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Uncovering the Latent Preferences of Slovenia's Private Forest Owners in the Context of Enhancing Forest Ecosystem Services through a Hypothetical Scheme

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Abstract: Background and objectives: Successful policy implementation relies on understanding stakeholders' willingness to contribute to policy goals. The EU Green Deal, with strategies on forests, biodiversity, and the bioeconomy, also depends on the performance of the forestry sector, including a significant portion of privately owned forests. Materials and methods: We conducted a nationwide survey among a sample of 341 private forest owners in Slovenia (total population of 424,086). The online questionnaire had three sections: (1) knowledge and priorities regarding ecosystem services and the bioeconomy, (2) a discrete choice experiment for eliciting preferences concerning the implementation of activities supporting strategic goals originating from EU Green Deal policies, and (3) socio-economic data and future forest management objectives. Results: The results indicated heterogeneity in preferences for performing activities on private forest lands to enhance specific forest ES that contribute to policy goals. More than half of the respondents (57.6%) exhibited a reluctance to implement activities and were skeptical of higher compensation payments, whereas the rest expressed an inclination towards changing their forest management. Conclusions: Slovenia's private forest owners appear to be heterogeneous in their willingness to participate in a hypothetical ES enhancement scheme that could contribute to some EU Green Deal goals. Policymakers must recognize intrinsic motives and social norms that affect the willingness of forest owners to be engaged to increase the acceptance of solutions.

Keywords: European Green Deal policies; discrete choice experiment; private forest owners; payment-related enhancement scheme

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1. Introduction

Biodiversity and the benefits or services provided by healthy ecosystems face significant pressure from climate change and the challenge of sustaining a global population of eight billion people [1–4]. To successfully mitigate the effects of a changing climate and preserve key ecosystem services (ES), strategies, policies, and measures aimed at reducing greenhouse gas emissions and adapting to the impacts of climate change are being adopted at international, EU, and national levels. By implementing the European Green Deal [5], the EU aims to become the first climate-neutral continent. The flagship initiatives of the European Green Deal include the EU Biodiversity Strategy [6], the EU Forest Strategy [7], and the EU Bioeconomy Strategy [8]. The concept of a circular and sustainable bioeconomy (BE) was placed at the heart of the European Green Deal by the new European Commission in 2019, as it can contribute to all aspects and objectives of the initiative and plays a vital role in Europe's economic prosperity. The strategy is based on replacing fossil fuels with renewable energy to achieve a climate-neutral future and strengthening the protection of the environment and ecosystems [8]. Forests will play an important role, as they can provide services and resources for a sustainable BE [9]. Additionally, forests provide several public goods, which is why forestry is an important sector of the BE [10]. The EU Forest Strategy,

which builds on the EU Biodiversity Strategy, aims to contribute to the conservation of EU biodiversity and a 55% reduction in greenhouse gas emissions by 2030. Key objectives include increasing forest cover, enhancing forest health and resilience, increasing carbon storage capacity, protecting primary forests, and promoting a BE within sustainability limits [7]. Therefore, the EU Forest Strategy is intended to strengthen the potential for implementing a BE linked to forest and wood resources. Objectives in this context include the promotion of a sustainable BE based on the production of long-lived wood products, the sustainable use of woody biomass for energy, and the promotion of other sectors of the BE, such as forest tourism.

Beyond their productive functions, forests fulfill numerous ecological functions, including carbon sequestration, habitat provision, social benefits such as recreational and tourism opportunities, and improved air quality [11–13]. The success of forest-based BE visions and those of the Green Deal, therefore, strongly depends on the availability of renewable natural resources and other benefits provided by forests, which is reflected in the availability of forest ES. These are mainly provisioning ES (mainly timber) but also cultural ES (recreation, ecotourism, etc.) and regulation and maintenance ES (carbon sink, water retention, etc.). The availability of these ES is influenced by the condition of ecosystems and, concurrently, through the management practices adopted by forest owners [14–17].

The challenge of securing forest ES in a changing world characterized by biodiversity loss, climate change, and other human-induced pressures on forests, such as the growing demand for outdoor recreation and nature-based tourism, as well as raising consumer awareness of the benefits of non-fossil materials, is also relevant for Slovenia. Recent catastrophic events, like storms (snow and ice storms, windbreaks, landslides, floods, etc.) and bark beetle infestations, the deterioration of forest habitat types, a very low implementation rate of forest investments, and the conflictual use of forest lands, all negatively affect the availability of forest ES and need to be further prevented or mitigated [18–20].

When forest owners make management decisions, they actively reshape ecosystems and thus affect the provision of ES. They invest their knowledge, material resources, and labor to co-create or enhance ES and allow flows of ES to those who seek them [21]. The EU Forest Strategy aims to encourage Member States to consider establishing payment-supported schemes for forest owners to promote management practices that align with the increasing demands for ES, including non-forest ES such as habitat provision and carbon sequestration [7,22,23]. These schemes would provide financial compensation to offset the income foregone by owners who take actions to enhance forest biodiversity and resilience to climate change. ES payment incentives and market-based instruments have recently received increased attention as a means to enhance specific ES [24–26]. As participation in ES enhancement schemes is voluntary, it is important to understand the preferences of landowners towards individual measures in the scheme and to investigate their visions of future management [27]. Research to date has primarily focused on forest owners' attitudes toward changing forest management practices to enhance ES under different payment conditions (compensation, subsidies, etc.). Given that forests are an important source of income, some owners may have production-oriented management visions, as evident in a Swedish study on landscape preferences among different stakeholders [28]. Several studies have found that restriction-based measures (e.g., logging prohibition) reduce owners' willingness to enter payment schemes [29–31] and that more stringent restrictions increase expectations for higher payments [32]. In contrast, Juutinen et al. [33] found that forest owners favor payment schemes that promote environmental objectives compared to those that focus on timber production. Moreover, the willingness to participate in payment schemes and the expected payments depend on the length of the ES payment contract [30,32,34,35] and the penalty for exiting the contract early [34,35]. Expected compensation also varies across countries [33]. Additionally, characteristics of the forest estate, such as the tree composition [36] and size of the estate [29], also affect an owner's willingness to enter a payment scheme. At the same time, owners expect lower payments for implementing measures that they are already putting into practice [24]. Regarding

individual ES, carbon sequestration and biodiversity conservation have been shown to be important motivators for participation in payment schemes, as owners see biodiversity enhancement as beneficial to their forest in addition to direct financial benefits [29,33,37].

The Confederation of European Forest Owners, which unites national forest owners' associations at the EU level, including the Forest Owners' Association of Slovenia, points out that payment schemes for forest owners in return for the enhancement of ES are not sufficiently developed. In the context of the EU Biodiversity Strategy for the 2030 target of strictly protecting 10% of the EU's land area, they believe compensating forest owners for enhancing ES is necessary [38]. Furthermore, the Confederation's president, Sven-Erik Hammar, stressed that payments for ES are also important due to the growing number of forest owners whose management objectives are not solely focused on timber [39]. The European Landowners' Organization (ELO) even identifies payments for ES as an important instrument to make nature conservation a viable part of the (bio)economy [40]. The European Committee of the Regions points out that the development of payments for ES needs to be well discussed with each EU Member State individually and with all stakeholders in the forestry sector. It stresses that entry into any payment scheme should be voluntary and highlights the importance of verifying whether the financial mechanisms foreseen in the EU Forest Strategy (such as CAP, Carbon Farming, and Carbon Certification) support meeting its objectives, including the enhancement of all forest ES. The ELO suggests that, when financing payments for ES, Member States should focus on improving the use of financial funds already in place [40].

Discrete choice experiments (DCE) have often been used in surveys evaluating forest owners' attitudes toward adapted forest management to enhance ES or even toward different payment schemes. The DCE is a nonmarket valuation approach that enables the elicitation of preferences over proposed changes in attributes describing different goods and services (also ES) individually and towards different contract designs in hypothetical situations. It is particularly useful for pre-testing new policy instruments [41–43]. In this respect, the aim of this research was to (1) assess the familiarity of Slovenian private forest owners with the concepts of BE and ES, (2) evaluate their willingness to adapt forest management to enhance forest ES that support policy goals, (3) investigate which socio-economic characteristics affect owners' preferences for implementing ES-oriented management measures, and (4) provide implications based on research outcomes for decision-making in the design of payment-supported ES enhancement schemes.

To accomplish these objectives, we designed and conducted a survey with a DCE as a central part and additional questions to enable further in-depth analysis. The DCE was constructed based on a set of attributes that can be directly linked to ES-supporting measures, and a payment vehicle was included as well so that the study design resembled an ES enhancement scheme for forest owners.

DCEs addressing forest owners' preferences for enhancing ES have rarely used attributes that directly mirror the objectives of the EU Bioeconomy Strategy and the EU Forest Strategy. Attributes in previous DCE studies have been very broadly defined [37,44], limiting their applicability in policymaking. Furthermore, previous studies have mostly examined only one or two categories of ES at a time, according to the Common International Classification of Ecosystem Services (CICES) [45]. All three main ES categories within a single survey have so far been considered in only 2%–10% of all ES surveys [46]. Our study addresses these two research gaps by using attributes that directly reflect the objectives of the EU Bioeconomy Strategy and the EU Forest Strategy (use of renewable forest resources, creation of new green jobs, adaptation of forests to climate change), and the EU Biodiversity Strategy (strict protection of a portion of forests).

In line with this and the research goals, we define two research hypotheses: (1) previous knowledge of private forest owners on ES and BE is related to their future intentions on introducing ES-enhancing forest management, and (2) private forest owners have heterogenous preferences towards supporting forest management actions that enhance ES.

2. Materials and Methods

We structured our study using a systematic examination of EU strategic documents (EU Biodiversity Strategy [6], EU Forest Strategy [7], and EU Bioeconomy Strategy [8]). We then identified the strategic goals that we, along with insights from experts in the fields of forestry (3× Slovenia Forest Service, 1× Chamber of Agriculture and Forestry, 1× Forest Owners' Association of Slovenia), the BE (2× Biotechnical Faculty, 1× Slovenian Forestry Institute, 1× Chamber of Agriculture and Forestry), and biodiversity protection (1× Biotechnical Faculty), deemed pertinent to Slovenia:

- production of long-lived wood products and substitution of carbon-intensive materials,
- adaptation to climate change,
- biodiversity conservation,
- promotion of other sectors of the BE, such as ecotourism and the creation of new green jobs.

These goals were the focal points of our research.

2.1. Study Area

Our study encompassed the entire population of private forest owners in Slovenia, making it a nationwide study. Slovenia is one of the most forested countries in Europe, with a forest cover of 58%. The share of state-owned and privately-owned forests in 2022 was 20.3% and 79.7%, respectively [20], a distribution influenced through land restitution. Consequently, the number of private forest owners is high, at 424,086. The typical private forest tenure is relatively small (on average, 2.6 ha) and fragmented (on average, into 3 plots). In general, Slovenian private forest owners are fairly inactive, mainly due to limited knowledge and information on forest management, independence from forest income, or a lack of economic interest in forest management [47,48].

2.2. Survey and Data Collection

We collected survey data via an online questionnaire administered by a professional market research agency based on an online panel. For each panelist, we had access to records on demographic data such as age, gender, education level, location of residence, employment status, and whether they owned forest land. Respondents were recruited following stratification according to their age, gender, and size and location of their forest estate, ensuring that the sample would be representative across all four characteristics. A population-like spatial distribution was achieved through soft quotas, limiting the number of owners per each of the 14 forest management units, which are part of the administrative-organizational system of the Slovenia Forest Service (SFS) (see Appendix C for an illustration). These units are areas for which data on the number of forest owners are readily available. Forest owners' age and property size distribution were designed to be representative at the country level, as well as their gender ratio.

The questionnaire was designed in accordance with DCE requirements. It consisted of initial questions on respondents' knowledge of the concepts of ES and BE. Next, respondents were questioned regarding their willingness to adapt their management to support individual strategic policy goals. Then, there was a set of statements related to different forest ES and aspects and potential impacts of European policies for the BE, forestry, and biodiversity protection. Respondents were asked to indicate their agreement with the statements on a Likert scale. All three sets of questions or statements, apart from collecting data, enabled respondents to become familiar with topics later integrated into the DCE, which is a common practice in similar studies. The central part of the questionnaire was the DCE, where respondents could express their preferences for the implementation of measures grouped into a series of hypothetical alternative schemes designed to support strategic policy goals. The questionnaire was also supplemented with questions on the size and location of the forest estate and intentions for future forest management. The questionnaire ended with respondents providing socio-demographic data, including gender, age, and personal income, which served as additional variables in the DCE.

2.3. Discrete Choice Experiment

The discrete choice method is based on Lancaster's consumer choice theory [49], which argues that the utility of a good or service is the sum of the utilities of its individual attributes. This is defined via the theoretical framework of a random utility model (RUM) [50], which is the basis for empirical modeling of individual choice and allows the identification of trade-offs between the attributes of a good [51,52]. Therefore, each good in a DCE is described with a set of attributes, and by associating varying levels (quantities or qualitative states) of each attribute, it is possible to design alternatives that represent different states of the good in question. The alternatives are combined into choice sets, which are presented to individuals who express their preferences by choosing their favorite alternatives. Each choice set typically contains one alternative representing the status quo and several others representing possible hypothetical statuses. These are possible in the context of changes in governance or behavior. In addition to the attributes, alternatives are usually assigned with a hypothetical monetary amount that is needed to achieve the hypothetical states. Therefore, when choosing between alternatives, an individual compares not only the levels of the attributes but also the monetary amounts [53]—most often defined as his or her hypothetical payments/compensations. This allows the expression of changes in attribute levels in terms of preferences in marginal willingness-to-pay/willingness-to-accept (WTP/WTA). According to the RUM, the utility that an individual assigns to each alternative, which determines his/her choice of the preferred option (yielding the highest utility), can be decomposed into two parts: a deterministic observed part of the utility U, which is a linear function of the attributes of the good under consideration, and a stochastic unobserved part V, which is the error term [54]:

$$U_{ni} = V_{ni} + \varepsilon_{ni} = \beta_n x_{ni} + \varepsilon_{ni} \quad (1)$$

Here, β is the vector of parameters of the utility function, x is the vector of attributes, n denotes the individual, and i denotes the alternative. The probability of an individual choosing each alternative can be empirically modeled using a conditional logit model [50] based on the assumption that preferences towards attribute changes are homogeneous with respect to the initial state. Similarly, the probability of an individual choosing each alternative can be modeled using a random parameter logit model or a latent class logit model, which are suitable for accommodating heterogeneity of preferences [53,55,56].

The multinomial logit model (MNL) is considered a very useful model but is limited by several assumptions. These include Independence from Irrelevant Alternatives (IIA), which means that the probability ratio of choosing a particular alternative is not affected by the presence or absence of other alternatives in the choice set [41,57,58]. Various statistical tests can be used to test whether the IIA assumption is valid, but the most frequently used is the Hausman test [59]. This test is based on a comparison between a model in which all alternatives are considered and a model in which one or more alternatives are omitted or eliminated. If the IIA assumption is violated, one of the more complex models that relax this assumption should be used—the nested logit model [60], the multinomial probit model [61], the random parameter logit model [56], or the latent class logit model—which is based on a finite number of classes within which individuals' preferences are homogeneous, and there are significant differences between classes [53].

2.4. Experimental Design

We designed the DCE by aligning it with the strategic EU policy goals highlighted at the beginning of this chapter. To achieve this, we actively involved nine domestic experts listed earlier in this section, who assisted us in connecting these goals with forest management activities aimed at their achievement. These activities were then defined as attributes, each with varying levels, which formed the basis of the DCE (Table 1). The current state of these attributes was determined using data from forest management plans and other sources of information provided by the SFS. A detailed description of these

attributes was presented in the questionnaire prior to conducting the DCE and can be found in Appendix A.

Table 1. Attributes and their levels used in constructing the DCE, links to ES, and relevance for BE policy goals.

Attribute	Attribute Levels	Type of Variable	ES Using CICES	Relevance for Strengthening the BE
Forest tending	7 [1] 20 34 (hours/ha/year that a forest owner would spend her/himself tending on her/his property)	Continuous	Provisioning	Replacing carbon-intensive materials
Non-native tree species	0.4 [1] 5 15 (% of owners' property planted with non-native tree species)	Continuous	Regulation & maintenance	Adaptation to climate change
Forest tourism	Unregulated [1] Forest owner is engaged in tourism. Somebody else is engaged in tourism.	Categorical	Cultural	Forest tourism
Strictly protected forest	0.3 [1] 5 20 (% of owners' property strictly protected from now on)	Continuous	Regulation & maintenance	Habitat protection
Control	No control system [1] Activity recording Activity effects check	Categorical	/	/
Yearly compensation	0 [2], 150, 300, 450, 600, 750, 900 EUR/ha	Continuous	/	/

Note: [1] attribute level reflects the current state that could occur in any alternative; [2] attribute level reflects the current state that could occur only in a status quo alternative. Other levels reflect the results of an adaptation of forest management that would be supported by a non-zero compensation.

The experimental design was subsequently based on five attributes, each with three levels, and one attribute with six levels. Thus, all possible combinations sum up to $(3 \times 3 \times 3 \times 3 \times 3 \times 6) = 1458$. This meant that the implementation of a full factorial design was not realistic. To reduce this number to a feasible level, we used a Bayesian efficient design, with a priori values obtained from a pilot study. The preliminary survey was designed by employing a sequential fractional factorial design and conducted between July and August 2022 on a sample of 65 forest owners (nine surveys were excluded due to protest responses). Priors from the MNL estimation of the pilot study were then used to construct the final experimental design, which was optimized for D-efficiency for the MNL model [62]. It consisted of 36 choice sets assigned into four blocks of nine choice sets. Each block of choice sets meant there were four versions of the questionnaire, which were randomly distributed among the respondents. Each choice set contained three alternatives, one representing the current situation (status quo) and two illustrating possible alternative states if at least one or more activities were carried out. An example of a choice set is given in Appendix B. The questionnaire included an option to consult a short video explaining

the principles of the selection of alternatives just before respondents started making their choices. The individual levels were presented with thumbnail images to help respondents visualize the content of the attributes. Respondents were presented with this part of the survey as hypothetical but were nonetheless asked to make their choices as realistically as possible. The main survey was carried out in October 2022 and covered 341 forest owners (response rate of 34%). The entire population of private forest owners in Slovenia consists of 424,086 individuals. The margin of sample error (E%) for a 95% confidence interval was calculated as 5%.

2.5. Models

Based on the attribute definitions, we specified the deterministic part of the utility function as follows:

$$V = \beta_0 + \beta_1 x_{tend} + \beta_2 x_{nonnative} + \beta_3 x_{tourism} + \beta_4 x_{protect} + \beta_5 x_{control} + \beta_6 x_{compensation} + \varepsilon \quad (2)$$

Modeling was conducted with the presented attributes treated as independent variables. The attributes "forest tending", "non-native tree species", "strictly protected forest", and "yearly compensation" are treated as continuous variables, and the attributes "forest tourism" and "control" are treated as discrete variables, each with three possible values.

The respondent's WTA was calculated as: $WTA = -\frac{\beta_k}{\beta_c}$, where β_k is the attribute k's coefficient (k = 1, . . ., 4) and β_c is the payment coefficient [63]. Estimates of mean WTA and 95% confidence intervals were calculated by using the Delta method [63].

Before estimating the model, all protest responses (n = 42) were removed from the database. These are cases where the respondent consistently selected the status quo option nine times in a row. The analysis of responses (i.e., choices of alternatives) was performed on a final sample of 299 respondents.

Before selecting the model, we performed a Hausman test of the IIA assumption. The test involved estimating the parameters of an MNL successively, with one of the three alternatives removed. If the IIA assumption held, the parameter estimates in the model with all alternatives should be the same as in the model with one alternative omitted. However, the test indicated that the assumption was violated (Table 2). We rejected the null hypothesis that the parameter estimates were the same in both models. The test statistic exceeded the critical value at α = 0.05 when alternative A was omitted and when alternative B was omitted. Consequently, we chose to use a model that can tolerate heteroskedasticity and does not rely on the IIA assumption. We opted for the latent class logit model (LCLM). This model allows respondents to be classified into latent classes according to their preferences, assuming that preferences are uniform within groups but differ between groups [64]. In parallel, it is possible to determine whether preferences are influenced by other factors such as socio-demographic characteristics, opinions, and attitudes.

Table 2. Hausman test of the IIA assumption for multinomial logit models.

Selected Alternatives for the Hausman Test	Value of the Test Statistic [1] X^2	The p-Value Belonging to the Test [1,2,3]
Omitted alternative: status quo (alt 1)	/	/
Omitted alternative: option A (alt 2)	25.85	0.001
Omitted alternative: option B (alt 3)	62.11	0.000

[1] α = 0.05; [2] degrees of freedom = 3; [3] critical value of a test statistic X^2 = 12.59.

The LCLM was estimated using NLOGIT ver. 5 [65] software.

3. Results

3.1. Forest Owners and Their Property Characteristics

In an effort to establish representativeness, we compared our sample with the population of Slovenian private forest owners using the SFS database. Owners with forest

properties under 0.001 ha were excluded. Our sample is mostly representative in terms of gender proportion and age distribution, with one notable exception: owners aged 60–74.9 are overrepresented, while those aged 75 or above are underrepresented (Table 3). The SFS highlighted a potential issue related to the records of owners aged 75 and above, who may still be marked as active but have passed away. This discrepancy is attributed to ongoing inheritance processes, rendering the size estimate of the last class unreliable. In addition, the sample is also spatially representative, according to the number of forest owners in each of the 14 management units. However, smaller property owners are underrepresented, while larger ones are overrepresented in terms of property size.

Table 3. Socio-demographic characteristics of forest owners: population versus the sample and indication of structural differences between both.

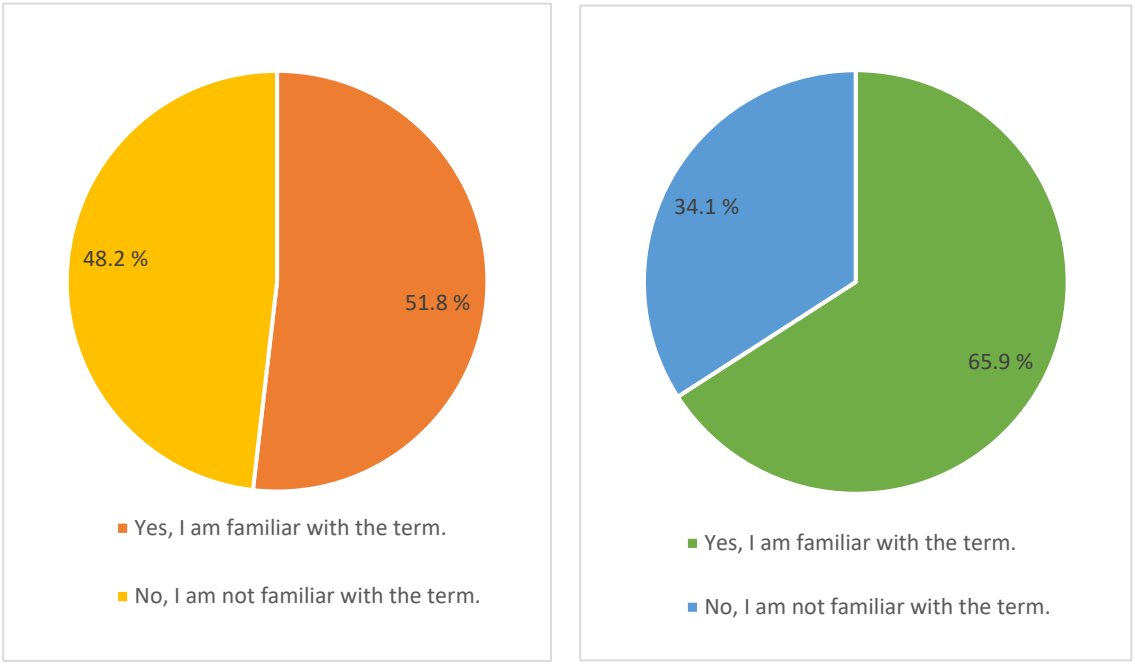
	Population (n = 424,086)	**Sample (n = 299)**	**Proportion Test (*p*-Value)**
Characteristic			
Gender—male	49.8%	52.2%	0.412
Age			
<30 years	7209 (1.7%)	8 (2.7%)	0.192
30–44.9 years	47,498 (11.2%)	32 (10.7%)	0.785
45–59.9 years	124,257 (29.3%)	82 (27.4%)	0.476
60–74.9 years	151,823 (35.8%)	141 (47.2%)	***
75 years and more	92,875 (21.9%)	36 (12.0%)	***
Forest property size			
0.001–0.99 ha	279,467 (65.9%)	51 (17.1%)	***
1.00–4.99 ha	101,205 (23.9%)	152 (50.8%)	***
5.00–9.99 ha	24,603 (5.8%)	37 (12.4%)	***
10.00–29.99 ha	15,896 (3.7%)	35 (11.7%)	***
30.00–99.99 ha	2639 (0.6%)	15 (5.0%)	***
100.00 ha and more	276 (0.1%)	9 (3.0%)	***
Forest owners per management unit			
Ljubljana	56,682 (13.4%)	38 (12.7%)	0.726
Maribor	52,184 (12.3%)	35 (11.7%)	0.754
Sežana	49,558 (11.7%)	28 (9.4%)	0.209
Tolmin	43,175 (10.2%)	29 (9.7%)	0.775
Celje	41,792 (9.9%)	31 (10.4%)	0.787
Murska Sobota	40,502 (9.6%)	31 (10.4%)	0.652
Brežice	36,887 (8.7%)	29 (9.7%)	0.540
Novo mesto	33,530 (7.9%)	23 (7.7%)	0.894
Kranj	15,517 (3.7%)	12 (4.0%)	0.774
Postojna	13,491 (3.2%)	7 (2.3%)	0.399
Kočevje	12,833 (3.0%)	10 (3.3%)	0.727
Bled	11,961 (2.8%)	11 (3.7%)	0.357
Nazarje	8690 (2.0%)	9 (3.0%)	0.212
Slovenj Gradec	7284 (1.7%)	6 (2.0%)	0.682

Significance level is *** $p < 0.01$.

Two-thirds of respondents (64.2%) reside in rural areas, and the remaining 35.8% live in urban areas, but either of those can have property in urban or rural areas, or even both (on average, a Slovenian owner has property on three parcels). Moreover, 41.8% are employed and 48.5% are retired. Almost half of the respondents have secondary education (49.8%), 27.1% have completed tertiary or higher education, and 9.4% possess a bachelor's degree or higher. Only 1% of respondents indicated forestry as their field of study and 4.3% specified agriculture. A large majority (84.6%) of respondents inherited their forest, with an average ownership duration of 20 years.

3.2. Awareness and Attitude of Forest Owners towards Forest Ecosystem Services and EU-Related Forest Policies

First, we investigated how familiar respondents were with the terms ES and BE. Just over half (51.8%) of respondents were familiar with the term ES, while around two-thirds (65.9%) were familiar with the term BE (Figure 1). Respondents were also asked to choose among several definitions of both terms. Here again, knowledge of the BE proved to be better than that of ES, with fewer than half (40.5%) choosing the correct definition for ES, while more than two-thirds (69.2%) of respondents chose the correct definition for the BE.



(**a**) (**b**)

Figure 1. (**a**) familiarity with ES; (**b**) familiarity with BE.

As forest owners can play a significant role in achieving strategic policy goals, we assessed their support for these goals and their willingness to act. We analyzed responses on whether they would consider adapting their management in connection with their familiarity with ES (Table 4) and, subsequently, their agreement with four sets of statements on different forestry aspects (Figures 2–5).

Table 4. Differences between respondents who are familiar with ES and those who are not within each of the four possible forest management adaptations (proportion test).

	Respondents are Familiar with ES		
Respondents that are considering	yes	no	Proportion test (*p*-value)
doing more forest tending and achieving a higher share of high-quality wood.	75.5%	67.9%	0.38

Table 4. *Cont.*

	Respondents are Familiar with ES		
planting non-native tree species in their forest.	29.0%	18.8%	**
making their forest available for organized tourism activities.	56.0%	41.0%	**
assigning a part of the forest as a nature reserve in the long term.	52.9%	42.2%	*

Significance levels are ** $p < 0.05$ and * $p < 0.1$.

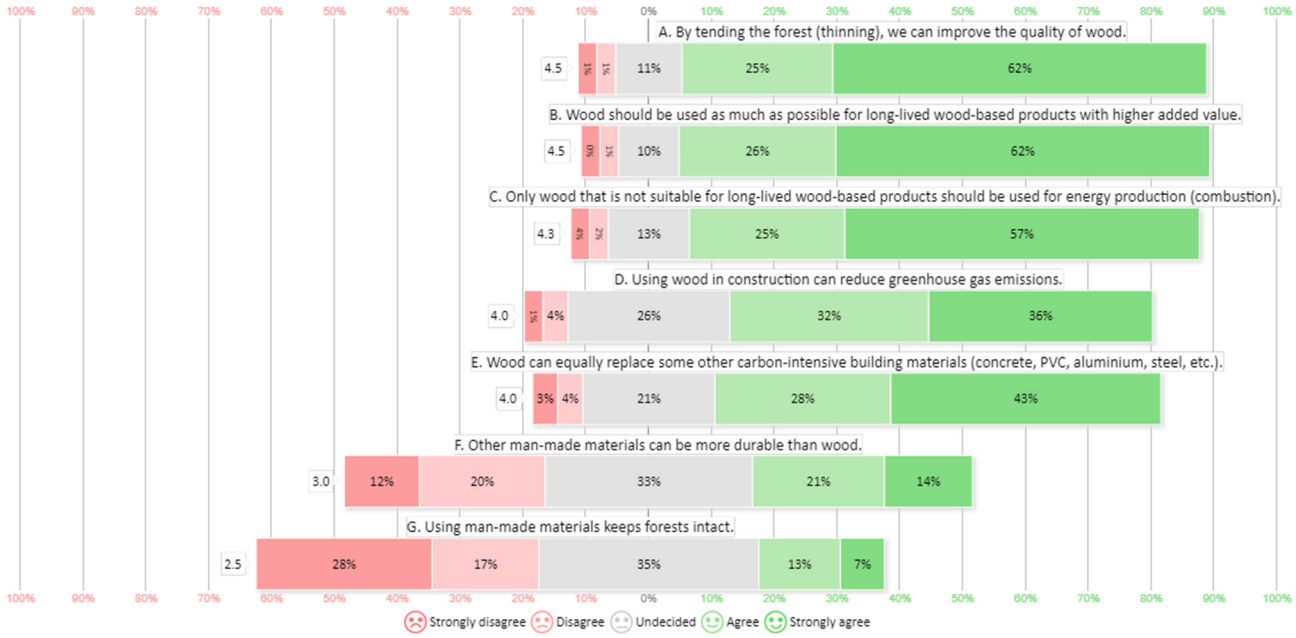


Figure 2. Respondents' agreement with the statements about forest tending and higher wood quality.

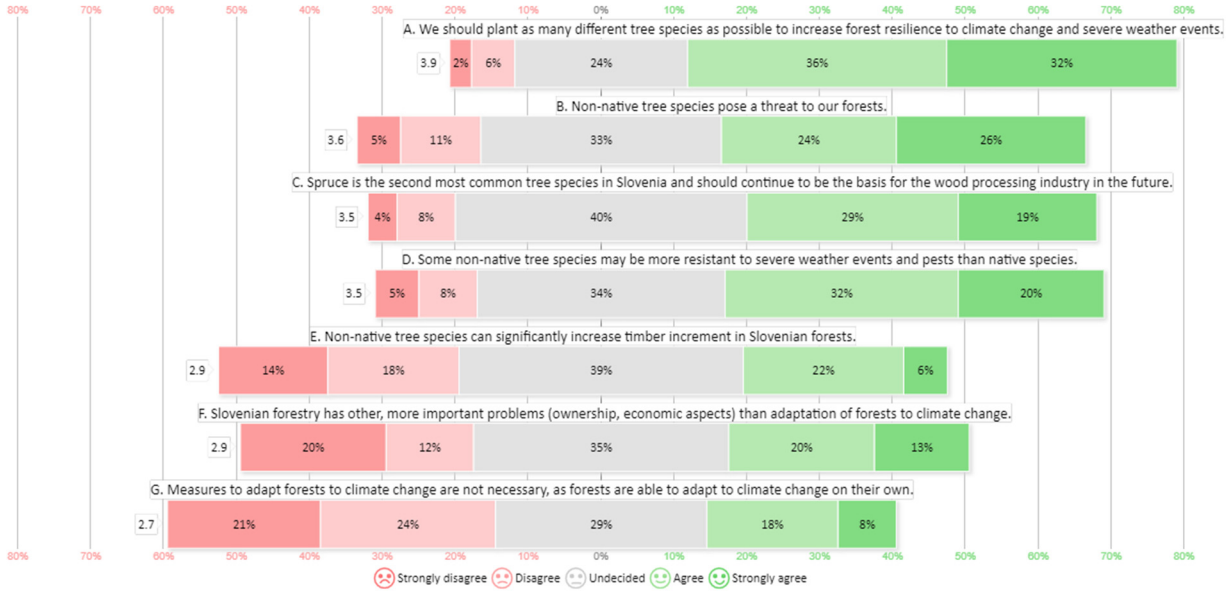


Figure 3. Respondents' agreement with the statements about non-native tree species.

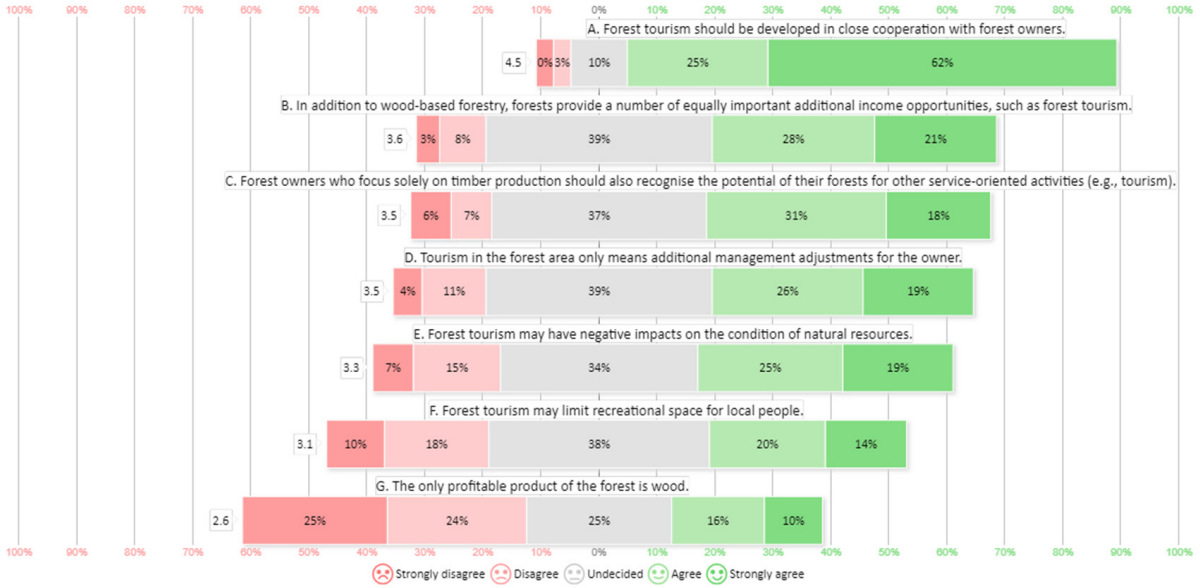


Figure 4. Respondents' agreement with the statements about forest tourism.

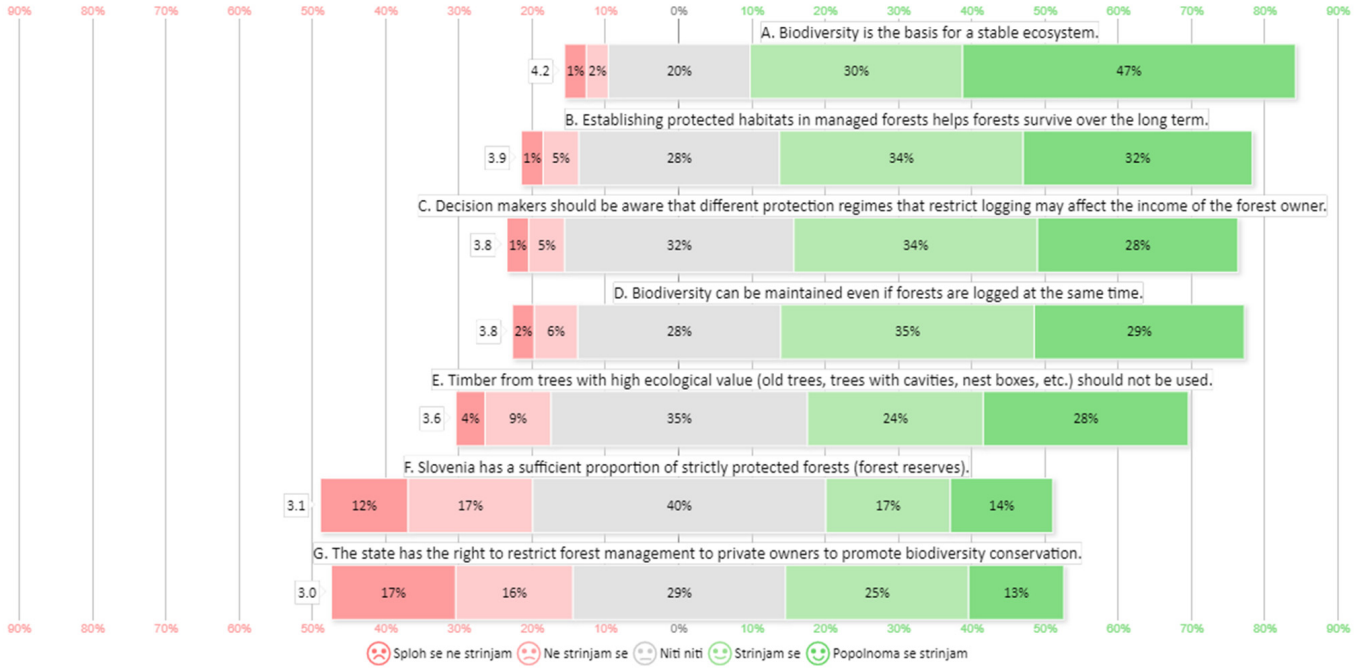


Figure 5. Respondents' agreement with the statements about biodiversity.

We found a significant distinction between respondents who stated that they were familiar with ES and those who were not, in the case of three out of four possible adaptations of forest management. Being familiar with the notion of ES results in a stronger inclination to consider adapting forest management with respect to planting non-native tree species, allowing forest tourism in one's forest, and designating one's forest as a nature reserve. However, this was not the case for forest tending.

Of all the statements related to forest management and higher wood quality, respondents mostly agreed with the statements "A. By tending the forest (thinning), we can improve the quality of wood", "B. Wood should be used as much as possible for long-lived wood-based products with higher added value", and "C. Only wood that is not suitable for long-lived wood-based products should be used for energy production (combustion)". (Figure 2). All three statements have a common point in recognizing high-quality wood

as an important material, which is further supported with less obvious agreement on the statement "F. Other man-made materials can be more durable than wood". and prevailing disagreement on "G. Using man-made materials keeps forests intact", indicating that artificial surrogates are no guarantee to preserve forests.

Responses to statements related to non-native tree species reflect the general agreement that steps need to be taken to make the forest more resilient to climate change (Figure 3). There is agreement with the statements "A. We should plant as many different tree species as possible to increase forest resilience to climate change and severe weather events", and less agreement with statements "F. Slovenian forestry has other, more important problems (ownership economic aspects) than adaptation of forests to climate change" and "G. Measures to adapt forests to climate change are not necessary as forests are able to adapt to climate change on their own". It seems that this is more important than securing higher wood yields ("E. Non-native tree species can significantly increase timber increment in Slovenian forests"). Despite relatively high agreement that non-native tree species may be one solution to this ("D. Some non-native tree species may be more resistant to severe weather and pests than native species."), there is also quite some reluctance, as many feel non-natives can be a threat as well ("B. Non-native tree species pose a threat to our forests").

Respondents strongly and relatively uniformly agreed with the statement "A. Forest tourism should be developed in close cooperation with forest owners" (Figure 4), which reflects a strong preference for forest owners involved in developing forest tourism. This is also slightly related to limitations for locals ("F. Forest tourism may limit recreational space for local people"). There is also a clear recognition that forest tourism is a viable income option for owners. There is agreement with the statements "B. In addition to wood-based forestry, forests provide a number of equally important additional income opportunities such as forest tourism" and "C. Forest owners who focus solely on timber production should also recognize the potential of their forests for other service-oriented activities (e.g., tourism)", and less agreement with "G. The only profitable product of the forest is wood". Despite the positive perception of forest tourism as an opportunity, there is some belief (relatively more agreement) that it requires changes in forest management ("D. Tourism in the forest area only means additional management adjustments for the owner.") and that it may put pressure on natural resources ("E. Forest tourism may have negative impacts on the condition of natural resources").

"A. Biodiversity is the basis for a stable ecosystem" was the statement that respondents most agreed with and were unanimous on (Figure 5), which indicates an awareness of the importance of having biodiversity-rich forests in terms of ecological resilience. This is further supported with a high agreement with the statement "B. Establishing protected habitats in managed forests helps forests survive over the long term", "E. Timber from trees with high ecological value (old trees, trees with cavities, nest boxes, etc.) should not be used", and less agreement on "F. Slovenia has a sufficient proportion of strictly protected forests (forest reserves)". On the management side, respondents feel strongly that the current sustainable and multifunctional approach can also sustain biodiversity ("D. Biodiversity can be maintained even if forests are logged at the same time"). As highlighted in the case of tourism, decisions about managing biodiversity are to be made in close partnership between decision-makers and forest owners. There is an agreement with the statement "C. Decision makers should be aware that. . ., and less agreement on "G. The state has the right to restrict forest management to private owners to promote biodiversity conservation".

3.3. Choice Analysis

Before estimating the final LCLM, we determined the optimal number of latent classes. According to two information criteria, namely BIC and AIC3, a model with five classes seemed to be the best choice (Table 5). However, CAIC model specification parameter estimates (signs and values) and class membership probabilities (some classes with membership lower than 4%) suggested that a model with five classes was not prudent and

that a four-class model was a better choice. According to class-membership probabilities, respondents were classified into the following groups: 42.2%, 15.4%, 13.6%, and 28.8%.

Table 5. Test results for the different number of classes of the latent class model.

Number of Classes	Number of Observations (N)	Number of Parameters (P)	Log-Likelihood (LL)	BIC [1]	AIC3 [2]	CAIC [3]
2	2691 (n = 299)	19	−2440.54	4946.24	4938.07	4965.24
3		29	−2358.54	4816.55	4804.08	4845.55
4		39	−2328.50	4790.76	4773.99	4829.76
5		49	−2311.12	4790.30	4769.23	4839.30
6		59	−2306.35	4815.07	4789.70	4874.07

[1] $BIC = -2 \times LL + (\log(N) \times P)$, [2] $AIC3 = -2 \times LL + (3 \times P)$, [3] $CAIC = 2 \times LL + (\log(N) + 1) \times P$.

3.3.1. Estimation of the Latent Class Logit Model

The estimates of the model coefficients representing the marginal utilities of attribute changes are reported in Table 6, while mean WTA values are reported in Table 7. In addition to variables related to attributes, we added several that reflect socio-demographic characteristics and supportive questions from the survey questionnaire. We gradually introduced variables and retained only those that significantly contributed to the explanation of respondent's choices. For interpretation, coefficients in class 4 were normalized to zero; thus, other classes are interpreted relative to class 4 (reference class).

Table 6. Estimation results of the latent class logit model.

	Estimated Coefficients of the Indirect Utility Function							
Variable	Class 1 (42.2%)		Class 2 (15.4%)		Class 3 (13.6%)		Class 4 (28.8%)	
	Coeff.	s.e	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Forest tending	−0.009 ***	0.003	−0.014	0.010	0.011 *	0.007	0.001	0.004
Non-native tree species	0.000	0.006	0.004	0.020	0.006	0.012	0.021 **	0.010
Forest owner is engaged in tourism (yes-1)	−0.007	0.101	0.352	0.324	0.107	0.248	0.137	0.139
Somebody else is engaged in tourism (yes-1)	−0.226 **	0.107	0.283	0.364	0.553 ***	0.216	0.534 ***	0.172
Strictly protected forest	−0.007	0.005	−0.030 ***	0.011	0.002	0.014	0.002	0.008
Activity recording (control) (yes-1)	0.522 ***	0.120	−0.160	0.310	−0.067	0.289	−0.199	0.191
Activity effects check (control) (yes-1)	0.520 ***	0.103	−0.322	0.295	0.068	0.260	−0.154	0.156
Yearly compensation	−0.001 ***	0.000	−0.002 ***	0.000	0.001 °	0.000	0.002 ***	0.000
ASC [1]	3.072 ***	0.235	0.208	0.371	−0.974 ***	0.356	3.485 **	1.704
	Coefficients of the estimated latent class membership function							
Variable	Class 1		Class 2		Class 3		Class 4: reference class	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.		
Constant	0.025	1.114	−2.117	1.724	1.504	1.600		
Age	0.034 ***	0.016	0.066 ***	0.025	−0.035 °	0.022		

Table 6. *Cont.*

	Estimated Coefficients of the Indirect Utility Function						
	Coefficients of the estimated latent class membership function						
Variable	Class 1		Class 2		Class 3		Class 4: reference class
Forest property size class	−0.057	0.143	−0.269	0.222	−0.276	0.211	
Living environment [2]	−0.866 **	0.399	−0.971 *	0.534	0.117	0.646	
Ecoregion (dummy) [3]	−0.169	0.361	−0.938 *	0.527	0.170	0.520	

Note: estimated coefficients are significantly different from zero at a 10% (*), 5% (**), or 1% (***) significance level. Additionally, (°) denotes the coefficient estimates close to the 10% level (*p*-value of 0.11). McFadden Pseudo R-squared: 0.21, Log-likelihood: −2323.53, Chi-squared (p = 0.000): 1265.67. [1] Alternative specific constant was coded as a non-status quo option. [2] Living environment: if a respondent resides in an urban (0) or rural (1) environment. [3] Ecoregion: if a respondent is a resident of the Pohorska, Predalpska, or Dinarska ecoregions, respectively.

Table 7. Mean WTAs, with 95% Delta confidence intervals in brackets.

Variable	Class 1	Class 2	Class 3	Class 4
		WTA		
Forest tending	−7.80 *** [−13.29, −2.31]	−7.50 [−18.82, 3.83]	−19.48 [−52.50, 13.54]	−0.52 [−3.96, 2.91]
Non-native tree species	−0.15 [−10.79, 10.48]	2.21 [−17.73, 22.14]	−10.50 [−52.48, 31.49]	−9.29 ** [−18.35, −0.22]
Forest owner is engaged in tourism	−6.23 [−186.99, 174.52]	184.79 [−159.91, 529.49]	−186.58 [−1081.92, 708.75]	−61.57 [−184.16, 61.03]
Somebody else is engaged in tourism	−205.66 ** [−401.52, −9.80]	148.87 [−239.22, 536.95]	−965.52 [−2375.09, 444.06]	−240.20 *** [−382.61, −97.8]
Strictly protected forest	−5.96 [−15.60, 3.67]	−15.62 ** [−28.53, −2.72]	−3.81 [−53.38, 45.76]	−1.00 [−8.24, 6.24]
Activity recording (control)	473.74 *** [241.92, 705.56]	−83.88 [−399.69, 231.93]	116.60 [−857.17, 1090.37]	89.47 [−75.92, 254.85]
Activity effects check (control)	470.50 *** [287.69, 653.31]	−169.02 [−483.07, 145.02]	−118.26 [−1036.20, 799.69]	69.42 [−65.61, 204.46]
ASC	2790.44 *** [1925.30, 3655.57]	109.50 [−251.00, 470.01]	1699.02 * [−229.21, 3627.24]	−1567.92 ** [−3110.69, −25.16]

WTA estimates are significantly different from zero at a 10% (*), 5% (**) or 1% (***) significance level.

The yearly compensation coefficient is positive and significant in class 4, positive and marginally significant in class 3, and negative and significant in classes 1 and 2. Because the compensation coefficient is negative in two classes, we did not strictly interpret WTA estimates based on the sign derived from the standard equation reported in this paper, as it could be misleading. For example, a positive coefficient for one of the attributes and a negative coefficient for compensation would result in a positive WTA, indicating that compensation would be required. This is inconsistent because positive preferences for an attribute should be reflected in a willingness to forgo a part of compensation rather than claim it. Therefore, we interpret the WTA estimate as compensation needed if a preference for an attribute was negative and as a willingness to forgo a part of the compensation if a preference was positive. In the discussion section, we elaborate further on the possible causes of negative preferences for compensation.

Class 4 comprises 28.8% of respondents. They have positive preferences for having non-native tree species planted in their forest and are willing to accept a 9.29 €/ha lower annual compensation for every additional 1% of the area being planted. They also expressed positive preferences for allowing someone else to conduct tourism activities in their forest and are willing to forgo 240.20 €/ha of compensation for that annually. A positive and significant ASC is an indication that individuals in this group are in favor of participating in the ES enhancement scheme.

Respondents in class 1 (42.2%) expressed negative preferences towards intensified forest tending and expect to receive 7.80 €/ha in compensation annually for each additional hour/year of tending. They also oppose allowing someone else to perform tourist activities in their forest and expect to receive a compensation of 205.66 €/ ha. They support both types of control systems, as they expressed positive preferences for activity recording and the monitoring of activities' effects. They are willing to forgo 473.74 €/ha/y in compensation if their activities are recorded and 470.50 €/ha/y if monitoring the activities' effects is implemented. Estimates of coefficients from the membership function indicate that those in this class are more likely to be older and to live in urban environments compared to those in class 4. However, a positive and significant ASC indicates that individuals in this group are inclined to be included in the scheme.

Class 2 consists of 15.4% of all respondents. They disapprove of the strict protection of a part of their forest and would like to be compensated 15.62 €/ha/y. Given additional socio-economic characteristics, they are (similar to those in class 1) more likely to be older and live in urban environments compared to those in class 4. In addition, they are less likely to live in the Pohorska, Predalpska, or Preddinarska regions (the geographical locations of these three regions are represented in Appendix C) compared to class 4.

Respondents in class 3 (13.6%) expressed positive preferences towards intensified forest tending and are willing to forgo 19.48 €/ha of compensation annually for providing each additional hour/year of work. They also support the idea that someone else should conduct tourist activities in their forest and are willing to forgo 965.52 €/ha/year in compensation. As the coefficient for yearly compensation in this class is positive and close to the critical significance level of 10% ($p = 0.11$), we also consider WTAs for forest tending and tourism, even though the corresponding WTA coefficients were consequentially insignificant. The ASC value in this class is negative and significant, suggesting that respondents are generally not inclined toward the ES enhancement scheme.

The size of the forest property did not prove to be a significant factor in predicting owners' preferences toward the investigated attributes.

The Delta method used to estimate the standard errors and then the confidence intervals for WTAs not only considers the variances of both the attribute and the cost parameter estimates used for calculating the estimates but also their covariance. The cause of insignificant WTA estimates may be the large variances and covariances of the related parameter estimates.

3.3.2. Protest Responses

We employed a binomial logit model to investigate those who consistently protested the hypothetical scenarios of having to implement additional activities in their forests. There were 42 respondents who always selected the status quo alternative and were subsequentially omitted from the choice analysis as protest responses (i.e., "non-adopters").

The estimates of the model coefficients indicate that non-adopters were more likely to be women, less likely to have owned their forests for a longer period, and less likely to actively manage their forests in terms of logging and supporting ES in the future (Table 8). Moreover, factors such as future intentions, motivation to pass their forest estates on to heirs (e.g., children or other close family members), and carrying out only sanitary felling did not prove to have a significant effect on one being a non-adopter.

Table 8. Results of the logit model estimation of those consistently selecting the status quo alternative (protesters).

	Coeff.	**s.e.**	***p*-Value**
Parameters			
Intercept	−3.974	3.683	0.280

Table 8. *Cont.*

	Coeff.	s.e.	*p*-Value
Gender (female-1)	0.390 **	0.190	0.040
Education [1]	0.082	0.221	0.709
Size of forest estate (hectares)	−0.001	0.001	0.126
Duration of ownership (years)	−0.022 *	0.012	0.080
Future intent to pass on the estate (yes-1)	−0.262	0.255	0.303
Future intent to actively log and to support ES (yes-1)	−0.834 **	0.376	0.026
Future intent to carry out sanitary felling only (yes-1)	−0.418	0.351	0.234
Celje	0.686	0.454	0.130
Nazarje	0.863	0.551	0.117
Ljubljana	0.743 *	0.432	0.085
Brežice	0.540	0.487	0.268
Novo mesto	0.898 *	0.468	0.055
Kočevje	0.858	0.546	0.116
Tolmin	0.840 *	0.455	0.065
Sežana	0.510	0.491	0.307
Maribor	0.741 *	0.449	0.099
Bled	0.739	0.661	0.263
Postojna	1.413 **	0.567	0.043
Murska Sobota	-	-	-
Slovenj Gradec	-	-	-
Kranj	-	-	-
Model summary statistics			
N. of respondents	42		
χ^2	352.263		
McFadden pseudo R^2	0.103		
Log likelihood	−112.400		
AIC	262.800		
BIC	335.605		

Note: estimated coefficients are significantly different from zero at a 10% (*), 5% (**) significance level. [1] 1 = elementary or lower; 2 = professional/high school; 3 = higher education; 4 = university degree or higher.

In an attempt to test whether the location of one's forest estate has an effect, we used information on forest management regions. These regions are used by the SFS for organizational purposes and might serve as a spatial framework for foresters to potentially address non-adopters in the event that such a scheme is to be implemented in the future. Respondents with forest lands in five management regions (Ljubljana, Novo mesto, Tolmin, Maribor, and Postojna) were more likely to refuse such schemes than others. Three variables depicting the locations of forest estates in the management regions of Murska Sobota, Slovenj Gradec, and Kranj were omitted from the model, as there were no or very few protest answers from respondents (2, 0, and 0, respectively) with forests in those areas, and thus the estimation procedure was not possible.

4. Discussion

4.1. Overall Context for Our Study

Private forest owners play a pivotal role in shaping policies related to forestry and sectors closely intertwined with forest-based production, as well as the cultural and regulatory aspects of forest ecosystems. They are often central to the implementation of policy measures and derivative programs or schemes, which is why their support and willingness to participate are critical. This is particularly evident in the European context, where a significant proportion of forest land is privately owned [66]. Some of these private forest owners are small-scale and can even share property ownership. This contrasts with cases where forest lands are predominantly owned by the state, allowing for centrally defined management goals that can be efficiently implemented on a larger scale. Slovenia is a prime example, with most forests (79.7%) in private ownership and a relatively small average property size (2.6 ha).

Attempting to implement changes in forest management without the consent or support of owners can result in poor realization or even resistance to the established system of forestry practice. Notable examples include instances where forest owners expressed reluctance to engage or exhibited non-compliance with conservation measures within the framework of Natura 2000 [67–70]. Similarly, recent opposition from landowners towards the proposed Nature Restoration Law [71] reflects a common theme in nature conservation, which often involves restrictions. These situations emphasize the necessity of involving forest owners in the process of developing alternative policy solutions from the outset.

4.2. Segmentation of Forest Owners Based on Their Preferences towards Suggested Activities

This study is an empirical assessment of the willingness of private forest owners to implement activities in their forests that align with several goals outlined in the EU Forest, Biodiversity and BE Strategies. These activities may entail a deviation from their current forest management practices. By employing a DCE, we have identified distinct segments of forest owners and analyzed their preferences regarding the following actions: conducting additional forest tending, planting non-native tree species, promoting forest tourism, and allowing strict forest protection. What sets our research apart is that these aspects are derived from currently relevant European strategic documents and were thoroughly discussed with domestic experts. Additionally, we investigated forest owners' preferences towards different modes of monitoring these activities and accepting financial compensation. By establishing the heterogeneity of these preferences, we confirmed the second hypothesis set in the introduction section.

The results show that respondents are more familiar with the concept of the BE than ES, and that there is a clearer understanding of the former. This discrepancy suggests that the BE has received greater attention and recognition, likely due to frequent coverage in the media. Conversely, the lower familiarity with the concept of ES highlights a knowledge gap that necessitates targeted educational efforts. Awareness of both concepts is crucial, as forest owners have the potential to effectively contribute to enhancing forest ES while simultaneously advancing forest BE objectives. Additionally, we have identified a correlation between familiarity with ES and the consideration of future adaptations of forest management. This suggests that educating forest owners about ES and their importance in meeting strategic policy goals related to forestry could increase their willingness to engage in forest management proactively. Thus, we confirmed the first hypothesis on the connection between previous knowledge of ES and future management intentions.

Considering the statements about higher quality wood and forest tending, most respondents believe in the potential of wood to replace carbon-intensive building materials and thus further reduce greenhouse gas emissions. However, there are differing opinions on the durability of wood and the impacts of logging on forest ecosystems. Respondents consistently acknowledge the positive impact of forest tending on wood quality and support the use of wood in long-lived, high-quality products. Nevertheless, for years, there has been little realization of tending (weed removal, thinning in younger and later developmental

phases) in Slovenia. In 2022, less than half (47%) of the annually planned tending (in terms of area) set in the forest management plans was completed. In the last decade, except for 2013, the realization rate was even lower, falling below one-third (29%) in 2019 [18–20]. This is also in line with the findings of our DCE, where a considerable proportion of respondents (class 1, 42.2%) expressed negative preferences towards an increased level of forest tending. Notably, this group of respondents is more likely to be older and reside in urban environments. Conversely, 13.6% of respondents who are class 3 expressed positive preferences for forest tending. In a study of different forest management activities in five EU countries, including Slovenia, Westin et al. [72] found that younger respondents were more active in several management activities, including thinning, which supports our conclusions for class 1. Further supporting our results, they also found that Slovenian forest owners, together with their Finnish and German counterparts, were less active in thinning than Swedish and Austrian respondents. Vehola et al. [73] investigated forest owners' preferences for different climate change mitigation strategies and found that supporting the production of long-lived and lower-emission wood products, together with the so-called "adaptation strategy", garnered the most support. Conversely, Juutinen et al. [33], who examined the preferences of small-scale forest owners towards contract-based management, found that respondents expected higher compensation for timber-oriented management strategies than for nature-oriented strategies.

The introduction of non-native tree species for improving resilience against biotic and abiotic factors is one of several options for adapting to climate change and increasing the economic viability of forests in Slovenia. In fact, a recent study [74,75] showed that several non-native tree species, such as Douglas fir, white pine, and northern red oak, which are already present in extremely small proportions in the growing stock, could be introduced in some areas to increase the resilience of forests. Douglas fir stands out as an alternative to the widely prevalent and economically important Norway spruce. Douglas fir has shown greater resistance to sleet, drought, and bark beetle infestation, especially following large-scale damage from 2014 onwards. While our survey respondents generally support the idea of promoting tree species diversity to improve resilience, they are less likely to agree on the potential threats posed by non-native species and their contributions in terms of economic and adaptive capacity to extreme events. In addition, differing views emerged regarding the importance of climate change adaptation relative to other challenges faced by forestry in Slovenia. Non-native tree species are one of the most contentious and emotionally charged topics in European forestry [76]. Only respondents in class 4 of the DCE model, comprising just under a third of all respondents, expressed positive preferences for non-native tree species. A separate question also revealed a prevailing aversion to non-native tree species, with 67% of respondents unwilling to plant them in their forests. This is in line with Breznikar et al. [77], who stated that the focus has primarily been on detecting non-native tree species and preventing their spread in Slovenia rather than on their active planting. This stems from the widespread awareness of the negative consequences these species can have on biodiversity. Similarly, Đodan et al. [78] noted that public perception of non-native tree species in Croatia is often negative. A DCE survey of preferences for structural attributes of forests in Germany indicated that respondents did not support halving or doubling the proportion of non-native tree species [79]. However, Breznikar et al. [50] stress the need to foster knowledge among foresters and forest owners regarding the deliberate introduction of non-native tree species in small proportions into Slovenian forests based on habitat considerations. Such small-scale plantings, while considering the associated risks, have the potential to increase forest production, stand stability, and biodiversity [80,81].

Responses to statements concerning forest tourism underscore the need for consistent involvement of forest owners in the development of forest tourism. Given the divided opinions on the potential impact of forest tourism on limiting recreational space for local residents, cooperation between forest owners, the tourism sector, and local communities is essential. This is in line with Weiss et al. [82], who assert that fostering collaboration between the forestry and nature-based tourism sectors is necessary to facilitate the develop-

ment of service innovations. The DCE results show that respondents in the largest class, class 1, would not permit someone else to engage in tourism activities in their forest. This may imply that they prefer to be more actively involved in the conduct of such activities themselves, although the attribute reflecting this preference is not significant. It is more likely that forest owners in class 1 neither wish to engage in tourist activities themselves nor would allow others to do so. This is further supported by the results of one of the questions in the questionnaire, which revealed that as many as half of the respondents would not be willing to dedicate their forest to organized tourism activities. This reluctance might also be related to the fact that there is almost no tradition of private forest owners leasing their forest lands for tourism in Slovenia. This can be attributed to several factors: (1) a lack of a clear regulatory framework for such activities defining the owner's jurisdictions, (2) concerns about losing control over property rights, and (3) restrictions related to nature protection [83]. Indirectly related to the first point, the Forest Act [84] requires forest owners to allow public access, which limits possibilities for commercially practicing forest tourism (e.g., fencing). Moreover, leasing for hunting is not possible, although there may be potential for some other activities, depending on property size. According to Vilhar [83], activities that could be further developed and implemented include cycling tours, adventure parks, forest pedagogics, guided mushroom picking, observations of large carnivores, forest wellness programs, and glamping facilities. These activities could be managed by the owner or by someone else, but some kind of contractual agreement would be needed. Pierce and Rodgers [85] describe ownership as a phenomenon that includes legal aspects and a "feeling of ownership" or psychological ownership. Individuals who experience psychological ownership of forests often feel a strong emotional connection and a desire to manage the forest according to their own values and interests. This emotional connection may contribute to the disapproval of any form of tourism on the owner's property. A survey of private forest owners in Finland, where forest tourism is common [32], found considerable opposition to the intensification of tourism in private forests. Matilainen and Laehdesmaeki [86] pointed out that in Finland, owners who host tourists on their properties typically do not benefit significantly, or, in cases where compensation is provided, it is much lower than if they were to participate in one of the biodiversity conservation payment schemes. Respondents in classes 3 and 4 (comprising 42.4% of the total) would allow someone else to conduct tourism activities in their forest. This may indicate that they perceive tourism on their property as beneficial but may lack confidence or knowledge about such activities or may not have the time to engage in them.

The state of biodiversity of forest habitats in Slovenia is unfavorable. According to periodic reporting (Art. 17. of the Habitats Directive), which Member States are required to carry out every six years [87], only 4 out of 17 forest habitat types in Slovenia exhibit a favorable state of biodiversity [88], with the rest exhibiting an unfavorable state. This indicates a critical state of forest habitats and calls for additional efforts to preserve biodiversity. The analysis of respondent perspectives on biodiversity reveals a strong consensus and unity regarding the key role of biodiversity in maintaining a stable and resilient ecosystem. Similarly, Tryvainen et al. [32] found strong agreement among forest owners that biodiversity should be protected. Our results also show a fairly strong consensus that biodiversity can be protected through multifunctional forest management, a practice traditionally observed in Slovenia. Joa and Schraml [89] reported similar findings, with over half of the respondents stating that it is possible to harvest and preserve biodiversity in the forest simultaneously. These results underscore the importance of forest owners' cooperation and involvement in biodiversity-related decision-making. Respondents in class 1 of the DCE opposed the strict protection of a portion of their forest. These respondents are likely to be older and to reside in urban environments. The first observation aligns with findings from previous studies that indicate that younger forest owners are more likely to embrace biodiversity conservation practices [89]. However, in contrast to our results, although not directly comparable, several studies have reported that respondents do not expect compensation in return for implementing conservation measures on their property [17,89,90].

In the DCE, respondents were presented with two options for controlling the actions taken (forest tending, planting non-native species, strict forest protection, and forest tourism). Only in class 1, representing 42.2% of the respondents, did preferences for "Activity recording" and "Activity effects check" prove to be significant, with forest owners supporting both options. Similarly, Tryvainen et al. [32] found that approximately two-thirds of surveyed forest owners in Finland supported recording their activities and monitoring using remote sensing, with only slightly fewer owners supporting field monitoring by an officer. Šumrada et al. [27] found that farmers have a clear preference for results-based schemes compared to management-based schemes. The former focuses on the actual effects of implemented actions, while the latter only involves recording activities. Ruto and Garrod [91] indicated several studies showing that farmers are less willing to participate in schemes with excessive bureaucracy. On the other hand, Niskanen et al. [92] found that Finnish farmers prefer management-based schemes, likely due to the difficulty of defining transparent results-based indicators, while Vedel et al. [24] noted that owners are more likely to accept monitoring of their activities if the payments offered are high.

4.3. Higher Financial Compensation May Not Always Be Preferred

A closer examination of the estimation of the DCE model reveals an interesting and somewhat unexpected outcome—negative preferences for compensation payments in classes 1 and 2. This indicates that respondents in these two classes were inclined to select alternatives offering lower amounts of financial compensation for engaging in the suggested activities. This may seem counterintuitive, as one would typically expect higher payments to be favored. However, such cases are not as rare as one might assume.

Empirical evidence has shown that there are multiple ways in which payment schemes may not be as effective as expected [93–95]. Factors such as payment amount, type (e.g., area-based, production-related, coupled payments), and the entity responsible for designing and implementing schemes can influence the preferences of payment recipients (farmers, forest owners, and land managers), leading some to seek lower payments or even to opt out [14,90,96]. For instance, Home et al. [14] found that some landowners of Swiss lowland farms may prioritize ecological conservation practices over financial incentives, even being willing to forgo some profit. In the context of forestry, Quiroga et al. [90] indicated a low affinity for subsidies in their survey of European private forest owners. This aligns with the findings of Sarvašová et al. [96], who analyzed the uptake of Natura 2000 payments based on national-level statistics for the period 2007–2013. They revealed that financial incentives reached less than one-third of forest holdings and less than half of forest land. Both studies highlighted key reasons such as bureaucracy, uncertainty, concerns about losing control over one's estate, and prohibitive management practices. These findings suggest that forest owners may not consistently behave as rational economic actors, focusing solely on utility maximization [97]. Instead, some may support nature conservation by accepting payments below the opportunity costs of using their land [98].

Thus, there are obvious cases where introducing (potential or actual) financial incentives for land management aimed at enhancing ES might either bolster or erode intrinsic motivators [99], e.g., personal satisfaction and interest [100], which could otherwise support ES. Therefore, financial incentives can act as extrinsic triggers, causing a shift in one's willingness to engage in a desired action by interacting with his/her pre-existing intrinsic motivations. This shift can also be negative, resulting in reduced acceptance of incentives for the proposed actions, a phenomenon known as "motivation crowding out" [93,101,102] (see [94] for a comprehensive overview of previous studies and the conceptual underpinnings of crowding out). It is worth noting that the impact of incentives is not consistent, and there is also evidence suggesting that crowding out is context-dependent [103].

Among studies that support the idea of crowding out is Kaczan et al. [104], who found heterogeneity among farmers, as those born in non-rural areas with larger estates were more likely to exhibit crowding out within individual payment schemes. On the other hand, Chervier et al. [105] investigated potential changes after the payments ended

and found that crowding out at that point is very likely, particularly in terms of violating the rules of the scheme afterward. Kolinjivadi et al. [106] highlighted concerns about the possible disruption of the common duty to maintain irrigation canals in pilot areas if payment for this was introduced. This indicates a substantial risk of crowding out when collective norms are not considered. The referenced studies partly support our findings, as respondents in classes 1 and 2 of the DCE, which exhibited negative preferences for compensation (and several proposed activities: forest tending, strict protection of forests, and one forest tourism option), are also more likely to reside in urban areas rather than rural environments. In both classes, older respondents are more likely to be present, and since older people usually appreciate community-driven behavior to a greater extent, this might relate to the findings of Kolinjivadi et al. [106] regarding the collective norms and negative preferences for compensation payments in our DCE.

What exactly might landowners relate to compensation payments that would cause such alterations in motivation and inherently trigger reluctance towards higher compensation? Several possibilities are conceivable [90,96]. One might be perceived as a risk of losing autonomy in forest management. Deci [107] (p. 232) describes autonomy as the perception of how much we believe we control our behavior and that an external reward for performing an intrinsically motivated task could decrease those motivations if it erodes one's sense of autonomy. This could help explain why respondents in classes 1 and 2 were reluctant to accept higher compensation—they might relate a stronger commitment to the scheme and a subsequent loss of autonomy in managing their forests. This issue was highlighted in the case of Natura 2000 payments [108], where forest owners from Austria, France, and Germany generally expressed concerns that Natura 2000 contractual agreements might affect their property rights and limit the profitability of forest management. Another aspect of behavior that relates to the issue mentioned above of autonomy could be the concern that compensation payments might affect one's level of taxation. Rode et al. [93] suggested that taxation is something that could trigger crowding out; however, its effect would depend on the context and population being studied in terms of pre-existing attitudes towards taxation. In Slovenia, this could be relevant, as there are concerns, especially among farmers, that additional income from subsidies might increase their annual income tax. The third reason for reluctance towards higher payments could be bureaucracy. Geitzenauer et al. [109] interviewed representatives from six EU countries, where those from Spain and the Netherlands stated that Natura 2000 measures would otherwise be good if it were not for the bureaucracy, and this causes reluctance among liable beneficiaries of funds.

Individuals in classes 1 and 2 expressed negative preferences towards several suggested activities, aside from compensation payments, that would require their active involvement. This is partly substantiated by their endorsement of both forms of control mechanisms (activity recording and checking the activity's effect) that do not demand a significant amount of their effort. When additional characteristics of respondents were introduced into the DCE model to link these negative preferences to socio-economic aspects, it became evident that age and living environment both appear to be important. Those in classes 1 and 2 are more likely to be older than those in the reference class, and they are also more likely to reside in urban areas as opposed to a rural setting. Moreover, respondents in class 1 expressed negative preferences for intensifying forest tending and allowing tourism activities to be conducted by others, while those from class 2 are hesitant about having their forest protected as a strict reserve. Thus, respondents from both classes (57.6% of all respondents) share a negative attitude towards implementing several activities, which is not the case in classes 3 and 4 and indicates a relatively passive stance in the context of changing forest management to contribute to forest-related EU strategic goals. However, a positive and significant coefficient for ASC in class 1 indicates a certain inclination for a scheme, perhaps just not with those actions we proposed. This may support our interpretation of possible crowding out caused by a compensation payment or even by the fact that owners reject actions that depend upon their active involvement. The effect of compensation could

originate from their motivation for social desirability, wherein they provide public goods for free or perhaps in exchange for a non-monetary incentive.

Passive forest owners often exhibit reluctance when responding to policy incentives, making it challenging to engage them more actively in forest management, even with financial incentives. A very comprehensive review of private forest owner typologies is provided by Ficko et al. [110], where passiveness is one of the key owner profiles. This issue is central in forestry and is reflected extensively in research on the challenges posed by passive forest owners, which includes considerations of their age [110–115].

In some cases, the percentage of passive forest owners can be discouragingly high. Pezdevšek Malovrh et al. [111] suggest that the segment of passive forest owners is significant in Slovenia, reaching levels as high as over 30%, while Ščap et al. [116] report that almost a quarter (23%) have no intentions for regular logging. Recently, Matilainen and Lahdesmaki [114] revealed that the share of passive forest owners in Finland is even larger, with 35% identified as totally passive, while an additional 12% and 16% exhibit passiveness specifically in terms of timber sales and forest management, respectively.

Another outcome of our study related to the age of forest owners pertains to responses regarding suggested alternatives for future forest management. The data indicate a decline in motivation for active and sustainable forest management (Table 9) ("I plan to log timber and strengthen other ES") as we move from the second age class to the other three. This highlights how an aging population of forest owners can impede the pursuit of the goal of more active forest management in Europe. This is crucial not only for ensuring a sustainable supply of raw wood but also for maintaining the distribution of forest development stages and enhancing resilience against pests and diseases.

Table 9. Distribution of responses (n = 299) of interviewed forest owners regarding their future forest management intentions, according to their age.

	Age Class of the Forest Owner (Respondent) [in Years]				
	≤29	30–44.9	45–59.9	60–74.9	≥75
What does the forest owner intend to do with his/her forest land in future?					
I plan to pass the forest on to my child/family members	75%	38%	40%	60%	72%
I plan to sell my forest land on the real estate market	0%	9%	7%	4%	3%
I plan to allow my forest to develop naturally and will not manage it	0%	3%	10%	4%	0%
I plan to log timber intensively	0%	3%	27%	1%	0%
I plan to log timber and strengthen other ES	25%	38%	16%	16%	19%
I plan to carry out only mandatory actions directed by the forest service	0%	9%	0%	15%	6%
Sum of responses	100%	100%	100%	100%	100%
No. of responses from the entire sample (n = 299)	3%	11%	27%	47%	12%

Considering class 3 of the DCE model, where respondents expressed a positive inclination to conduct more forest tending (indicating a proactive attitude) and are also tentatively more likely to be younger (although not statistically significant, with a p-value of 0.11), it might be reasonable to conclude that the transfer of forest estates from older owners to their younger heirs could contribute to the greater production of high-quality timber in the future. This is also in line with previous research [111], where timber production is the most preferred management objective of active and multi-objective forest owners in Slovenia, who are predominantly younger. Again, an additional question (Table 9) allowed us to investigate this in more detail by looking at the tendency of forest owners to pass on their forest land. Excluding the initial age class, which is underrepresented (comprising only

3% of the entire sample), we noticed a pattern of increasing motivation to transfer forest land with advancing age. This is not novel, as numerous studies have investigated the relationship between forest owner age and the intergenerational transfer of forest estates.

The issue of intergenerational transfer is not new, as Weigel et al. [117] already noted that older generations of landowners are concerned with the transfer of the estate to younger heirs. However, more recently, Creighton et al. [118] observed that not many of the sampled U.S. forest owners had taken the necessary steps to facilitate a successful transfer. Successful intergenerational transfer is key to the continuity of succession, which can foster a common, familial perspective of forest management. This was also emphasized by Majumdar et al. [119], who highlighted that those who have inherited forest estates are more likely to be strongly motivated to own their land, actively manage it, and pass it on to their heirs. A comprehensive survey of family forest owners in the U.S. supports this, revealing that inheritors were more likely to harvest wood, engage in reforestation, and collect non-wood forest products. Additionally, having no successors might be detrimental, as Onda et al. [115] found that older small-scale private forest owners in two study regions in Japan had very low motivation and unambitious future intentions for forest management if they had no successors. Two additional considerations are that the objectives of owning a forest might shift with a new generation taking over [120], and the transfer of ownership depends on the heirs' willingness to accept forest ownership [121–123].

Living in urban areas, as opposed to rural environments, is an additional socio-economic aspect that might be related to the passive stance of respondents in classes 1 and 2. Matilainen and Lanhdesmaki [114] provide a comprehensive review of how passive forest management behavior is linked to a growing proportion of owners living in urban areas. Similarly, Schraml [124], in his study of German forest owners, clearly indicates that urban forest owners resemble non-owners in terms of their attitude towards forest use, prioritizing non-material benefits. This phenomenon is partially linked to so-called absentee forest owners (non-resident, urban, non-traditional), those who do not reside near their forest estates, and, as Weiss et al. [125] pointed out, their number is growing. In one of her previous studies, Matilainen [126] (p. 42) defined indifferent forest owners as one of four distinct groups commonly characterized by not being locally present and becoming increasingly detached from their forests. Consequently, they lack a strong connection to their forests and possess very limited knowledge about their forests. This detachment contributes to their passiveness.

4.4. Effects of Forest Property Size and Regional Ecological Conditions

In the previous sections, we discussed the connection between age and living environment and their influence on preferences for various activities. However, we also investigated two additional aspects. Firstly, the size of forest property did not appear to affect forest owners' preferences in any significant way. Previous studies have provided conflicting indications on this matter [17,127–130], prompting our examination.

Secondly, we sought to determine if the locations of forest properties in one of seven ecological regions [131] had any bearing on preferences. Ecological regions are defined based on ecological conditions, and we aimed to ascertain whether the distribution of respondents owning ecologically similar forest types coincided with their preferences towards suggested activities. Our findings did not yield a clear indication of such a connection, apart from the fact that respondents in class 2 were less likely to have their estates in three out of seven ecological regions.

4.5. Some Forest Owners Consistently Reject the Option of Enrollment

One-eighth (12.3%) of all respondents unequivocally declined to choose either of the two options presented in the DCE that represented altered forest management. A detailed analysis of non-adopters revealed that they were more likely to be women, shorter-term forest owners, and less likely to actively manage their forest in terms of logging and supporting ES in the future. If there is an intention to design such schemes in Slovenia, a

proactive approach to attract owners should be taken, especially those who have recently become owners, as they are more likely to be non-adopters. Given the previously discussed aging population of forest owners and their intention to pass on their estates, this aspect should be taken into consideration. Newer owners may not share the same values of forest ownership with their predecessors (e.g., parents or grandparents) [132]. Furthermore, those who are not actively engaged in forest management constitute a perpetual segment of forest owners in Slovenia [48,111]. Reaching out to this group is crucial to enhance their willingness to participate in enrollment schemes. It is reasonable to assume that such owners would be less inclined to adopt a scheme of altered management.

4.6. Limitations of the Study and Future Research Needs

One of the key preconditions for successful ES enhancement initiatives is the involvement of landowners who are willing to manage forests actively in a close partnership, aligning their expectations and activities with policy goals. We examined forest owners' preferences regarding several aspects of forest management where they would be required to implement additional activities on their land in exchange for financial compensation. The results of the estimated model revealed that nearly half of the respondents (42.4%; classes 3 and 4) exhibit a positive stance towards several suggested activities, whereas the rest (57.6%; classes 1 and 2) expressed some reluctance to engage in these activities and towards higher compensation payments. A significant proportion of Slovenian private forest owners exhibit passive behavior in terms of forest management, as has been previously highlighted by Pezdevšek Malovrh [48], Pezdevšek Malovrh et al. [111], and the SFS [20], who reported low realization rates of management activities. This implies the need for more in-depth research into the factors and psychological mechanisms that drive such behavior, particularly in the context of compensation payments. While we attempted to explain such behavior in the context of crowding out, it is worth noting that studies on this phenomenon have primarily been conducted outside of Europe, under different socio-cultural conditions, which limits the scope of our interpretation. Several authors [93,94,106,110] emphasize that such behavior is very context-specific and that its origins extend beyond the factors we investigated (age, future management intentions, living environment, etc.). We did not collect data that would facilitate the investigation of absentee forest owners, which is related to passiveness and remains a future research need. It can be influenced by political history, the evolution of ownership types (private, commons, public, etc.), the integration of sustainability into the psychological dimensions of ownership, social and cultural norms related to financial incentives, social conflicts, and trust in leaders [17,94,133]. Trust, in particular, is important in the Slovenian context, where recent amendments to Natura 2000 measures triggered frustration, skepticism, and resistance among farmers due to concerns that the implementation process was top-down and based almost entirely on ecology-based scientific premises. The government needed to intervene and modify the preconditions of the measures [134,135]. Alphandéry et al. [136] identified similar factors in the opposition among foresters, farmers, and hunters in France regarding the implementation of Natura 2000. According to Kati et al. [15], disregarding local stakeholder perspectives, particularly their underlying negative attitudes, can impede well-informed policy decisions, as was the case in Slovenia. Therefore, more research is required to develop context-specific approaches for designing ES enhancement schemes to minimize the risk of landowner opposition.

It is important to highlight that our sample was representative according to gender proportion and the spatial distribution of owners and was almost entirely representative of the age structure, but not according to property size. Small forest owners were underrepresented, while larger ones were overrepresented. This might introduce bias. However, previous studies [17,127–130] have yielded divergent conclusions regarding the impact of property size on owner preferences, making it challenging to draw definitive conclusions on this issue.

Our research has provided insights into forest owners' willingness to implement suggested activities for enhancing ES. A central future need is to assess the potential effects of these activities once they are implemented. This can be achieved by examining the characteristics of respondents from classes 3 and 4, such as the location and size of their estates, their current management practices, and their level of forestry-related knowledge in relation to their preferences towards the proposed activities.

Finally, initiatives aimed at enhancing the provision of ES by forest owners represent one aspect of the equation. Equally important is investigating the needs of society for ES, assessing the acceptability of financial incentives in the cultural context, and understanding the position of policymakers. Achieving a balance between all these elements is key to creating a partnership between providers, users, and intermediaries of forest ES.

5. Conclusions

This study is relevant for policymaking as it presents an initial analysis of stakeholders' preferences concerning a hypothetical forest ES enhancement scheme. Consequently, it provides valuable insights into the potential implementation of a novel payment-supported incentive approach for forest owners, establishing a preliminary framework for gauging their willingness to engage and their preferences and dislikes.

The results derived from respondents' agreement with statements on various forestry aspects underscore the importance of collaboratively defining the goals of an ES enhancement scheme with forest owners, particularly regarding forest tourism and biodiversity protection. When including non-native tree species in such schemes, it is important to consider differences in acceptance among forest owners and to ensure that they are sufficiently informed about the advantages and disadvantages.

Our DCE has indicated significant heterogeneity among forest owners. This demands careful consideration, especially in terms of prioritizing financial efforts in areas where the effects of the scheme are expected to yield the greatest increase in the supply of forest ES. This calls for connecting the positive preferences of a part of the sample with the still unutilized potential of the investigated ES. In this respect, it is imperative not to overlook the negative preferences of a portion of respondents, which can be addressed through various mechanisms, including the integration of plural values through non-monetary incentives. Thus, it is important to consider the scheme's context by recognizing existing intrinsic motives and social norms. This also extends to political history, the genesis of private ownership, social conflicts, and trust issues.

Furthermore, it is worth noting the existence of a segment of respondents identified as non-adopters, although their numbers are relatively small (12.3% of the initial sample). Nevertheless, there are few clear indications pointing to the socio-economic characteristics that might be attributed to this group. Spatially, they seem to be more concentrated in 5 out of 14 forest management units, making these areas potential priorities for efforts aimed at reducing the percentage of non-adopters.

Finally, it seems that previous knowledge of ES can be related to a willingness to adapt forest management so that it would enhance the provision of the investigated ES. This may imply that the systematic education of forest owners can increase their engagement in meeting forest-related EU policy goals.

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Appendix A. Description of Attributes Used in the DCE

"Forest tending" refers to the time spent by the forest owner her/himself on forest tending per hectare. Forest tending creates the conditions for full-grown trunks with few branches and thus results in higher-quality forest wood products. The average annual volume of tending in Slovenian private forests amounts to 7 h/ha/year (early thinning and weed removal in young growth to control tree species composition and later thinning with positive tree selection for higher trunk quality), although forest management plans foresee a volume of approximately 34 h/ha/year [20]. A level of 20 h/ha/year in between the current and planned levels was added. Additional resources could be used to encourage forest owners to increase the level of tending and the quality of their wood products, which could increase income. Simultaneously, wood products have the potential to sequester carbon for extended periods, thereby aiding in the mitigation of climate change.

The three figures below illustrate the results of different scales of tending performed (a, b, c).

(**a**) 7 h/ha/year (**b**) 20 h/ha/year (**c**) 34 h/ha/year

Figure A1. Different levels of forest tending used in the DCE.

"Non-native tree species" represents the proportion of the area of newly planted non-native tree species on the forest property. Currently, the proportion of these species in Slovenian forests is negligible (less than 1%, according to SFS [20]). An additional financial incentive could be used to encourage owners to plant non-native tree species (5% or 15% of the forest estate area) to increase the resilience of forests. These additional levels were determined through consultations with several forestry experts (described in the experimental design section) and are feasible levels of non-native tree species introduction.

The three figures below illustrate the results of different levels of non-native tree species planting (a, b, c).

(**a**) 0.4% (**b**) 5% (**c**) 20%

Figure A2. Different extents of planting of non-native tree species used in the DCE.

For implementing "Forest tourism" in Slovenia, there is currently no transparent legislation on how to accommodate agreements between relevant parties (forest owners, entrepreneurs in tourism, . . .). This attribute assumes two different possibilities for improving this situation. The first is that the owner carries out tourism activities in his/her forest (e.g., guiding on thematic paths, meditation, glamping) and receives monetary compensation for his/her activities, either for the maintenance of the necessary infrastructure in the forest or for education. The other is that the owner allows someone else to carry out activities in his/her forest (e.g., a tourism company) and receives monetary compensation.

The three figures below illustrate possible forest tourism options (a, b, c).

(**a**) unregulated (**b**) forest owner is engaged in tourism (**c**) somebody else is engaged in tourism

Figure A3. Different options for implementing forest tourism used in the DCE.

"Strictly protected forests" is the proportion of forest property owners would set aside for natural development to enhance biodiversity. According to the SFS [20], forest reserves currently make up less than 1% of the area of privately owned forests in Slovenia. Financial incentives could be used to encourage owners to protect a part (either 5% or 20%) of their forest that they would not actively manage. Two additional levels of this attribute were determined through consultations with several forestry specialists (described in the experimental design section).

The three figures below illustrate the proportion of strictly protected forests (a, b, c).

(**a**) 0.3% (**b**) 5% (**c**) 20%

Figure A4. Different extents of strictly protected forests used in the DCE.

"Control" refers to the approach used to verify the performance of the above activities if the owner decides to enter the scheme. There are two primary control methods: In the "Recording" method, the owner is responsible for recording his/her activities and reporting them to the forestry service. In the "Activity Effects Check" method, periodic visits by an expert supervisor are conducted. During these field visits, the effects of the activities, such as additional tending, areas planted with non-native species, forest tourism activities, and strict forest protection, are assessed.

The three figures below illustrate the possibilities for controlling the activities undertaken (a, b, c).

(**a**) no control system (**b**) activity recording (**c**) activity effects check

Figure A5. Different options for controlling the activities implemented in the scheme, which were used for the DCE.

"Yearly Compensation" spans seven discrete values ranging from 0 to 900 EUR/ha/year. Values except for zero represent the amount of money an individual private forest owner would receive for implementing the management scheme represented with a hypothetical combination of attribute levels. Zero compensation is assigned to the status quo alternative, which pertains to the continuation of unchanged forest management. Values were determined through consultations with several specialists in forestry, the bioeconomy, and biodiversity protection (described in the experimental design section).

Appendix B. Illustration of a Representative Choice Set Used in the DCE

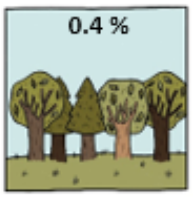
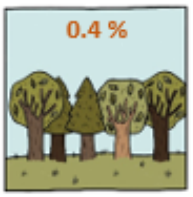
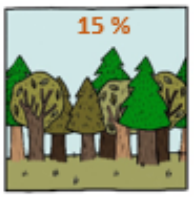
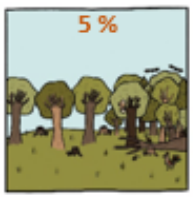
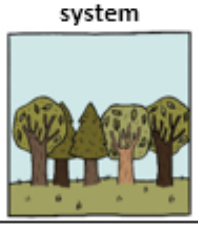
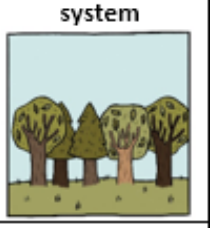
	Wirhout additional activities	With additional activities	
	Status quo	Option A	Option B
FOREST TENDING	7 hours/ha/year 	20 hours/ha/year 	7 hours/ha/year 
NON-NATIVE TREE SPECIES	0.4 % 	0.4 % 	15 % 
FOREST TOURISM	Unregulated 	Unregulated 	Forest owner is engaged in tourism 
STRICTLY PROTECTED FOREST	0.3 % 	5 % 	20 % 
CONTROL	No control system 	Activity effects check 	No control system 
YEARLY COMPENSATION	*0 €*	150 €	900 €
CHOICE			

Figure A6. A representative choice set used in the DCE.

Appendix C. Geographical Location of Eco-Regions and of Forest Management Units

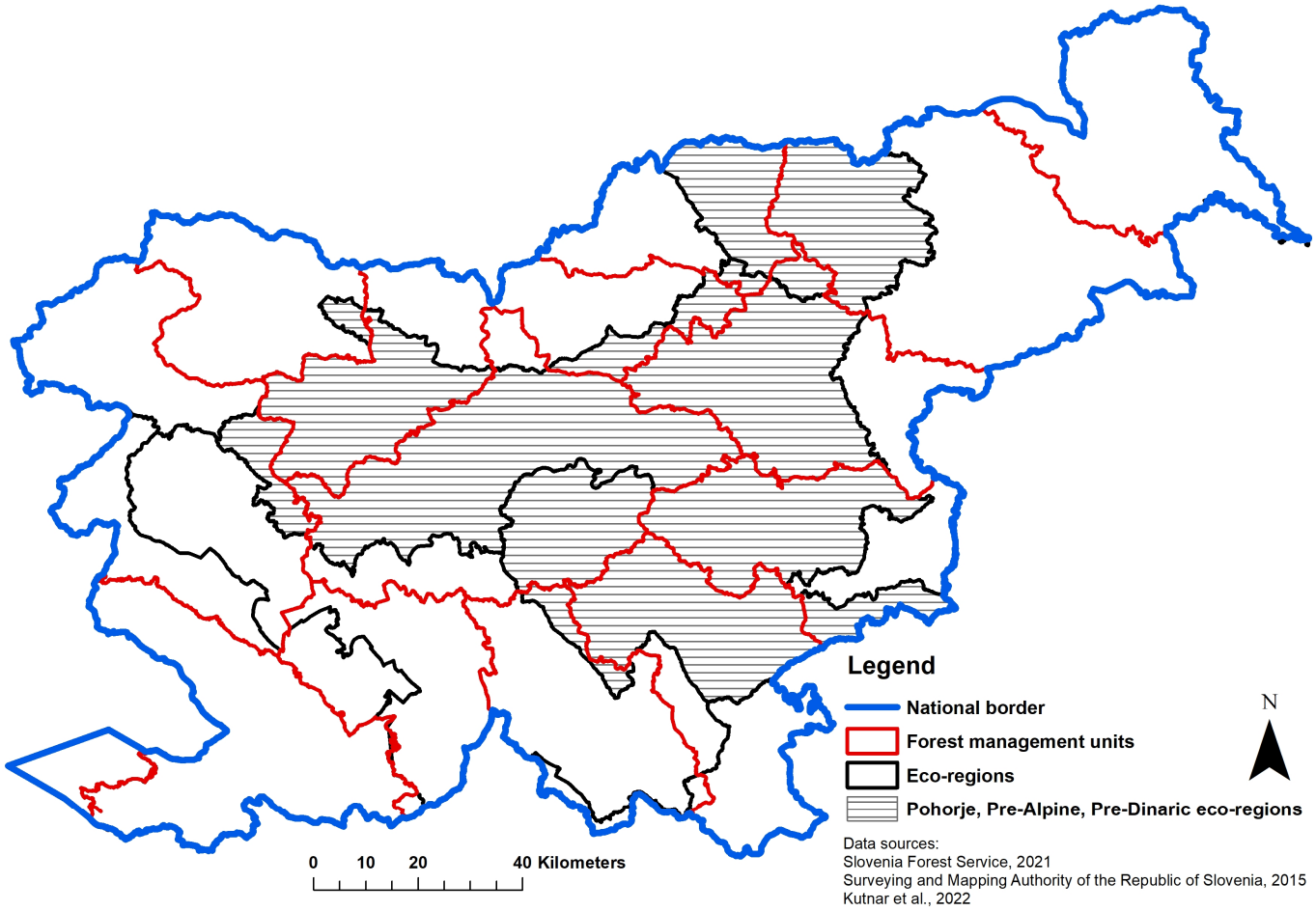


Figure A7. Geographical location of forest management units [137], eco-regions [131] and the national border [138].

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