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AN APPROACH FOR ASSESSING STAKEHOLDER EXPECTATIONS FOR AGRICULTURAL LAND MANAGEMENT STRATEGIES AND PRACTICES TO PROMOTE DESIRED ECOSYSTEM SERVICES

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ABSTRACT

This study aimed to evaluate the efficacy of agricultural landscapes in providing multiple ecosystem services (ESs) through the application of contemporary and new land management practices (LMPs). To address this issue, we performed a case study including important stakeholders with varying levels of interest and viewpoints from both the agricultural and environmental sectors within the protected area of Prespa Park (southeastern Europe). We accomplished the study objective with a mixed-methods strategy that integrated Delphi survey methodology, a two-day workshop, in-person interviews, and multivariate statistical analysis. The study found important ESs and LMPs that are needed to protect and improve key ESs in Prespa Park's agricultural economy. It also found ways to get to these ESs that can work well with private land use that is focused on making money. We were able to build a framework that stakeholders may use to ask questions and address issues based on the data we gathered. There are three main components: "stakeholders," which refers to important people who have a say in farming issues, management, and policy; "land," which means looking at things at different levels of detail; and "ecosystem services" - along with three supporting components that make it easier for the three main components to work together. The first is "activities," which means what people do on land and how that affects ecosystem services. The second is "ecological functions," which means how ecosystems work on their own. The range of "standards" among stakeholders, which influences their decisions and thoughts, is the third element that everyone must consider. The study explains how we can use ESs to handle agriculture in a sustainable and multifunctional way over the long term. The research is beneficial and can be simply adapted to apply to other regions that are comparable.

Key words: agri-environmental landscapes, ecosystem services management, Delphi survey method, land use planning, Prespa Park.

INTRODUCTION

The quantity of services generated by ecosystems worldwide is experiencing a decline (MEA 2005; TEEB 2010; IPCC 2014). According to Milestad et al. (2011), Parrott Meyer (2012), Costanza et al. (2014), Bennett et al. (2015), Grêt-Regamey et al. (2017), Larsen et al. (2019), and Savage et al. (2021), it is becoming more and more important to look into how complex environments provide ecosystem services (ESs) and how a set of agri-environmental

measures might affect the availability of these important ESs. This will facilitate the more effective management of agricultural ecosystems and land resources. The present investigation examines this issue in case study of Prespa Park, in the Balkans in southeast Europe.

Agricultural landscapes, which are incredibly varied and dynamic, comprise 40% of the earth's surface area (Vialatte et al., 2019). They usually result from farming, forestry, and animal husbandry done by many partners, and include a mix of crops, grasslands, freshwater areas, and forests. There are two ways in which these activities relate to ESs. On the one hand, the provision of multiple ESs is essential to agricultural activity. However, these activities help to supply a variety of ESs that benefit the entire society. According to recent studies (Power, 2010; De Deyn et al., 2011; Firbank et al., 2013; Martín-López et al., 2014; King et al., 2017; Grazhdani, 2018; Redhead et al., 2018; Bezák et al., 2020), the ability of agricultural landscapes to provide multiple ESs that are crucial for the sustainability of agriculture and society has been significantly diminished due to changes in agricultural practices linked to intensive agricultural practices, which helped to erode a wide range of other ESs.

People are increasingly realizing the importance of creating agricultural areas that have multiple uses. These areas should not only produce food, wood, fiber, or fuel but also help protect biodiversity and provide other benefits, like water, air, capturing carbon and offering recreational and spiritual opportunities. At the same time, they should reduce harmful ecological issues, like pest outbreaks, that can negatively impact farming and communities. Many researchers have studied the importance of the ESs concept in agriculture, including Swinton et al. (2007), Schulte et al. (2017), and Robertson et al. (2014). However, these studies have not yet looked at many ESs, different habitats, and various stakeholders in agricultural areas all at the same time. There is also not enough empirical research to guide farmers' choices regarding the best way to implement the wide variety of agri-environmental practices available to them on a particular farm in order to enhance a number of services (Bradbury et al. 2010; Wratten et al., 2012; Huntsinger and Oviedo, 2014; Van Vooren et al., 2017; Larsen et al., 2019; Cole et al., 2020; Bullock et al., 2021; Petit and Landis 2023). So, a reasonable question arises: What potential effects might farmers' wide variety of agri-environmental practices used have on various ESs? This is why we conducted this study in Prespa Park involving environmental and agricultural stakeholders. Considering what they had to say about how to enhance ESs and land management would help to simplify agroecosystem service management in practical terms.

A huge problem for all agricultural stakeholders is to accommodate an ever-expanding spectrum of environmental goals. According to Jordan and Warner (2013) and Larsen et al. (2019), managers must navigate heightened management complexity while striving to achieve multiple, perhaps conflicting, objectives, some of which can be at odds with each other. Grounded in stakeholder values and attitudes, management decisions must thus take biophysical and political factors into account inside a larger socio-ecological framework, as Barnaud et al. (2018) emphasize. Our research is based on the idea that many actors should, as Larsen et al. (2019) argue, be involved in making decisions about the complicated parts of agriculture and the environment. Because of these problems, we looked at the opinions and main concerns of well-known people in the environmental and farming fields using a case study based on a protected area that looked into how the concept of ESs could be used in farming. This helped us overcome some of the difficulties with ecosystem service management.

With all that being said, the case study of the Prespa Park watershed used a multidisciplinary approach to solve the complex difficulties of assessing ESs in order to improve the management of agricultural ecosystems.

The novelty of this study is in that it creates and uses an approach that has successfully dealt with the problem in subject in two different methods of analysis: the Delphi survey, which is known for combining the opinions of experts to reach consensus; and in-person interviews along with photo elicitation using a made-up landscape of Prespa Park to support ongoing public discourse about the ecosystem services that agricultural landscapes provide. This will help achieve different goals, make good use of resources, and reduce disagreements over how to manage agricultural land. By broadening the discussion, participants could promote better policy changes that clarify how land-use decisions in farming are made. This would benefit everyone involved and create a shared understanding of the connections between people and nature.

MATERIAL AND METHOD

The case study of Prespa Park

Grazhdani (2025) points out that the two Prespa Lakes' ESs, together with the fields, orchards, vineyards, pastures, and forests that comprise Prespa Park, are inseparable. Hermit chapels and churches abound in the region, as Grazhdani (2015; 2016) notes, Neolithic and Bronze Age relics, roads, villages, rocky terrain, and other

unproductive areas comprise the land of the Prespa Park as well. Maintaining a balance between urban and environmental preservation in this particularly fragile ecosystem is no easy choreography.

Unsustainable practices in main producing businesses over the Lakes Prespa watershed are compromising the ecological integrity. Inappropriate management of land and water resources has resulted in the deterioration of forest, riverine, wetland, and littoral habitats. Two water bodies in the area are now negatively impacted by agricultural pollutants including fertilizers, animal manure, pesticides, and debris (Grazhdani 2024a). The area already clearly shows the consequences of global climate change. Along with the complexity and richness of its unique flora and animals, Prespa Park is praised for its exceptional degrees of surviving natural vegetation (Grazhdani 2024b). A great instance of an investigation of the various complex ecosystem services that various habitats provide is the watershed of Prespa Park (Grazhdani 2023).

Due to its unique cultural and historical legacy and beautiful natural surroundings, the Prespa Park watershed is, as Grazhdani (2024c) states, a location of significant ecological and cultural importance. Grazhdani (2024c) notes that perennial land cover, organic agriculture, optimal farming methods, and other land use modifications have been more apparent in this area in recent years. Numerous ESs are well recognized to be sustained by these land uses (Grazhdani 2023). With its more drastically changed landscapes to encourage crop production and its more inseparable ecosystem services and management operations, Prespa Park is an ideal location to study the complexity of supplying ESs from agricultural areas.

Data analysis methods applied

To meet the objectives in keeping with our declared research interest, a mix of techniques—a Delphi survey, in-depth image-based interviews, and multivariate statistics—was applied. A brief overview of them is given in the next sub-section.

a. Delphi survey

This approach performs effectively in handling issues and maintaining public attention (Landeta 2006; Grazhdani 2025). Assessing the levels of expert consensus or agreement constitutes a significant analytical advantage of the Delphi method. A cohort of twenty one experts, who contribute to policy and practice in conservative land management and ecosystem services, engaged in a three-round Delphi survey. Their jobs led them from a) state agencies (3 people), b) research groups (2), c) agricultural (5) and environmental non-governmental organizations (5), d) agencies managing protected areas (3), and e) universities (3), so forming four groups overall.

We conducted a three-round Delphi survey between November 2023 and May 2024. Our methodology was guided by the research conducted by Skulmoski et al. (2007) and Larsen *et al*. (2019), wherein items that were frequently referenced or received high scores in a questionnaire were utilized to develop the subsequent questionnaire. Dilman's (2011) procedure states that we asked the first non-respondents to round one twice by email and then by phone; we asked the first non-responders to round two and three twice by email; we resent the survey by mail; and lastly we followed up with a phone call.

b. In-depth image-based interviews method

From June 2024 through December 2024, we interviewed 40 chosen stakeholders using a systematic, in-depth interview format, aiming to investigate the link between long-term management practices and ESs. We used this method to compare different visual representations of agricultural land use scenarios. These scenarios had different amounts of perennial land cover on a base-2 logarithmic scale, namely 2%, 4%, 8%, 16%, 32%, and 64%. We then compared it to the continuous cultivation of annual row crops. This facilitated the interview process. To the participants, we showed images of the scenarios.

The interview procedure was semi-structured and consisted of four phases with open-ended follow-up questions. In the first phase, subsequent to the participants' meticulous analysis of the scenario images, the interviewer asked the participants to order the scenarios in a sequential order, starting with "the scenario that would yield the least benefits" and ending with "the scenario that would yield the most." In the second phase, we asked the participants to list and describe the benefits they thought would apply during the sorting process.

In the third phase, we asked them to identify certain land cover features in the photos that influenced their perception of the delivery of these benefits, either favorably or unfavorably. The interview evolved into two questions about the "balancing" of land-use outcomes in the fourth phase: When will there be a balance between substantial agricultural output and public benefits? In order to achieve this equilibrium, the next question asks participants to relate to the precise proportion of perennial crops that would be required.

We assessed the theme's strength or focus by analyzing the percentage of participants who referenced it (named as ratio), as well as the frequency with which it was brought up again during the discussion. We interviewed participants in a variety of locations, including private businesses, conference rooms, homes, and local government

agencies. At each location, the interviewer and interviewee were seated across from each other at an open table. At each location, the interviewer and interviewee were seated across from each other at an open table. This arrangement provided ample space to display and review all images simultaneously.

c. Agreement analysis

The Kendall *W* coefficient (Kendall and Babington Smith 1939) is the most recognized metric to measure concordance. Numerous cases have utilized it. Meanwhile, the Friedman test and the *F* test are two traditional tests to check for concordance.

For this nonparametric study, Kendall's coefficient of concordance (W), the *F* test, and the p-value are used to see if the Delphi data are reaching consensus. The criterion for reaching consensus is this: A W-value closer to one indicates agreement, whereas a value closer to zero indicates disagreement. Meanwhile, for the significance level (p-value), taking into account the Larsen *et al*. (2019) research results, we choose a cutoff value of 0.05. The Kendall's coefficient is considered significant and capable of assigning an overall ranking when the p-value is less than or equal to 0.05.

Since participants in Delphi round two offered a more complete and detailed assessment of ecosystem services and land management practices than in round three, we used the data from there for agreement analysis.

After that, we used a Spearman correlation matrix that we got from evaluating ESs to find clusters composed of individuals that were connected using Ward's (1963) agglomerative clustering algorithm. Lastly, Legendre's (2005) population-level agreement measurement (Kendall's *W*) served as the basis for our a posteriori concordance analysis of the generated clusters.

RESULTS AND DISCUSSION

Finding from Delphi survey

a. Ecosystem services (ESs) to and derivable from the agricultural landscapes of Prespa Park

This article's subsection lists the most relevant ESs found in and generated from Prespa Park's agricultural landscapes. We compiled the ESs provided by the Prespa Park watershed using the following procedure. On the first day of a two-day workshop, 30 participant from a wide range of fields who are very knowledgeable about the topics being investigated, are instructed to generate an initial inventory of significant ESs derived from the Prespa Park watershed's landscapes. They also had to indicate any possible changes needed to farming and land management practices (LMPs) in order to provide them. Participants in the workshop got into heated debates. They listed 48 different ESs, as well as 54 modifications needed to generate new ones. Of the changes discussed, 56% connected to LMPs, 28% to government policies, and 16% to societal developments. With the discovery of 35 ESs, the first day of the workshop drew to an end.

Following three consecutive Delphi survey rounds, we then rated these ESs in order of priority using a ranking-type methodology, therefore aligning with our declared study goal. We examined every question on the Delphi survey by a combined factor, which was taken by multiplying the mean Delphi value and the ratio of responders to the question. We ranked ESs using these combined numbers in descending order.

Using the Delphi approach, we developed the first round of the survey's design based on a questionnaire that included the ESs identified during the workshop. Every Delphi expert in the first round received an email containing this questionnaire. A 5-point Likert scale, with 1 denoting not significant and 5 denoting extremely significant, was used to score the significance of each topic. Twelve less important ESs (34.3% of the total) were removed from the earlier list at the end of the first round, therefore reducing the number of items to 23.

By removing items that received no tallies in rounds two and three, respectively, and by combining related themes, we further reduced the number of possible ecosystem service items for those rounds. The 23 ESs that were chosen in the first round were used to create the questionnaire for the second round. We use the same protocol as in the first round; the 23 ESs are estimated in this round, and deleting the less important ones leaves 17 ESs. The third round required participants to select six ESs of greater significance from the 17 included in the questionnaire for this round. In a similar way to the previous rounds, in round three of the Delphi survey, the experts identified six of the most important ESs, which are highlighted by italics in Table 1, which contains the outcomes for this round.\

With the highest ratio of those who cited it of 0.82 and the highest Delphi mean value of 4.1 in third Delphi round, the ecosystem service "recreation and tourism" is ranked in the first place (Table 1).

Many stakeholders most often and strongly favored ecosystem service items related to water, soil, and biodiversity according the Delphi survey. Stakeholders felt that water-related services were the most important overall. Important

ecosystem services provided by water and soil include clean drinking water, recreational waterways, habitat for aquatic life, less water discharge, less water getting into fields, keeping nutrient cycles in good shape, maintaining soil fertility, and storing carbon.

Table 1. Prespa Park's ecosystem service ranking and statistics from the third Delphi round.

Variable	Delphi value	Ratio	Order
Recreation and tourism	4.1	0.82	1
Pristine aquatic ecosystems	3.8	0.78	2
Preserving the nutrient cycle and soil fertility	3.6	0.74	3
Facilitating the production of healthful food	3.4	0.72	4
Maintaining the diversity of ecosystems	3.2	0.68	5
Heritage assets pertaining to culture and the environment	2.8	0.59	6
Spiritual and aesthetic benefits	2.2	0.46	7
Animal husbandry	2.1	0.39	8
Treatment of waste	1.9	0.34	9
Filtration and purification of water	1.7	0.31	10
Providing clean air	1.5	0.22	11
Sequestration of carbon	1.4	0.19	12
Protection from soil erosion	1.2	0.18	13
Integrated pest management	1.1	0.17	14
Fuel produced from biomass	0.9	0.16	15
Production of fiber	0.7	0.09	16
Pollination	0.3	0.05	17

Source: The author's collected and elaborated survey data for 2023-2024

"Pristine aquatic ecosystems" are identified as the second most important ecosystem service by the Delphi survey. The subsequent factors compelled Delphi experts to regard water as the paramount resource: It is thought that water indispensable for sustaining life and that the quality of the water is a good metric of the "health" of agroecosystems as a whole. Having clean water is also important for many other ecosystem services, such as spiritual and aesthetic benefits, tourism and recreation, and animal husbandry.

According to the third Delphi survey round, it is discovered that rather than being considered globally in terms of storing carbon, soil resources were generally considered locally and regionally in terms of fertility and production of food. "Preserving the nutrient cycle and soil fertility" and "facilitating the production of healthful food" are the most important ecosystem services in round three. They got the third and fourth highest mean values, beating out "maintaining the diversity of ecosystems," which came in fifth, and "heritage assets pertaining to culture and the environment," which came in sixth.

The Delphi survey exposed declining and split support for "treatment of waste" and "filtration and purification of water." Just 34% and 31% of the participants included them in their forced choice. As part of the third round, participants delineated various goals pertaining to wildlife, prioritized by significance: natural and aesthetic benefits, integrated pest management, animal husbandry, and pollination.

While most participants did not mention support, some evaluated ESs linked to providing clean air, sequestration of carbon, and protection from soil erosion very highly. The Delphi survey also exposed differences in fiber production and pollination. For Prespa Park's stakeholders, recreation, soil, water, biodiversity, and natural heritage benefits taken combined clearly rank as the most important ESs.

To further exploit the data obtained from the Delphi survey in order to more precisely identify areas of consensus, we performed a concordance analysis using Kendall's coefficient of concordance *W*, the Friedman test *F*, and the p-value. With W = 0.13, F = 2.04, and p = 0.007 for the statistics (Table 2), we can say that the analysis show that experts' preferences for ESs as a whole were not very similar. Given that we exclusively developed the survey based on the group's contributions from the first round, we expected a certain level of consensus. This figure serves as a starting point for the comparison that follows.

Based on the Spearman correlation of ranking for ESs, four clusters of Delphi experts with comparable preferences for these services were identified by the method of agglomerative clustering. Without excluding any participants, four clusters had the best degree of within-cluster concordance.

We also looked at nonparametric statistics from an a posteriori analysis. The results of Table 2 show that the level of agreement within each of the four clusters is much higher than it had been at the beginning, with the biggest difference being between cluster 1 and the other three.

Distinct distinctions arose from qualitative analyses of ESs priority among clusters. Participants in cluster one, because deepest disagreement between them, were categorized as possessing predominantly production-oriented expectations at the farm and field size, whereas all other participants emphasized multiple ecosystem services, reflecting, so, the most significant difference.

Table 2. Results of the tests of concordance for ecosystem services in Prespa Park.

Variable	Nonparametric statistics		
	W	F	p
Overall	0.13	2.04	0.007
Cluster A	0.54	3.18	0.001
Cluster B	0.92	13.52	< 0.001
Cluster C	0.79	2.91	0.004
Cluster D	0.68	4.32	< 0.001

Source: The author's collected and elaborated survey data for 2023-2024.

Cluster one emphasized production of fiber and animal husbandry, a focus not shared by any other participant. There were two more sites of disagreement. No individuals in either cluster one or cluster two mentioned fuel produced from biomass, showing a second disagreement. This means that half of the participants failed to include agriculture's potential for flood attenuation in their final benefit prioritization, which was the first issue. The second point of disagreement was the impact of farming on wildlife and their habitats. All participants in cluster three ranked wildlife as important, while no participants in cluster four agreed; i.e., among those who care about the potential outcomes of agricultural land use, only a minority placed a high priority on wildlife.

A person's affiliation is not always a reliable indicator of their expectations for agriculture. One person who was affiliated with an agricultural NGO, for instance, was not included in the production-oriented cluster. Similarly, affiliates of state and federal agencies were present in every cluster. Every participant connected with environmental NGOs supported several results for the ecosystems.

b. Land management practices (LMPs) for achieving desired ecosystem services

This sub-section of the paper outlines the LMPs, which encompass the various land use options that individuals have to influence the delivery of ESs. These options are crucial for preserving and improving the ESs offered by the agricultural land in Prespa Park. The evaluation of LMPs follows the same protocol as that of ESs.

Participants' varied opinions in the second day of a two-day workshop suggest that agriculture in Prespa Park could have far-reaching effects on ecosystems. After discussing agricultural issues, in order to achieve comprehensive ESs results, all stakeholders unanimously agreed that landscape-level planning and focused conservation practices are the most important strategies. In order to preserve or improve a variety of ESs, stakeholders prioritized a wide range of particular practices, not limited to landscape planning and focused conservation. Using cover crops, conservation grazing, growing a variety of crops, restoring the wetlands, carefully adding perennials, and increasing the presence of livestock on the land are just a few of the practices that help put landscape design and focused conservation into action.

Although ESs had more uniform backing, LMPs are less so; out of sixteen practices included in the questionnaire for round three of the Delphi survey for LMPs, only seven (in italic in Table 3) had majority approval. Still, none of these practices attracted more than seventy percent of the votes. Table 3 shows the results. These covered "planning at the landscape level," "organic farming," "riparian buffers," "various crop rotations," "diversification of trees and crops," "rehabilitation of wetlands," and "breeding animals for production and conservation." Still, none of these practices attracted more than seventy percent of the votes (Table 3).

Table 3. Prespa Park's land management practices ranking and statistics from the third Delphi round.

Variable	**Delphi value**	**Ratio**	**Order**
Planning at the landscape level	3.8	0.69	1
Organic agriculture	3.5	0.68	2
Riparian buffers	3.3	0.65	3
Various crop rotations	3.1	0.63	4
Diversification of trees and crops	2.9	0.61	5
Rehabilitation of wetlands	2.8	0.59	6
Breeding animals for production and conservation	2.5	0.51	7
Perennial conservation practices	2.1	0.48	8

Reforestation	1.9	0.41	9
Restored native grasslands	1.7	0.38	10
Contour grass buffer strips	1.3	0.20	11
Rotational grazing	1.1	0.25	12
Grass field borders	0.8	0.22	13
Precision agriculture	0.6	0.18	14
Conservation tillage	0.4	0.08	15
Artificial wetlands	0.2	0.06	16

Source: The author's collected and elaborated survey data for 2023-2024

The investigation of the link between LMPs and ESs reveals an interesting result: most management practices contributed to more than one ESs. The rehabilitation of natural grasslands and wetlands, various crop rotations, breeding animals for production and conservation, diversification of trees and crops, and planning at the landscape level are associated with the greatest number of ESs. In order to ensure the long-term health of the ecosystems in the Prespa Park watershed, we have identified that the abovementioned practices are essential. On the other hand, we discovered a relationship between three of the sixteen LMPs and four ESs.

The research also looked at how much support LMPs had from viewpoints that were more production- or environment-centered. The results showed that for six practices there was an overlap between two points of view—production-centered and environmental-centered—about ecosystem services. Included in this category were practices such as the establishment of artificial wetlands, varied crop rotation, perennial conservation methods, the utilization of rotational grazing, planning at the landscape level, and the management of the amount of livestock on the land. Environmentalists viewed perennial conservation practices favorably, whereas productivityists saw restored natural grassland, precision farming, conservation tillage, and tile drainage negatively.

Regarding the last two practices, some case study participants with an environmental point of view felt they were beneficial, but they considered them more as a minimal standard of environmental stewardship than as a means to especially improve ESs.

Findings from detailed interviews

Farming benefits of using perennial conservation practices

At the beginning of the in-depth and in-person interviews, we run each participant a question on ecosystem services. More concretely, we asked them to describe the most important ESs in Prespa Park. We generated a list of ESs from interview data, and found it to be similar to the lists associated with the Delphi survey. Interviews included all the services mentioned in the Delphi survey (Table 1).

The procedure followed with the follow-up question dealing with the farming benefits of using perennial conservation practices. The findings, briefly, are as follows. The benefits of farming are typically grouped into two broad categories by interviewees in in-depth, in person interviews: economic and environmental. Moreover, we separated the responses that pertained to economics into two categories: financial issues, which addressed problems at the farm level, and economic issues, which addressed problems at the landscape and larger levels of aggregate land use. Participants are speaking about the economic benefits on various time and spatial scales, which means that these issues are not mutually incompatible.

The first topic issues, i.e., financial issues are most often cited by participants as obstacles to management choices other than row crop production, particularly the adoption of perennial conservation practices in cases where land is to be removed from production.

In addition, we can classify the interviewees' economic concerns into two groups contingent upon their association with perennial land cover. To start, additional perennial land cover is often linked to better regional economic outcomes, including more employment opportunities and the rise of new markets, such as agro-tourism and production-oriented sectors. Secondly, the prevailing economic conditions serve as impediments to the strategic integration of perennial land cover. For example, the lack of viable markets for alternative crops and small-scale livestock operations intrinsically constrains the prospects for non-traditional food production.

Compared to the Delphi survey, the interviews highlighted the benefits of aesthetics and recreation more frequently. 31 out of 40 participants listed aesthetics, visual attractiveness, and picturesque charm as possible advantages associated with agricultural landscapes. Follow-up questions regarding aesthetics indicate that the majority of participants recognized numerous advantages associated with visually appealing landscapes.

There are environmental and economic benefits to recreational activities provided by agroecosystems. On one hand, there are stakeholders who view recreation as a way to enhance their mental health and who aspire to reside in areas where they can engage in outdoor activities such as hunting, fishing, biking, and birdwatching. But there are

supplementary economic advantages that can result from these pursuits as well, such as renting hunting rights as a farm business or bringing in money for nearby companies. In addition, access to visually appealing landscapes that provide recreational and tourism opportunities is often cited as a crucial component of both prospering rural communities and the recruitment of tourists to Prespa Park.

With 30 of 40 respondents specifically mentioning ecosystem service of wildlife, indicating a varied bag of attitudes and valuations towards it as in the Delphi survey. The majority of participants cited the park's wildlife as an essential element of their recreational experience, citing the many advantages it provides, such as hunting, fishing, and bird viewing. Pollination and integrated pest management were only brought up by a small number of participants while discussing wildlife. Nevertheless, paralleling the Delphi study, numerous stakeholders failed to see wildlife as an essential factor in their decision-making process for a harmonious landscape, especially when confronted with compromises involving the balance of economic and environmental advantages. Although many participants were unsure of how to quantify the inherent worth of wildlife in comparison to other benefits, one-third of them did so. When making decisions regarding balancing, a number of interviewees stated that they only considered quantifiable or monetizable benefits. From this perspective, they argued that the benefits associated with wildlife could not be considered significant.

b. Benefits of using perennial conservation practices for managing agricultural land

This sub-section talks about the answers participants gave about the right balance between the percentage of perennial crops that cover delivery in scenarios and the extra benefits that come with it, based on what they said in in-depth interviews. The findings reveal that there is a strong link between the representation of perennial land cover in the scenarios and the corresponding perceived benefits (Fig. 1). So, sixty-nine percent of those who were asked to put the scenarios in increasing order based on the total amount of benefits they saw did so exactly in line with the increasing gradient of perennial cover. Conversely, the positive trend line associated with the mean value exhibits a progressively diminishing rate of increase. This suggests that the benefits could either stop increasing or even decrease with the planting of more perennials. Twenty-one percent said that too much perennial land cover finally degraded the degree of seen benefits; they did not link the scenario with the highest perennial cover with the highest felt benefits.

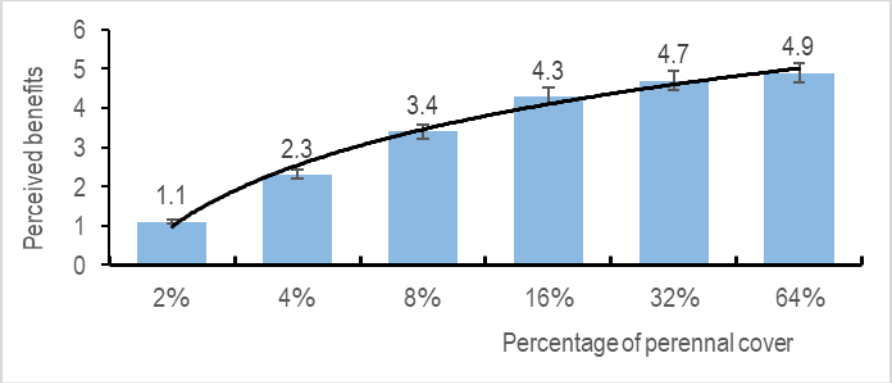

Figure 1. The link between the percentage of perennial cover and the corresponding perceived benefits.
Source: The author's collected and elaborated survey data for 2023-2024

Figure 1 shows that the scenario with 2% perennial cover offers the fewest benefits, and the same holds true for the scenario with 4% perennial cover when we use variance in mean rank (the highest variance compared to mean value the least agreement) as an indication of agreement. Both of these options were deemed by individuals to have the least positive impact on the public, and they also often characterized them as akin to the existing conditions at Prespa Park. In terms of both perceived benefits and general agreement, the scenario showing 16% perennial cover was deemed the best (Figure 1).

Out of all the topics this study looked at, two stood out as being especially important for land management. The first is the need for landscape-level planning, especially the ability to strategically integrate agricultural and conservation practices at the landscape scale, which is currently lacking. The second is the widespread agreement that diversity is an essential component of ecosystem services management. Every person who was interviewed showed a strong understanding of how the landscape and regional context might affect ecosystem services. A lot of the time,

participants asked a lot of questions about the basic biogeochemistry of the scenarios, the past management practices, and the features of the landscape and region around them, taking into account both ecological and socioeconomic factors. Participants claimed that without landscape-level planning, expecting changes in landscape-scale outcomes is useless. Landscape-level planning is important, according to the people who took part, to make the most of "economies of configuration" (Larsen 2011) and balance different benefits. Here, stakeholders saw landscape-scale planning for what it is: an integral part of managing ecosystem services; they called it an "obstacle," a "chance," and a "need." There may not be any magic formula for effective landscape-level planning in the interview transcripts, but it is clear that stakeholders are aware of its importance in managing ESs, and many have stated that it ought to be a focus of forthcoming research, policy formulation, and practical applications.
In conclusion, interview participants expressed a favorable correlation between an increase in perennial land cover and an enhancement in the benefits derived. They exhibited heightened emotional responses to scenarios situated at the extremities of the gradient while demonstrating a greater degree of acceptance toward the scenarios positioned in the middle. As well, the necessity of landscape-level planning was made clear by both explicit and implicit questions concerning landscape-scale features.

CONCLUSIONS

We did a case study with environmental and agricultural stakeholders in Prespa Park, which is in the Balkans in Southeast Europe, to find out how well agricultural stakeholders connect the ecosystem services that cropland and other farming systems provide with farming and conservation management practices. Our study uses a mix of methods, including the Delphi survey, in which stakeholders first narrowed down the main ecosystem services and management practices from a larger group that was identified during a two-day workshop. They then looked at how well agricultural landscapes provide multiple ESs by using both current and new LMPs. These are the primary findings drawn from the data: First, we discovered that all of the Prespa Park stakeholders have similar worries regarding the local water, land, and food. We also have proof that stakeholders agree that focused conservation practices and landscape-level planning are important ways to reach overall ES goals, and they linked many LMPs to a number of different ecosystem services
The second conclusion is that there is a clear division among the stakeholders, despite their general agreement on the top priorities. One group places a higher value on ecosystem services that are associated with the environment, while the other group places a higher value on ecosystem services that are associated with farming.
Third, the most important ESs for Prespa Park that have been identified in the order of priority by stakeholders are "recreation and tourism," "pristine aquatic ecosystems," "preserving the nutrient cycle and soil fertility," " facilitating the production of healthful food," "maintaining the diversity of ecosystems," and " heritage assets pertaining to culture and the environment." These are going to stay very important for a long time. In addition to landscape planning and focused conservation practices, stakeholders identified several others important conservation practices. These include "planning at the landscape level," "organic farming," "riparian buffers," "different crop rotations," "diversifying trees and crops," "wetland rehabilitation," and "breeding livestock for both production and conservation." All these practices help support and improve various ecosystem services.
Fourth, the research presents a comprehensible framework that encompasses stakeholders, agricultural landscape, management activities, ecological functions, and the range of "standards" among stakeholders for arriving desired ecosystem services. This facilitates the establishment of a constructive environment for individuals engaged in agriculture to engage in dialogue and pose questions to their peers. It helps people understand the choices made, achieve different goals, use resources efficiently, and reduce conflicts. Consequently, it is essential to explicitly identify all stakeholders, including the characterization of their interests and the various qualitative and quantitative methods by which these interests are valued, quantified, and incorporated into decision-making processes.
Fifth, the study found a link between more perennial land cover and more benefits. In terms of both perceived benefits and general agreement, the scenario showing 16% perennial cover was deemed the best. This highlights the need for planning at the landscape level, especially the ability to strategically combine farming and conservation practices at the landscape level, which is currently missing. Most stakeholders agree that diversity is an important part of managing ecosystem services, and follow-up conversations with interviewees in person made this point even clearer
The approach described in this study shows that ESs are very important and are being used more and more in Prespa Park to manage land for farming and the environment. It also gives the park's regional administrators and

landowners an easy and useful way to figure out how different LMPs affect ESs. Finally, we want our work to provide a methodology that makes the process of using ESs more effective in agricultural decision-making while also being more efficient.

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