggests that IP has successfully reduced the exposure of birds to pesticides (Toral et al., 2012).

ACM in water governance, with the leading role of irrigation communities in the daily control of water salinity levels and in water allocation meetings, has helped both: to control the salinity problem and, partly as a consequence, to enhance the quantity and quality of rice production. Water allocation objectives have not only been met by Rice Farmers Federation, but also by the whole corresponding irrigation sector, organized as a non-profit and politically independent association: "Andalusian Association of the Irrigation Communities". This association, born in 1994 as a result of severe consecutive droughts in the region, has in fact contributed to the sector's unity and to the maintenance of its decision-making power.

Paddies ACM has strengthened rice farmers ability to solve increasingly complex problems such as rice marketing. Arrozua, as a rice cooperative settled in Isla Mayor, began its work in 2005 as the union of the two previously founded (1983 & 1987) rice cooperatives of the zone (Unión Arrocera S.C.A. & Veta la Mora S.C.A.). This cooperative with 798 members deals with drying, storing, processing and distribution of rice, and currently has its own locally grown brands of rice: DoñaAna and El Ruedo. Taking into consideration the presence of Ebro Foods, a giant Spanish leading company with almost 56 brands including different national and international well-known rice brands, it is worth mentioning that these local brands are increasingly finding space in national and specially Seville province markets and are constantly being included in the local gourmet shops.

Table 1
Summary: Faces of ACM. Evidence from the Isla Mayor case.

Faces of ACM	Evidence form the Isla Mayor SES
1. Institution building	- Creation of the Seville Rice Farmers Federation (1986) - Creation of the Guadalquivir River Basin Authority (1927) and reinforcement of its role as the main water management agency by the Spanish transition to the democracy (1978) and the establishment of the European Union Water Framework Directive
2. Power sharing	- Participation of the Seville Rice Farmers Federation at various related decision making spaces to even Common Agricultural Policy meetings of the EU - Growing market power of Arrozua, the rice cooperative of the zone - Informal negotiation power of the Seville Rice Farmers Federation and the local irrigation communities in water allocation meetings at the basin level
3. Governance	- Transition from a top-down system towards a multi-level one: ● Multi-level configuration of the Integrated Rice Production Management, with the key role of the local stakeholders and the bridging function of the Seville Rice Farmers Federation ● Multi-level and participatory water governance with the key involvement of rice farmers and local water related organizations in decision making processes
4. Problem solving	- Reduced exposure levels of birds to pesticides as a result of the Integrated Rice Production System - Water salinity problem control for rice cultivation - Increased capacity of rice farmers to solve some rice marketing problems
5. Knowledge co-production, social learning and adaptation	- Diverse spaces where local and scientific knowledge could be integrated: ● Continued interaction between technicians and rice farmers on the field ● Participation of rice farmers in the Seville Rice Farmers Federation and Irrigation Communities ● Seville Rice Farmers Federation's involvement at autonomous, national and European agricultural and environmental decision making processes ● Participation of Seville Rice Farmers Federation and Irrigation Communities at River Basin Authority's meetings ● Preparedness for some future uncertainties as a result of problem solving and learning process (the case of the river dredging project and the elaboration of new irrigation system proposal by the Seville Rice Farmers Federation)

3.1.5. ACM as knowledge co-production, social learning and adaptation

This face of ACM, by revealing the adaptive capacity in our case study, in fact confirms the theoretical assumption that considers *AM* as the logical extension of *CM* (Plummer and Armitage, 2007). "Through successive rounds of learning and problem solving, learning networks can incorporate new knowledge to deal with problems at increasingly larger scales, with the result that maturing CM arrangements become ACM in time" (Berkes, 2009; p. 1699).

The great complexity and uncertainty of SESs create the need to integrate diverse sources of knowledge. CM as knowledge co-production means that different partners have the potential to bring to the discussion table knowledge that is acquired at different scales (Berkes, 2009). The multi-level nature of both IP systems and water governance has created the opportunity to integrate local and scientific knowledge of diverse actors at various governance scales. Technicians have been continuously present on the fields and have had a constant communication with rice farmers. Likewise, rice farmers have regularly participated in the meetings and assemblies of both Seville Rice Farmers Federation and Irrigations Communities. There have been spaces even at higher levels of governance, where knowledge could be co-produced and developed to solve specific problems. For example, Seville Rice Farmers Federation has been involved at different autonomous, national and even European agricultural and environmental decision-making processes, and they have participated together with irrigation communities at River Basin Authority's meetings, etc. Problems (as described previously) were tackled one after another over a period of years. In other terms, learning as participation has widened the scope of problem solving from a particular issue and individual actors to a broad set of issues and multiple-actor processes (Olsson et al., 2004). Moreover, learning itself, as a kind of adaptive behaviour, has generated a process through which actors have learned to learn or learned to be adaptive (Pelling et al., 2008). This learning process has prepared them and enhanced their consciousness regarding some specific future uncertainties. This might be the case for the river dredging project pretended by the Port's Authority and other national and government stakeholders, that would make possible the arrival of huge cruises to Seville city for commercial and touristic purposes. The downfall of this project is that it would increase water salinity and, thus, negatively affect rice-paddies production. Besides the required learning process that this project has spurred among relevant stakeholders about the ecological state of the Guadalquivir river (see EBD-CSIC, 2009), rice farmers through the Seville Rice Farmers Federation, have also elaborated a new irrigation system proposal to bring water to paddies directly from a dam, through a set of channels, and thereby solve the dredging project's salinity impact on rice production (Table 1).

3.2. Specified and general resilience in Isla Mayor

3.2.1. Stakeholders' perceptions

Not only Isla Mayor's specific geographical location, being an island surrounded by the river, but also its social, cultural and economic dimensions unveil the vital role of the river in this SES. In fact, the river and some of its related local ESs, particularly the rice provisioning service, have been identified as the specific issue and particular point of attention of local stakeholders. They consider the river as the thread that unites all the valuable characteristics of their SES. In fact, our fieldwork revealed phrases that manifest the connection and synergies among diverse river ESs:

> "Without water, there is neither cultivation nor fishing; and without cultivation, neither birds nor tourism" (rice farmer and fisherman, personal communication)

Given the centrality of the river in this SES, we decided to focus our discussions with locals, both in interviews and workshops, on fresh water ESs. In other words, the most important and the most threatened ESs provided by the river have been identified and discussed as the key valuable and vulnerable characteristics of the system, respectively.

Workshop participants were asked to explain their opinion regarding five ESs that they currently perceive as the most important ones, as well as those considered as the most vulnerable ones. The results (Appendix A) illustrate that key ESs, with the higher number of references made by participants, in order of importance were: (1) rice

cultivation, (2) fishing, (3) ornithological, gastronomic and river tourism. Surprisingly, at the same time, these services were considered as the most vulnerable ones in the future, as participants assigned the highest threat to them.

In spite of the fact that locals are sensible to several benefits and services generated by the river, their principal socio-economic activities make them to have an unbalanced view about the importance of rice and fishing services relative to other services. So that 100% of participants have underlined rice provisioning service, and even 81% specified it as the first key benefit received from the river. Similarly, 94% of participants have highlighted rice provisioning as the main endangered service.

The results of interviews and workshops point to the high attention given to the "river dredging project" and its corresponding effect on water salinity, so that 81% of workshop participants stated it as the principal potential driver. One-gram per litre water salinity level is known to be a key threshold that, if crossed, it would definitely cause a significant change in rice farming, and to a lesser extent in fishing. According to the workshop participants:

> "If the river is salinized, everything is in danger"

> "The more salt in the river, the less benefit for the town"

> "The river dredging goes against the whole town and the environment"

These words highlight the deeply locally perceived interconnectivity about the valuable characteristics of the SES:

> "If the quality of the river in terms of salinity reduces, rice cultivation wouldn't be feasible. The families would no longer receive the incomes from that agricultural activity and the local economy would destabilize. The ecosystem diversity would be reduced and as such, the environment would lose its recreational characteristics and would no longer have touristic attraction" (rice farmer and entrepreneur, personal communication).

In contrast, little emphasis has been given to other potential drivers such as climate change, water scarcity, water contamination, etc. In other terms, there is no evidence that the Isla Mayor community will be prepared for a wide range of shocks; but rather, the locals are continuously updating their capacity to confront focused and specific issues relating to rice activity, which is the basic economic activity of the area and nearby zones.

In fact, this section's findings on the centrality of rice in all perceived and discussed SES' values, threats and potential drivers indicate the development of specified resilience and the lack of general resilience in Isla Mayor.

3.2.2. Historical evidence of adaptive capacity and opportunity for self-organization

This case study shows the attention given by Isla Mayor's local stakeholders to identify specific thresholds mainly related to rice activity, and their significant ability to anticipate shocks that could cause a change in rice cultivation and, thus, in the SES's identity. As it has been explained in Section 3.1.4., local stakeholders have been able to successfully manage some issues related to bird habitat, rice marketing, water salinity, etc. In fact, they have also shown important signs of self-organization and adaptability. For example, despite the fact that Spain has been traditionally specialized in producing round grain rice varieties, Seville's rice farming sector has adapted itself to European rice market's demand, which has a preference for long grain variety. Moreover, its power built around the Rice Farmers Federation and the participation of their Director-General in European Union's Common Agricultural Policy meetings at Brussels is another evidence of their self-organization capabilities. Furthermore, they have been able to work on and anticipate some specific shocks, as the ones that could derive from the river dredging project. As explained in Section 3.1.5, the implementation of this huge project would give rise to several negative effects, including a considerable increase in water salinity. In the face of this risk, several potential affected or concerned groups such as rice farmers, fishermen, conservation organizations like WWF (World Wildlife Fund for Nature) and ecologists (Ecologists in Action[2]), have come together voluntarily, creating a so-called platform in Defense of the Guadalquivir. The considerable collective power of this big team has so far prevented the implementation of this project, in spite of being partially subsidized by the European Regional Development Fund. Not only have they obstructed the dredging project, but the Guadalquivir River Basin Authority has, meanwhile, also promoted a new hydraulic project called Paddy Irrigation Systems' Modernization. If the project is executed, rice farmers will no longer need to take salty water from the estuary, but instead fresh water will be taken to their fields from reservoirs through an irrigation channel and a new pipeline infrastructure.

Table 2
Rice surface and production in Andalusia, Spain.
Source: Adapted from Farhad et al. (2015)

Year	Surface (ha)	Production (t)	Average yield (t/ha)
1994–1997	19.519	145.785	7,5
1998	36.869	293.688	8,0
2000	38.000	318.000	8,4
2002	39.218	335.700	8,6
2004	39.432	344.200	8,7
2006	28.865	210.100	7,3
2008	20.253	146.500	7,2
2010	39.177	353.800	9,0

This system's ability to respond, in order to maintain its valued characteristics, has been limited to some specific kinds and not to any kind of disturbances. For example, severe droughts in Andalusia like the ones suffered during 2005–2008, had as a consequence a reduction in rice cultivated area of up to 50% (Junta de Andalucía, 2008). This reduced availability of water also led to increased levels of water salinity, and hence to less productivity of rice fields in the corresponding years (Table 2). Furthermore, in the more distant past, in 1983, 1993 and 1995, rice framers were obliged not to plant the entire surface due to a drought situation and lack of water for irrigation (Muñoz Sánchez, 2009). In fact, attempts were made to seed rapeseed and sunflower, as there is not much possibility of crop diversification due to the high level of soil salinity. The absence of the ability to diversify activities has been a principal obstructing element, which in fact highlights the weakness of the general resilience in this SES.

Unlike the rice sector's adaptive capacity, the other two main socio-economic sectors of Isla Mayor —fishing and tourism— so far lack this adaptive capacity.

According to the local fishermen's opinions, excessive governmental restrictions, spatial, temporal and, above all, catchment restrictions regarding protected fish species are the central difficulty of the fisheries sector in the region.

> "We were 120 members in the Isla Mayor's Fishermen's Association but there are now just 5 or 6 people. They don't allow us to fish eel, shrimp, etc. They ban us from fishing in the river, in the marshes, etc. Then, it is quite clear; why should people want to be a member of the Association?" (President of Isla Mayor's Fishermen's Association, personal communication)

Another aspect stressed by several fishermen of the zone is the type of fishing licence they have. They all have a "Sport Fishing Licence" which, in fact, corresponds to a recreational fishing, while they all wish to practice fishing as a professional activity with its related rights and

[2] Confederation of over 300 Spanish ecological groups, founded in 1998

obligations. These excessive fishing restrictions, as well as the perceived lack of attention to fishermen needs, have given rise to some illegal fishing in the area.

Tourism, as an incipient activity in the region, has received some financial and administrative support. For instance, we could mention Planiturio[3] Project, a Tourism Promotion Plan of the Guadalquivir River, co-funded by the Department of Tourism of the Regional Government of Andalusia and the Seville Provincial Council. The principal focus of the project was to harness the touristic use of the river, for which new infrastructures would be launched. It encompassed three initiatives in the Isla Mayor area and the surroundings (Puebla del Rio municipality): (1) Isla de Pájaros (Birds' Island), an open air museum, where the most important Isla Mayor inhabiting birds are painted on the facades of the town's most emblematic buildings together with their names in four different languages (Spanish, English, French and Portuguese); (2) Pantalán Isla Mínima, a pier constructed for mooring of tourist boats; (3) Dehesa de Abajo, a Nature Reserve and protected area of great interest for its natural values, where we can comfortably watch the most common birds of Doñana Natural Park as well as Spain's largest breeding colony of white stork. Furthermore, we could highlight the European Regional Development Fund (ERDF) grant given to the *El Tejao Restaurant* to develop local traditional gastronomy and the establishment of the *Espiga Hotel and Restaurant* within de PRODER[4] (Operational program of Development and Economic Diversification of the Rural Areas) and LEADER[5] (Links Between the Rural Economy and Development Actions) Programs.

But Despite all the efforts and improvements, tourism is still a very secondary activity that people hardly consider as an alternative source of income. The main reason for this, according to some interviewees, is the absence of collective action at local level.

> "I think what is missing in our town to strengthen tourism is an association, company or something like that, in charge of tourism organization and coordination. While the town council is in charge of everything, tourism wouldn't work" (local tourist entrepreneur, personal communication).

These challenges for fishing and tourism activities have also been associated with the absence of vertical and horizontal links in their corresponding governance frameworks, making difficult both, their management and interactions with the more powerful rice sector. This largely explains the obstacles to diversify and strengthen the socio-economic tissue of this rural area, which in turn points to the weakness of "general resilience" in Isla Mayor's SES.

4. Discussion and conclusions

Although resilience is key for long-term maintenance of SES, the distinction between SR and GR is frequently unclear in the resilience framework. Our case is significant as it offers some insights into the relationship between ACM and SR/GR, and the possible trade-offs between these two types of resilience.

Isla Mayor's case provides evidence of successful ACM in rice farming. This ACM process seems to have fostered the rice farmer's adaptive capacity and self-organization only on specific issues. We can confirm that this excessively task oriented ACM has enhanced SR around rice farming, as we could uncover that this specific part of the SES is better prepared for particular shocks that could affect it.

Our findings also highlight that SES's governance configuration and power relations have great influence in defining the ACM framework and its further effects on SR and/or GR. The lobbying power of rice farming and irrigation allocation grants in Isla Mayor is the manifestation of this extreme focus on rice provisioning, giving relatively less or even no importance to other ESs (Farhad et al., 2015). This is to reinforce the idea that "the interplay of ESs, generating synergies and trade-offs, will depend greatly on the human dimension of any SES" (Paavola and Hubacek, 2013). Our findings are in line with Adger et al. (2006), underlining the critical role of power in determining the structure of multi-scale human environment systems and the importance of dealing with differences in power within networks. In other terms, the primacy of rice farming as the main socio-economic activity of the area with considerable economic benefits has allowed little scope for the development of other activities. Thus, fishing and tourism play a peripheral role in the socio-economic activities of the region, and locals consider them just as complements to the principal activity of the zone (Hernández-Ramírez et al., 2016). This complementary role of fishing and tourism is related to the lack of collective power and vertical/horizontal links in their governance configurations, which make their interactions complicated with the powerful and consolidated rice sector.

Diversity and general adaptive capacity, as two basic pillars of general resilience, are weak aspects of our SES. Isla Mayor's people are not ready for shocks that do not relate directly to the rice cultivation, and they don't seem very willing to diversify their activities. A complex approach on the whole SES uncovers clear trade-offs: Isla Mayor community members are significantly good in managing and adapting to direct problems affecting the rice sector, but at the same time, they are considerably vulnerable to a wide range of shocks that are apparently unrelated to rice farming. So, as Walker and Salt (2012, p. 19) suggest, "there is a trade-off between specified and general resilience. Channelling all your efforts into one kind of resilience will reduce resilience in other ways. So it is necessary to consider both". In future years, it is likely we could even observe trade-offs within "rice-centred" specified resilience; for example between organic and integrated rice farming, due to increasing demand for certified organic products.

The Isla Mayor case helps to elucidate that an ACM framework can provide the opportunity to navigate the trade-offs between SR and GR. Implementation of the IP rice farming system through an ACM framework has definitely generated positive spillovers in terms of improving bird habitat and provision of quality rice, and has consequently strengthened GR. On the other hand, however, this successful ACM system has produced clear trade-offs, marginalizing other socio-economic activities and thus weakening GR.

Similarly to Nykvist and von Heland's (2014) position in making a difference between specified and general social-ecological memory, we believe that it is also necessary to make a distinction between specified ACM and general ACM. The Isla Mayor case has shown that specified ACM can be a source of SR; but to nurture GR in a SES, a diversity of ACM approaches or general ACM would be necessary. However, carrying out such a wide perspective on ACM and resilience is challenging, both in theory and practice. As Carpenter et al. (2012) suggest, "in applications of GR it is essential to tailor policies and practices to the particular characteristics (governance, social interactions, ecosystems processes, etc.) of the SES that is being managed" (Carpenter et al., 2012). Nonetheless, the implementation of these long-term policies for GR will face many limits of costs and political barriers and in some cases the costs will be too high to justify more investments in GR. This will be in fact the crucial challenge of GR (Carpenter et al., 2012).

While the Isla Mayor case shows the relevance of ACM in the development of SR, and even provide some evidence of both, trade-offs and spill-overs against and in favour of GR, future research is undoubtedly needed to investigate how systems can be managed to promote GR while maintaining a compromise with the socially determined SR.

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[3] Planiturio: Plan de Dinamización Turística del Río Guadalquivir

[4] "Programa Operativo de Desarrollo y Diversificación Económica de Zonas Rurales" in Spanish

[5] "Liaison Entre Actions de Développement de l'Économie Rurale" in French

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Appendix A

See Tables A.1 and A.2

Table A.1
Workshop participants' perception of five major freshwater ESs in Isla Mayor. (Total participants: 16)

Categories of ecosystem services	Ecosystem services/benefits mentioned by the participants	Number of participants that have mentioned each ecosystem service
Provisioning services	Irrigation water (particular emphasis placed on rice cultivation, and, in some cases, the economic benefits of rice farming)	16
	Fishing (specifically of red crawfish, European eel, and, to a lesser extent, caridean shrimp)	14
	Hunting	4
	Drinking water	3
Regulating services & Habitat services	Diversity of birds	5
	Bird habitats (due to the rice paddies under Integrated Production farming)	2
	Conservation of the Doñana National Park	2
	Existence of the surrounding ecosystem	1
Cultural services	Tourism (ornithological, gastronomic and river tourism)	6
	Landscape, environment, surroundings	3
	Enjoyment of the whole ecosystem	1
	Tranquillity of the marshes	1
	Specific gastronomy of the zone	1
	Enjoyment of magnificent landscapes and surrounding nature	1
No standard category	The existence of the whole town due to the river and the settlement of the population in the area due to the sustainable socio-economic activities that depend on the river	3
	Labour, manpower	1
	Purchasing power due to the rice cultivation activity	1

Table A.2
Workshop participants' perception of five major potentially threatened freshwater ESs in the future of Isla Mayor (Total participants: 16).

Threatened ecosystem services or uses of the river according to the participants	Number of participants that have mentioned each threatened ecosystem service
Agriculture (rice cultivation)/Water for rice irrigation (in terms of quantity and quality)	15
Fishing	12
Tourism	4
Bird diversity/Habitat	4
Biodiversity of the ecosystem	2
Doñana surrounding area	2
All the current economic benefits of the river	2
Surroundings/The whole ecosystem that we benefit from	2
Drinking water	1
Water in general	1
Landscape	1
Labour, manpower	1
Principal values of the municipality, which are linked to the river and its habitat	1
The future of the town	1

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'Vender lo propio'. Naturaleza, turismo y arroz en Isla Mayor (Sevilla)

‘Selling your own’: nature, tourism and rice in Isla Mayor (Seville)

Macarena Hernández Ramírez
Profesora Titular. Dpto de Antropología Social, Psicología Básica y Salud Pública. Universidad Pablo de Olavide. Sevilla
mherram@upo.es

Sherman Farhad
Doctoranda. Universidad Pablo de Olavide. Sevilla
sfar@upo.es

Miquel A. Gual
Profesor Doctor. Departamento de Economía, Met. Cuantitativos e Historia Económica. Universidad Pablo de Olavide. Sevilla
mgual@upo.es

CLAVES DEL TURISMO DE BASE LOCAL
MONOGRÁFICO COORDINADO POR ESTEBAN RUIZ BALLESTEROS (Universidad Pablo de Olavide)

RESUMEN
La historia y desarrollo del turismo de base local en Isla Mayor podríamos decir que es la historia de una “joven promesa”, tanto por el tiempo como por el potencial que encierra. El papel de la naturaleza en la construcción del producto turístico, así como el protagonismo de “lo local”, son las claves para entender el proceso que supone el turismo en este municipio. Partimos del presupuesto que entiende los procesos de apropiación por parte de la sociedad local, como uno de los factores condicionantes para el desarrollo del turismo de base local. El caso etnográfico que compone la experiencia turística desarrollada en Isla Mayor (Sevilla) expone la relación naturaleza-sociedad como eje central tanto de la posible oferta turística, como de los procesos de construcción social de la realidad local. La falta de vinculación o la ruptura que parece existir en ese binomio (naturaleza-sociedad) nos ayuda a analizar y centrar nuestro objetivo en dimensionar el papel que juega la apropiación (local) dentro del desarrollo del Turismo de Base Local.

ABSTRACT
The history and development of local-based tourism in Isla Mayor we could say it is the story of a "young promise" as much as for the short time it accrues as for its potential. The role of nature in the construction of the tourist product as well as the role of "the local" are the keys to understand the process involving tourism in this municipality. We start from an assumption that understands the processes of appropriation by the local society as one of the determining factors for the development of local-based tourism. The ethnographic case that makes up the tourist experience developed in Isla Mayor (Seville), describes the nature-society relationship as the core of the tourist offer as much as the processes of social construction of local reality. The lack of connection or even rupture that seems to exist in this binomial (nature-society), leads us to analyse and focus our objective on dimensioning the role of appropriation in the development of this local-based tourism.

PALABRAS CLAVE
apropiación | naturaleza | comunidad | objetivación | arroz, | turismo de base local
KEYWORDS
appropriation | nature | community | objectification | rice | community-based tourism

1. Introducción

La oportunidad de estudiar el turismo como parte de la actividad humana hace ya décadas que está consolidada dentro de las ciencias sociales (Santana 1997). Los diferentes formatos en los que se presenta esta actividad componen diversos campos de reflexión, análisis e intervención y conocimiento científico. Más allá de las ya clásicas controversias ético-teóricas sobre el fenómeno del turismo en general (véase Hernández 2015), encontramos como una de esas formas de turismo, el conocido como turismo de base local (aludiendo a las siglas en inglés de *community-based tourism* CBT), ocupa además de buena parte de los intereses científicos de múltiples disciplinas, un foco importante dentro de esta polémica. Nuestro objetivo en este texto se centra en analizar el papel que juega la apropiación, como elemento conformador, de esta forma de desarrollo turístico.

Son diversas las variables que se incluyen en su caracterización, como muchos son los intentos por definir tan complejo fenómeno; bien es cierto que un buen número de autores hacen hincapié en los condicionantes históricos y de comunidad en los que surge, entendiéndolo como algo muy cercano y similar a las variedades del turismo comunitario (Gascón 2013, Murphy 1985). Se profundiza en la importancia del control de la comunidad en la gestión, en los beneficios de esta actividad (Scheyvens 1999, Mitchell y Reid 1999, y Ramsa-Yaman y Mohd 2004), y en el papel de los diferentes actores protagonistas (MacDonald y Joliffe 2003, y Wearing y McDonald 2002).

Con estos parámetros resulta complicado diferenciar entre ambas formas de practicar el turismo tal y como ha sido tratado por diferentes autores (Cañada 2012, Gascón 2013 y Ruiz-Ballesteros 2011); ahora bien, no es lo mismo turismo comunitario que turismo de base local. Más concretamente vemos cómo esta forma de turismo ha sido reciente y metafóricamente definida como "una mirada del turismo desde las personas y su forma de organizarse en colectividad, que actúan de forma estratégica para controlar recursos de un territorio y obtener de él lo necesario para vivir" (Pereiro 2015: 47).

Desde estas aproximaciones, bien podríamos inferir la dificultad para encontrar una enunciación del Turismo de Base Local que se pueda aplicar de manera universal, y que sirva para generar una definición absoluta. Las claves para entender siempre proceden de la explicación específica, de la significación local, de la adaptación al caso concreto. Aquí encontramos una de las principales razones que nos animaron a estudiar el caso de Isla Mayor para analizar el Turismo de Base Local, por las particularidades del contexto, del proceso y de la población local, en comparación con el resto de casos estudiados en la misma investigación (1), la que nos confirma en nuestro objetivo de centrarnos en el análisis de las diferentes formas de apropiación local, como eje central del desarrollo de cualquier experiencia de Turismo de Base Local.

2. Presupuestos y métodos

A pesar de las controversias en su definición, hemos considerado una buena guía analítica las dos cuestiones fundamentales que señala Pereiro (2015) para su análisis: la dimensión de la comunidad (para hablar de cohesión social) y la dimensión de lo local (por su anclaje al territorio). Que si bien no constituyen desde nuestra experiencia y opinión elementos "buenos y malos" (claro está que esto siempre estará en la intención de quien construya discursos -políticos, científicos, morales, etc.), sí ofrecen dimensiones analíticas que ayudan a comprender este tipo de experiencias turísticas. Así podemos aproximarnos por un lado al papel que juegan los actores protagonistas del turismo (comunidad, turistas, administración, mercado, etc.); y por otro, al proceso de definición del producto en sí, que de manera similar a lo que sucede en buena parte de los casos analizados de turismo de base local, tiene en el territorio y el medio ambiente una fuente de producción muy diversa.

De este modo la base local de esta manera de hacer turismo nos sitúa junto a la comunidad. Considerándola de manera inicial como "quizá la circunstancia más imprecisa en torno al *community based tourism* (CBT) -que la hace un contexto tan heterogéneo- es la propia consideración de "comunidad", un concepto muy discutido en las ciencias sociales y que en los estudios turísticos se operativiza de múltiples formas. La comunidad a la que se refieren los estudios sobre CBT tiene un perfil muy variado en relación a las orientaciones teóricas de los autores y los contextos socio- culturales analizados. Todas estas circunstancias -tipos de turismo, modalidades de organización y conceptualización de comunidad- dan cierto carácter difuso al CBT" (Ruiz-Ballesteros y otros 2008: 400).

Para estos autores, "la organización y gestión turística comunitaria se convierten en el auténtico elemento distintivo del CBT: es la comunidad en el turismo y no tanto el turismo en la comunidad lo definitorio en el CBT" (Ruiz y otros 2008: 400), por lo que proponen "una rigurosa sensibilidad analítica con la comunidad y sus formas organizativas" (Ruiz-Ballesteros y otros 2008: 400). Y es lo que hemos hecho en Isla Mayor, mirar desde la comunidad para ver la experiencia turística.

Pero es precisamente este análisis de la comunidad de Isla Mayor en el turismo lo que nos traslada al otro nudo que señalaba Pererio (2015) al hablar del territorio; pues otro de los elementos centrales expuestos en buen número de casos de turismo de base local tiene el medio ambiente, y de manera mucho más laxa la naturaleza (y sus diferentes consideraciones, comercializaciones, percepciones,

apropiaciones, utilizaciones, etc.) como eje central para componer la proclamada sostenibilidad.

Y es que desde hace ya varias décadas el turismo, de manera general, ha incluido la dimensión de sostenibilidad en sus variables; la aparición del afamado informe Brundtland (World Commission on Environment and Development 1987), en el que se consensuaba la noción de "desarrollo sostenible" y sus posteriores aplicaciones en Agendas 21 locales y programas de desarrollo local y rural con financiación pública, están detrás de las numerosas propuestas encaminadas a promover la sostenibilidad o el desarrollo sostenible en el turismo.

Esta preocupación por la sostenibilidad ambiental y social, junto con una coyuntura apropiada del mercado turístico (Hernández-Ramírez 2007), promueve modalidades y productos turísticos, más o menos recientes, como el turismo de base local. Por lo que incluir la dimensión del medio, la sostenibilidad y la relación entre cultura y entorno como ejes analíticos en los estudios de turismo, no es más que la lógica continuación de una preocupación antigua dentro de las ciencias sociales (Díaz Rodríguez y otros 2012, Lisón Tolosana 1971, Martínez Veiga 1985), en general, y de los estudios de turismo en particular (Cusack y Dixon 2006, Stronza 2001, Wallace y Rusell 2004, Wunder 1996).

¿Y qué aporta a esta línea de reflexión el análisis del Turismo de Base Local? Entendemos que precisamente tener que dimensionar todas las extensiones y analizar las relaciones entre variables analíticas, hace emerger la que para nosotros (y más concretamente en el caso etnográfico de Isla Mayor) es pieza clave en cualquier experiencia de turismo de base local: la apropiación por parte de los locales. Descubrir el posible equilibrio, o no, entre los componentes de la oferta, hace emerger la fuerza (el interés, el capital, el trabajo, los sentimientos, la identidad, etc.) con la que apuesta cada uno de los actores implicados en el proceso; cómo se confecciona, se vende, se destaca, se defiende, se "cree en" el producto turístico que se oferta, acaba siendo vital para entender el turismo de dimensiones locales y conocer aspectos centrales en un análisis de la apropiación.

Una apropiación que hemos considerado como la particular forma de relación entre las comunidades y su producto turístico (Ruiz-Ballesteros y otros 2008). Una relación en el sentido más amplio y complejo que registra aspectos tanto simbólicos, como materiales:

> "La apropiación es un proceso que influye poderosamente en la misma esfera perceptiva del ser humano. Supone hacer suyo o hacerse partícipe de un tiempo o un espacio, y es desde aquí que se mira y ve el mundo. La apropiación hace que la comunidad se confunda con el entorno cultural/ambiental a partir de un proceso selectivo de proyección-identificación colectiva" (Ruiz-Ballesteros y otros 2008: 411).

De aquí que sea precisamente esta dimensión de la apropiación la que nos dé la clave interpretativa para explicar lo que sucede en Isla Mayor con su propuesta de turismo, pero sobre todo para comprender cómo se unen (y se separan) comunidad y medio, en el sentido de "ecología de la vida" considerado por Ingold (2000), en esta localidad.

¿Cómo la apropiación nos ayuda a entender el turismo, la comunidad y las relaciones que entre ambos se producen? Analizar la construcción del producto, la elaboración de lo que se pone en el mercado, las estrategias y las tácticas (de Certeau 2000) empleadas, resulta fundamental de cara a entender los resultados o consecuencias. ¿Y cómo abordar este proceso de apropiación? Es algo que casi se percibe en las formas de hacer de los locales con el turismo, que resulta evidente en el caso analizado precisamente por el desapego con el que se habla, piensa y actúa en la actividad turística. La constatación la encontramos revisando el inherente proceso de objetivación que conlleva toda apropiación. Una objetivación que:

> "convierte la experiencia y los elementos culturales y ambientales naturalizados por la práctica diaria, en objetos de reflexión y, potencialmente, en recursos para el mercado turístico. Al 'objetivar', los habitantes de las comunidades estudiadas son capaces de ver y considerar elementos de su cotidianidad 'desde fuera', aunque estén sumergidos en ellos cotidianamente. Solo al objetivarlos consideran la posibilidad y oportunidad de convertirlos en mercancías para el consumo de los turistas. Pero, paradójicamente, este proceso genera también nuevas formas de vinculación entre los miembros de la comunidad y esos elementos de su cotidianidad, ya objetivados" (Ruiz-Ballesteros 2010: 211).

Por eso nos planteamos el análisis de cómo se objetiviza, de cómo se construye el producto turístico en experiencias de marcado carácter local; descubriendo si la clave está en los protagonistas, en la particularidad del producto, en las exigencias del mercado, o más bien en las relaciones que se establecen entre todos estos elementos, y que acaban dando un producto. Un proceso complejo, donde no solo hay multitud de variables a controlar, sino gran diversidad de actores (internos y externos) y de intereses a ellos asociados. Así buscamos una aproximación a la apropiación en el turismo de base local de manera compleja, donde mercado, cultura, comunidad e identidad, forman parte de un mismo fenómeno legítimo (Ingold 1987), actual y complejo, que lo presentan como un excelente modo de superar dicotomías vacías (Pererio 2015) que cuestionan precisamente su autenticidad, por sus vinculaciones con lo global.

En lo que refiere al método trazado para conseguir nuestro objetivo de análisis en este caso, y antes de entrar de lleno en la revisión del mismo, debemos señalar cómo hemos hecho uso de la etnografía, combinada con otros métodos como el análisis de las configuraciones de gobernanza, como principal herramienta; una opción perfectamente acompasada con la estrategia general de estudio dentro del proyecto en que se encuadraba. Un proyecto de mayor envergadura, denominado “Retóricas de la naturaleza y turismo de base local: Estrategias de sostenibilidad”, y financiado dentro de la convocatoria de I+D del Ministerio Ciencia e Innovación, durante el período 2013-2016. El objetivo principal ha sido analizar las relaciones entre naturaleza y experiencias de Turismo de Base Local, a través del trabajo con cinco experiencias turísticas diferentes entre Andalucía y América Latina.

La elección de este caso de estudio está basada por un lado en las potencialidades que compone por su ubicación geográfica y social (en pleno Parque Nacional de Doñana, y en un territorio empleado fundamentalmente en el monocultivo del arroz) de cara a evaluar la dimensión de la naturaleza y la fuerza de las relaciones entre medio y cultura; y por otro, en el conocimiento previo que el equipo interdisciplinar encargado del caso (compuesto por dos economistas y una antropóloga) teníamos sobre la zona.

Durante este período hemos realizado una etnografía que se ha extendido desde finales de 2012, hasta ahora (verano 2016) cuando triangulamos los datos registrados y redactamos las conclusiones que entendemos aporta este caso. La observación participante de manera sostenida en el tiempo ha sido central dentro nuestro trabajo, junto con las entrevistas en profundidad y el estudio de diferentes fuentes secundarias (anuarios, archivos, etc.) que han contribuido tanto a la etnografía como al análisis del marco de gobernanza, con el que hemos podido analizar el papel de todos los actores, instituciones, normas formales e informales y prácticas cotidianas que rigen la actividad arrocera y turística de la zona (y su influencia en la creación de su producto turístico), y con el que hemos complementado el estudio etnográfico de esta comunidad.

3. Isla Mayor en el mapa del turismo

Elaboración propia

Isla Mayor es un municipio ubicado a 38 km de la capital, “situado en el cuadrante suroccidental de la provincia de Sevilla, en terrenos pertenecientes a las Marismas del Bajo Guadalquivir, ubicado en pleno centro de la Isla Mayor del Guadalquivir, que se encuentra bordeada por el río Guadalquivir y el Parque Nacional de Doñana. Parte de su término municipal se incluye en el ámbito del Parque Natural de Doñana” (web municipal) (2). Debido a su situación geográfica singular dentro de la ruta de aves migratorios entre Europa y África con más de 370 especies de aves registradas, las Marismas del Bajo Guadalquivir poseen una importancia elevada para las aves acuáticas (Junta de Andalucía 2008). Tanto es así, que los arrozales de la zona contribuyen a la conservación de aves, proporcionándoles un hábitat alternativo donde alimentarse y, en algunos casos, anidar (Elphick 2000).

Los indicadores socioeconómicos básicos en 2013 referentes a Isla Mayor muestran un municipio de 5.948 habitantes (0,3% de la provincia), de los cuales 484 fueron registrados como desempleados, con una renta neta anual media declarada (IRPF) de 14.080,3 €, y un tejido empresarial de 290 establecimientos registrados en actividades económicas, entre los que destacan 117 dedicados a comercio al por mayor y al por menor; 32 a la hostelería, 21 a la construcción y 15 dedicados a actividades profesional científicas y técnicas (Instituto de Estadística y Cartografía de Andalucía (3)). Su entorno físico proporciona condiciones topográficas y climáticas privilegiadas para el cultivo (Moral 1993), lo que explica que su actividad económica principal y preponderante sea el cultivo de arroz que, con 9.711 Has representa cerca del 25% de la producción total de la provincia de Sevilla, solo después del vecino municipio de Puebla del Río (Instituto de Estadística y Cartografía de Andalucía (4)). No obstante, existen algunas actividades socio-económicas secundarias, como por ejemplo la pesca, la caza, y la incipiente actividad de turismo que estudiaremos en detalle en el presente artículo.

Lo que resulta a todas luces evidente es que en Isla Mayor la fuente principal de ingresos es el cultivo de arroz. Lo es desde sus orígenes, ya que lo que hoy es Isla Mayor nace de un proyecto colonizador que arranca a principios del siglo XX, pero que se consolida una vez terminada la guerra civil, cuando se establece un plan de fomento del cultivo de arroz en esta zona. Ante tal llamada acudieron numerosos pobladores, que asentándose en terrenos ubicados a unos 5 kilómetros del entonces único núcleo de población Alfonso XIII, comenzaron a componer el pueblo y la sociedad isleña (Rodríguez Cárdenas, 1991, 1994 y 2013) que conocemos en la actualidad. Aquí se van sucediendo las primeras instalaciones del pueblo que no será reconocido como Entidad Local Menor (dependiente del municipio de Puebla del Río) hasta el año 1953, pasándose a llamar Villafranco del Guadalquivir. En 1985, avalado por las grandes transformaciones y el desarrollo de estas primeras instalaciones y grupos de colonos, es cuando se inicia el expediente de segregación del ayuntamiento de Puebla del Río, del que consigue su independencia municipal el 24 de junio de 1994, tomando posteriormente el nombre de Isla Mayor.

En muy pocos casos de poblamiento (por lo reciente y por lo temático) se pueden vincular tan claramente el crecimiento de un lugar, de un municipio a una actividad económica. El cultivo del arroz y toda la construcción social que requiere la propia actividad (unida a una mínima producción de algodón, trigo y girasol) está en el origen del desarrollo territorial, geográfico, económico, social y cultural de Isla Mayor; de aquí que sea necesario contextualizar cualquier acción social que se produzca en este lugar a la omnipresencia del cultivo de arroz, incluido el turismo por supuesto.

A la sombra de este cultivo han ido apareciendo otras muchas actividades que suponen la adaptación de la sociedad local a su vida en este entorno, tan particularmente vinculante. Entre ellas destaca la pesca-comercialización de cangrejo rojo de río y otras especies de la zona, y muy recientemente el turismo.

4. Origen y desarrollo de la oferta turística en Isla Mayor

Hay quien pueda pensar que es pretencioso hablar de Turismo de Base Local en Isla Mayor, atendiendo al volumen y significación de sus visitas; pero quizás para ver el alcance de esta afirmación debamos analizar en profundidad los orígenes y desarrollo del mismo en la zona y sobre todo las características que presenta su oferta (tabla 1). No hay cifras que cuantifiquen el volumen de turismo en Isla Mayor; tampoco hemos sido capaces de registrar a lo largo de la duración de nuestro trabajo de campo, la existencia de algún hecho especifico que nos sitúe en el posible germen del turismo en Isla Mayor. A través de la observación directa, y según se desprende de nuestro trabajo de campo, no parece existir relación directa con una actividad turística mayor en la zona. Aun así este lugar aparece dentro de algunas rutas desarrolladas desde las instituciones competentes en materia turística; intentemos comprender por qué.

Muy a pesar de ser el municipio más claramente inscrito en el entorno del Parque Nacional de Doñana, si analizamos la oferta que aparece en las principales guías oficiales de turismo, destacando la web de Turismo de Andalucía (5), vemos entre los municipios en los que se presenta el parque ni siquiera se nombra Isla Mayor. Tan solo aparece en una presentación general de la provincia de Sevilla, pero ni siquiera menciona el nombre del municipio; se refiere de manera secundaria al describir el paisaje: “La provincia de Sevilla es un mosaico de culturas que hunden sus raíces en el más remoto pasado. La gran cuenca fluvial del Guadalquivir, Sierra Morena y las marismas del Parque Natural de Doñana, permiten ofrecer al visitante un mapa paisajístico de grandes humedales, refugio de una variada avifauna”. Para inmediatamente después seguir con la gastronomía, y apuntar que: “Las carnes de caza, los productos derivados del cerdo que se cría en las dehesas, los arrozales de las marismas del Guadalquivir y los pescados y mariscos de la costa andaluza, constituyen la materia prima de una variada gastronomía**,** cuya máxima expresión es el ‘tapeo’**.” (**web de Turismo de Andalucía) (6)

En este sentido, llama la atención por cuestión de escala y significación que no aparezca como parte de Doñana, como espacio natural y sí haya una referencia explícita a la gastronomía marismeña y al arroz. Siendo así, podríamos entender que lo más destacado, lo más llamativo y sugerente para ser compartido y visitado (es decir lo más eficaz para ser convertido en producto turístico) son los platos elaborados en Isla Mayor.

Tal y como cabría esperar, tampoco se hace en otras referencias explícitas a la ubicación en el medio en otras destacadas referencias (por ejemplo para la Fundación Doñana XXI (7), donde sí aparece Isla Mayor, pero se habla de un “patrimonio monumental escaso”, debido a lo reciente de su creación y se resaltan las celebraciones locales centradas en la gastronomía). No se hace explícita la relación de los productos típicos con los que se elaboran esos platos, con el entorno más inmediato del que proceden. No se menciona la Marisma, pues más bien pareciera que este espacio está concebido en otras claves. Se menciona el cultivo del arroz, tan solo en relación a sus prácticas sostenibles en el capítulo de agricultura, dejando entrever una diferenciación entre este espacio natural y la actividad de los habitantes del mismo. Tan solo en la oferta turística publicitada por la Diputación Provincial de Sevilla, aparece el municipio como atractivo turístico, cuando en varios formatos se promociona el arroz, y su gastronomía como una de los principales atractivos de la provincia. Dentro de los itinerarios temáticos en los que se descompone la oferta provincial, también aparece en dos de ellos, uno dedicado a la gastronomía (8) y otro dedicado a elementos claramente referentes del medio natural y la marisma: los caballos y los toros (9).

En forma de itinerario, también destacado para el avistamiento de aves, está la recomendación por parte de SEO-Birdlife (10) que señala el recorrido entre Isla Mayor y el Brazo de la Torre dentro de humedales y marismas.

Fuera de estos itinerarios, en la web de Diputación también hay referencias a dos de los restaurantes de Isla Mayor dentro de la llamada "ruta del arroz". De nuevo gana la faceta gastronómica a la hora de presentar la localidad. Y es precisamente en relación a ello donde podemos indagar los posibles orígenes de turismo en Isla Mayor cuando Enrique −el dueño y responsable del restaurante Estero−, hace treinta años (en 1986) pensó "que había que tener un buen restaurante en el pueblo" y abrió el restaurante Estero, junto con una amplísima y afamada discoteca que llevaba el mismo nombre. Así comienza a rodar este negocio. Pero lo más destacado, es que esta no fue una iniciativa pensada necesariamente para turistas. Se pensó en los clientes locales, y en su potencial como consumidores tanto del restaurante como de la discoteca. Con el paso de los años, la fama de este lugar ha ido extendiéndose llegando a componer en la actualidad, casi el único atractivo para muchos de los protagonistas de nuestro trabajo de campo. Coincidiendo con la promoción turística del contexto cercano, local, de productos "de la zona", se ha ido consolidando como lugar de referencia para consumir productos marismeños. No en balde su propietario afirma muy orgulloso "que este restaurante "pone a la Isla en el mapa", porque "hasta ahora nadie sabía ni donde estaba esto, ni que había aquí…y ahora la gente conoce la isla porque aquí se viene a comer".

Está situado en la vía principal de la localidad, en lo que se puede entender como centro de la misma, de fácil acceso y visibilidad. Es un local de grandes dimensiones (con capacidad hasta para 600 personas), con varias estancias y una decoración sencilla, alusiva al entorno marismeño en que se ubica. Según siempre su dueño y responsable (y según hemos constatado en las consumiciones preferidas entre sus visitantes), la especialidad son platos elaborados con productos de la marisma (destacando camarones fritos con pimiento, el arroz con pato, albures y cangrejos). El origen de estos platos está básicamente en la experiencia en hostelería del dueño y en las materias primas con las que se abastece. Según el propietario, la mayor correspondencia está con sus aficiones y su modo de vivir (con su afición por la caza y por la pesca). En concreto hay una anécdota que él mismo relata, de un día de pesca con sus amigos, cuando ante de la escasez de condimentos, acaba improvisando el ahora afamado frito de camarones con pimientos. Así, llegaron otras innovaciones o creaciones con productos locales como base, tales como los albures en salazón, o el paté creación de la casa. Con todos estos platos, nos cuenta el dueño, ha tenido una muy buena acogida en su público de fuera, aunque reconoce "apreciar mucho más los que les gusta a la gente de aquí".

Trabajan con productos locales, compran en el pueblo, y más concretamente a la empresa local Isla Sur (albur, dorada, y todo lo que da la Veta la Palma y de los esteros), y a particulares que se dedican a la pesca (caso de las anguilas y angulas) y carne de caza.

Actualmente trabajan tres personas en la cocina y otras en la barra, aumentando a los fines de semana. Son empleados del pueblo, algunos familiares y otros conocidos. En cuanto al perfil de cliente en su mayoría son procedentes de Sevilla "que vienen a comer y echar el día (…), pero también viene gente de Córdoba, Cádiz, de los pueblos cercanos y de las marismas" (empresario local). Su propietario dice no necesitar publicidad, pues su negocio se conoce por el *boca a boca*, por eso viene la gente a comer, "no me hacen falta las guías turísticas". En su intento de adaptación al mercado, han activado un espacio en internet (11) "por el tema de las reservas". El dueño se enorgullece de tener una clientela hecha poco a poco, por la constancia y el buen hacer del trabajo. Cada año saca un plato nuevo y dice estar muy orgulloso pues entiende que su restaurante "ha dado a conocer a la Isla y la Marisma".

Una vez consolidada la clientela de este establecimiento, a pocos metros, abre sus puertas El Tejao, otro restaurante especializado también en platos de la marisma, y que venía a acoger todo el público que llegaba al Estero y no encontraba plaza (12). Ambos restaurantes mantienen en la actualidad el grueso de la oferta en Isla Mayor.

El Tejao se anuncia en su web como "una cocina inspirada en los productos de nuestra marisma, basada en la tradición heredara de nuestros antepasados y en la riqueza natural de este rincón, Isla Mayor. Los ingredientes con los que elaboramos nuestros platos provienen de la fauna y la flora silvestres de las marismas. Todo gracias a sus productos naturales y el entusiasmo de las personas que lo cocinan" (13).

Está abierto desde hace más de quince años, cuando según nos relata su propietario y anterior responsable ante la buena marcha de otro negocio del que era responsable, se pudo comprar un local pequeño enfrente de la discoteca y el restaurante Estero: “Muchos eran los que pasaban por el bar, preguntando si teníamos los platos que venían a buscar al pueblo (arroz)…, nos tenía encandilaos lo que vendía el Estero” (empresario local). Entonces dieron el paso y se convirtieron en el restaurante El Tejao, desde el convencimiento que lo mejor que se puede ofrecer son “los productos de cada zona. Que eso es lo que mejor y más se vende. Solo se puede vender aquí”. Tiraron de familiares y de la experiencia en lo que era la forma de cocinar esos platos. Tenían doce trabajadores, entre cocineros y camareros. “No supuso un esfuerzo extra por eso, porque en mi familia se sabía cómo hacer esas cosas, la cocina típica de la comarca” (empresario local). Recibieron ayudas FEDER dedicadas al desarrollo de la cocina típica de la comarca, lo que conllevaba la contratación de personal para la cocina y que la carta tuviera explícitamente ofertado lo típico de la zona. Así fueron consolidando y ampliando el espacio hasta alcanzar el amplio local que actualmente ocupa el restaurante con capacidad para 200 comensales, y una concurrida terraza.

Los platos que señalan como especialidades son prácticamente los mismo que en el restaurante Estero: arroces, pescados y carnes de la comarca cocinados de diferentes formas. Todos los productos son adquiridos en la localidad, en especial pescados y carnes de la zona. Si bien la mayor afluencia de público se corresponde con los fines de semana, y la llegada de turistas, es de señalar que en este establecimiento siempre hay locales bien en el comedor y sobre todo en la terraza (para desayunos y meriendas en especial), que los fines de semana se mezclan con visitantes. Es más popular entre los vecinos de Isla Mayor, pues se piensa que tiene precios más asequibles, o “para la gente de aquí”. En realidad los precios son similares, pero se piensa que es “menos lujoso” que el Estero. Actualmente cuenta con ocho empleados, y puntualmente los domingos con mucha afluencia de público, pueden llegar a tener doce personas trabajando; dos cocineras, uno empleado en la barra, y el resto camareros. Cuenta con una web sencilla y presencia en las redes sociales en las que se anuncian y ofertan sus promociones. La intención de sus actuales propietarios es llegar a otro tipo de público, no solo el que viene con la familia a comer, sino a un público de pueblos cercanos, que vengan de tapas, con menos poder adquisitivo y de ahí que diseñen su carta para llegar a este sector de público.

En paralelo al desarrollo de esta nueva actividad en la localidad, surge la iniciativa de una vecina del pueblo, formada en turismo, con experiencia y contactos, que en 2009 constituye formalmente una empresa dedicada a actividades turísticas: Tourisla Doñana. Previamente había diseñado un paquete de recorrido por la zona, en el que se empieza a visibilizar el mercado turístico más cercano, como producto específico. Esta empresa se introduce en algunos circuitos importantes en el entorno, basada en la idea: “sacar turistas desde Sevilla por el río, hasta el pantalán de Isla Mínima y de ahí cruzar en 4×4 al Rocío” (empresaria local). Con ello, según esta empresaria, se potencia lo esencial del terreno: “las vistas” (otorga gran importancia al potencial visual que tienen la zona y el recorrido que propone), “el río, la marisma en su parte menos conocida, el coto, el centro de visitantes F. Valverde, el Parque y el Rocío y de ahí a Sanlúcar de Barrameda” (empresaria local). Pero el proyecto no ha ido todo lo bien que se esperaba, “no ha habido clientes, ni una apuesta clara por parte de quien la tienen que tener para que esto funcione” (empresaria local). Por problemas legales, y sobre todo económicos, TourIsla Doñana desaparece y no es hasta finales de 2013 cuando esta empresaria retoma la actividad turística (sin éxito) a través de una nueva sociedad llamada Doñana Exclusive.

Estos fueron los principales impulsos turísticos privados en Isla Mayor, con trayectorias muy desiguales; pero como en la mayoría de ejemplos estudiados de Turismo de Base Local, la colaboración externa y sobre todo el apoyo institucional, también estuvieron presentes en este caso. Se han acometido algunas intervenciones por parte de diferentes administraciones (básicamente Ayuntamiento, Diputación Provincial, Gobierno central, Junta de Andalucía y la Unión Europea) de cara al desarrollo de la actividad turística en el pueblo. Aparte de las ayudas financieras concedidas para el desarrollo de la cocina típica de la comarca y la puesta en marcha de un alojamiento, encontramos una apuesta firme por parte del poder local (mantenida en el tiempo y con diferentes actores) de apoyo al proyecto de turismo en la localidad, a través de un proyecto basado fundamentalmente en el fomento del turismo ornitológico y en el aprovechamiento de la propia ubicación del municipio en el entorno de Doñana. Así, en 2008, se culmina el proyecto “Isla de Pájaros” (14), una iniciativa consistente en el “cambio de imagen y estética de los principales edificios públicos (tales como la Casa Consistorial, el salón de usos múltiples, el Telecentro y los depósitos de agua) de Isla Mayor y Alfonso XIII. Sus paredes y fachadas presentarán

colores más llamativos y mostrarán imágenes a gran escala de las aves que viven en nuestro entorno más cercano" (palabras del entonces alcalde de Isla Mayor). Incluía, además del embellecimiento de los edificios municipales, una serie de actividades para fomentar el turismo en la zona, buscando la exposición de la dimensión urbana que aquí tiene la marisma (véase Hernández-Ramírez 2011). También por parte del ayuntamiento se procede a la mejora y embellecimiento de equipamiento de la trama urbana con diferentes medidas, destacando de manera especial "la instalación de hitos decorativos en las principales vías de la localidad donde se exponen (con imágenes y textos explicativos) diferentes especies de la avifauna de la zona; en un intento no solo estético y con fines turístico, sino de divulgación y apropiación para los propios habitantes de Isla Mayor. Se elevan a la categoría de elementos embellecedores para mostrar, con orgullo, a los turistas que lleguen algo que forma parte de la cotidianidad y la normalidad de la Isla. Una apuesta sin duda interesante de combinar la rentabilidad tanto externa (al mercado turístico básicamente) como interna (de cohesión y reforzamiento de una necesitada articulación de la identidad local)" (Hernández-Ramírez 2011: 228).

Del mismo modo, dentro del Plan de Turismo Sostenible Provincial, se procedió a la puesta en funcionamiento en el paraje conocido como Isla Mínima, de un pantalán para la llegada de embarcaciones. Se trata de la instalación de un embarcadero flotante situado en la margen derecha del río, sobre una lámina de agua de unos 1.300 metros cuadrados de superficie. Fue pensado para albergar embarcaciones turísticas de 120 metros de eslora, una manga de 20 metros y un calado de dos metros y medio. El proyecto preveía la construcción de otros elementos (vía de acceso, punto de información turística, etc.) que nunca llegaron a realizarse. Unas instalaciones prácticamente en desuso, casi en estado abandono, muy a pesar de constituir esta idea y esta zona, todavía hoy para los escasos empresarios turísticos y sobre todo las autoridades locales el verdadero potencial turístico de la Isla (a pesar de presentar uno de los principales escollos en la gobernanza, pues parte de la ubicación del proyecto depende del municipio vecino de Puebla del Río).

Así llegamos a la actualidad, con un turismo en Isla Mayor, básicamente concentrado en torno a la gastronomía, dotado con algunas instalaciones para ampliar aspectos del turismo, entre las que destaca la modesta y reciente oferta hotelera: apartamentos La Espiga, abiertos en 2011. Fueron construidos y abiertos por una familia dedicada a la construcción, que siendo propietaria del solar deciden ir construyendo poco a poco. No cuentan con experiencia alguna previa en el sector turístico y reconocen haber usado ayudas de los programas PRODER y LEADER para la construcción y apertura del negocio. Es un negocio modesto, sin pretensiones, con precios moderados (entre 40 y 70 euros la noche) que viene a cubrir una carencia esencial, ya que no hay ningún otro alojamiento en Isla Mayor. Este dato que nos informa del volumen del turismo, y la demanda real que hasta este momento ha habido en esta localidad. No se podía pensar en un paquete completo para los visitantes, las propias circunstancias de la oferta condicionaban las visitas diarias. Tienen un total de siete habitaciones y, según apuntan los propietarios, "son más que suficientes, pues no viene casi nadie… no se apuesta por este pueblo, por eso no hay público" (empresario local). De los visitantes "la gran mayoría son trabajadores, temporeros que vienen al municipio a trabajar. Tan solo un 10% pueden ser turistas. Hay mucho familiar de vecinos del pueblo que viene a algún acto de la familia, y que no puede quedarse en casa de los familiares y también algunos extranjeros para ver pájaros" (empresario local). Los fines de semana son los más concurridos, junto con temporadas de trabajo del arroz.

Así, haciendo una valoración general de la oferta turística en Isla Mayor vemos cómo hay un volumen importante de iniciativas (tanto privadas como públicas) a modo de discursos, pero con una falta de acción evidente. Existe un intento por parte del ayuntamiento, respaldado por la diputación, por completar la oferta gastronómica, publicitando (15) la práctica totalidad de los recursos turísticos: fiestas municipales todas vinculadas a la gastronomía, el modesto patrimonio monumental, etc., pero siempre se recurre y potencia el entorno enclave del municipio:

> "Independientemente de nuestros monumentos son de gran interés las rutas turísticas por nuestro entorno donde se pueden apreciar la diversidad de flora y fauna y un peculiar hábitat basado en la proximidad del parque Nacional de Doñana, la cercanía al Río Guadalquivir y los humedales consecuencia del monocultivo del arroz" (web municipal) (16).

Se anuncian rutas por el paisaje muy relacionadas con el turismo deportivo, donde además del senderismo y el cicloturismo (especialmente aconsejado por lo llano de la marisma), se ofrecen los cotos de caza y se hace una especial llamada de atención para los pescadores, a quien se les recuerda que

pueden practicar en el río Guadalquivir y el Guadiamar, así como en el Brazo de los Jerónimos y el Brazo de la Torre.

Tabla 1. Resumen de la oferta turística actual de Isla Mayor

Guías oficiales de turismo/ Proveedores	Tipo de producto o actividad turística
Web de turismo de Andalucía (Consejería de Turismo y Deporte de la Junta de Andalucía)	• Paisaje de marisma del Parque Natural de Doñana* • Gastronomía y tapeo con la materia prima derivada de la zona, como por ejemplo de los arrozales de las marismas del Guadalquivir y las carnes de caza* * Se trata de una presentación general de la provincia de Sevilla, sin especificación del nombre del municipio de Isla Mayor
Web de la Fundación Doñana XXI	• Patrimonio monumental escaso • Celebraciones locales centradas en la gastronomía
Web de la Diputación Provincial de Sevilla	• Itinerario temático dedicado a la gastronomía • Itinerario temático dedicado a los caballos y los toros • Ruta del arroz con referencia a dos restaurantes de la localidad
Web de la SEO-Birdlife (Sociedad Española de Ornitología)	• Ruta Ornitológica de Isla Mayor-Brazo de la Torre
Restaurante Estero	• Platos elaborados con los productos marismeños, como por ejemplo el arroz con pato, camarones fritos con pimiento, albures y cangrejos
Restaurante El Tejao	• Cocina inspirada en los productos de la marisma, como por ejemplo arroces, pescados y carnes de la comarca cocinados de diferentes formas
Empresa turística Doñana Exclusive	• Paquete de recorridos turísticos por la zona
Ayuntamiento de Isla Mayor, Diputación de Sevilla y Consejería de Turismo y Deporte de la Junta de Andalucía	• Proyecto Isla de Pájaros a través del cual las paredes y fachadas de la localidad y varias instalaciones decorativas en las principales vías muestran imágenes de diferentes especies de la avifauna de la zona.
Ayuntamiento de Isla Mayor, Diputación de Sevilla y Consejería de Turismo y Deporte de la Junta de Andalucía	• Pantalán Isla Mínima destinado a embarcaciones turísticas, actualmente en desuso
Apartamentos La Espiga	• Oferta hotelera
Web del Ayuntamiento de Isla Mayor	• Fiestas municipales vinculadas a la gastronomía • Patrimonio monumental • Entorno enclave y las rutas turísticas por el entorno, incluidas las relacionadas con el turismo deportivo como por ejemplo senderismo y cicloturismo • Cotos de la caza • Pesca deportiva en el río Guadalquivir, el Guadiamar, el Brazo de los Jerónimos y el Brazo de la Torre

Elaboración propia con datos del trabajo de campo

Estos son los recursos turísticos que componen la oferta en Isla Mayor. Una situación que, a primera vista, nos sitúa ante una experiencia nada exitosa, donde sacando los visitantes que vienen a comer los fines de semana (mayoritariamente) no hay turistas. Un caso que nos invita a profundizar en las personas, instituciones y relaciones (en clave local) que están detrás de todos los recursos-productos encontrados, y que desde nuestro punto de vista nos hace retomar la realidad ambiental y social en la que se produce ese impulso turístico. ¿Cómo entender el devenir (por no hablar de fracaso) de toda iniciativa de desarrollo turístico en este lugar? ¿Es una cuestión del producto?, ¿de los protagonistas?, ¿del mercado y las formas de ventas? ¿Qué pasa en este lugar para que no se dé una oportunidad como la que aparentemente supone el turismo?

Para responder a estas cuestiones, vamos a retomar nuestro punto de partida en esta revisión de la oferta turística, buscando conocer el producto turístico y cómo se elabora, para de algún modo entender de manera densa (Geertz 1973) lo que sucede en Isla Mayor.

5. A resultas del turismo de Base Local en Isla Mayor

Para conocer el producto que se vende, y máxime para comprobar si la forma en que se oferta contribuye al resultado final, hemos de detenernos en conocer cómo es ese proceso de objetivación del que hablamos más arriba. ¿Cuál es el producto? ¿Qué es lo que tiene Isla Mayor para vender como producto turístico? La naturaleza, el medio, el entorno… Inicialmente, por el hecho de estar en el entorno de un Parque Nacional, podemos pensar que Isla Mayor tiene en la naturaleza (en sentido amplio) la fuente de su producto turístico. Para objetivar, quizás debamos ser más precisos y preguntarnos ¿qué de esta naturaleza se puede objetivar para hacerse deseable (esta es una de las dimensiones más relevantes y protagonistas de la apropiación) ante los ojos de posibles visitantes?

Desde el análisis de los componentes de la oferta, lo primero a revisar es precisamente quién establece y selecciona cuál es el producto a vender. Así vemos cómo la gran mayoría de los discursos turísticos provienen del exterior (Administración Provincial, Local, Autonómica) que de manera forzada (recordemos lo ya expuesto en relación a la forma de anunciar este municipio) incluyen a Isla Mayor como destino turístico básicamente en relación a la gastronomía, a su potencial paisajístico y ornitológico.

En el ámbito de los discursos es así como se elabora el producto. Una lectura lógica y en consonancia con el contexto "natural" más inmediato, donde se dibuja una naturaleza todo lo prístina que se pueda: río, luz, paisaje, sol, pájaros, etc. Una argumentación impecable para construir un producto; pero ¿qué pasa cuando este mensaje se mezcla con la cotidianidad de los habitantes de la zona? ¿Qué sucede en las prácticas diarias en las que locales se relacionan no solo con esa naturaleza, sino con los visitantes (como parte esencial de la particularidad del TBL y variable central o principio de apropiación)? Pues que muy poca gente de Isla Mayor pagaría "por llegar hasta aquí", donde "se acaba el mundo" "para que te piquen los mosquitos". Frases como estas jalonan cada página de nuestro diario de campo, y aplicadas a modo de ejemplo al análisis de uno de los ejes de las proyecciones turísticas trazadas de manera clara en la zona, el río, nos muestra esta falta de sintonía. El río Guadalquivir que se ofrece como el gran elemento natural es fundamental para comprender la lectura histórica (véase Rodríguez Cárdenas 2013) compartida en la zona sobre la ubicación de la localidad y la consideración como "tierra límite", como la barrera natural. Por eso "esto es el fin del mundo", por eso "aquí la gente solo viene a comer, esto no está de paso", "aquí se acaba todo" (anotaciones del diario de campo).

Y no es que los isleños sean insensibles a las bondades de esa naturaleza, tan solo es que para ellos la cotidianidad es esa naturaleza, donde trabajan, donde celebran, donde mueren, donde viven, de donde son… Este río es un continuo con sus días, con el arroz y los cangrejos, con moritos, garcetas, con mosquitos, con el humo de la siega, con los turistas que vienen a comer pato, etc. No es solo un objeto (producto) turístico.

Existe un desencuentro entre el producto de naturaleza que se elabora desde el exterior (básicamente pensando en las riquezas naturales del entorno: paisaje, río, aves, etc.) con el que se experimenta desde el interior, donde aparece la acción humana en esa naturaleza, o lo que es lo mismo la vida de esta población en el entorno. Encontramos dos proyectos de turismo en Isla Mayor: el deseable o deseado, e incluso planificado, y el que se da de verdad, que reduce esa relación de los locales con los turistas exclusivamente a través de la gastronomía y algo de turismo ornitológico. Dos modelos de turismo, dos maneras de percibir el medio y un proceso desigual de objetivación. Encontramos un turismo no bien planificado (según la totalidad de actores implicados contactados), y sobre todo escasamente valorado. De nuevo aparece la percepción y actitud de los habitantes de la localidad, que a todas vistas no se presenta con orgullo y esmero; una población poco cuidadosa con lo que se ve y se ofrece al visitante. Una población que no parece haberse hecho, apropiado, con el producto turístico que sobre su entorno se vende. Un desencuentro que situamos como causa central en la no apropiación.

Una apropiación que implica un proceso de objetivación, de "reflexividad sobre las prácticas y entornos cotidianos (…) que influye poderosamente en la misma esfera perceptiva. Supone hacer suyo o hacerse partícipe conscientemente de un tiempo o un espacio, y es desde aquí que la actividad turística tiene lugar… que hace que la comunidad se confunda/defina con el entorno cultural/ambiental a partir de un proceso selectivo de proyección-identificación colectiva" (Ruiz-Ballesteros y otros 2008: 411). Ello nos ayuda a entender por qué para los habitantes de Isla Mayor su entorno merece expresiones del tipo: "Se pierde la vista en el infinito de este paraíso", "no hay puestas de sol más bonitas que las de la Isla" o "la isla es única" o "es un lujo salir a la calle y ver estas imágenes" (17), que serían potentes argumentaciones para un producto turístico en un modelo de TBL, aparecen ligadas a la imagen de naturaleza más extendida entre ellos: los campos de arroz, sus gentes y el rastro que su acción (su historia y esfuerzo) deja en este paisaje.

Esta última idea, la omnipresencia del arroz y su cultivo han presidido todo nuestro trabajo de campo y encabeza cada una de las reflexiones que este caso nos provoca. Incluso en el planeamiento turístico se habla de generar actividades que dejen beneficios, siempre en consonancia con el entorno, en referencia al arrozal, siempre presente.

Este aspecto nos hace buscar de cara a nuestro análisis de la apropiación, explicaciones más complejas

de entender por qué la población de Isla Mayor no participa en la construcción de su producto turístico, no encuentra la mediación (Martin Barbero 1987) requerida para hacerlo suyo; al tiempo que nos sitúa ante una práctica en la relación con la naturaleza distinta a la que se genera en la acción turística.

En Isla Mayor hay que rastrear muy detenidamente los puntales de la propia comunidad. Más concretamente hemos de considerar el peso de la historia en la sociedad local (véase González Arteaga 1993 y 1995, Rodríguez Cárdenas 1991, 1994 y 2013, Sabuco 1997 y 2005). Ser una población de aluvión, las trayectorias y orígenes tan diversos entre sus pobladores iniciales, el momento histórico en que se produce, las condiciones socioeconómicas del mismo, etc., sin duda han contribuido a esa falta de consolidación de una comunidad local visible y viva. Isla Mayor como grupo social no ha madurado ni simbólica, ni orgánicamente en algo que no sea buscar el máximo beneficio para el arroz y los arroceros, en el más de medio siglo de historia que tiene; todo ello a pesar de lo que dicen (testimonios de esos primeros colonizadores) unen las dificultades con las que tuvieron que batallar para la domesticación del inhóspito e insalubre medio al que llegaron.

Han pasado ya varias generaciones nacidas y criadas en el terreno, con coyunturas tanto políticas (entre las que destaca el proceso de segregación de Puebla del Río en 1985), económicas (sequías, reconversiones al mercado europeo, producción en cooperativas, etc.), como sociales y culturales, que bien podrían haber propiciado, buscado o necesitado el fortalecimiento del grupo humano, de la sociedad local. Al margen del colectivo de arroceros, podemos afirmar que la comunidad en el sentido amplio, continuado, latente y como referente con el que identificarse, no se manifiesta en Isla Mayor. Hay individualismo manifiesto entre los isleños (o puntaleños (18), que es el gentilicio que entre ellos utilizan) que indudablemente se manifiesta a la hora articularse como sociedad, y desde luego al momento de elaborar un producto turístico especifico con el que situarse en el mercado.

Y ¿por qué? ¿Qué hace que no despegue este producto, con los avales que inicialmente presenta como producto de la naturaleza? ¿Es el medio? ¿Es el grupo humano? O de nuevo la relación entre ambos elementos.

Aquí emerge nuevamente el arroz, y todo lo que hemos determinado en llamar construcción socioeconómica del producto, en relación al tipo de relaciones y de sociedad que genera su producción y venta. Un producto con beneficios económicos considerables, con un proceso de trabajo muy tecnologizado, con protocolos muy establecidos, que favorecen la gestión individualizada del producto. Es verdad que la inmensa mayoría de arroceros de Isla Mayor son miembros de la cooperativa arrocera existente en el municipio, y están federados en la Federación de Arroceros de Sevilla. Una situación paradójica desde nuestro punto de vista, pues si bien se organiza estratégicamente desde la cooperativa y la federación el cultivo de cada cosecha (gestión de semillas, abonos, ayudas de la PAC (19), secado y venta de arroz, etc.), las tácticas en las que se produce corresponden a cada uno de los agricultores. No hay objetivos comunes fuera de los requerimientos estratégicos que suponen la actividad económica principal del cultivo de arroz; el objetivo principal es que cada uno -como sepa y pueda- alcance el mayor número de kilos posible en su cosecha. Es el modelo de producción y la actividad agrícola, que dibuja un contexto socioeconómico muy distinto al que normalmente se asocia al desarrollo del turismo de base local y la tan perseguida complementariedad. La actividad arrocera mayoritaria en Isla Mayor no propicia -ni social, ni económicamente- que el turismo destaque, y ofrezca una fuente real y deseable de ingresos para sus habitantes.

En palabras de un informante “aquí cada uno va a lo suyo, y mira para su bolsillo”. Esta circunstancia unida a los orígenes de la propia sociedad local, y al doble modelo de naturaleza (vía proyecto turístico), nos puede ayudar a entender lo que hemos determinado como discontinuidad en la comunidad. O lo que es lo mismo, la emergencia de una comunidad de manera muy funcional, en contadas ocasiones y que difícilmente ofrece vínculos sociales (fuera del grupo de arroceros) con los que desarrollar identificaciones y mucho menos con los que creer y vender algo propio.

Con todo ello confirmaríamos otro de los elementos que la mayoría de autores establecen como esenciales para el éxito del turismo de base local: la presencia (en sus diferentes manifestaciones simbólicas, operativas, etc.) de la comunidad en los procesos de apropiación. Una apropiación que “supone hacer suyo o hacerse partícipe de un tiempo o un espacio, y es desde aquí que se mira y ve el mundo” (Ruiz-Ballesteros y otros 2008: 441).

Es difícil encontrar en Isla Mayor un proceso de identificación colectiva, ni siquiera con los condicionantes a priori tan favorables como puede ser la ubicación y relación con el medio natural en el que se ubica esta comunidad; mucho más complicado resulta por tanto rastrear esa ya referida ecología de la vida propuesta por Ingold (2000), y que tan útil nos hubiera sido de cara a descubrir las relaciones entre cultura, medio y comunidad.

6. Consideraciones finales

Inicialmente puede parecer una contradicción emplear el caso del turismo en Isla Mayor de cara a mostrar la relevancia de la variable apropiación dentro del desarrollo turístico en contextos locales; pero a poco que nos adentremos en el proceso comprobaremos como la negación sirve para evidenciar lo condicional de su existencia, o lo que es lo mismo, para confirmar la hipótesis inicial que encuadraba nuestro objetivo en este artículo, centrado en conocer el papel de la apropiación (local) en el proceso y el producto turístico

Las significaciones expuestas en Isla Mayor nos confirman la ausencia de esta apropiación en este caso, así como la falta de desarrollo turístico. Para entenderlo, comenzamos recordando algunas frases que nos han acompañado en todo el trabajo de campo, en torno a las cuales giran algunas de las reflexiones que podemos plantearnos referentes al turismo de base local en Isla Mayor: “Aquí hay que venir, por aquí no se pasa”. “Si no eres arrocero no eres nadie”, “A la isla la puso en el mapa el estero” (Registros del diario de campo).

Vemos como la propia situación geográfica de este municipio nos alumbra en su condición liminal. “Aquí hay que venir, por aquí no se pasa”. Esta frase registrada en todos y cada uno de los isleños con los que hemos hablado de turismo en Isla Mayor, dice mucho más que una simple referencia geográfica. Por un lado, nos pone sobre la pista de la inserción o no, en una comarca (tanto a nivel geográfico, económico, cultural y de paquete turístico) y por otro nos expone el punto de partida que tienen los habitantes de este municipio sobre sí mismos, sobre su propia existencia y, por ende, en la potencialidad de su producto turístico. Por otro lado, vemos como estando en pleno Parque Nacional de Doñana, la apuesta por distinguirse en su oferta dentro del denominado “turismo gastronómico”, pareciera obviar el potencial que “la naturaleza” circundante ofrece. ¿Qué hay detrás de esta situación?

La primacía de la actividad arrocera de Isla Mayor orientada al mercado global ha dado todavía poco espacio al desarrollo de su actividad turística. Los datos que barajamos nos informan como en Isla Mayor se confirma una de las principales características reconocidas en la caracterización y desarrollo del turismo de base local: la complementariedad de actividades. No se entiende esta experiencia desde otra perspectiva. Y es precisamente donde reside lo paradójico de este caso, y su potencial comparativo con otras muchas experiencias de turismo de base local: hablamos de complementariedad y de sostenibilidad social no en el contexto de sociedades en vías de desarrollo o en comarcas deprimidas socioeconómicamente (desde donde se comenzó a hablar de turismo de base local), sino desde una economía inserta plenamente en el mercado global. La particularidad de esta sociedad, el horizonte socioeconómico más inmediato, y la necesidad (de recursos y desde el punto de busca de cohesión social e identidad) pueden argumentar el poco desarrollo y la poca expectativa que genera el turismo en Isla Mayor. Deberemos esperar el paso del tiempo y los acontecimientos para conocer su evolución y alcance.

La particularidad de la composición social (y procedencia) de esta comunidad, junto con la omnipresencia del cultivo del arroz (como referente económico, sociocultural, simbólico, etc.) dentro de la sociedad, ofrecen claves interpretativas. A este respecto, el análisis de las configuraciones de gobernanza, realizado dentro de nuestro trabajo de campo en la localidad, pone de manifiesto la baja concentración de actores y normas involucradas en la gestión de la actividad turística, en comparación con los flujos existentes en la actividad arrocera (Farhad y otros 2015).

Este proceso de no apropiación, entendemos que pasa por no apropiarse de algo tan cercano, cotidiano, limitante o determinante como es el estar y vivir en un entorno natural fronterizo. De aquí, la percepción particular de lo que es el medio, lo que es Doñana y la marisma. Una naturaleza doméstica, un entorno con el que se batalla, con el que difícilmente se entiende el disfrute, la valoración, el orgullo y la

necesidad de mostrar a los demás… de elaborar un producto en el complicado mercado turístico.

Un estudio de caso que, por su ausencia, entendemos confirma la apropiación como factor, indudable y central, en el desarrollo del turismo de base local; al tiempo que nos reafirma la idoneidad que destacábamos al principio del texto del uso de la etnografía (como estrategia principal de análisis y conocimiento) para el estudio de las especificidades que ofrece cada experiencia, particular, de turismo de base local. Quizás sea esta la clave interpretativa para poder caracterizar o definir este modelo de turismo.

El caso Isla Mayor nos confirma como para que exista apropiación, no son necesarios solo los discursos que establezcan cual es el producto, sino sobre todo que de manera tanto excepcional como cotidiana, forme parte de las relaciones (entre sujetos y objetos) de los actores del turismo de base local.

Notas

1. Tal y como tendremos oportunidad de ampliar en la sección de referencias metodológicas, la etnografía de la que surge el presente artículo forma parte del proyecto "Retóricas de la naturaleza y turismo de base local: Estrategias de sostenibilidad", dirigido por Esteban Ruiz Ballesteros y financiado por el Ministerio Ciencia e Innovación, durante el período de 2013-2016 (código CSO2012-33044).

2. http://www.islamayor.es Hemos considerado oportuno usar algunas de las descripciones que utiliza la web oficial del municipio en temas como este y posteriormente sobre la oferta turística, por considerarlo parte de la documentación etnográfica. [Consultas varias 23 de octubre 2013, 8 de noviembre 2013, 31 de enero 2014, 27 y 20 de febrero 2014, 13 de marzo 2014, 22 de mayo 2014, 19 de junio 2014].

3. http://www.juntadeandalucia.es [Consulta: 20 de octubre de 2014].

4. http://www.juntadeandalucia.es [Consulta: 20 de octubre de 2014].

5. http://www.andalucia.org [Consulta: 15 de enero de 2015].

6. http://www.andalucia.org [Consulta: 15 de enero de 2015].

7. http://www.donana.es [Consulta: 15 de noviembre de 2014].

8. http://www.turismosevilla.org [Consulta: 21 de marzo de 2015].

9. http://www.islamayor.es [Consulta: 21 de marzo de 2015].

10. http://www.seo.org [Consulta: 21 de marzo de 2015].

11. http://www.restaurantestero.com [Consulta: 30 de mayo de 2015].

12. Según reconocen los promotores de ambos establecimientos.

13. http://www.restauranteeltejao.es [Consulta: 30 de mayo de 2015].

14. Esta actuación forma parte del proyecto "Planiturio", fruto de la colaboración administrativa y económica entre la Diputación de Sevilla (concretamente su sociedad instrumental de "Prodetur") y la Consejería de Turismo y Deporte de la Junta de Andalucía. EL presupuesto final fue de 198 000 (según informantes procedentes de dichas instituciones).

15. http://www.islamayor.es [Consulta: 19 de junio de 2014].

16. http://www.islamayor.es [Consulta: 19 de junio de 2014].

17. Todas estas opiniones, así como las imágenes que las acompañan han sido seleccionadas en un grupo creado en una red social al que pertenece una de las investigadoras. El seguimiento de dicho

grupo ha permitido registrar de primera mano estas opiniones, así como participar en la lectura que de la naturaleza se tiene dentro de un grupo de habitantes de Isla Mayor. En concreto son testimonios recogidos durante los meses de mayo y junio de 2016, en fechas de siembra del arroz, cuando se volcaron imágenes por parte de los participantes en el grupo de otras fechas previas, básicamente a la siega del año anterior, y la preparación de las tierras en la primavera de 2016.

18. En referencia a la toponimia del lugar desde tiempo romanos, y más concretamente a la denominación de uno de los principales poblados constituidos en tiempo de Alfonso XIII. El Puntal, que es como se refiere esta localidad entre la mayoría de sus pobladores.

19. PAC: Política Agrícola Común de la Unión Europea.

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3. GENERAL DISCUSSION

3.1. Main Results and Contributions

Understanding social-ecological dynamics has been an ongoing inspiration for this thesis. To undertake this ambitious objective, three studies were carried out, so that each one of them analyzed this relationship from a particular perspective:

i. The first article analyzed nature-society dynamics through the ecosystem services-governance relationship.

ii. The second paper brought together adaptive co-management and specified/general resilience frameworks to explore social-ecological systems.

iii. The third study focused on the relationship between community and environment through the symbolic appropriation analysis in the development of local-based tourism.

In this way, the basic results of this thesis have been achieved in various stages and have been presented in the Discussion and Conclusion Section of each article.

Considering social-ecological dynamics as a unifying thread, and social-ecological sustainability as a key aim, this section presents the main theoretical, methodological, epistemological and practical contributions of the dissertation as well as its limitations and implications for future research.

3.1.1. Incorporation of governance configuration analysis in the ecosystem services framework

One of the key theoretical contributions of this thesis has been the incorporation of governance configuration analysis (Ostrom et al., 1994) within the ecosystem services framework (Millennium Ecosystem Assessment, 2003). Most scholars use the ecosystem services framework as a reference guide to analyze and

calculate the value of ecosystem services, especially in monetary terms. Some of these researches are key to political decision-making processes regarding environmental and social issues.

Monetary valuations could perhaps highlight the importance of ecosystem services to society; but they certainly conceal the whole complexity of ecosystem functions and the entire incommensurable value of ecosystems. Few studies focus on this problem and the role that human, social and cultural dimensions could play in the generation and exchange of ecosystem services.

Along the same lines as leading scholars in the field that have criticized the utilitarian approach and commodification consequences of ecosystem services framework (Kosoy and Corbera, 2010; Martínez-Alier, 2002; McCauley, 2006; Norgaard, 2010; Roberston, 2004; Robertson, 2006; Spash, 2008), in this dissertation, we suggested the need to integrate governance configuration analysis within a modified socio-ecosystem services framework.

It is not just a matter of ecosystem functions, but also social functions. Perhaps, it would be more appropriate to talk about social-ecological services instead of ecosystem services. In this way, we would be able to analyze and highlight both services provided by the ecosystems to the societies (Millennium Ecosystem Assessment, 2003) as well as the services (or disservices) offered (or caused) by the humans and societies to the ecosystems (Escalera-Reyes, 2013).

The incorporation of governance configuration in the ecosystem services framework in the present research has been possible through a three-step analysis process:

1. Detecting key ecosystem services in a specific social-ecological system.

2. Identifying key institutions and rules (formal and informal ones), which govern the main socio-economic activities of the social-ecological system. The result is presented in a governance configuration map.

3. Analyzing the relationship between governance configuration and generation and exchange of ecosystem services; i.e. how changes in rules

have triggered transformation in the supply and demand of ecosystem services.

Through this three-step analysis process, two crucial characteristics of governance configurations that could positively influence sustainable long-term generation of ecosystem services have been identified: (1) Multi-level governance configuration; (2) Bridging organizations.

1. Multi-level governance configuration

The results of this dissertation (chapter 2.1./ Paper I) provide evidence on the evolution of a rice related governance system towards a new multi-level ecosystem-based management, which has had further positive effects on the generation of three key ecosystems services: (1) paddies as suitable living and feeding space for birds, (2) provision of quality rice (increased average yields and certified integrated rice production), (3) local-based tourism principally aimed at bird watching in paddies and local gastronomy; as well as on the synergies among them. This social-ecological transformation has had two decisive pillars: (1) implementation of a rice integrated production system (IP) as a local practice with institutional support, and (2) the effort to evolve Spanish water governance towards a multi-level participatory-based system.

These empirical results confirm the theoretical assumption regarding the importance of multi-level governance for the long-term protection of ecosystems and the well-being of different populations (Armitage, 2008; Brondizio et al., 2009; Nenadovic and Epstein, 2016; Ruiz-Ballesteros and Gual, 2012). As Lebel et al., (2005: 1) argue “acknowledging how actors’ interests fit along various spatial, temporal, jurisdictional, and other social scales helps make the case for innovative and more inclusive means for bringing multi-level interests to a common forum”.

Thus, these new evolved institutional arrangements in the Isla Mayor case study are characterized by a significant mix of state and non-state actors working at different territorial and political levels, generating information and taking decisions together. As a result, an enhancement in the abovementioned ecosystem services has been detected.

2. Bridging organizations

The empirical analysis of this thesis (chapter 2.1./ Paper I) unveils the strategic role of bridging organizations (Berkes, 2009; Hahn et al., 2006; Olsson et al., 2007; Schultz, 2009) in social-ecological transformations. City Council, and most importantly, the Seville Rice Framers' Federation have been the key bridging organizations, promoting dialogue among various levels of governance, facilitating inter-organizational relationships, coordinating different tasks between diverse actors, resolving conflicts, etc.

In contrast to the results for the rice activity, the findings of the other section of the thesis (chapter 2.3./ Paper III) highlight that it is precisely the lack of collective power and actors, specially bridging ones, in the governance configuration behind tourism activities, that hamper its diffusion, management and interactions with other relevant activities. In fact, rice as the main dominating activity has negatively influenced the appropriation process in the development of tourism. In summary, this lack of collective power, bridging institutions and both vertical and horizontal links in tourism governance are, together, cause and consequence of very limited social "appropriation" in the development of tourism in Isla Mayor.

3.1.2. Using adaptive co-management as an opportunity to navigate the trade-offs between specified and general resilience

Contributing to the science of long-term sustainability has been in fact an important aim of this dissertation. Seeing resilience as a requirement for sustainability, one key contribution of this thesis has been to stress the need to distinguish between specified and general resilience, and to use adaptive co-management as a possible framework to navigate the trade-offs between these two types of resilience.

Adaptive co-management has been considered as an appropriate management system for the maintenance or enhancement of resilience in social-ecological systems (Armitage et al., 2009; Olsson et al., 2004a, 2004b; Plummer and Armitage, 2007). Nevertheless, adaptive co-management approaches focus primarily

on only one specific resource or environmental aspect of the system. This one-resource oriented approach could possibly enhance the resilience of a specific part of the system but could also weaken the resilience of a whole social-ecological system.

Adaptive co-management could be a source of specified resilience; but to nurture general resilience in social-ecological systems, a diversity of adaptive co-management approaches is needed. Perhaps, it might then be more appropriate to contemplate a diversity of adaptive co-management approaches in each social-ecological system. In this way, general adaptive co-management may possibly be necessary for general resilience of a whole social-ecological system.

The results presented in chapter 2.2. (Paper II) highlight remarkable trade-offs between specified and general resilience in Isla Mayor's social-ecological system. The outcomes of this thesis provide evidence of adaptive co-management and multi-level governance configuration in rice farming in Isla Mayor. The primacy of rice farming as the key socio-economic activity has led this community to evolve and adopt their practices and prepare themselves for specific shocks that could directly affect rice farming. However, on the other hand, the priority given to rice has created a strong barrier to diversification by leaving little scope for the development of other socio-economic activities in the area. As a result, fishing and tourism with peripheral and complementary roles, lack collective power and both vertical and horizontal links in their governance configurations, and cannot interrelate extensively with the rice farming system.

Adaptive co-management has fostered specified resilience in Isla Mayor's rice farming activity, as our results point to a significantly good handling by this community of shocks affecting the rice sector. Nevertheless, the lack of socio-economic diversity and general adaptive capacity in order to be prepared for a wide range of shocks, corroborate evidence regarding the weakness of general resilience in Isla Mayor.

It is clear that the implementation of long-term policies to boost general resilience is extremely challenging (Carpenter et al., 2012), but trade-offs between specified and general resilience are particularly significant for long-term sustainability

of each social-ecological system, and adaptive co-management approaches need to take this distinction into account.

3.1.3. Fusion of methods: ethnography along with the rules framework

From a methodological perspective, the relevance of ethnography for the study of social-ecological systems from the inside has been highlighted. More precisely, for the analysis of Isla Mayor's governance configuration and its effects on surrounding ecosystems, it has been necessary to mix Ostrom's et al (1994) "rules framework" with ethnography, following Ruiz-Ballesteros & Gual's (2012) work on Agua Blanca's multi-level governance configuration, and Ruiz-Ballesteros & Brondizio (2013) that integrated ethnographic fieldwork and discourse analysis with the Institutional Analysis and Development (IAD) framework.

Deep institutional and governance analysis of Isla Mayor has required a precise and careful selection of institutions and rules, and this has only been possible through a detailed ethnography. The rules framework is not just a matter of rules collection; but rather, it is a matter of detailed case study to figure out which rules are fulfilled in practice and which are not, and what are the reasons that explain their performance. Moreover, there are some informal rules (i.e. non-written traditions, power relationships, etc.), which play a significant role in social-ecological governance, and could only be captured by ethnography.

The development of this framework has certainly required a deep literature review, covering several issues such as policy documents and legislation related to water governance, rice integrated production, the European Union (EU) common agricultural policy for rice cultivation, rice processing and marketing, as well as the research studies and documents reported on Isla Mayor. However, for a thorough and careful diagnosis and analysis of rules, it has been necessary to mix literature review with diverse ethnographic techniques, such as in-depth open-ended interviews, participant observation and workshops.

3.1.4. Epistemology: complexity and post-normal science as starting points for the study of social-ecological systems

The entire research process and the culmination of this dissertation have been deeply influenced by post-normal science (Funtowicz and Ravetz, 2000) and the epistemology of complexity (Morin, 2009, 1992). As a researcher, I had to change my definition of science, as well as my epistemological perspective to be able to grasp and analyze social-ecological dynamics and nature-human relationships.

Breaking the nature-culture dichotomy has required a switch from disciplinary perspectives toward transdisciplinary ones, from positivism towards perspectivism and from Cartesian epistemology towards the epistemology of complexity. Consequently, a social-ecological system is seen as a coherent whole that represents a web of relationships between components and a high degree of interactions, inexactitudes and uncertainties. Due to these characteristics, social-ecological system's analysis requires a novel approach rooted in post-normal science, epistemology of complexity and transdisciplinarity.

This new approach is the result of a shift from the atomistic, mechanistic and reductionist epistemology of positivism towards an epistemology of perspectivism, which considers science in general terms and each of its disciplines as just one of the many different perspectives to know and address the reality.

Complex thinking, with its emphasis on unified and non-fragmented knowledge (Morin, 2009), would therefore be necessary for the present research. It has fostered inter and trans-disciplinarity by crossing traditional limits between different academic disciplines. In the present research, transdisciplinarity has been accomplished by completing my personal academic training in an inter/transdisciplinary Master's Program, by carrying out my research under supervision of two scholars, one economist and one anthropologist, both practicing inter/transdisciplinarity, and finally my integration in two interdisciplinary research projects, where I had the chance to collaborate with scholars form diverse disciplines.

The management of uncertainties has also required a new type of scientific activity, which has been addressed through the post-normal science paradigm. Post-

normal science implies the need to legitimize multiple perspectives, where scientific results become just one more input, as valid as others, in decision-making. Its practice, therefore, becomes closer to the functioning of a democratic society, characterized by an extensive participation and by a tolerability of diversity (Funtowicz and Ravetz, 2000). In our case, efforts have been made to apply a post-normal science approach by using ethnography to integrate a wide range of stakeholders and the local community in the research process. Moreover, my continued participation in Social Participatory Action Research Group (GISAP)[5] has been a good practice to implement this approach.

3.1.5. Policy recommendations

Main policy recommendations are summarized as follows:

- Diversification of socio-economic activities to promote general resilience in Isla Mayor.

  Local and national governments should support alternative socio-economic initiatives (such as tourism and fishing), specially in cases such as Isla Mayor, where economic dominance by one activity is putting at risk the general resilience and the future of the whole social-ecological system.

- Creating a space and support for the emergence of bridging institutions, especially at local level.

  Bridging institutions could reinforce vertical and horizontal links between different governance levels on one hand, and different socio-economic activities' governance configurations, on the other. In this way, they could also contribute to balance power relations.

- Promoting the design of multi-level governance systems and adaptive co-management schemes, actively encouraging participation from local

[5] http://gisap.org/es/inicio/

communities in the management and administration of all possible socio-ecological activities in the area, including inconspicuous ones.

Collaboration of local stakeholders together with government agents at diverse levels and all interactions within a given governance configuration could become key factors for developing more democratic decision-making processes, more balanced power relations, and long-term efficiency and sustainability.

- Creating a space to share and exchange knowledge, information, assumptions, experiences and new proposals among the stakeholders from different spatial scales for a better management of socio-economic activities.

  These spaces would play a central role for adaptive management by serving as platforms for learning-by-doing, innovation, and bringing capacity for action among multiple agencies and actors.

- Launching and development of inter/transdisciplinary training courses (such as masters and PhD programs) as well as research projects.

  Holistic and complex social-ecological management approaches require transdisciplinary scientific advice. Therefore, it is necessary to promote training courses that could provide researchers with crucial transdisciplinary knowledge. Supporting and funding transdisciplinary projects would be of great importance in this endeavour, as close collaboration among diverse scholars is needed for a complex social-ecological approach.

3.2. Research Limitations

As in any research project, there were some unavoidable limitations that should be considered along with the results:

First, it is noteworthy that a precise inter/transdisciplinary research requires a transdisciplinary team, where scholars from multiple disciplines collaborate collectively and exchange ideas to determine best approaches. In other words, conduct a transdisciplinary research as a dissertation is challenging, as it is complicated to integrate different perspectives without teamwork. In this regard, the first limitation of this work is found in the lack of a more biosciences perspective and the limited use and analysis of biophysical indicators related to ecosystem services. We partly overcame this limitation through discussions with some SCARCE project members[6], and the indirect account of ecosystem research results in the area.

The second limitation of this work is found in the sample size of participants. The study could have included more interviews. Notwithstanding the time and financial resources constraints, attempts have been made to conduct a maximum number of interviews with a wide range of key stakeholders form different sectors, such as rice farming, fishing, tourism, policy makers, university experts, etc.

The third limitation is related with the depth of analysis of secondary socio-economic activities in Isla Mayor. Although the study of general resilience requires a deep analysis of all possible socio-economic activities in a case study, as the main theme of this thesis was rice activity, it was beyond the scope of this research to carry out a deep and detailed analysis of all activities in the area.

Finally, the fourth acknowledged limitation of this work refers to the governance analysis, and the limited analysis of power relationships influence on outcomes. According to Escalera Reyes (2000) power relationship is understood as the ability of individuals or groups to influence, determine, condition or force the behavior and thinking of other individuals or groups. Although the key roles of some stakeholders have been identified in decision-making processes, a more detailed analysis of the role of each agent in the social-ecological system could, no doubt, increase our knowledge of social-ecological dynamics and ecosystem functions.

[6] http://www.idaea.csic.es/scarceconsolider/publica/P000Main.php

3.3. Implications for Future Research

During the course of this thesis, some new research ideas have emerged that together with the above-mentioned limitations have opened the door for future studies. These possible future research lines are summarized as follows:

• Thanks to the collaboration fruit of my research stay at the University of Manitoba, Canada, we will hopefully be able to highlight how “commons governance” could play a critical role in solving sustainability challenges. Indeed, one of the immediate future spillovers of this thesis should be a comparative study of multi-level governance in water resources management in rice farming in Isla Mayor and shrimp aquaculture in northwestern Sri Lanka.

• Another line of future research, following the one presented in paper III (chapter 2.3.), regards the relationship between community and environment through the symbolic appropriation analysis in the development of local-based tourism. Integration of governance analysis of both, rice and tourism activities, is foreseen to analyze how the absence of appropriation in the development of local-based tourism could explain the weakness of general resilience in Isla Mayor.

• Without doubt, the need and opportunity to incorporate some biophysical indicators in the study of ecosystem functions and services within a governance framework in the case of Isla Mayor is both, an acknowledged limitation of this thesis, and a very relevant future line of research.

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4. CONCLUSIONS

1. Incorporation of governance configuration analysis in the ecosystem services framework.

   It is necessary to integrate governance analysis in the ecosystem services framework. By this means, we would be able to consider both ecosystem and social functions, and analyze services provided by the ecosystems to the societies as well as the services (or disservices) offered (or caused) by the humans to the ecosystems. That is why, we suggest transcending the ecosystem services framework in favor of a socio-ecosystem services framework.

2. Using adaptive co-management as an opportunity to navigate trade-offs between specified and general resilience.

   Seeing resilience as a requirement for long-term sustainability, it becomes important to distinguish between specified and general resilience. Adaptive co-management could then be used as a possible framework to navigate the trade-offs between these two types of resilience. Adaptive co-management approaches primarily focus on only one specific resource or environmental aspect of the system. By this means, adaptive co-management could be a source of specified resilience; but to nurture general resilience in a social-ecological system, a diversity of adaptive co-management approaches or general adaptive co-management might be needed.

3. Fusion of methods: ethnography along with the rules framework

   Ethnography is considered as an appropriate method to study social-ecological systems from the inside. Moreover, governance configuration analysis requires a mix of ethnography and rules framework to explore social-ecological feedbacks and effects on surrounding ecosystems. In this way, we

could correctly identify institutions and formal/informal rules with significant roles in the functioning of the social-ecological system.

4. Epistemology: Complexity and post-normal science as starting points for the study of social-ecological systems

   Considering a social-ecological system as a coherent whole that represents a web of relationships between components with high degree of interactions, inexactitudes and uncertainties, its analysis therefore requires an approach rooted in post-normal science, epistemology of complexity and transdisciplinarity.

4. CONCLUSIONES

1. Incorporación del análisis de configuración de gobernanza en el marco de los servicios ecosistémicos.

   Es necesario integrar el análisis de gobernanza en el marco de los servicios del ecosistema. De esta manera, podríamos considerar tanto las funciones sociales como las del ecosistema y analizar los servicios prestados por los ecosistemas a las sociedades, así como los servicios (o perjuicios) ofrecidos (o causados) por los humanos a los ecosistemas. Es por eso que sugerimos utilizar el marco de los servicios del socio-ecosistema en lugar del marco de los servicios del ecosistema.

2. Utilizar comanejo adaptativo como una oportunidad para navegar los trade-offs entre la resiliencia específica y la resiliencia general.

   Considerando la resiliencia como requisito para la sostenibilidad, es importante distinguir entre la resiliencia específica y la resiliencia general y el comanejo adaptativo podría usarse como un posible marco para navegar los trade-offs entre estos dos tipos de resiliencia. Los estudios de comanejo adaptativo se enfocan principalmente en un recurso específico o un único aspecto ambiental del sistema. De este modo, el comanejo adaptativo podría ser una fuente de resiliencia específica; pero para nutrir la resiliencia general en un socio-ecosistema, se necesita una diversidad de enfoques de comanejo adaptativo o un co-manejo adaptativo general.

3. Fusión de métodos: etnografía junto con el marco de las reglas/normas de gobernanza.

   La etnografía se considera como un método apropiado para estudiar los socio-ecosistemas desde el interior. Además, el análisis de la configuración

de gobernanza y sus efectos en los ecosistemas circundantes requiere una combinación de etnografía con el marco de reglas/normas de gobernanza. De esta forma, podríamos identificar correctamente aquellas instituciones y reglas formales e informales que tienen roles significativos en el funcionamiento del sistema socio-ecológico.

4. Epistemología: Complejidad y ciencia posnormal como puntos de partida para el estudio de los socio-sistemas.

   Considerando el sistema socio-ecológico como un todo coherente que representa una red de relaciones entre componentes y un alto grado de interacciones, inexactitudes e incertidumbres, su análisis requiere un enfoque novedoso enraizado en la ciencia posnormal, la epistemología de la complejidad y la transdisciplinariedad.