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Executive Summary

This task of the EUFORE project aims to understand the future demands on European forests by analyzing the expectations and perceptions of the general public regarding forests, forestry and the forest-based sector. This report provides a snapshot of European public perception and demand by surveying 27 EU countries; in chapter 3, we present and discuss the results of this survey. Chapter 3.1 uses the ecosystem service framework to address perceived importance of different forest ecosystem services (FES) for Europeans at various sociopsychological and temporal scales. Chapter 3.2 explores and discusses certain salient FES, namely carbon storage, biodiversity, recreational opportunities, and wood production preferences, at various spatial scales. Chapter 3.3 presents results regarding prioritization between these four particular FES. Chapter 3.4 reports European public perception of the forest-based sector and wood use.

People across Europe care about the provision of multiple FES, having more emphasis on cultural and regulating services than provisioning services. For some FES, people across Europe have a different perception when they take a societal perspective than when they reflect on their own perspective; these FES are often provisioning services. Europeans believe that all FES will become more important in the future than today. Asking respondents to prioritize carbon storage, biodiversity, wood provision and recreational opportunities in EU policies revealed that they consider all of them very important. Europeans tend to agree, on average, that wood utilization in buildings should increase and that it has an advantage over other materials. Europeans, on average, have a slight negative perception of bioenergy in terms of its role in solving the climate crisis while they have a positive perception of afforestation as a tool to mitigate climate change. There is large heterogeneity observed within countries and between countries of whether wood production is believed to be done in a way that simultaneously protects the environment.

Decision-makers should consider the diverse preferences attributed to various FES by Europeans when formulating forest-related policies. Overall, the findings of this survey provide valuable insights into European society's expectations and perceptions of forests.

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Acronyms and abbreviations

EU: European Union

FES: Forest Ecosystem Services

IQR: Interquartile Range

NUTS: Nomenclature of Territorial Units for Statistics

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1. Introduction

The aim of this task is to analyse the anticipated future demands on European forests. While many stakeholders significantly impact decision making in forestry, ultimately, citizens elect politicians and are hence the final beneficiaries of forests and forest management. Therefore, this task's objective is to elicit European society's expectations towards and perceptions of forests and the forest-based sector.

As such, the target population is the general public of the European Union (EU). Expectations and perceptions of specific stakeholders forest industry and companies) are analyzed elsewhere in the EUFORE project.

As a conceptual frame for analysis, the survey employs the ecosystem service framework. Hence, this approach is explicitly and by nature anthropocentric, which is in line with asking people their perceptions. However, there are questions that allow for elicitation of non-anthropocentric preferences.

Forests provide many services to humans ranging from marketed to non-marketed goods, and consumptive to non-consumptive. Expectations and perceptions for marketed goods (mainly timber and biomass for bioenergy) are largely reflected in the market price and hence should be factored in for rational decision making in forestry. This is not the case for non-marketed goods (some non-timber forest products, recreation, carbon storage, water provision, erosion protection, biodiversity conservation, etc.) whose provision may nevertheless also be highly dependent on forest management.

Theoretically, the demand and hence value of ecosystem services is derived from their final value to people rather than the process of their production. For example, the general public may not necessarily be aware of or interested in the nuances of forest management that shape aesthetic appearance of the forest; of importance is the visual appeal of the forest itself. Hence, this approach only implicitly relates to forest management through its impact on natural capital provision. Therefore, our focus lies on highlighting the products and services offered by forests, rather than delving into the specifics of forest management. Moreover, given that the target population consists primarily of non-experts, it is presumed that respondents will not possess extensive knowledge about forest management practices.

This is not the first study looking into citizens' preferences for forest ecosystem services (FES) and forest management (Rametsteiner & Kraxner, 2003). However, to inform on the future demand, we identified three gaps in the literature for understanding the expectations and perceptions towards the forests and the forest-based sector.

First, we found that most studies ask for individuals' rankings, ratings or valuation of ecosystem service importance (Campbell et al., 2014; Edwards et al., 2012; Winkel et al., 2022). However, people may have a dual set of preferences, depending on whether they look at what they themselves prefer for their own well-being and what they prefer at societal level – sometimes referred to as homo economicus vs homo politico (Nyborg, 2000). In order to address multiple preference orderings, we have asked about the importance of forests at different sociopsychological levels, i.e. from individual and collective (i.e. societal) perspectives. Furthermore, at the societal level, we have framed the questions to elicit current and future importance of forest ecosystem services as the aim of the EUFORE project is to address forests under changing economic, social, and environmental conditions.

Second, the rating of different ecosystem services has been done before both in a selection of forest-rich countries and across Europe respectively (e.g., Ranacher et al., 2017; Winkel et al., 2022) typically with focus on the most visited forest, or a specific forest. To our knowledge, no studies have investigated the importance of where forest ecosystem services are provided, e.g., locally, nationally, and within the EU. The spatial element of where forest ecosystem services are provided is of large importance for multilevel governance in European forest-related policy. It plays into the debate of geopolitical coordination in both sub- and supranational scales, land sparing versus land sharing, and includes aspects of carbon and land-use leakage.

Third, certain studies specifically address the societal perceptions of the forest industry (Rametsteiner et al., 2007). Some delve more specifically into beliefs around the use of wood in construction (Kylkilahti et al., 2020; Petruch & Walcher, 2021; Roos et al., 2023; Viholainen et al., 2020) while a recent Danish study explored how the public views the use of woody biomass for energy (Ugarte Lucas et al., 2023). Other studies have also addressed public perception of the forest bioeconomy in several countries across Europe, looking into perception of individual attributes of forest materials and addressing the role of forestry in bioeconomy (Masiero et al., 2020; Navrátilová et al., 2021). In all, perception studies

have covered well the different aspects of the forest-based industry. Thus, the gap we see is largely to link this to the broader forest sector values as discussed above. We do this by including a wide range of statements that reflect varying views on the forest-based sector identified within the literature and measuring how strongly respondents agree or disagree with these statements.

In the rest of the report, we provide more detail on the survey methodology and report the main results. As we sampled 27 countries, the dataset is large, and many nuances could be elaborated upon. Hence, we have opted for reporting the basic findings; these are interesting in themselves, but also serve as background documentation for further reporting. In particular, we expect the spatial, intertemporal and interpersonal aspects to be analysed further and reported in scientific peer reviewed papers. Furthermore, we have largely exempted from country and region-specific analysis in this deliverable. The reason being that such differences may originate from several factors – differences in population, in governance and in biogeography, and potentially, correlations may hide relevant impacts. Hence, the heterogeneity in this aspect will be explored more extensively in the planned scientific articles.

2. Survey methodology

2.1 Description of survey design

As a part of this task and of critical importance to the survey instrument's design, a literature review was conducted on societal perceptions of forests, forestry, and the forest-based sector in Europe. The review evaluated previous relevant empirical studies and meta-studies, employing a recursive sampling approach to identify gaps, include diverse perspectives, and adapt the survey to the needs of the EUFORE project. Additionally, industry experts were consulted to further inform the survey instrument's design.

Based on insights gathered from the literature review and expert consultations from within and outside of EUFORE consortium, an initial survey instrument was drafted in English to address the identified gaps noted in section 1.1. This draft was subsequently translated by EUFORE project partners into the respective languages of Denmark, Finland, Croatia, Italy, Germany, and Slovakia where online focus groups were held to pre-test the survey. These countries were chosen as they aligned with the regionally distributed stakeholder workshops, part of Task 3.3 and held in the Nordic region, Eastern-Central region, Mediterranean region, West-

Central region, and South-Eastern region of Europe. A focus group could not be organized in West-Atlantic region due to logistical and time constraints of consortium partners and as such, a second focus group was held in the Nordic region. The output of the focus groups was not largely different between regions and hence, we do not think this change will impact the results.

A protocol for conducting the focus groups was provided to ensure consistency across interviews. The interviews lasted between 1-1½ hours and were conducted using a video conferencing platform online and consisted of 5-8 participants who as far as possible represented the sociodemographic variation within the target population of the country (e.g., diversity in gender, age, income, education, and if possible, a diversity of participants living in urban and rural areas). To avoid the mixing of experts and non-experts in the groups, and as expert insight is explored elsewhere in EUFORE, the recruited participants were not to own a forest or have links to forestry and the forest-based sector. Additional measures to ensure unbiased results in the pre-testing stipulated that participants could not be working on the EUFORE project, be related to anyone working on the EUFORE project, or know each other. Consent for participation in the focus groups and use of the information discussed for research purposes was received by all participants. All participants were first allotted up to 30 minutes to take the survey which was followed by a moderated group interview that largely progressed in accordance with the semi-structured interview script provided to facilitators. When possible, a note taker was involved to assist the facilitator in recording the impressions of the participants.

2.2 Ethical review

The Research Ethics Committee for University of Copenhagen SCIENCE and SUND examined this task's application for a research ethics review at a meeting on the 6th of December 2023. In this application, the data management plan and the survey instrument were submitted for review. The Research Ethics Committee for SCIENCE and SUND found, according to information received, that the project was compliant with relevant Danish and International standards and guidelines for research ethics.

2.3 Translations

After the survey instrument in English was finalized, the template was shared with project partners within the EUFORE consortium and colleagues outside of the consortium for translation into 22 official European languages. Given the prevalence of English in Ireland and Malta, it was deemed appropriate to

administer the survey in English only. For Belgium, the survey instrument was translated into and administered in French and Dutch. For Luxembourg, the survey instrument was translated into and administered in Luxembourgish and French. The initial translations from English were done using an artificial intelligence service, DeepL, that uses proprietary convolutional neural networks. These initial translations were then adapted by a native speaker to ensure that the survey instrument reflected the nuances of the English version. Efforts were made to avoid technical and intrinsic forestry jargon. In most instances, though not universally, a second native speaker reviewed the survey before it was programmed into the survey platform, SurveyXact by Ramboll. The exact translations used can be obtained upon request.

2.4 Sampling method

To avoid weighting populous EU Member States more significantly, proportional representation at the EU level was passed over for nationally representative samples. Quota sampling was employed to construct samples with respect to age, gender, and geographic distribution. Bids were requested from 5 panelling agencies to obtain offers from a wide range of organizations to ensure a high quality and cost-effective survey. Bilendi has 10 proprietary panels in the EU including France, Spain, Germany, Italy, Sweden, Finland, Denmark, Austria, Belgium, and the Netherlands; the rest of the countries were sampled through Bilendi's third party partnerships. Bilendi Denmark was contracted to deliver a nationally representative sample only service of 400 respondents per country in the EU apart from Luxembourg, Malta, and Cyprus where national representativity could not be delivered due to the size of the panel. Additionally, only 300 respondents could be reached in Malta.

2.5 Sample distribution

Table 2.5.1 outlines the sample distributions for the entire sample. Tables that outline the sample distributions by country can be found in Appendix A. They include demographic information of the samples in regard to age, gender, region, highest education level achieved, and household income.

For regions, the Nomenclature of Territorial Units for Statistics (NUTS) classification was employed. Samples were mostly collected at a NUTS 2 level but in some cases, we sampled at the NUTS 3 level but tested for representativity at the NUTS 2 level. Due to challenges with over- and under-sampling, some countries are not nationally representative with respect to age, gender, and region. We elected to not remove respondents from countries that were over-sampled to adjust for

representativity as larger sample sizes will allow us to reduce the margin of error and increase the confidence in the findings, albeit with the disadvantage of over-representation and under-representation of certain segments of the European population.

For educational level of respondents, the International Standard Classification of Education (ISCED) 2011 coding schemes for education programmes were adapted slightly when presented to respondents. For example, post-secondary non-tertiary education and short-cycle tertiary educational programmes were classified as vocational programmes. This simplification does not reflect the true complexity and variety of programmes that are found across Europe; for this reason, "not elsewhere classified" was used. For analysis of this variable, the educational programmes were grouped into three categories: "secondary education and below", "vocational and bachelor's education", and "master's and doctoral education."

For household income, the distribution of income by quantiles from the 2022 European Union Statistics on Income and Living Conditions (EU-SILC) and the European Community Household Panel (ECHP) survey data was extracted from the Eurostat database to construct the income ranges used in the survey instrument. These income ranges were shown to respondents as monthly and annual earnings dependent on the country. Household income included earnings after tax, insurances, and mortgage.

Chi-square goodness-of-fit tests were conducted for age, gender, and NUTS region where possible. In countries where some of the regions had expected counts of less than 5, but where such regions did not make up 20% of the total number of regions, chi-square goodness-fit-tests were still employed. This is a "rule of thumb" proposed by Cochran referencing his findings on the expected number per class in Part II of his paper (1952). We apply this approach for France, Germany, and Spain. For countries where the number of regions with expected counts of less than 5 made up more than 20% of the total number of regions, the affected regions were merged with a neighbouring low-density region and a chi-square goodness-of-fit test was conducted; this is the case for Italy and Finland. For chi-square goodness-of-fit tests for gender, percentages were calculated based on the national population statistics for men and women, not including those reporting "non-binary /gender non-conforming", "other", and "prefer not to answer."

It should be noted that we were unable to achieve a nationally representative sample for Bulgaria, Hungary, Latvia, and Poland with respect to age. We were unable to achieve a nationally representative sample for Germany and Spain with respect to region. Additionally, as the NUTS 2 region for Latvia is the whole country, we only tested for representativity at the NUTS 3 region; we did not find representativity at this level. We were also unable to achieve a representative sample for age, gender, and region for Croatia. Population statistics for age, gender, and region were retrieved from Eurostat 2023 data.

Table 2.5.1 Sample distribution in EU 27 (N=11,247).

Variable/Group	n	Sample percentage	Partials	Unopened
Age				
18 – 29	1816	16%		
30 – 39	2135	19%		
40 – 49	2072	18%		
50 – 59	1957	17%		
60 – 99	3267	29%		
Gender				
Women	5644	50%		
Men	5523	49%		
Non-binary / gender non-conforming	29	0.26%		
Other	13	0.12%		
Prefer not to answer	38	0.34%		
Country				
Austria	400	3.6%	36	15
Belgium	411	3.7%	67	19
Bulgaria	404	3.6%	64	5
Croatia	405	3.6%	62	10
Cyprus	401	3.6%	23	5
Czech Republic	406	3.6%	74	2
Denmark	401	3.6%	60	13
Estonia	403	3.6%	78	17
Finland	411	3.7%	48	17
France	415	3.7%	68	18
Germany	456	4.1%	40	8
Greece	430	3.8%	84	0
Hungary	515	4.6%	101	5
Ireland	416	3.7%	93	9
Italy	410	3.6%	40	6
Latvia	450	4.0%	112	6
Lithuania	440	3.9%	118	9
Luxembourg	401	3.6%	25	16
Malta	301	2.7%	7	8
Netherlands	427	3.8%	97	13
Poland	444	3.9%	80	8
Portugal	430	3.8%	65	3
Romania	440	3.9%	133	6
Slovakia	414	3.7%	123	3
Slovenia	415	3.7%	92	10
Spain	401	3.6%	51	5
Sweden	400	3.6%	84	10

3. Results

The main results of the survey are presented and discussed simultaneously in the subsections below. Histograms of the distributions for most of the results are shown in the appendices.

3.1 Perceived importance of different FES for European citizens

The findings displayed in Figure 3.1.1 allow us to confirm with prior studies that regulating and cultural values tend to be perceived as more important to Europeans than provisioning services when asked for personal importance rating. When asked to consider how important the same FES are for society, we see a difference in importance for the respondent in some of the FES, suggesting multiple preference orderings. We see further differences when respondents were asked to reflect on the future societal importance of FES.

Provisioning services are perceived as less important FES. However, Europeans perceive these FES much more important for society currently and in the future. Higher scores are observed for all considered FES at the future societal perspective and almost all for the current societal perspective (except air quality regulation, beauty of forests, and human health).

In general, all considered FES (except hunting) received average importance scores above 7, for societal perception in the future. These findings point to a need for perception studies to delineate multiple preference orderings to include personal, societal, and temporal perspectives as there may be significant differences that matter for decision makers to consider.

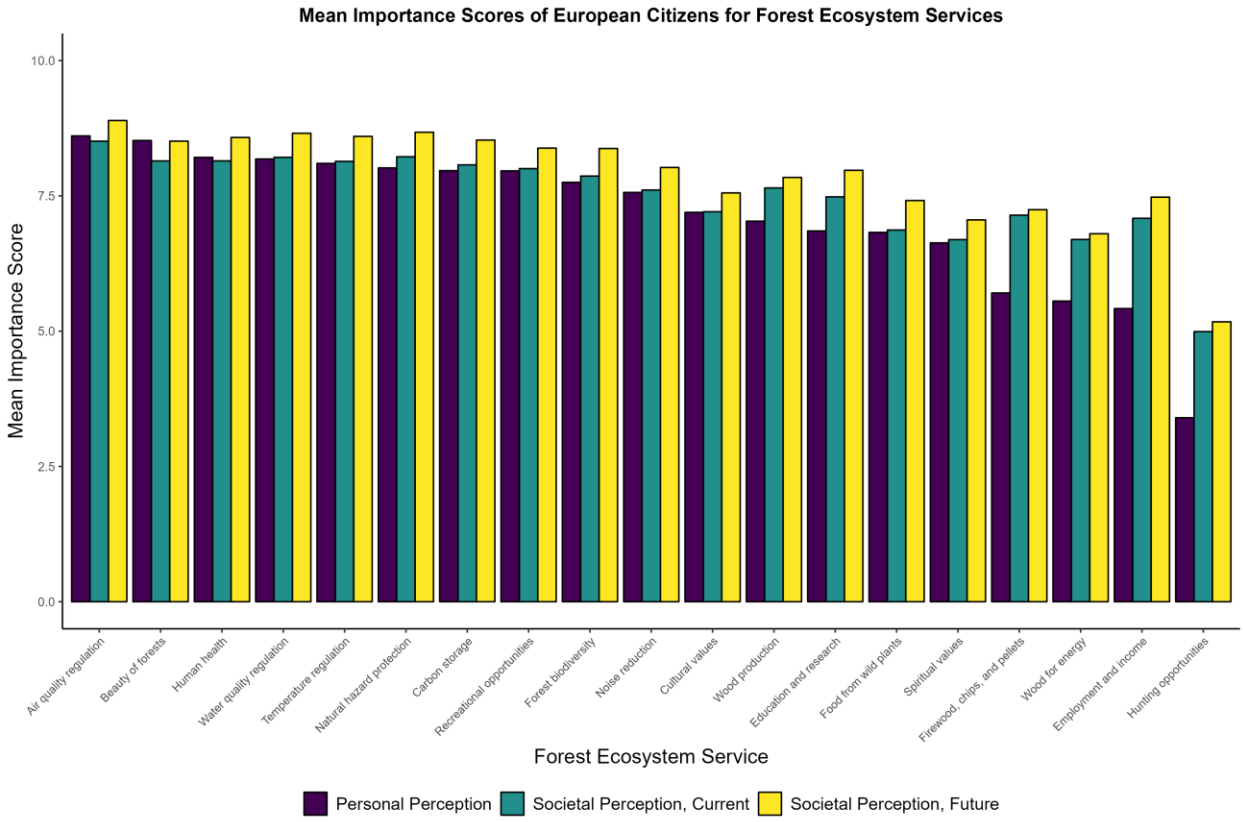


Figure 3.1.1 Mean perceived importance of different FES personally, to society currently, and to society in the future (N=11,247). Exact formulations for each FES question can be found in the appendix. Scale: 0 = Not important at all, 10 = Very important.

3.2 Spatial discounting of carbon storage, forest biodiversity, recreational opportunities, and wood production for European citizens

Examining the importance scores with respect to spatial proximity enables us to explore the varying degrees of geographic importance European citizens attribute to provision of particular FES. In Table 3.2.1, we have displayed the mean perceived importance of carbon storage, forest biodiversity, recreational opportunities, and wood production at different spatial proximities to explore potential preference orderings.

It is widely understood that distance from an individual to a forest is of large importance for recreational value. Thus, we would expect recreational values in forests to have decreasing importance the further away they are from people. We see, rather, an increase in recreational value within respondents' own country which speaks to respondents viewing opportunities existing in their country as accessible and valuable. The decrease in importance when asked about the importance of recreational opportunities within Europe is in line with prior studies

looking at distance decay of recreational value (Lupp et al., 2016; Mikusiński & Niedziałkowski, 2020). Timber is largely traded on a global market, and global demand can be satisfied from many places. Yet, the results suggest that self-sufficiency may speak in favor of more local supply as respondents value wood production within Europe slightly lower than within their own country. Carbon storage is a global public good where geographic location would not be expected to matter due to the transboundary nature of the environmental issues it is addressing. Higher values for within the respondent's own country and within Europe suggest that for this FES, there is something else driving this ordering and that it is more important for the broader community than it is for individuals. A similar jump is seen with forest biodiversity which may correspond to the specific distribution of forest habitats. It should however be noted that these differences may not be significantly different from each other.

Table 3.2.1 Mean and median perceived importance that FES is located within local surroundings, within own country, and within Europe (N=11,247). Exact formulations for each FES question can be found in the appendix. Scale: 0 = Not important at all, 10 = Very important.

	Within Local Surroundings			Within Own Country			Within Europe		
FES	**Mean**	**Median**	**IQR**	**Mean**	**Median**	**IQR**	**Mean**	**Median**	**IQR**
Carbon storage	7.89	9	3	8.10	9	3	8.24	9	3
Biodiversity	8.25	9	3	8.40	9	2	8.44	9	2
Recreational opportunities	7.69	8	4	7.85	8	3	7.60	8	4
Wood production	6.38	7	4	7.18	8	4	7.15	8	4

3.3 Prioritization of carbon storage, forest biodiversity, recreational opportunities, and wood production for European citizens

Exploring how Europe's inhabitants make trade-offs between certain FES is valuable information for developing European level policy solutions and assisting public and private forest managers in how they match demand with supply. Figure 3.3.1 indicates that there is not a large difference between the 4 FES across all the countries – and between FES. For example, the least preferred FES in any country is recreational opportunities in France, but it is still weighted around 16%. Similarly, the most preferred FES is biodiversity at around 35% weight in Portugal.

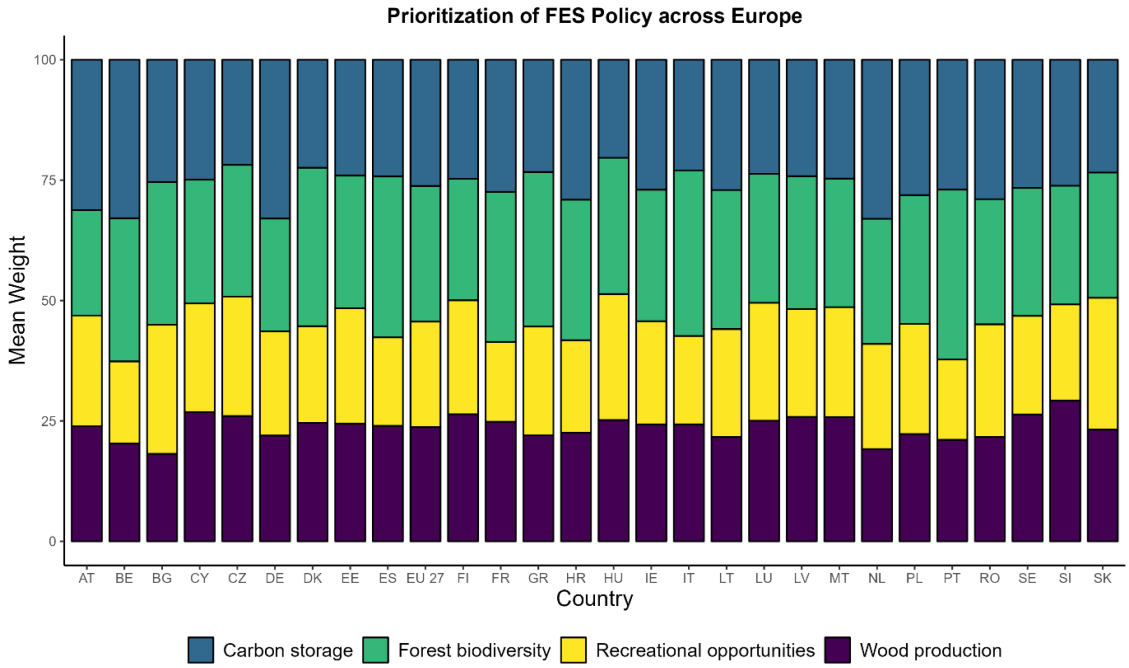


Figure 3.3.1 Prioritization of FES Policy across Europe (N=11,247). Responses by country and EU sample to "If you were to decide how policy should prioritize different forest goods and services in Europe, how much weight would you allocate to the following goods and services?" Responses were between 0% and 100% for any given service; the sum of all services for a respondent must be 100%. The mean weight shows the averages of all responses in each country for each service (expressed as a percentage).

3.4 European citizens' perception of the forest-based sector and wood use

With multiple pathways that forests may aid in the green transition, i.e., afforestation, setting aside of unmanaged forests, or managing forests for wood production and bioenergy, Table 3.4.1 below addresses pertinent topical debates currently present in Europe. The table shows the mean and median agreement score of the EU sample on a Likert scale regarding statements about forest management and wood use. The table also shows a low Interquartile Range (IQR), a measure of statistical dispersion, indicating a low variance. In Appendix E, responses to each statement are reported by country.

The two statements with the strongest agreements are related to concrete actions, namely that afforestation is good for biodiversity and climate, and that intensive wood extraction causes environmental damage. That these are the most pronounced statements may be due to their concreteness but is also a strong signal to the forestry sector: the general public does see positive environmental sides of the forest as such, but also a risk in terms of intensive extraction.

Two statements relate explicitly to access and recreation, namely that more forests should be managed for recreation that they agree somewhat with, but also that access should be limited to ensure forest protection and longevity. While this may seem contradictory, it may also reflect the dual role – on the one hand acknowledging the need from society, on the other hand the implied environmental consequence. It resembles Figure 3.3.1 above, that forest recreation is important but that other ecosystem services may be more important when needing to prioritize.

Europeans tend to agree, on average, that wood utilization in buildings should increase and that it has an advantage over other materials. We can also see that Europeans slight negative perception of bioenergy in terms of its role in solving the climate crisis. However, widespread agreement that afforestation is important to mitigate climate change is observed.

Decision makers in some European countries are implementing plans to set aside significant forest areas for biodiversity. The agreement scores for the last two statements suggest that although European citizens, on average, view positively that forests manage to provide wood material while protecting the environment, they concurrently agree, on average, that it would be better not to harvest forests. These statements may reflect some heterogeneity in preferences.

In Appendix E, country level responses to each statement are displayed; in these, we observe some large differences in responses within countries and between countries. For example, in Appendix Figure E.8, the results suggest that current forest management in some countries is viewed more negatively than in other countries within Europe. Another example of large differences between countries can be seen in Appendix Figure E.4 with how some countries view the limitation of access to forests.

In Appendix F, regional level responses to each statement are displayed; in these, we observe some differences in responses between regions. Please note that significance tests were not conducted and due to the many possible drivers of regional differences as mentioned in the introduction, we do not explore further the drivers of regional heterogeneity.

Table 3.4.1 Mean and median agreement with forest-based sector statements of European citizens (N=11,247). Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.32	3	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.66	2	2
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.50	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.49	4	1
Access to forests should be limited to ensure their protection and longevity.	3.31	3	2
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.61	2	2
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.32	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.15	4	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.41	4	1
It is better to keep the wood in the forest than harvest it.	3.47	3	1

In general, responses are distributed as a normal distribution, with some skewness, but with one main peak; we do not see clear bimodal preferences.

4. Conclusion

In this study, we sampled European public perceptions of forests, forestry, and the forest-based sector. We determined how important the general European population finds various forest ecosystem services at different sociopsychological levels in addition to analyzing spatial and temporal effects on these preferences. Additionally, we highlighted certain topical debates regarding the forest-based sector and wood use within Europe and elicited levels of agreement. We have summarized these results in the following key take aways:

1. People across Europe care about the provision of multiple FES, having more emphasis on cultural and regulating services than provisioning services.
2. Taken from a societal perspective, provisioning services received higher values than from a personal perspective.
3. People across Europe believe that all FES will become more important in the future than today.

4. Asking respondents to prioritize carbon storage, biodiversity, wood provision and recreational opportunities in EU policies revealed that they consider all of them very important.
5. Across Europe, most people are positive towards afforestation.
6. Europeans tend to agree, on average, that wood utilization in buildings should increase and that it has an advantage over other materials.
7. Europeans, on average, have a slight negative perception of bioenergy in terms of its role in solving the climate crisis.
8. There is large heterogeneity within countries and between countries of whether wood production is believed to be done in a way that simultaneously protects the environment.

5. Bibliography

Campbell, D., Vedel, S. E., Thorsen, B. J., & Jacobsen, J. B. (2014). Heterogeneity in the WTP for recreational access: Distributional aspects. *Journal of Environmental Planning and Management*, *57*(8), 1200–1219. https://doi.org/10.1080/09640568.2013.793173

Cochran, W. G. (1952). The χ2 Test of Goodness of Fit. *The Annals of Mathematical Statistics*, *23*(3), 315–345.

Edwards, D. M., Jay, M., Jensen, F. S., Lucas, B., Marzano, M., Montagné, C., Peace, A., & Weiss, G. (2012). Public Preferences Across Europe for Different Forest Stand Types as Sites for Recreation. *Ecology and Society*, *17*(1). https://www.jstor.org/stable/26269008

Kylkilahti, E., Berghäll, S., Autio, M., Nurminen, J., Toivonen, R., Lähtinen, K., Vihemäki, H., Franzini, F., & Toppinen, A. (2020). A consumer-driven bioeconomy in housing? Combining consumption style with students' perceptions of the use of wood in multi-storey buildings. *Ambio*, *49*(12), 1943–1957. https://doi.org/10.1007/s13280-020-01397-7

Lupp, G., Förster, B., Kantelberg, V., Markmann, T., Naumann, J., Honert, C., Koch, M., & Pauleit, S. (2016). Assessing the Recreation Value of Urban Woodland Using the Ecosystem Service Approach in Two Forests in the Munich Metropolitan Region. *Sustainability*, *8*(11), Article 11. https://doi.org/10.3390/su8111156

Masiero, M., Secco, L., Pettenella, D., Da Re, R., Bernö, H., Carreira, A., Dobrovolsky, A., Giertlieova, B., Giurca, A., Holmgren, S., Mark-Herbert, C., Navrátilová, L., Pülzl, H., Ranacher, L., Salvalaggio, A., Sergent, A., Sopanen, J., Stelzer, C., Stetter, T., … Wallin, I. (2020). Bioeconomy perception by future stakeholders: Hearing from European forestry students. *Ambio*, *49*(12), 1925–1942. https://doi.org/10.1007/s13280-020-01376-y

Mikusiński, G., & Niedziałkowski, K. (2020). Perceived importance of ecosystem services in the Białowieża Forest for local communities – Does proximity matter? *Land Use Policy*, *97*, 104667. https://doi.org/10.1016/j.landusepol.2020.104667

Navrátilová, L., Výbošťok, J., & Šálka, J. (2021). Stakeholders and their view on forest-based bioeconomy in Slovakia. *Central European Forestry Journal*, *67*(4), 240–247. https://doi.org/10.2478/forj-2021-0018

Nyborg, K. (2000). Homo Economicus and Homo Politicus: Interpretation and aggregation of environmental values. *Journal of Economic Behavior & Organization*, *42*(3), 305–322.

Petruch, M., & Walcher, D. (2021). Timber for future? Attitudes towards timber construction by young millennials in Austria - Marketing implications from a representative study. *Journal of Cleaner Production*, *294*, 126324. https://doi.org/10.1016/j.jclepro.2021.126324

Rametsteiner, E., & Kraxner, F. (2003). *Europeans and Their Forests: What Do Europeans Think About Forests and Sustainable Forest Management?*

Rametsteiner, E., Oberwimmer, R., & Gschwandtl, I. (2007). *Europeans and Wood. What Do Europeans Think About Wood and its Uses? A Review of Consumer and Business Surveys in Europe*. Ministerial Conference on the Protection of Forests in Europe Liaison Unit Warsaw. http://www.foresteurope.org/documentos/Eur_Wood_net.pdf

Ranacher, L., Lähtinen, K., Järvinen, E., & Toppinen, A. (2017). Perceptions of the general public on forest sector responsibility: A survey related to ecosystem services and forest sector business impacts in four European countries. *Forest Policy and Economics*, *78*, 180–189. https://doi.org/10.1016/j.forpol.2017.01.016

Roos, A., Hurmekoski, E., Häyrinen, L., Jussila, J., Lähtinen, K., Mark-Herbert, C., Nagy, E., Toivonen, R., & Toppinen, A. (2023). Beliefs on environmental impact of wood construction. *Scandinavian Journal of Forest Research*, *38*(1–2), 49–57. https://doi.org/10.1080/02827581.2023.2168043

Ugarte Lucas, P., Lund, T. B., & Gamborg, C. (2023). The public's intention to vote for continued use of woody biomass for energy in Denmark: A cognitive hierarchy perspective. *Energy, Sustainability and Society*, *13*(1), 45. https://doi.org/10.1186/s13705-023-00427-y

Viholainen, N., Franzini, F., Lähtinen, K., Nyrud, A., Widmark, C., Hoen, H., & Toppinen, A. (2020). Citizen views on wood as a construction material: Results from seven European countries. *Canadian Journal of Forest Research*, *51*, 1–13. https://doi.org/10.1139/cjfr-2020-0274

Winkel, G., Lovrić, M., Muys, B., Katila, P., Lundhede, T., Pecurul, M., Pettenella, D., Pipart, N., Plieninger, T., Prokofieva, I., Parra, C., Pülzl, H., Roitsch, D., Roux, J.-L., Thorsen, B. J., Tyrväinen, L., Torralba, M., Vacik, H., Weiss, G., & Wunder, S. (2022). Governing Europe's forests for multiple ecosystem services: Opportunities, challenges, and policy options. *Forest Policy and Economics*, *145*, 102849. https://doi.org/10.1016/j.forpol.2022.102849

Appendix A: Sample Distributions

Appendix Table A.1 Sample distribution in Austria (N=400)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					3.3	4	0.50
18 – 29	81	20%	68	17%			
30 – 39	66	17%	67	17%			
40 – 49	62	16%	64	16%			
50 – 59	67	17%	75	19%			
60 – 99	124	31%	127	32%			
Gender					0.04	1	0.84
Women	201	51%	203	51%			
Men	197	49%	195	49%			
Non-binary / gender non-conforming	2						
Other	0						
Prefer not to answer	0						
Region					5.0	8	0.75
Burgenland	19	4.8%	14	3.4%			
Niederösterreich	73	18%	76	19%			
Wien	85	21%	86	22%			
Kärnten	33	8.3%	26	6.4%			
Steiermark	52	13%	56	14%			
Oberösterreich	66	17%	66	17%			
Salzburg	24	6.0%	25	6.2%			
Tirol	31	7.8%	34	8.5%			
Vorarlberg	17	4.3%	18	4.4%			
Highest education level							
Secondary education and below	147	37%					
Vocational and bachelor's education	192	48%					
Master's and doctoral education	60	15%					
Not elsewhere classified	1	0.25%					
Household income (decile rank)							
1	28	7.0%					
2	18	4.5%					
3	22	5.5%					
4	26	6.5%					
5	22	5.5%					
6	26	6.5%					
7	25	6.3%					
8	36	9.0%					
9	37	9.3%					
10	71	18%					
Prefer not to answer	89	22%					

Appendix Table A.2 Sample distribution in Belgium (N=411)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					0.58	4	0.97
18 – 29	68	17%	74	18%			
30 – 39	67	16%	67	16%			
40 – 49	67	16%	67	16%			
50 – 59	72	18%	70	17%			
60 – 99	137	33%	133	32%			
Gender					0.02	1	0.88
Women	210	51%	208	51%			
Men	198	49%	200	49%			
Non-binary / gender non-conforming	2						
Other	1						
Prefer not to answer	0						
Region					1.2	10	1.0
Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest	41	10%	42	10%			
Prov. Antwerpen	66	16%	67	16%			
Prov. Limburg	31	7.5%	32	7.8%			
Prov. Oost-Vlaanderen	55	13%	55	13%			
Prov. Vlaams-Brabant	39	9.5%	41	10%			
Prov. West-Vlaanderen	42	10%	44	11%			
Prov. Brabant wallon	16	3.9%	14	3.5%			
Prov. Hainaut	50	12%	48	12%			
Prov. Liège	40	9.7%	39	9.6%			
Prov. Luxembourg	10	2.4%	10	2.5%			
Prov. Namur	21	5.1%	18	4.3%			
Highest education level							
Secondary education and below	140	34%					
Vocational and bachelor's education	180	44%					
Master's and doctoral education	89	22%					
Not elsewhere classified	2	0.49%					
Household income (decile rank)							
1	22	5.4%					
2	15	3.6%					
3	22	5.4%					
4	28	6.8%					
5	29	7.1%					
6	23	5.6%					
7	17	4.1%					
8	41	10%					
9	46	11%					
10	70	17%					
Prefer not to answer	98	24%					

Appendix Table A.3 Sample distribution in Bulgaria (N=404)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					19	4	$p < 0.001$
18 – 29	42	10%	55	14%			
30 – 39	55	14%	67	17%			
40 – 49	78	19%	75	19%			
50 – 59	98	24%	68	17%			
60 – 99	131	32%	139	34%			
Gender					0.47	1	0.49
Women	204	51%	211	52%			
Men	200	50%	193	48%			
Non-binary / gender non-conforming	0						
Other	0						
Prefer not to answer	0						
Region					4	5	0.55
Severozapaden	38	9.4%	42	10%			
Severen tsentralen	55	14%	67	11%			
Severoiztochen	60	15%	32	13%			
Yugoiztochen	59	15%	55	15%			
Yugozapaden	116	29%	41	30%			
Yuzhen tsentralen	76	19%	44	20%			
Highest education level							
Secondary education and below	55	14%					
Vocational and bachelor's education	166	41%					
Master's and doctoral education	181	45%					
Not elsewhere classified	2	0.50%					
Household income (decile rank)							
1	6	1.5%					
2	4	1.0%					
3	5	1.2%					
4	8	2.0%					
5	13	3.2%					
6	27	6.7%					
7	36	8.9%					
8	50	12%					
9	69	17%					
10	159	39%					
Prefer not to answer	27	6.7%					

Appendix Table A.4 Sample distribution in Croatia (N=405)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					10	4	0.03
18 – 29	63	16%	63	16%			
30 – 39	79	20%	61	15%			
40 – 49	73	18%	67	17%			
50 – 59	69	17%	68	17%			
60 – 99	121	30%	146	36%			
Gender					6.1	1	0.01
Women	184	46%	209	52%			
Men	214	54%	189	48%			
Non-binary / gender non-conforming	3						
Other	0						
Prefer not to answer	4						
Region					7.9	3	0.05
Panonska Hrvatska	106	26%	107	26%			
Jadranska Hrvatska	128	32%	136	34%			
Grad Zagreb	101	25%	80	20%			
Sjeverna Hrvatska	70	17%	82	20%			
Highest education level							
Secondary education and below	186	46%					
Vocational and bachelor's education	102	25%					
Master's and doctoral education	114	28%					
Not elsewhere classified	3	0.74%					
Household income (decile rank)							
1	15	3.7%					
2	8	2.0%					
3	16	4.0%					
4	16	4.0%					
5	17	4.2%					
6	23	5.7%					
7	18	4.4%					
8	43	11%					
9	76	19%					
10	142	35%					
Prefer not to answer	31	7.7%					

Appendix Table A.5 Sample distribution in Cyprus (N=401)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					103	4	$p < 0.001$
18 – 29	71	18%	85	21%			
30 – 39	156	39%	81	20%			
40 – 49	75	19%	65	16%			
50 – 59	32	8%	60	15%			
60 – 99	67	17%	110	28%			
Gender					0.65	1	0.42
Women	198	50%	206	52%			
Men	199	50%	191	48%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	3						
Region							
Urban Nicosia	153	38%					
Rural Nicosia	27	6.7%					
Urban Limasol	118	29%					
Rural Limasol	19	4.7%					
Urban Larnaka	34	8.5%					
Rural Larnaka	14	3.5%					
Urban Pafos	27	6.7%					
Rural Pafos	2	0.50%					
Rural Ammochostos	7	1.7%					
Highest education level							
Secondary education and below	25	6.2%					
Vocational and bachelor's education	119	30%					
Master's and doctoral education	257	64%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	3	0.75%					
2	3	0.75%					
3	4	1.0%					
4	3	0.75%					
5	20	5.0%					
6	58	14%					
7	92	23%					
8	88	22%					
9	98	24%					
10	30	7.5%					
Prefer not to answer	2	0.50%					

Appendix Table A.6 Sample distribution in the Czech Republic (N=406)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					3.8	4	0.44
18 – 29	64	16%	59	15%			
30 – 39	66	16%	67	16%			
40 – 49	73	18%	82	20%			
50 – 59	77	19%	65	16%			
60 – 99	126	31%	132	33%			
Gender					0.69	1	0.41
Women	198	49%	206	51%			
Men	205	51%	197	49%			
Non-binary / gender non-conforming	2						
Other	0						
Prefer not to answer	1						
Region					2.4	7	0.93
Praha	47	12%	50	12%			
Střední Čechy	49	26%	52	13%			
Jihozápad	48	25%	47	12%			
Severozápad	47	24%	42	10%			
Severovýchod	61	32%	58	14%			
Jihovýchod	64	33%	65	16%			
Střední Morava	40	21%	46	11%			
Moravskoslezsko	50	26%	46	11%			
Highest education level							
Secondary education and below	168	41.4%					
Vocational and bachelor's education	152	37.4%					
Master's and doctoral education	84	20.7%					
Not elsewhere classified	2	0.49%					
Household income (decile rank)							
1	23	5.7%					
2	23	5.7%					
3	27	6.7%					
4	22	5.4%					
5	23	5.7%					
6	13	3.2%					
7	40	9.9%					
8	43	11%					
9	61	15%					
10	110	27%					
Prefer not to answer	21	5.2%					

Appendix Table A.7 Sample distribution in Denmark (N=401)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					0.72	4	0.95
18 – 29	64	16%	78	20%			
30 – 39	66	16%	61	15%			
40 – 49	73	18%	63	16%			
50 – 59	77	19%	69	17%			
60 – 99	126	31%	131	33%			
Gender					0.04	1	0.83
Women	204	51%	202	51%			
Men	195	49%	197	49%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	1						
Region					0.13	4	1.0
Hovedstaden	125	31%	128	32%			
Sjælland	57	14%	58	14%			
Syddanmark	86	21%	84	21%			
Midtjylland	92	23%	91	23%			
Nordjylland	41	10%	41	10%			
Highest education level							
Secondary education and below	105	26.2%					
Vocational and bachelor's education	245	61.1%					
Master's and doctoral education	51	12.7%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	32	8.0%					
2	42	10%					
3	22	5.5%					
4	25	6.2%					
5	28	7.0%					
6	23	5.7%					
7	25	6.2%					
8	32	8.0%					
9	29	7.2%					
10	55	14%					
Prefer not to answer	88	22%					

Appendix Table A.8 Sample distribution in Estonia (N=403)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					4.0	4	0.41
18 – 29	65	16%	60	15%			
30 – 39	79	20%	75	19%			
40 – 49	79	20%	69	17%			
50 – 59	60	15%	64	16%			
60 – 99	120	30%	135	33%			
Gender					0.03	1	0.87
Women	211	53%	213	53%			
Men	188	47%	186	47%			
Non-binary / gender non-conforming	3						
Other	0						
Prefer not to answer	1						
Region (NUTS 3)					4.2	4	0.38
Põhja-Eesti	201	50%	188	47%			
Lääne-Eesti	43	11%	44	11%			
Lõuna-Eesti	88	22%	95	24%			
Kesk-Eesti	41	10%	37	9.1%			
Kirde-Eesti	30	7.4%	39	9.8%			
Highest education level							
Secondary education and below	132	33%					
Vocational and bachelor's education	172	43%					
Master's and doctoral education	96	24%					
Not elsewhere classified	3	0.74%					
Household income (decile rank)							
1	45	11%					
2	26	6.5%					
3	28	6.9%					
4	35	8.7%					
5	28	6.9%					
6	33	8.2%					
7	40	9.9%					
8	30	7.4%					
9	54	13%					
10	47	12%					
Prefer not to answer	37	9.2%					

Appendix Table A.9 Sample distribution in Finland (N=411)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					3.8	4	0.43
18 – 29	74	18%	70	17%			
30 – 39	78	19%	66	16%			
40 – 49	62	15%	62	15%			
50 – 59	63	15%	64	16%			
60 – 99	134	33%	149	36%			
Gender					0.01	1	0.93
Women	208	51%	207	51%			
Men	199	49%	200	49%			
Non-binary / gender non-conforming	1						
Other	1						
Prefer not to answer	2						
Region					0.79	3	0.85
Länsi-Suomi	100	24%	102	25%			
Helsinki-Uusimaa	127	31%	128	31%			
Etelä-Suomi and Åland	83	20%	87	21%			
Pohjois- ja Itä-Suomi	101	25%	94	23%			
Highest education level							
Secondary education and below	78	19%					
Vocational and bachelor's education	268	65%					
Master's and doctoral education	64	16%					
Not elsewhere classified	1	0.24%					
Household income (decile rank)							
1	68	17%					
2	28	6.8%					
3	22	5.4%					
4	24	5.8%					
5	23	5.6%					
6	29	7.1%					
7	18	4.4%					
8	31	7.5%					
9	39	9.5%					
10	62	15%					
Prefer not to answer	67	16%					

Appendix Table A.10 Sample distribution in France (N=415)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					2.2	4	0.71
18 – 29	71	17%	72	17%			
30 – 39	74	18%	64	16%			
40 – 49	63	15%	66	16%			
50 – 59	63	15%	69	17%			
60 – 99	144	35%	143	35%			
Gender					0.02	1	0.88
Women	218	53%	216	52%			
Men	195	47%	197	48%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	1						
Region					7.3	21	1.0
Ile-de-France	76	18%	76	18%			
Centre-Val de Loire	18	4.3%	16	3.9%			
Bourgogne	9	2.2%	10.0	2.4%			
Franche-Comté	9	2.2%	7.5	1.8%			
Basse-Normandie	9	2.2%	9.5	2.3%			
Haute-Normandie	12	2.9%	12	2.8%			
Nord-Pas de Calais	23	5.5%	25	6.1%			
Picardie	12	2.9%	12	2.9%			
Alsace	15	3.6%	12	3.0%			
Champagne-Ardenne	7	1.7%	8.3	2.0%			
Lorraine	14	3.4%	15	3.6%			
Pays de la Loire	26	6.3%	24	5.9%			
Bretagne	21	5.1%	22	5.2%			
Aquitaine	24	5.8%	23	5.5%			
Limousin	5	1.2%	4.6	1.1%			
Poitou-Charentes	12	2.9%	12	2.9%			
Languedoc-Roussillon	18	4.3%	19	4.5%			
Midi-Pyrénées	21	5.1%	20	4.9%			
Auvergne	8	1.9%	8.7	2.1%			
Rhône-Alpes	40	9.6%	42	10%			
Provence-Alpes-Côte d'Azur	30	7.2%	33	7.9%			
Corse	6	1.4%	2.5	0.60%			
Highest education level							
Secondary education and below	115	28%					
Vocational and bachelor's education	207	50%					
Master's and doctoral education	93	22%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	33	8.0%					
2	22	5.3%					
3	31	7.5%					
4	30	7.2%					
5	17	4.1%					
6	35	8.4%					
7	19	4.6%					
8	32	7.7%					
9	64	15%					
10	93	22%					
Prefer not to answer	39	9.4%					

Appendix Table A.11 Sample distribution in Germany (N=456)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					2.0	4	0.73
18 – 29	67	15%	72	16%			
30 – 39	79	17%	72	16%			
40 – 49	72	16%	66	14%			
50 – 59	84	18%	86	19%			
60 – 99	154	34%	161	35%			
Gender					0.08	1	0.78
Women	228	50%	231	51%			
Men	224	50%	221	49%			
Non-binary / gender non-conforming	1						
Other	1						
Prefer not to answer	2						
Region					57	37	0.02
Stuttgart	25	5.5%	23	5.0%			
Karlsruhe	13	2.9%	16	3.4%			
Freiburg	10	2.2%	12	2.7%			
Tübingen	13	2.9%	10	2.2%			
Oberbayern	25	5.5%	26	5.6%			
Niederbayern	4	0.88%	6.8	1.5%			
Oberpfalz	7	1.5%	5.9	1.3%			
Oberfranken	7	1.5%	5.9	1.3%			
Mittelfranken	7	1.5%	9.6	2.1%			
Unterfranken	5	1.1%	7.3	1.6%			
Schwaben	8	1.8%	10	2.3%			
Berlin	19	4.2%	20	4.4%			
Brandenburg	19	4.2%	14	3.1%			
Bremen	15	3.3%	3.6	0.80%			
Hamburg	12	2.6%	10	2.2%			
Darmstadt	18	3.9%	22	4.8%			
Gießen	5	1.1%	5.9	1.3%			
Kassel	6	1.3%	6.8	1.5%			
Mecklenburg-Vorpommern	10	2.2%	9.1	2.0%			
Braunschweig	10	2.2%	8.7	1.9%			
Hannover	15	3.3%	12	2.6%			
Lüneburg	10	2.2%	9.6	2.1%			
Weser-Ems	11	2.4%	14	3.0%			
Düsseldorf	28	6.1%	28	6.2%			
Köln	24	5.3%	25	5.4%			
Münster	12	2.6%	14	3.1%			
Detmold	9	2.0%	11	2.4%			
Arnsberg	16	3.5%	20	4.3%			
Koblenz	6	1.3%	8.2	1.8%			
Trier	2	0.44%	2.7	0.60%			
Rheinhessen-Pfalz	12	2.6%	11	2.5%			
Saarland	9	2.0%	5.5	1.2%			
Dresden	12	2.6%	8.7	1.9%			
Chemnitz	10	2.2%	7.8	1.7%			
Leipzig	10	2.2%	5.9	1.3%			
Sachsen-Anhalt	11	2.4%	12	2.7%			
Schleswig-Holstein	11	2.4%	16	3.5%			
Thüringen	10	2.2%	12	2.6%			
Highest education level							
Secondary education and below	170	37%					
Vocational and bachelor's education	193	42%					
Master's and doctoral education	89	20%					
Not elsewhere classified	4	0.88%					
Household income (decile rank)							
1	44	10%					
2	24	5.3%					
3	12	2.6%					
4	23	5.0%					
5	39	8.6%					
6	20	4.4%					
7	44	10%					
8	51	11%					
9	65	14%					
10	87	19%					
Prefer not to answer	47	10%					

Appendix Table A.12 Sample distribution in Greece (N=430)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					7.9	4	0.09
18 – 29	66	15%	62	15%			
30 – 39	76	18%	61	14%			
40 – 49	84	20%	79	18%			
50 – 59	77	18%	76	18%			
60 – 99	127	30%	151	35%			
Gender					0.03	1	0.86
Women	219	51%	221	52%			
Men	209	49%	207	48%			
Non-binary / gender non-conforming	1						
Other	1						
Prefer not to answer	0						
Region					7.1	12	0.85
Attiki	157	37%	157	37%			
Voreio Aigaio	10	2.3%	8.2	1.9%			
Notio Aigaio	12	2.8%	13	3%			
Kriti	19	4.4%	25	5.8%			
Anatoliki Makedonia, Thraki	25	5.8%	23	5.4%			
Kentriki Makedonia	84	20%	74	17%			
Dytiki Makedonia	15	3.5%	11	2.5%			
Ipeiros	11	2.6%	13	3.1%			
Thessalia	29	6.7%	28	6.6%			
Ionia Nisia	7	1.6%	8.2	1.9%			
Dytiki Elláda	24	5.6%	27	6.2%			
Sterea Elláda	17	4.0%	21	4.9%			
Peloponnisos	20	4.7%	22	5.2%			
Highest education level							
Secondary education and below	143	33%					
Vocational and bachelor's education	206	48%					
Master's and doctoral education	80	19%					
Not elsewhere classified	1	0.23%					
Household income (decile rank)							
1	17	4.0%					
2	14	3.3%					
3	10	2.3%					
4	25	5.8%					
5	21	4.9%					
6	33	7.7%					
7	50	12%					
8	56	13%					
9	68	16%					
10	120	28%					
Prefer not to answer	16	3.7%					

Appendix Table A.13 Sample distribution in Hungary (N=515)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					13	4	0.01
18 – 29	75	15%	85	17%			
30 – 39	67	13%	81	16%			
40 – 49	85	17%	102	20%			
50 – 59	99	19%	82	16%			
60 – 99	189	37%	166	32%			
Gender					0.02	1	0.90
Women	270	53%	260	51%			
Men	244	47%	254	49%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	0						
Region					3.1	7	0.87
Budapest	101	21%	93	18%			
Pest	64	13%	68	13%			
Közép-Dunántúl	59	12%	56	11%			
Nyugat-Dunántúl	55	11%	54	10%			
Dél-Dunántúl	42	8.6%	46	9%			
Észak-Magyarország	50	10%	58	11%			
Észak-Alföld	54	11%	75	15%			
Dél-Alföld	64	13%	65	13%			
Highest education level							
Secondary education and below	141	27%					
Vocational and bachelor's education	286	56%					
Master's and doctoral education	88	17%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	27	5.2%					
2	17	3.3%					
3	14	2.7%					
4	16	3.1%					
5	24	4.7%					
6	19	3.7%					
7	26	5.0%					
8	31	6.0%					
9	78	15%					
10	230	45%					
Prefer not to answer	33	6.4%					

Appendix Table A.14 Sample distribution in Ireland (N=416)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					3.8	4	0.43
18 – 29	79	19%	80	19%			
30 – 39	77	19%	74	18%			
40 – 49	82	20%	84	20%			
50 – 59	80	19%	68	16%			
60 – 99	98	24%	111	27%			
Gender					0.05	1	0.82
Women	214	52%	212	51%			
Men	201	48%	203	49%			
Non-binary / gender non-conforming	0						
Other	1						
Prefer not to answer	0						
Region					13	7	0.07
Border	29	7.0%	35	8.3%			
West	43	10%	39	9.4%			
Mid-West	33	7.9%	41	9.8%			
South-East	44	11%	37	8.9%			
South-West	49	12%	60	14%			
Dublin	134	32%	119	29%			
Mid-East	50	12%	61	15%			
Midland	34	8.2%	25	6.1%			
Highest education level							
Secondary education and below	146	35%					
Vocational and bachelor's education	208	50%					
Master's and doctoral education	62	15%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	27	5.2%					
2	17	3.3%					
3	14	2.7%					
4	16	3.1%					
5	24	4.7%					
6	19	3.7%					
7	26	5.0%					
8	31	6.0%					
9	78	15%					
10	230	45%					
Prefer not to answer	33	6.4%					

Appendix Table A.15 Sample distribution in Italy (N=410)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					1.3	4	0.87
18 – 29	53	13%	58	14%			
30 – 39	55	13%	55	13%			
40 – 49	67	16%	70	17%			
50 – 59	86	21%	79	19%			
60 – 99	149	36%	149	36%			
Gender					0.02	1	0.89
Women	209	51%	210	52%			
Men	198	49%	197	48%			
Non-binary / gender non-conforming	0						
Other	1						
Prefer not to answer	2						
Region					6.9	16	0.97
Piemonte and Valle d'Aosta/Vallée d'Aoste	30	7.3%	31	7.5%			
Liguria	13	3.2%	11	2.6%			
Lombardia	67	16%	69	17%			
Abruzzo and Molise	15	3.7%	11	2.7%			
Campania	34	8.3%	38	9.3%			
Puglia and Basilicata	34	8.3%	31	7.6%			
Calabria	14	3.4%	13	3.1%			
Sicilia	27	6.6%	33	8.1%			
Sardegna	14	3.4%	11	2.8%			
Provincia Autonoma di Bolzano/Bozen and Provincia Autonoma di Trento	10	2.4%	7.4	1.8%			
Veneto	32	7.8%	34	8.2%			
Friuli-Venezia Giulia	11	2.7%	8.6	2.1%			
Emilia-Romagna	27	6.6%	31	7.5%			
Toscana	28	6.8%	26	6.3%			
Umbria	6	1.5%	6.2	1.5%			
Marche	10	2.4%	10	2.5%			
Lazio	38	9.3%	40	9.7%			
Highest education level							
Secondary education and below	209	51%					
Vocational and bachelor's education	86	21%					
Master's and doctoral education	115	28%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	17	4.1%					
2	23	5.6%					
3	19	4.6%					
4	27	6.6%					
5	30	7.3%					
6	35	8.5%					
7	54	13%					
8	43	10%					
9	30	7.3%					
10	67	16%					
Prefer not to answer	65	16%					

Appendix Table A.16 Sample distribution in Latvia (N=450)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					13	4	0.01
18 – 29	76	17%	64	14%			
30 – 39	90	20%	80	18%			
40 – 49	82	18%	74	17%			
50 – 59	81	18%	77	17%			
60 – 99	121	27%	156	35%			
Gender					0.41	1	0.52
Women	237	53%	244	55%			
Men	207	47%	200	45%			
Non-binary / gender non-conforming	1						
Other	1						
Prefer not to answer	4						
Region (NUTS 3)					33	5	$p < 0.001$
Kurzeme	84	19%	56	12%			
Latgale	49	11%	59	13%			
Rīga	130	29%	145	32%			
Pierīga	69	15%	92	21%			
Vidzeme	63	14%	43	9.6%			
Zemgale	55	12%	54	12%			
Highest education level							
Secondary education and below	110	24%					
Vocational and bachelor's education	240	53%					
Master's and doctoral education	87	19%					
Not elsewhere classified	13	2.9%					
Household income (decile rank)							
1	119	26%					
2	30	6.7%					
3	21	4.7%					
4	17	3.8%					
5	33	7.3%					
6	32	7.1%					
7	38	8.4%					
8	18	4.0%					
9	29	6.4%					
10	43	10%					
Prefer not to answer	70	16%					

Appendix Table A.17 Sample distribution in Lithuania (N=440)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					8.2	4	0.08
18 – 29	72	16%	67	15%			
30 – 39	89	20%	74	17%			
40 – 49	74	17%	70	16%			
50 – 59	83	19%	80	18%			
60 – 99	122	28%	148	34%			
Gender					0.41	1	0.52
Women	230	53%	237	54%			
Men	205	47%	198	46%			
Non-binary / gender non-conforming	0						
Other	1						
Prefer not to answer	4						
Region (NUTS 3)					5.2	9	0.82
Vilniaus apskritis	133	30%	128	29%			
Alytaus apskritis	19	4.3%	21	4.8%			
Kauno apskritis	98	22%	89	20%			
Klaipėdos apskritis	54	12%	51	12%			
Marijampolės apskritis	18	4.1%	22	4.9%			
Panevėžio apskritis	26	5.9%	33	7.6%			
Šiaulių apskritis	45	10%	41	9.3%			
Tauragės apskritis	12	2.7%	14	3.2%			
Telšių apskritis	19	4.3%	21	4.7%			
Utenos apskritis	16	3.6%	20	4.5%			
Highest education level							
Secondary education and below	102	23%					
Vocational and bachelor's education	234	53%					
Master's and doctoral education	97	22%					
Not elsewhere classified	7	1.6%					
Household income (decile rank)							
1	30	6.8%					
2	28	6.4%					
3	25	5.7%					
4	25	5.7%					
5	27	6.1%					
6	31	7.0%					
7	56	13%					
8	43	9.8%					
9	52	12%					
10	83	19%					
Prefer not to answer	40	9.1%					

Appendix Table A.18 Sample distribution in Luxembourg (N=401)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					112	4	$p < 0.001$
18 – 29	57	14%	77	19%			
30 – 39	126	31%	79	20%			
40 – 49	126	31%	73	18%			
50 – 59	50	12%	71	18%			
60 – 99	42	10%	101	25%			
Gender					18	1	$p < 0.001$
Women	157	39%	199	50%			
Men	243	61%	201	50%			
Non-binary / gender non-conforming	0						
Other	1						
Prefer not to answer	0						
Region							
Luxembourg	401	100%					
Highest education level							
Secondary education and below	9	2.2%					
Vocational and bachelor's education	332	83%					
Master's and doctoral education	60	15%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	1	0.25%					
2	3	0.75%					
3	4	1.0%					
4	19	4.7%					
5	29	7.2%					
6	60	15%					
7	130	32%					
8	83	21%					
9	53	13%					
10	19	4.7%					
Prefer not to answer	0	0.0%					

Appendix Table A.19 Sample distribution in Malta (N=301)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					198	4	$p < 0.001$
18 – 29	44	15%	56	19%			
30 – 39	138	46%	64	21%			
40 – 49	89	30%	51	17%			
50 – 59	21	7.0%	40	13%			
60 – 99	9	3.0%	90	30%			
Gender					26	1	$p < 0.001$
Women	100	33%	144	48%			
Men	200	67%	156	52%			
Non-binary / gender non-conforming	0						
Other	0						
Prefer not to answer	1						
Region (NUTS 3)							
Malta	299	99%					
Gozo and Comino/Għawdex u Kemmuna	2	0.66%					
Highest education level							
Secondary education and below	26	8.6%					
Vocational and bachelor's education	122	41%					
Master's and doctoral education	153	51%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	1	0.33%					
2	4	1.3%					
3	5	1.7%					
4	10	3.3%					
5	29	9.6%					
6	53	18%					
7	66	22%					
8	52	17%					
9	53	18%					
10	28	9.3%					
Prefer not to answer	0	0.0%					

Appendix Table A.20 Sample distribution in the Netherlands (N=427)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					0.17	4	1.0
18 – 29	81	19%	81	19%			
30 – 39	66	15%	66	16%			
40 – 49	61	14%	64	15%			
50 – 59	76	18%	76	18%			
60 – 99	143	33%	140	33%			
Gender					0.08	1	0.78
Women	219	51%	216	51%			
Men	208	49%	211	49%			
Non-binary / gender non-conforming	0						
Other	0						
Prefer not to answer	0						
Region					4.8	11	0.94
Groningen	18	4.2%	15	3.4%			
Friesland	16	3.7%	16	3.7%			
Drenthe	13	3.0%	12	2.8%			
Overijssel	35	8.2%	28	6.6%			
Gelderland	52	12%	51	12%			
Flevoland	11	2.6%	10	2.4%			
Utrecht	33	7.7%	32	7.6%			
Noord-Holland	62	15%	71	17%			
Zuid-Holland	90	21%	91	21%			
Zeeland	11	2.6%	9.4	2.2%			
Noord-Brabant	57	13%	64	15%			
Limburg	29	6.8%	28	6.6%			
Highest education level							
Secondary education and below	191	45%					
Vocational and bachelor's education	172	40%					
Master's and doctoral education	63	15%					
Not elsewhere classified	1	0.23%					
Household income (decile rank)							
1	39	9.1%					
2	18	4.2%					
3	31	7.3%					
4	22	5.2%					
5	19	4.4%					
6	27	6.3%					
7	32	7.5%					
8	35	8.2%					
9	50	12%					
10	71	17%					
Prefer not to answer	83	19%					

Appendix Table A.21 Sample distribution in Poland (N=444)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					10	4	0.04
18 – 29	72	16%	71	16%			
30 – 39	75	17%	84	19%			
40 – 49	76	17%	83	19%			
50 – 59	88	20%	65	15%			
60 – 99	133	30%	141	32%			
Gender					0.42	1	0.52
Women	238	54%	231	52%			
Men	204	46%	211	48%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	1						
Region					5.9	16	0.99
Małopolskie	42	9.5%	39	8.8%			
Śląskie	48	11%	53	12%			
Wielkopolskie	51	11%	40	9.1%			
Zachodniopomorskie	19	4.3%	20	4.4%			
Lubuskie	10	2.3%	12	2.6%			
Dolnośląskie	32	7.2%	34	7.6%			
Opolskie	12	2.7%	11	2.5%			
Kujawsko-pomorskie	24	5.4%	24	5.4%			
Warmińsko-mazurskie	18	4.1%	16	3.7%			
Pomorskie	25	5.6%	27	6.0%			
Łódzkie	24	5.4%	29	6.5%			
Świętokrzyskie	15	3.4%	15	3.3%			
Lubelskie	25	5.6%	24	5.5%			
Podkarpackie	21	4.7%	24	5.5%			
Podlaskie	15	3.4%	13	3.0%			
Warszawski stołeczny	34	7.7%	36	8.1%			
Mazowiecki regionalny	29	6.5%	27	6.0%			
Highest education level							
Secondary education and below	148	33%					
Vocational and bachelor's education	158	36%					
Master's and doctoral education	134	30%					
Not elsewhere classified	4	0.90%					
Household income (decile rank)							
1	12	2.7%					
2	12	2.7%					
3	16	3.6%					
4	27	6.1%					
5	21	4.7%					
6	22	5.0%					
7	33	7.4%					
8	32	7.2%					
9	69	16%					
10	177	40%					
Prefer not to answer	23	5.2%					

Appendix Table A.22 Sample distribution in Portugal (N=430)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					7.5	4	0.11
18 – 29	67	16%	65	15%			
30 – 39	55	13%	59	14%			
40 – 49	96	22%	77	18%			
50 – 59	75	17%	74	17%			
60 – 99	137	32%	156	36%			
Gender					0.05	1	0.82
Women	228	54%	226	53%			
Men	197	46%	199	47%			
Non-binary / gender non-conforming	0						
Other	2						
Prefer not to answer	3						
Region					3.3	6	0.78
Norte	147	34%	150	35%			
Algarve	19	4.4%	19	4.5%			
Centro	87	20%	94	22%			
Área Metropolitana de Lisboa	131	30%	117	27%			
Alentejo	26	6.0%	30	6.9%			
Região Autónoma dos Açores	8	1.9%	9.5	2.2%			
Região Autónoma da Madeira	12	2.8%	10	2.4%			
Highest education level							
Secondary education and below	164	38%					
Vocational and bachelor's education	194	45%					
Master's and doctoral education	70	16%					
Not elsewhere classified	2	0.47%					
Household income (decile rank)							
1	25	5.8%					
2	14	3.3%					
3	7	1.6%					
4	15	3.5%					
5	35	8.1%					
6	44	10%					
7	30	7.0%					
8	45	10%					
9	65	15%					
10	123	29%					
Prefer not to answer	27	6.3%					

Appendix Table A.23 Sample distribution in Romania (N=440)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					8.6	4	0.07
18 – 29	56	13%	66	15%			
30 – 39	67	15%	72	16%			
40 – 49	78	18%	84	19%			
50 – 59	99	23%	77	18%			
60 – 99	140	32%	142	32%			
Gender					0.12	1	0.73
Women	224	51%	228	52%			
Men	212	49%	208	48%			
Non-binary / gender non-conforming	1						
Other	1						
Prefer not to answer	2						
Region					13	7	0.06
Nord-Vest	48	11%	58	13%			
Centru	52	12%	52	12%			
Nord-Est	66	15%	72	16%			
Sud-Est	57	13%	55	13%			
Sud-Muntenia	63	14%	67	15%			
București-Ilfov	76	17%	53	12%			
Sud-Vest Oltenia	39	8.9%	44	10%			
Vest	39	8.9%	39	8.9%			
Highest education level							
Secondary education and below	128	29%					
Vocational and bachelor's education	225	51%					
Master's and doctoral education	87	20%					
Not elsewhere classified	0	0%					
Household income (decile rank)							
1	9	2.0%					
2	3	0.68%					
3	5	1.1%					
4	8	1.8%					
5	16	3.6%					
6	12	2.7%					
7	26	5.9%					
8	43	9.8%					
9	48	11%					
10	254	58%					
Prefer not to answer	16	3.6%					

Appendix Table A.24 Sample distribution in Slovakia (N=414)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					5.7	4	0.23
18 – 29	78	19%	67	16%			
30 – 39	87	21%	77	19%			
40 – 49	78	19%	82	20%			
50 – 59	66	16%	66	16%			
60 – 99	105	25%	122	29%			
Gender					0.06	1	0.81
Women	214	52%	212	52%			
Men	196	48%	198	48%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	3						
Region (NUTS 3)					1.0	7	0.99
Bratislavský kraj	61	15%	55	13%			
Trnavský kraj	44	11%	43	10%			
Trenčiansky kraj	41	9.9%	44	11%			
Nitriansky kraj	51	12%	51	12%			
Žilinský kraj	52	13%	53	13%			
Banskobystrický kraj	46	11%	47	11%			
Prešovský kraj	59	14%	62	15%			
Košický kraj	60	14%	60	14%			
Highest education level							
Secondary education and below	186	45%					
Vocational and bachelor's education	106	26%					
Master's and doctoral education	120	29%					
Not elsewhere classified	2	0.48%					
Household income (decile rank)							
1	12	2.9%					
2	17	4.1%					
3	17	4.1%					
4	14	3.4%					
5	20	4.8%					
6	24	5.8%					
7	24	5.8%					
8	38	9.2%					
9	55	13%					
10	164	40%					
Prefer not to answer	29	7.0%					

Appendix Table A.25 Sample distribution in Slovenia (N=415)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					6.1	4	0.19
18 – 29	73	18%	60	14%			
30 – 39	68	16%	66	16%			
40 – 49	71	17%	76	18%			
50 – 59	79	19%	72	17%			
60 – 99	124	30%	141	34%			
Gender					0.13	1	0.72
Women	209	51%	205	50%			
Men	201	49%	205	50%			
Non-binary / gender non-conforming	2						
Other	1						
Prefer not to answer	2						
Region (NUTS 3)					4.7	11	0.95
Pomurska	25	6.0%	22	5.4%			
Podravska	69	17%	65	16%			
Koroška	16	3.9%	14	3.3%			
Savinjska	44	11%	51	12%			
Zasavska	10	2.4%	11	2.7%			
Posavska	12	2.9%	15	3.6%			
Jugovzhodna Slovenija	24	5.8%	29	6.9%			
Primorsko-notranjska	12	2.9%	10	2.5%			
Osrednjeslovenska	110	27%	109	26%			
Gorenjska	41	9.9%	42	10%			
Goriška	24	5.8%	23	5.6%			
Obalno-kraška	28	6.7%	23	5.6%			
Highest education level							
Secondary education and below	256	62%					
Vocational and bachelor's education	111	27%					
Master's and doctoral education	48	12%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	50	12%					
2	32	7.7%					
3	35	8.4%					
4	29	7.0%					
5	24	5.8%					
6	26	6.3%					
7	23	5.5%					
8	30	7.2%					
9	45	11%					
10	80	19%					
Prefer not to answer	41	9.9%					

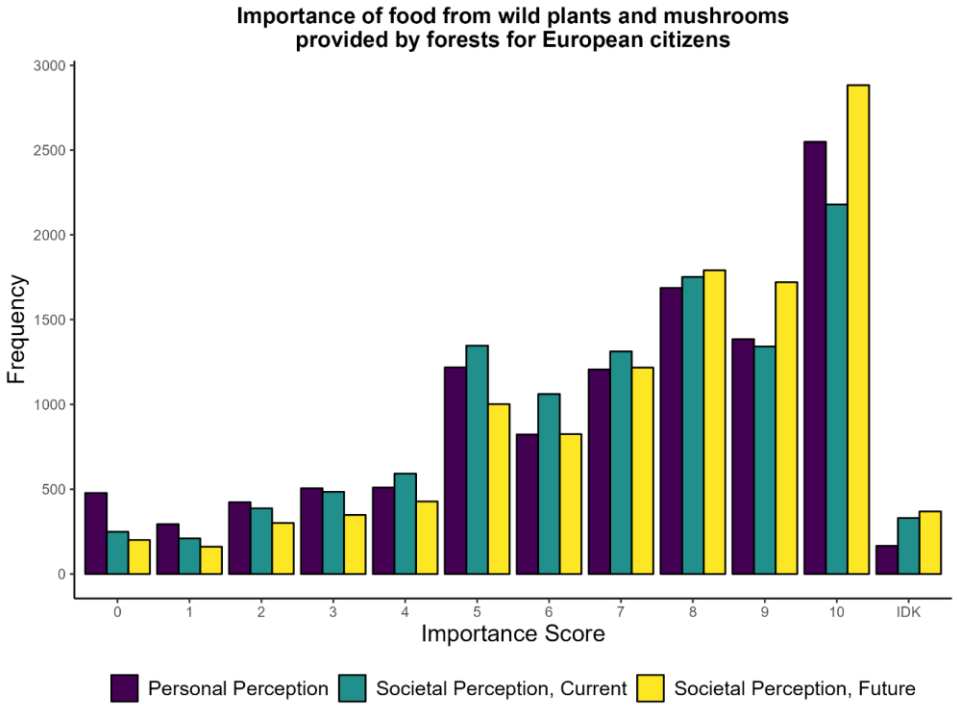
Appendix Table A.26 Sample distribution in Spain (N=401)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					5.3	4	0.26
18 – 29	59	15%	61	15%			
30 – 39	72	18%	59	15%			
40 – 49	82	20%	79	20%			
50 – 59	76	19%	74	18%			
60 – 99	112	28%	129	32%			
Gender					1.0	1	0.32
Women	216	54%	206	52%			
Men	184	46%	194	49%			
Non-binary / gender non-conforming	1						
Other	0						
Prefer not to answer	0						
Region					44	18	$p < 0.001$
Galicia	25	6.2%	24	5.9%			
Principado de Asturias	11	2.7%	8.8	2.2%			
Cantabria	9	2.2%	5.2	1.3%			
País Vasco	18	4.4%	18	4.6%			
Comunidad Foral de Navarra	9	2.2%	5.6	1.4%			
La Rioja	7	1.7%	2.8	0.7%			
Aragón	14	3.5%	11	2.8%			
Comunidad de Madrid	62	15%	57	14%			
Castilla y León	17	4.2%	21	5.2%			
Castilla-La Mancha	17	4.2%	17	4.3%			
Extremadura	14	3.5%	8.8	2.2%			
Cataluña	56	14%	64	16%			
Comunitat Valenciana	36	8.9%	43	11%			
Illes Balears	12	3.0%	10	2.6%			
Andalucía	62	15%	71	18%			
Región de Murcia	14	3.5%	12	3.1%			
Ciudad de Ceuta	1	0.25%	0.80	0.20%			
Ciudad de Melilla	5	1.2%	0.80	0.20%			
Canarias	16	4.0%	20	4.9%			
Highest education level							
Secondary education and below	123	31%					
Vocational and bachelor's education	217	54%					
Master's and doctoral education	60	15%					
Not elsewhere classified	1	0.25%					
Household income (decile rank)							
1	27	6.7%					
2	21	5.2%					
3	38	9.5%					
4	38	9.5%					
5	37	9.2%					
6	22	5.5%					
7	32	8.0%					
8	45	11%					
9	39	10%					
10	62	15%					
Prefer not to answer	40	10%					

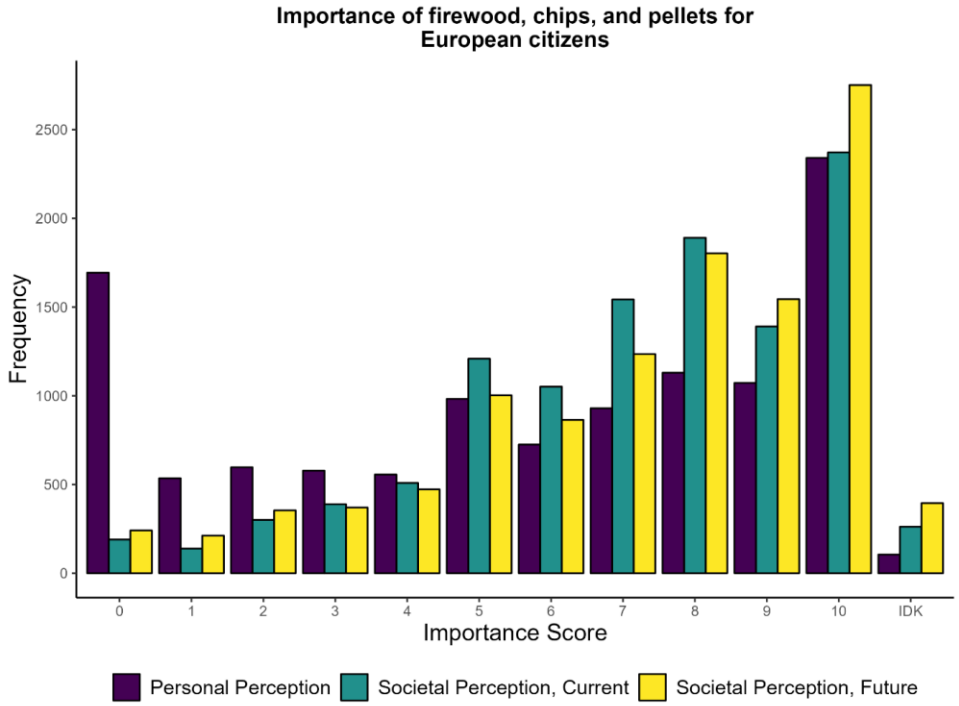
Appendix Table A.27 Sample distribution in Sweden (N=400)

Variable/Group	n	Sample percentage	Expected count	Population percentage	χ^2	df	*p*
Age					2.1	4	0.72
18 – 29	63	16%	73	18%			
30 – 39	69	17%	70	17%			
40 – 49	69	17%	63	16%			
50 – 59	67	17%	64	16%			
60 – 99	132	33%	130	33%			
Gender					0.04	1	0.84
Women	196	49%	198	50%			
Men	200	51%	198	50%			
Non-binary / gender non-conforming	3						
Other	1						
Prefer not to answer	0						
Region					1.3	7	0.99
Stockholm	92	23%	92	23%			
Östra Mellansverige	69	17%	67	17%			
Småland med öarna	32	8%	34	8.4%			
Sydsverige	57	14%	60	15%			
Västsverige	77	19%	80	20%			
Norra Mellansverige	38	9.5%	33	8.3%			
Mellersta Norrland	13	3.3%	14	3.6%			
Övre Norrland	22	5.5%	20	5.1%			
Highest education level							
Secondary education and below	179	45%					
Vocational and bachelor's education	178	45%					
Master's and doctoral education	43	11%					
Not elsewhere classified	0	0.0%					
Household income (decile rank)							
1	19	4.8%					
2	26	6.5%					
3	25	6.3%					
4	32	8.0%					
5	24	6.0%					
6	28	7.0%					
7	31	7.8%					
8	35	8.8%					
9	35	8.8%					
10	95	24%					
Prefer not to answer	50	13%					

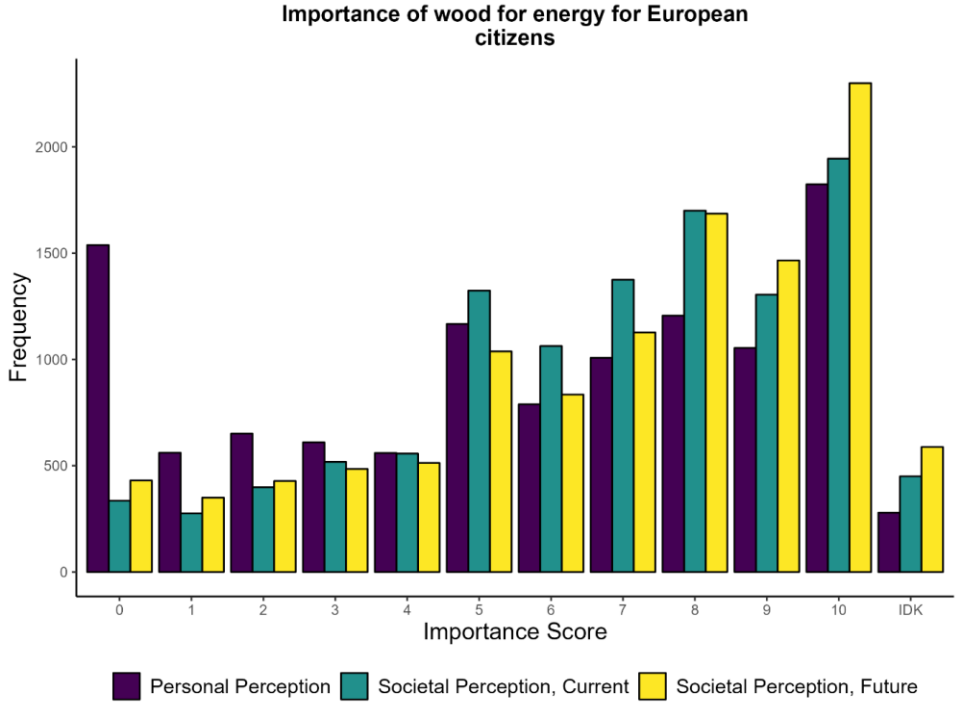
Appendix B: Distribution of Importance Scores by FES



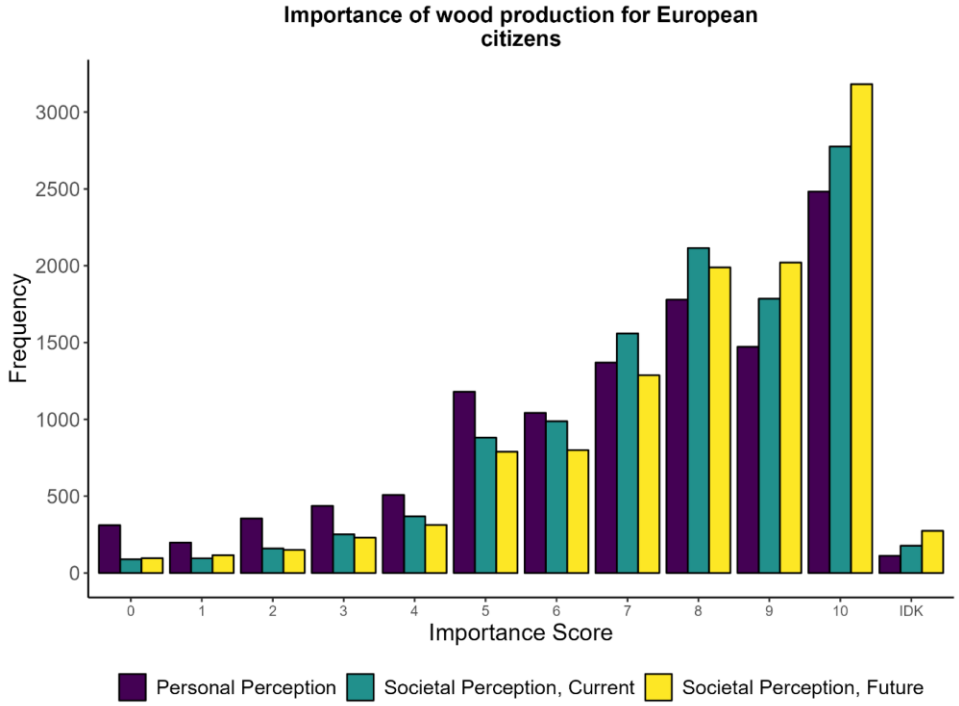
Appendix Figure B.1 Distribution of importance scores for food from wild plants and mushrooms provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



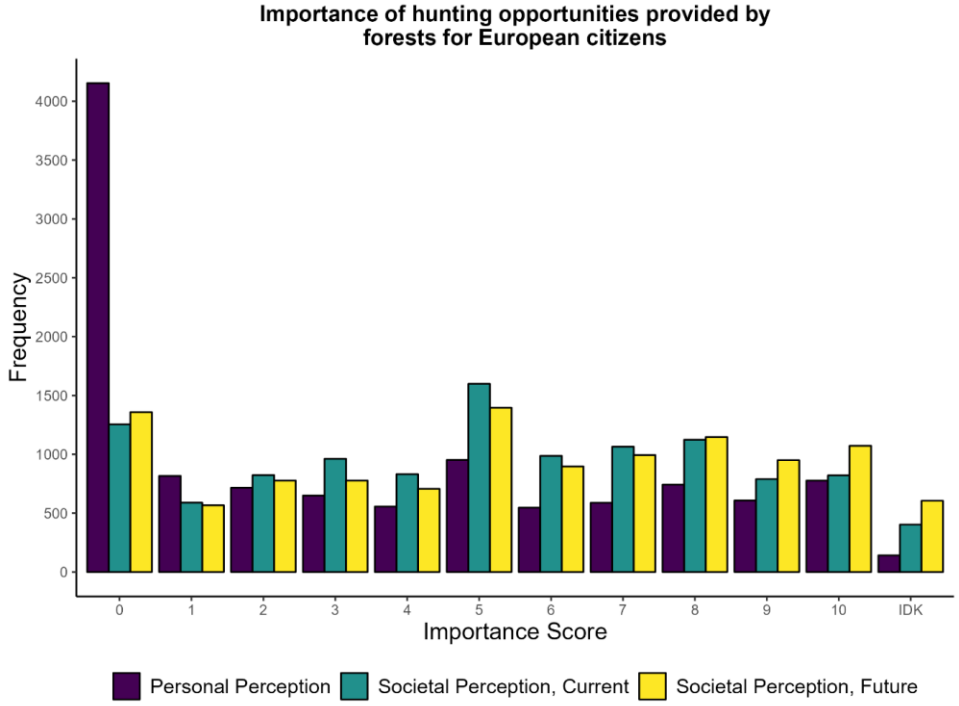
Appendix Figure B.2 Distribution of importance scores for firewood, chips, and pellets (for household use) for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



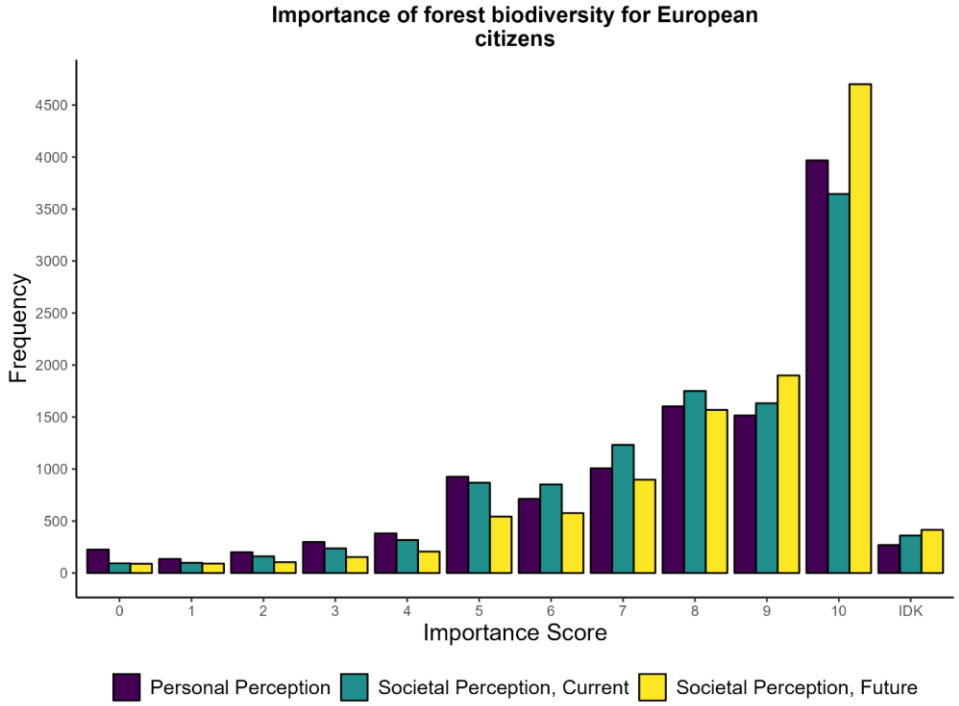
Appendix Figure B.3 Distribution of importance scores for wood for energy for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



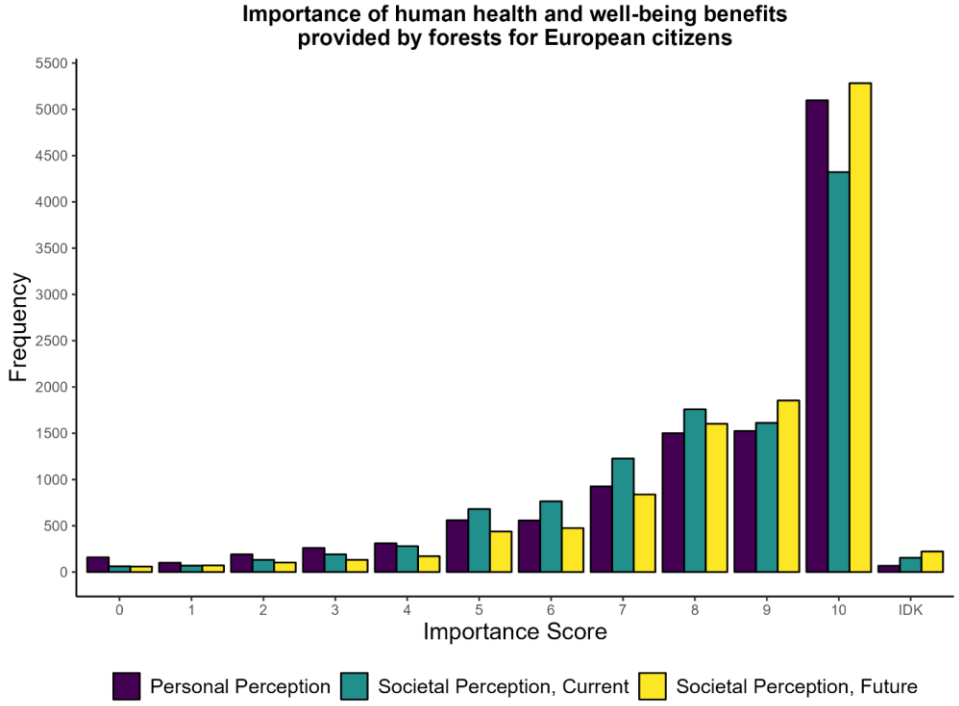
Appendix Figure B.4 Distribution of importance scores for wood production for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



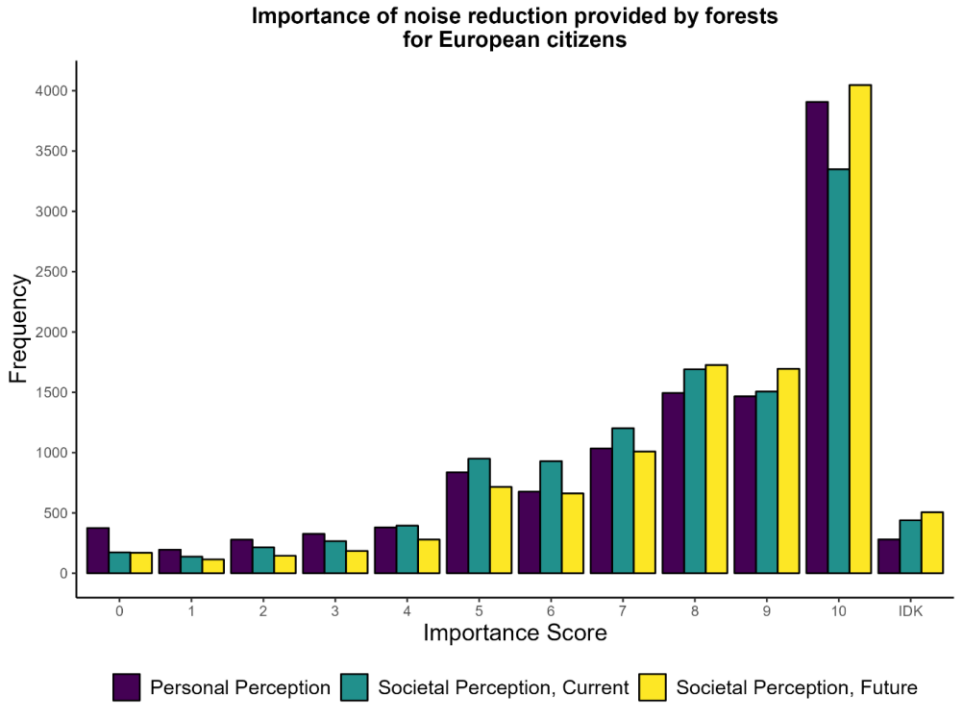
Appendix Figure B.5 Distribution of importance scores for hunting opportunities provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



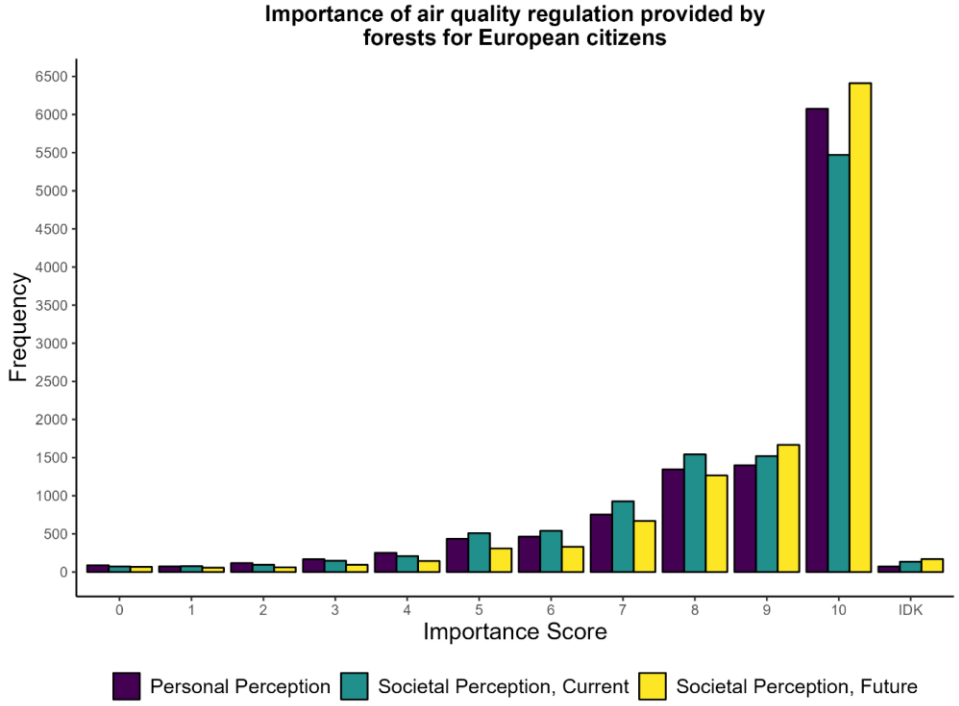
Appendix Figure B.6 Distribution of importance scores for forest biodiversity for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



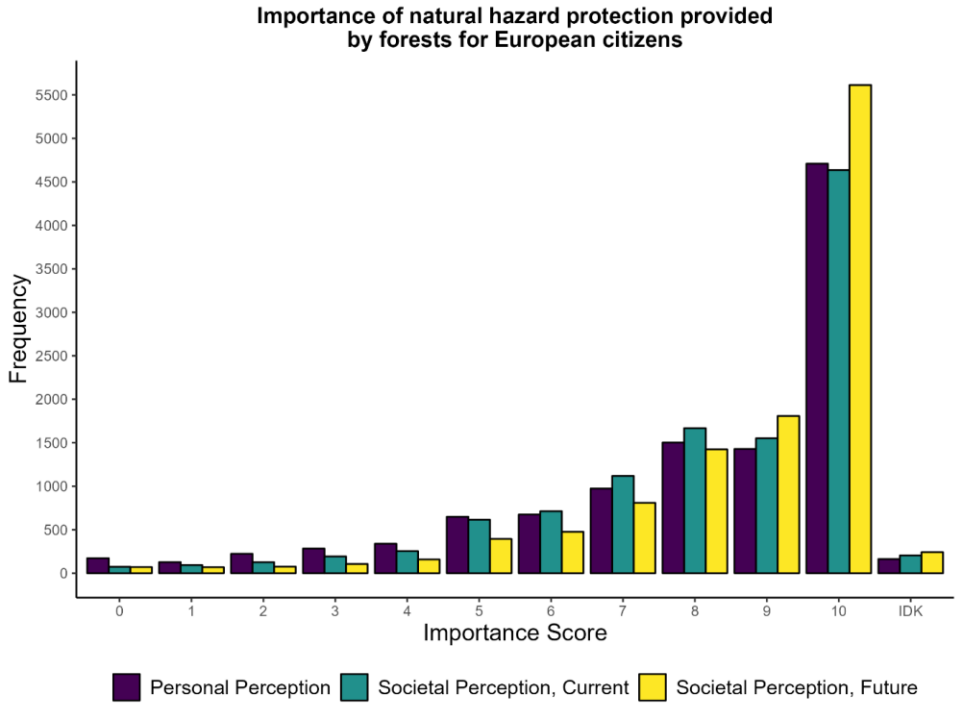
Appendix Figure B.7 Distribution of importance scores for human health and well-being benefits provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



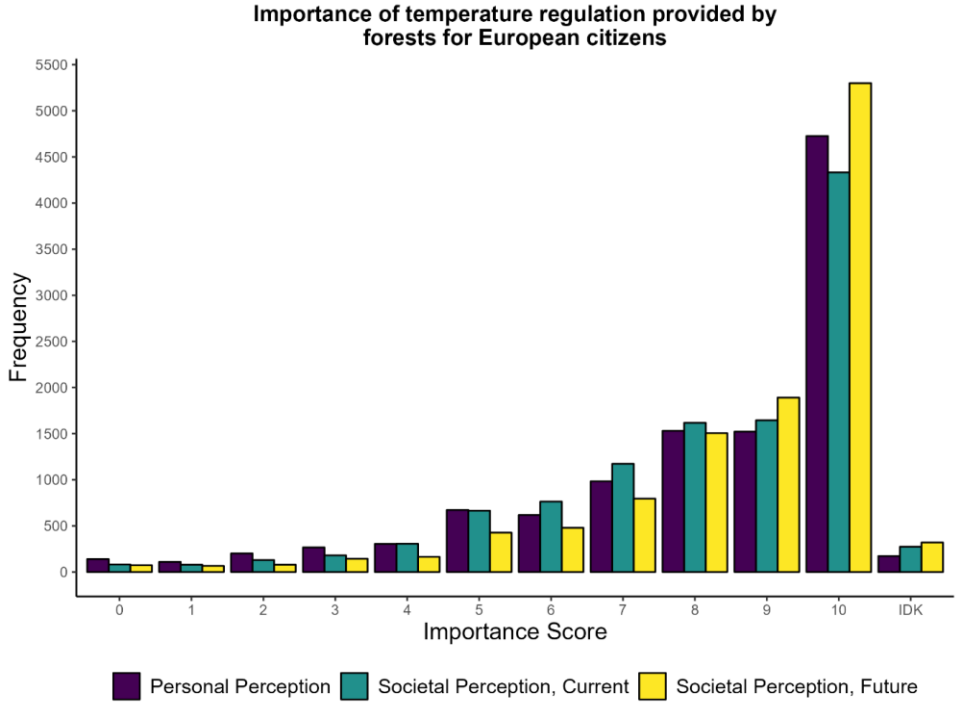
Appendix Figure B.8 Distribution of importance scores for noise reduction provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



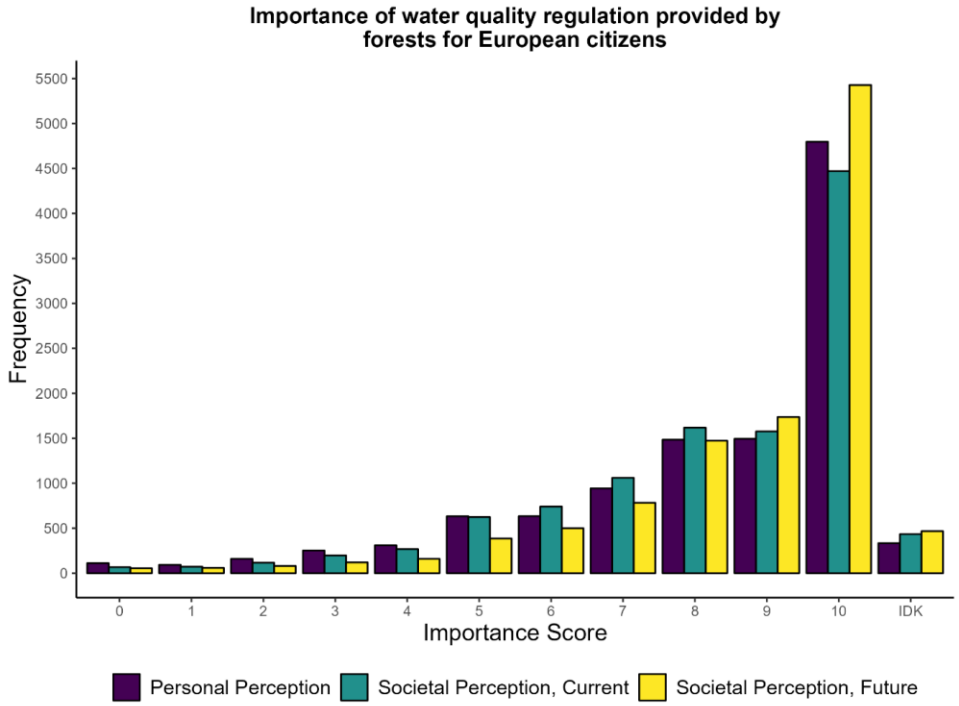
Appendix Figure B.9 Distribution of importance scores for air quality regulation provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



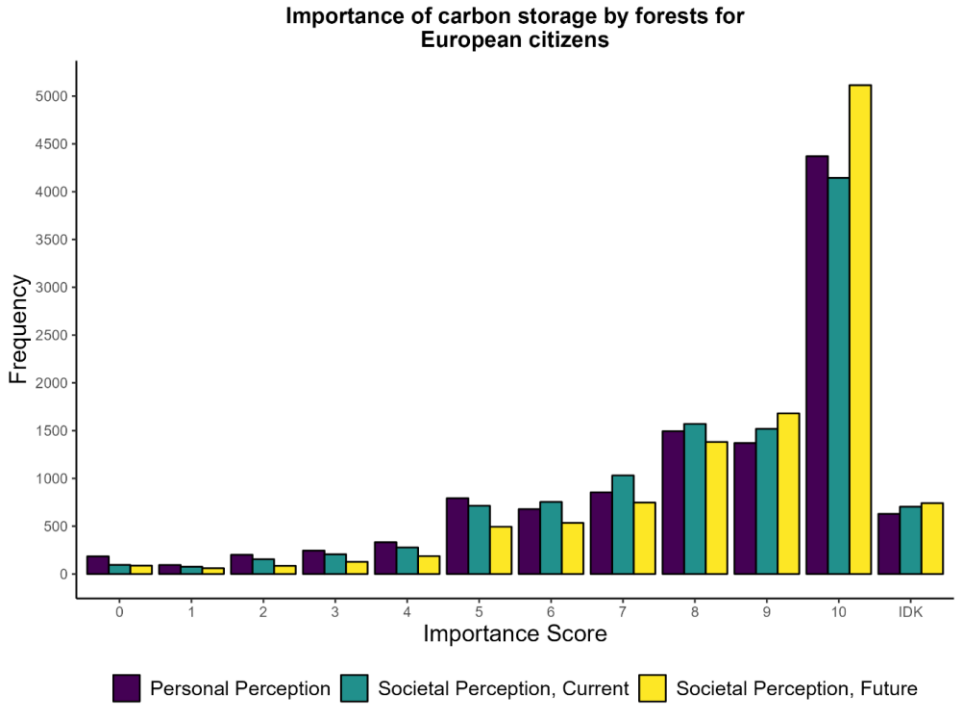
Appendix Figure B.10 Distribution of importance scores for natural hazard protection provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



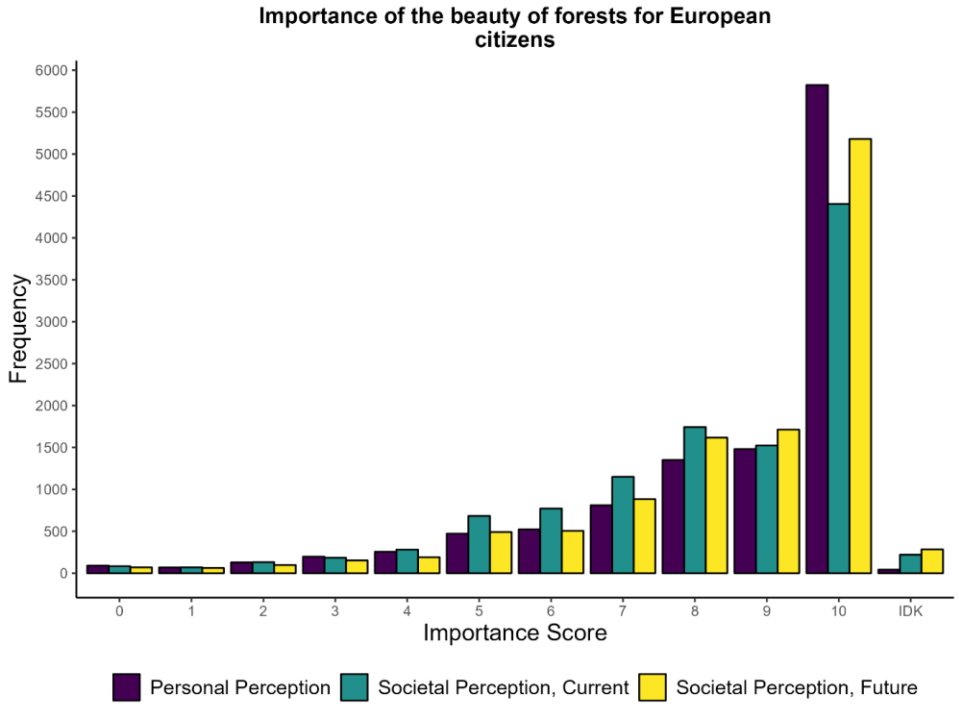
Appendix Figure B.11 Distribution of importance scores for temperature regulation provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



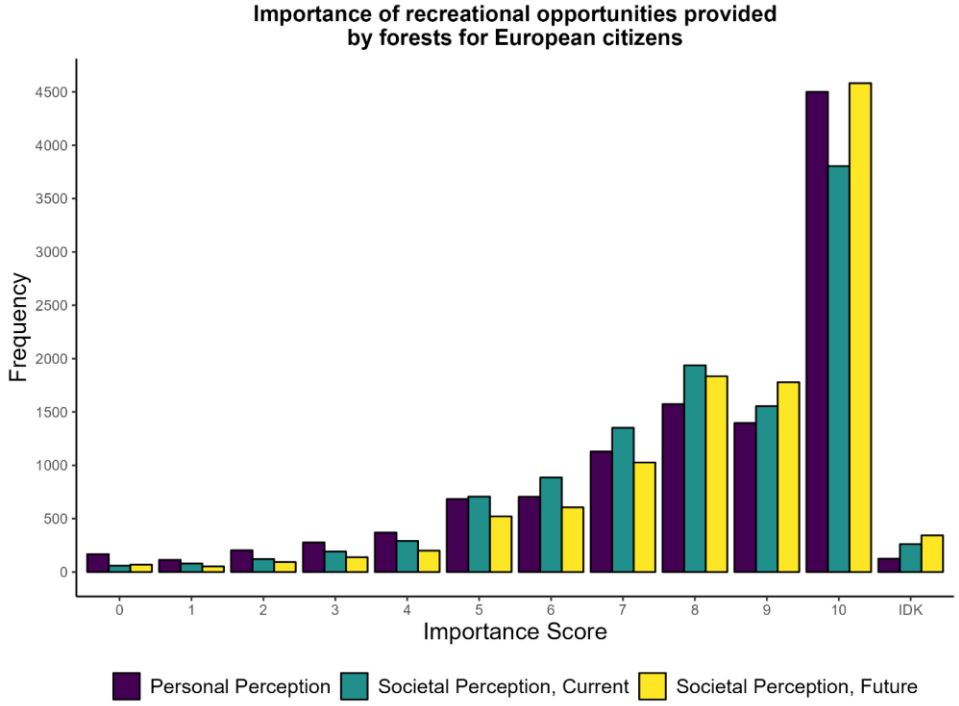
Appendix Figure B.12 Distribution of importance scores for water quality regulation provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



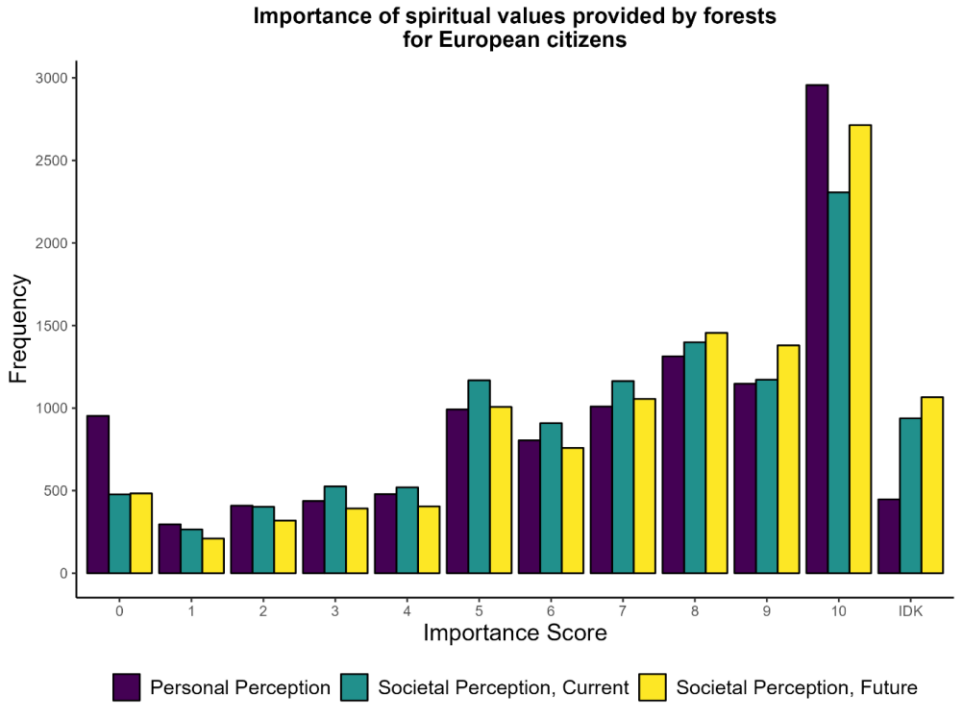
Appendix Figure B.13 Distribution of importance scores for carbon storage by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



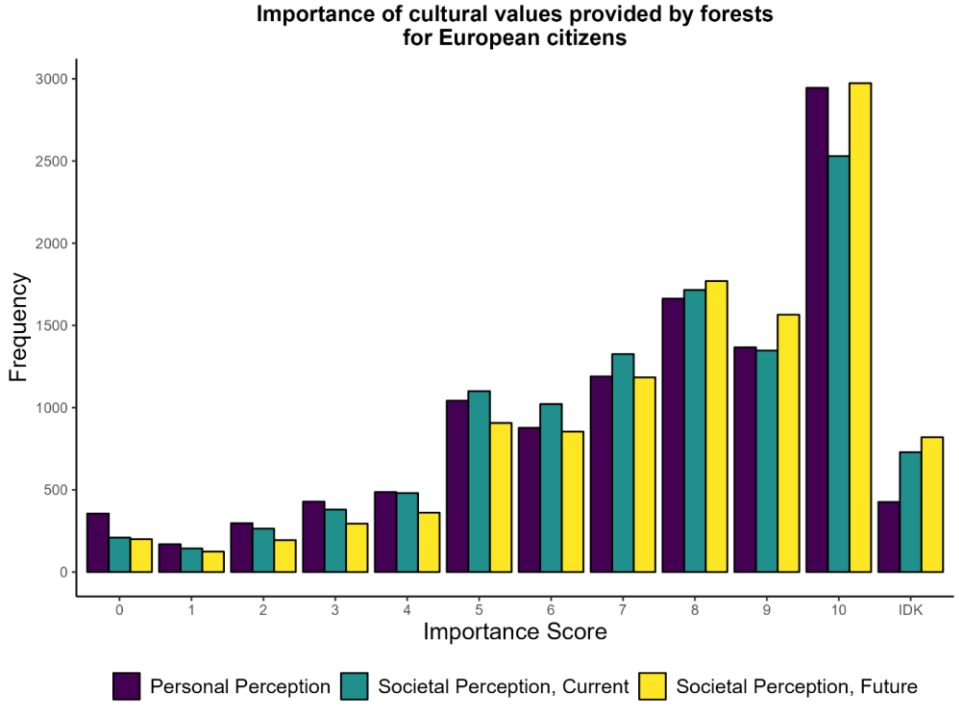
Appendix Figure B.14 Distribution of importance scores for the beauty of forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



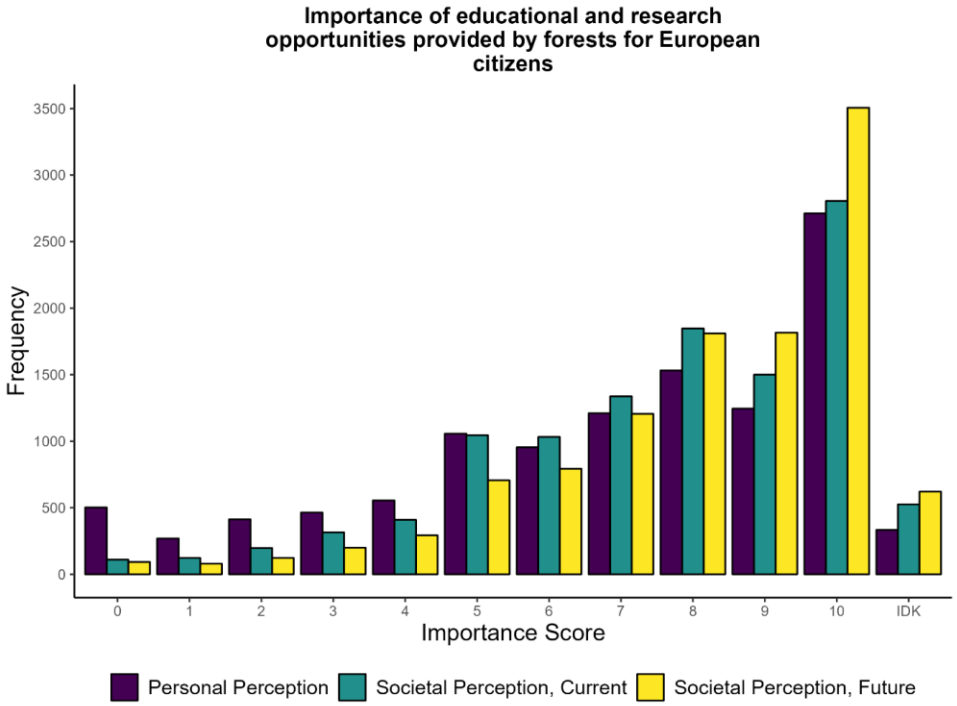
Appendix Figure B.15 Distribution of importance scores for recreational opportunities provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



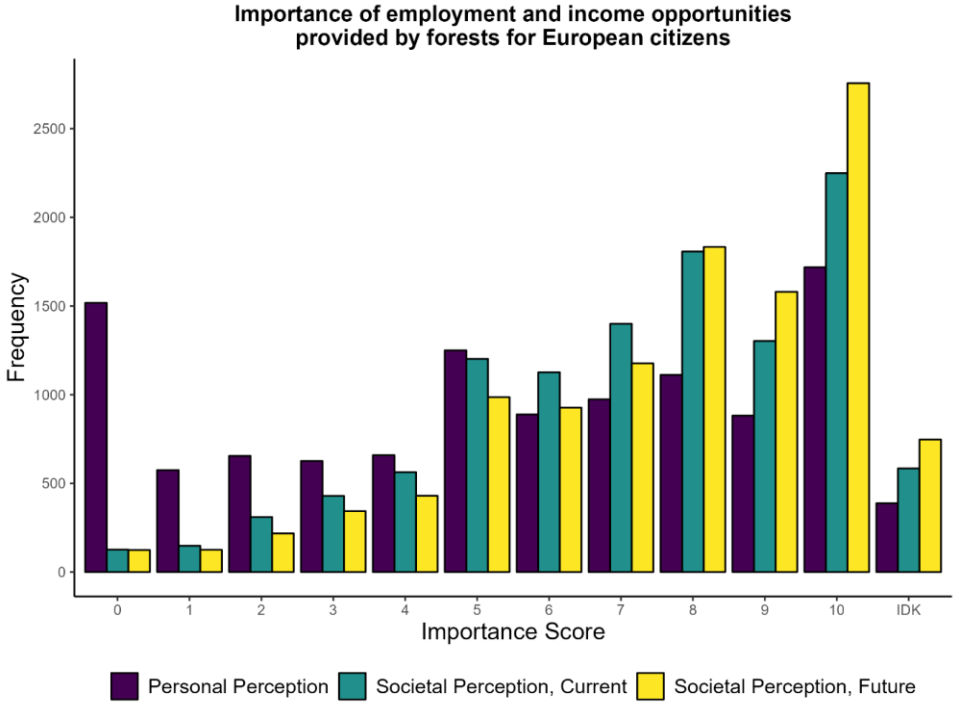
Appendix Figure B.16 Distribution of importance scores for spiritual values provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



Appendix Figure B.17 Distribution of importance scores for cultural values provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

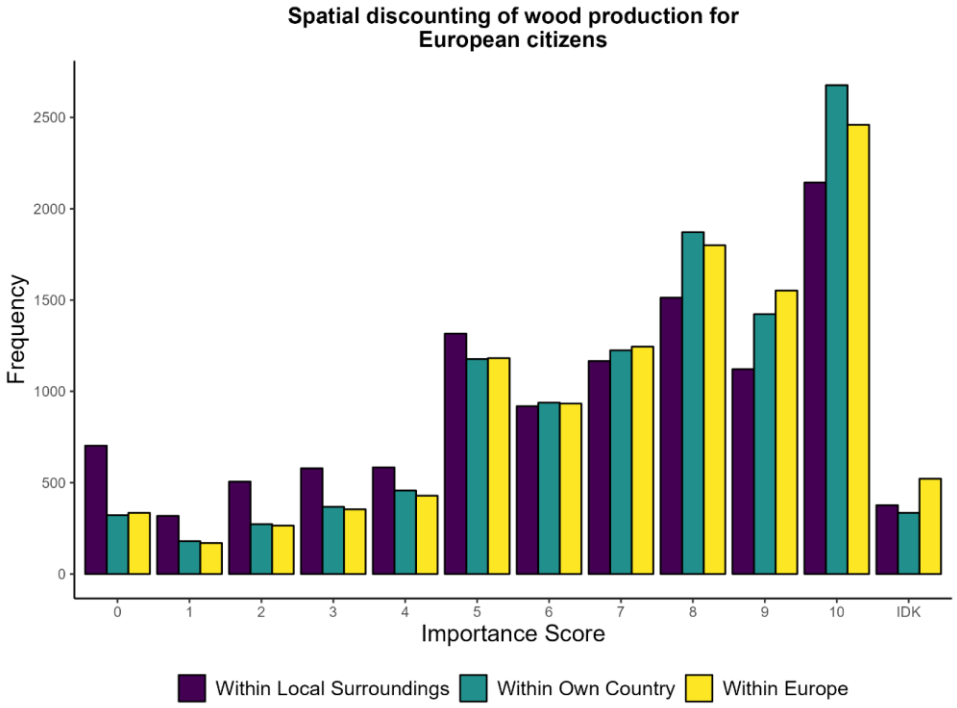


Appendix Figure B.18 Distribution of importance scores for educational and research opportunities provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

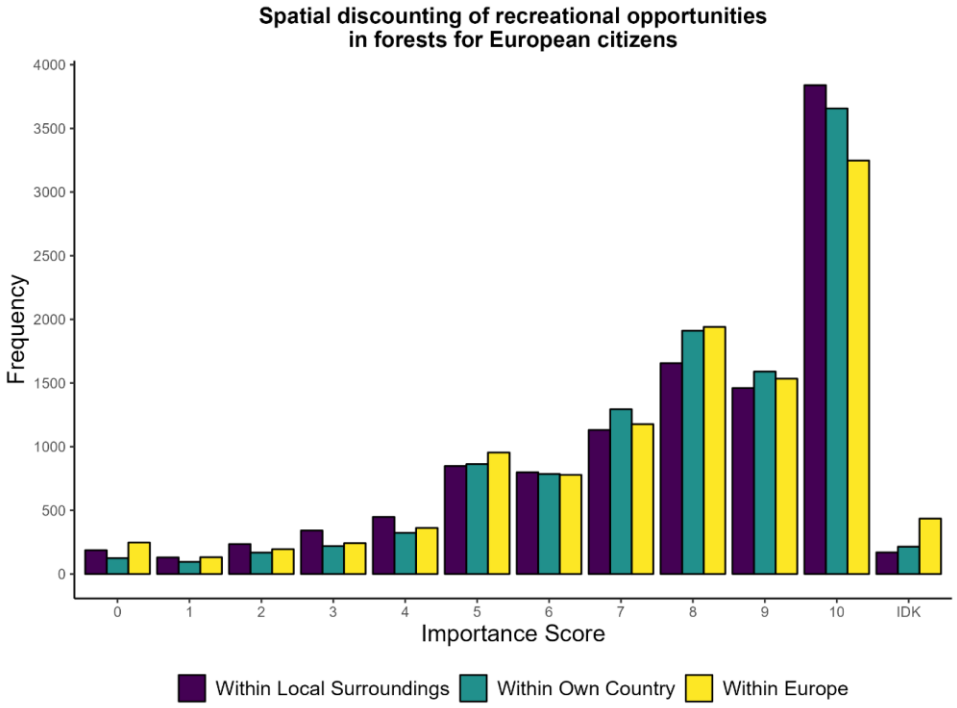


Appendix Figure B.19 Distribution of importance scores for employment and income opportunities provided by forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

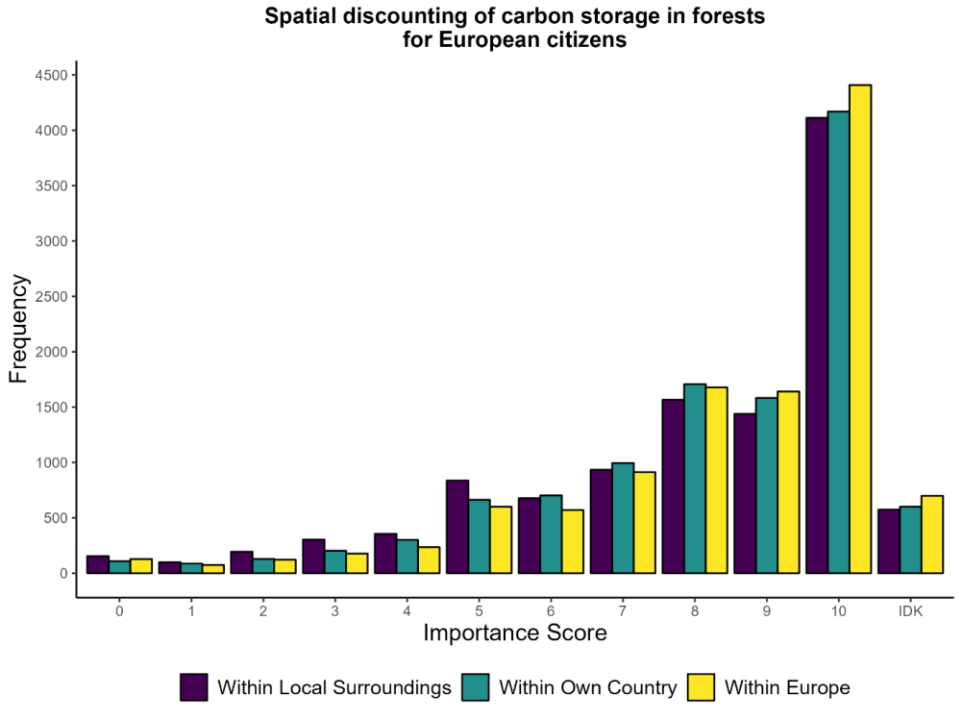
Appendix C: Spatial Discounting Distributions



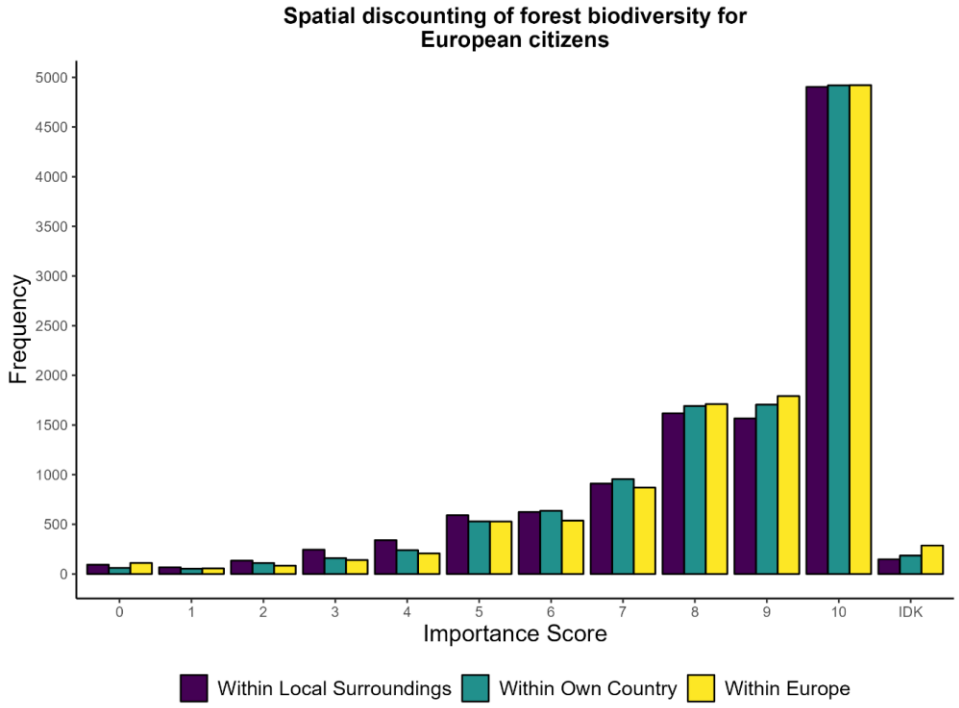
Appendix Figure C.1 Distribution of importance scores regarding proximity of wood production in forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.



Appendix Figure C.2 Distribution of importance scores regarding proximity of recreational opportunities in forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

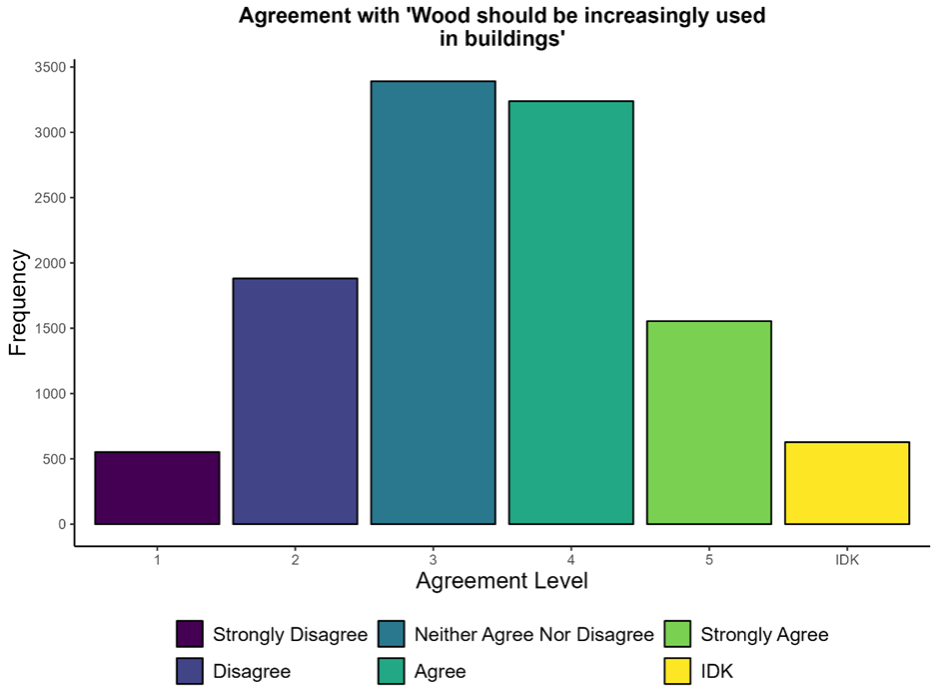


Appendix Figure C.3 Distribution of importance scores regarding proximity of forests storing carbon for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

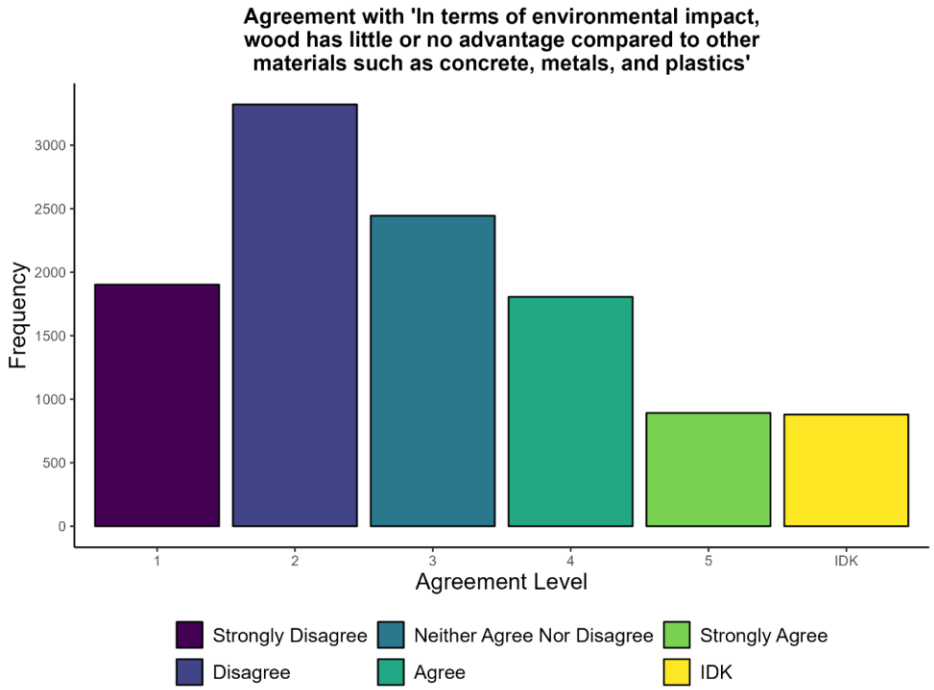


Appendix Figure C.4 Distribution of importance scores regarding proximity of biodiversity protection in forests for EU sample. Scale: 0 = Not important at all, 10 = Very important, IDK = I do not know.

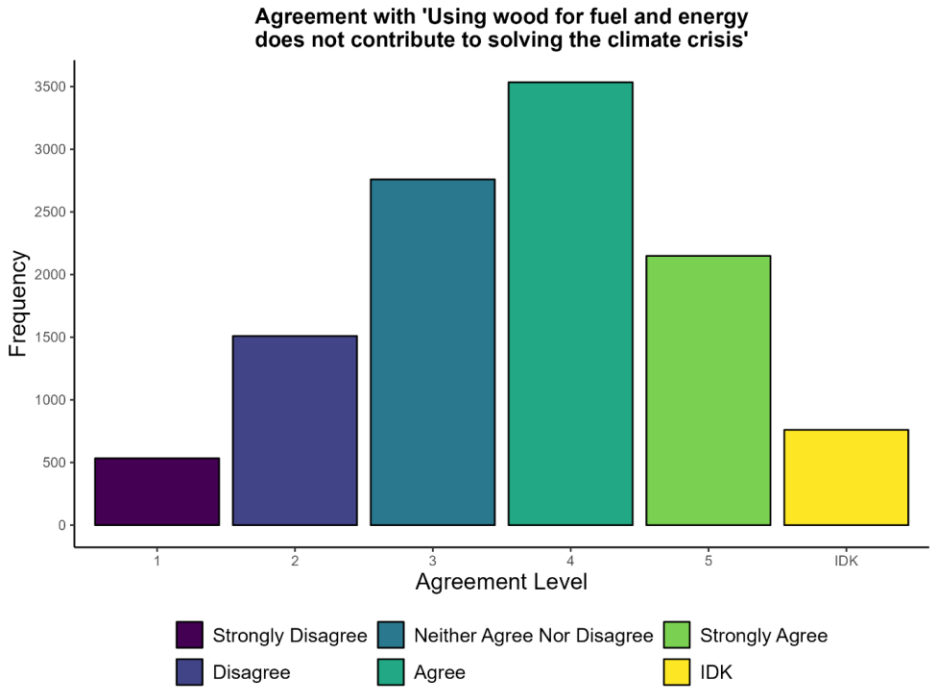
Appendix D: Forest-based Sector Statement Distributions for EU Sample



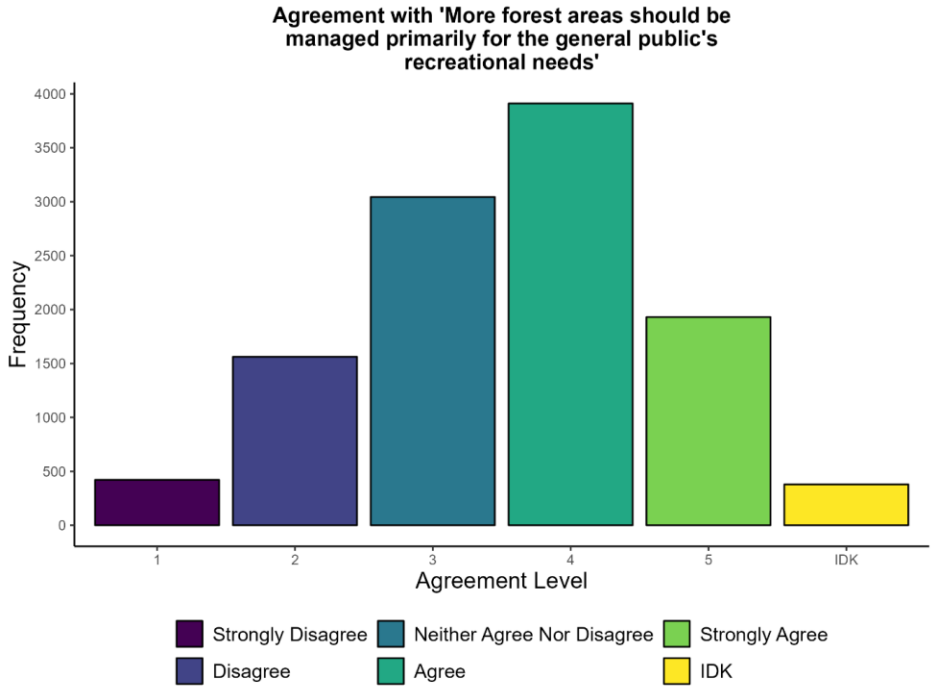
Appendix Figure D.1 Distribution of agreement with forest-based sector statement, "Wood should be increasingly used in buildings," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



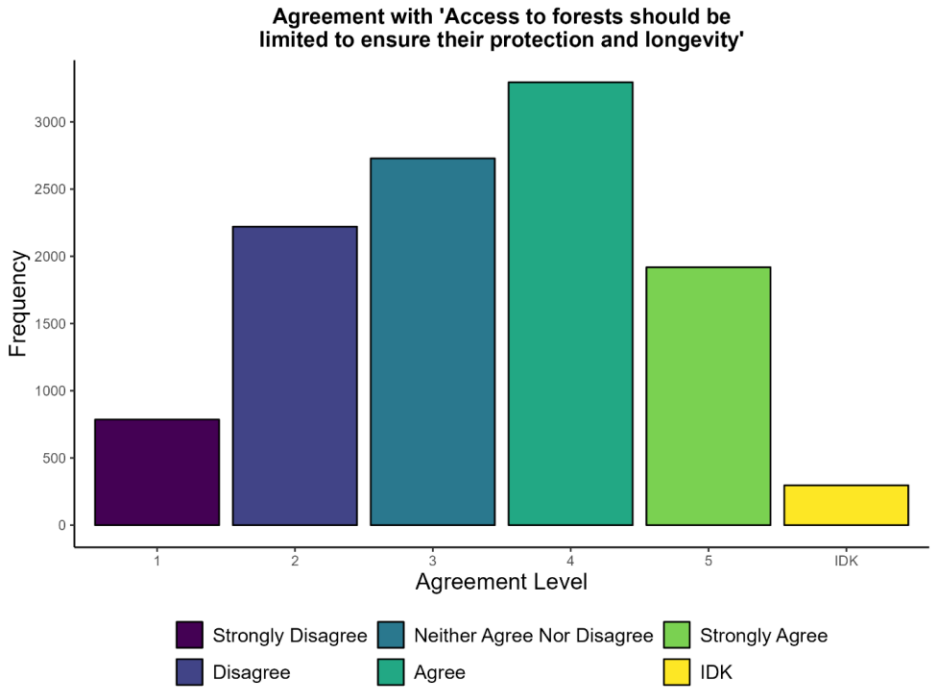
Appendix Figure D.2 Distribution of agreement with forest-based sector statement, "In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



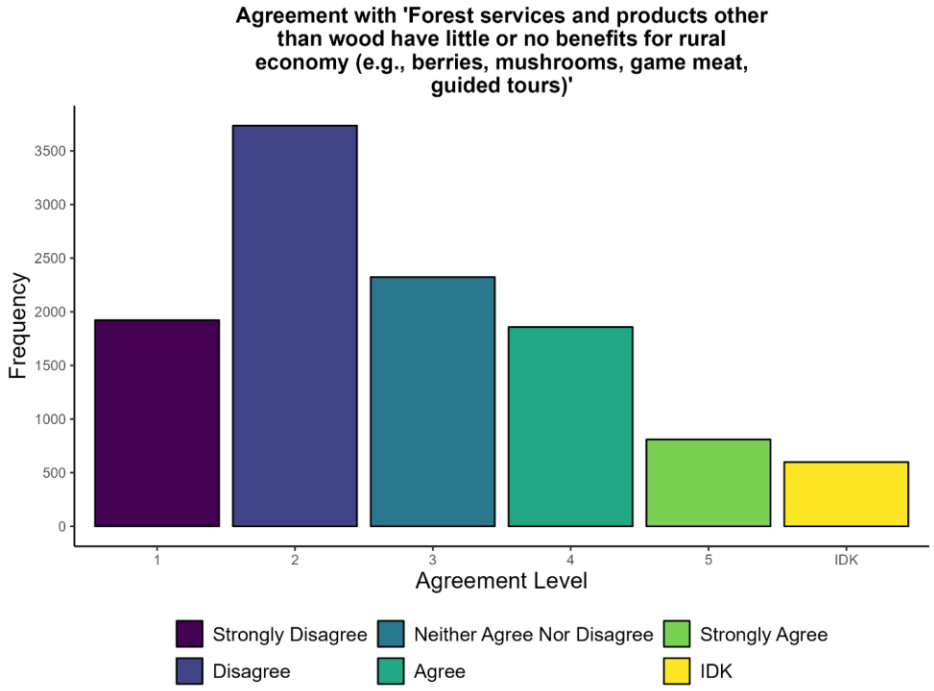
Appendix Figure D.3 Distribution of agreement with forest-based sector statement, "Using wood for fuel and energy does not contribute to solving the climate crisis," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



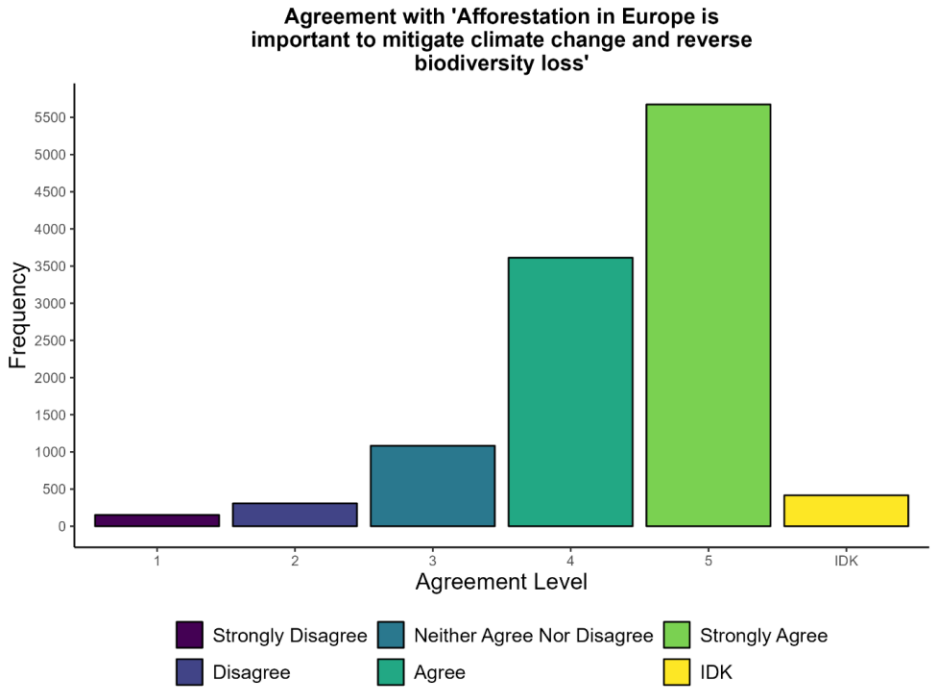
Appendix Figure D.4 Distribution of agreement with forest-based sector statement, "More forest areas should be managed primarily for the general public's recreational needs," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



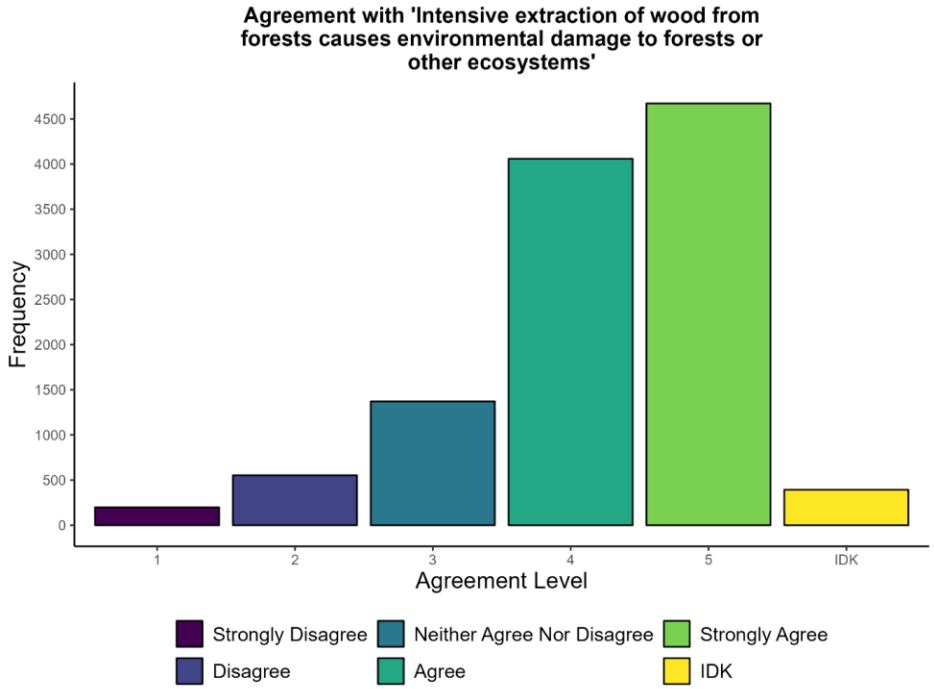
Appendix Figure D.5 Distribution of agreement with forest-based sector statement, "Access to forests should be limited to ensure their protection and longevity," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



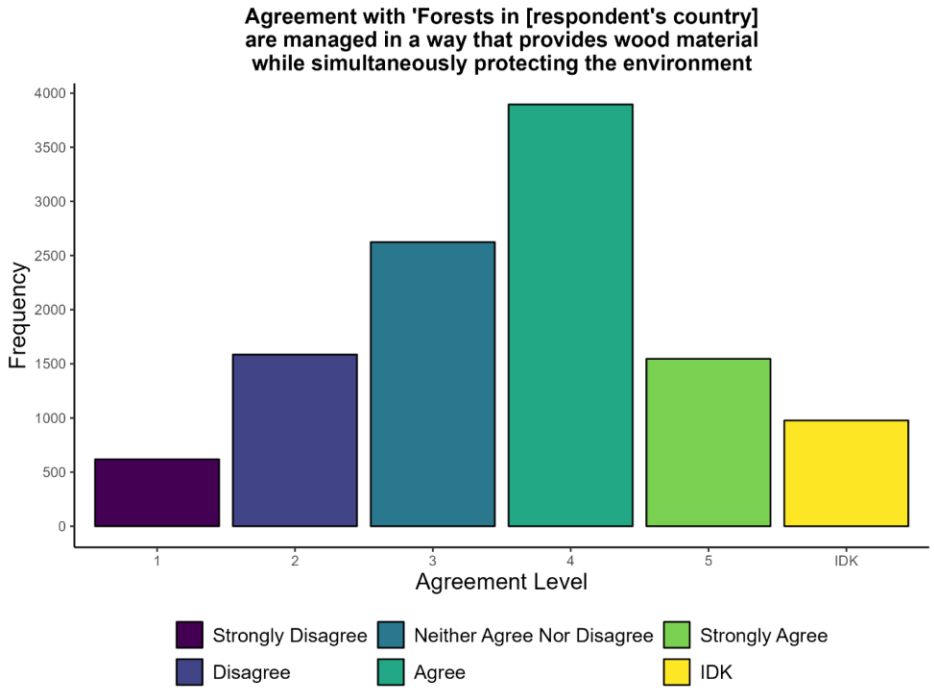
Appendix Figure D.6 Distribution of agreement with forest-based sector statement, "Forest services and products other than wood have little or no benefits for rural economy (e.g. berries, mushrooms, game meat, guided tours)," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



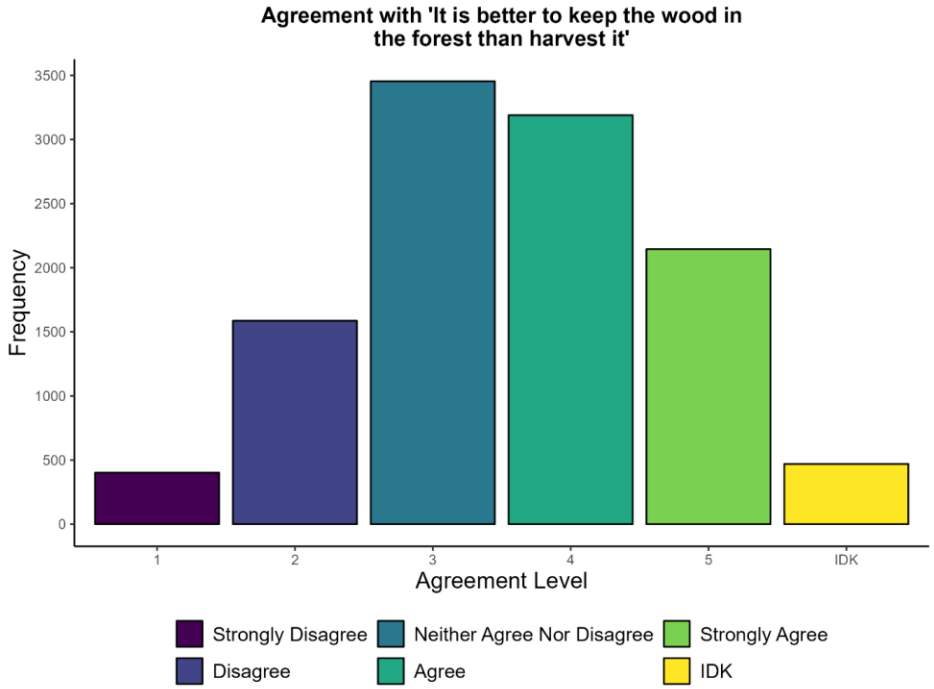
Appendix Figure D.7 Distribution of agreement with forest-based sector statement, "Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.



Appendix Figure D.8 Distribution of agreement with forest-based sector statement, "Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.

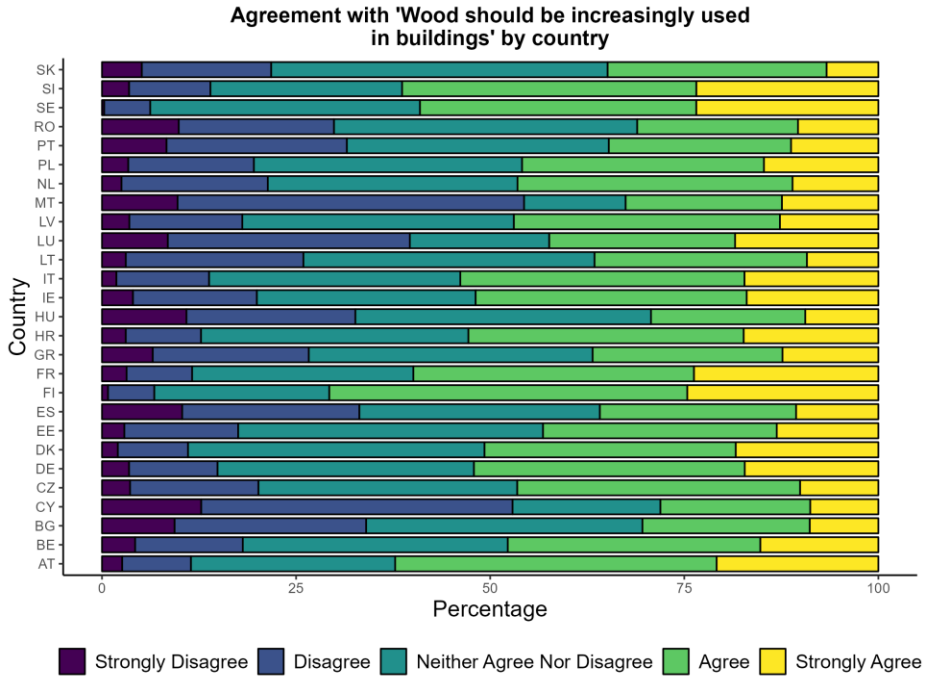


Appendix Figure D.9 Distribution of agreement with forest-based sector statement, "Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.

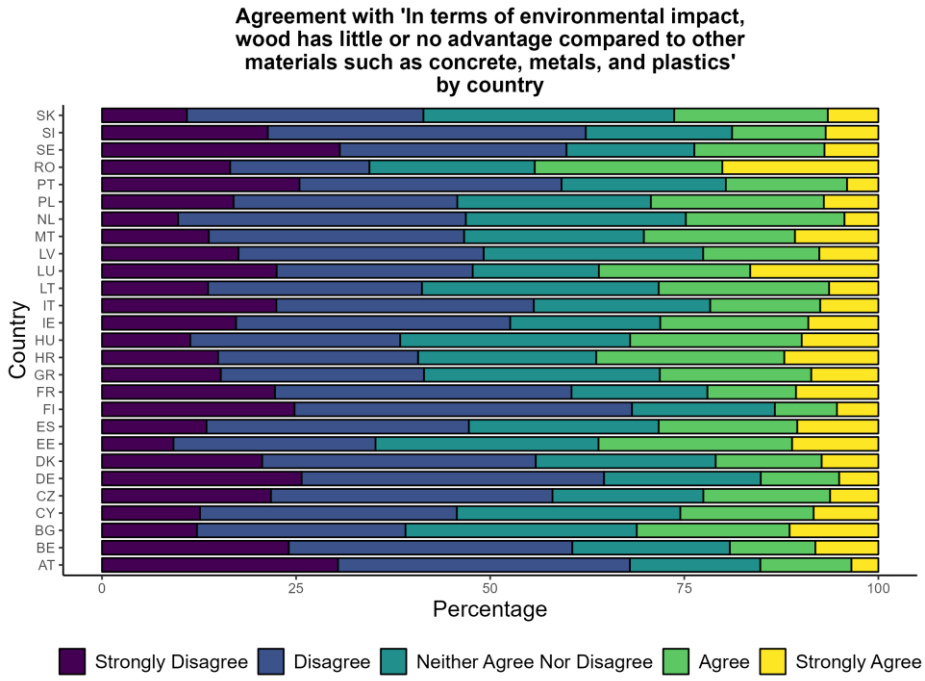


Appendix Figure D.10 Distribution of agreement with forest-based sector statement, "It is better to keep the wood in the forest than harvest it," for EU sample. Scale: 1 = Strongly disagree, 5 = Strongly agree, IDK = I do not know.

Appendix E: Forest-based Sector Statement Responses by Country

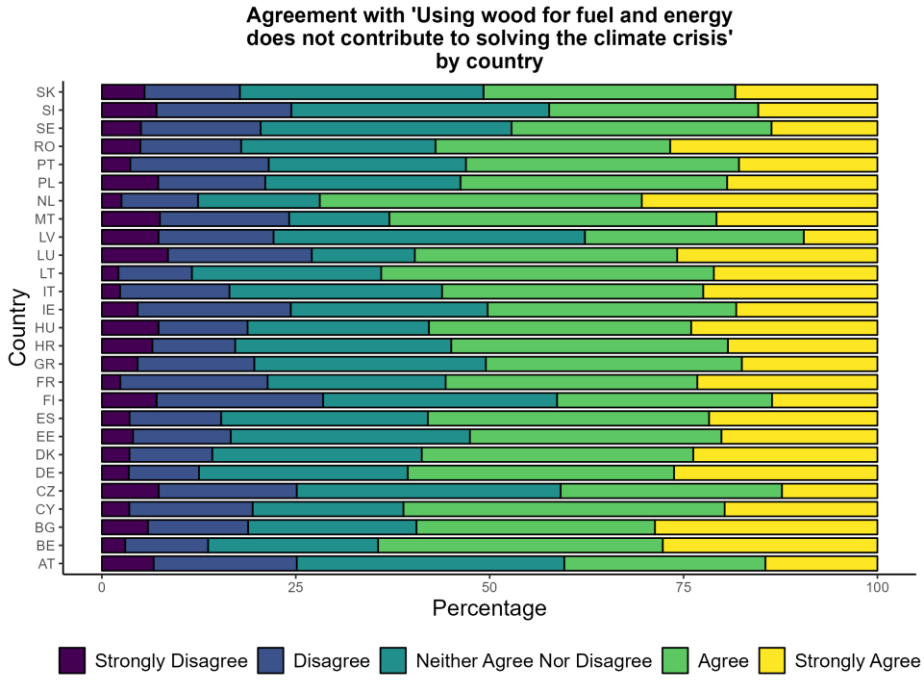


Appendix Figure E.5.1 Distribution of agreement with forest-based sector statement, "Wood should be increasingly used in buildings," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.

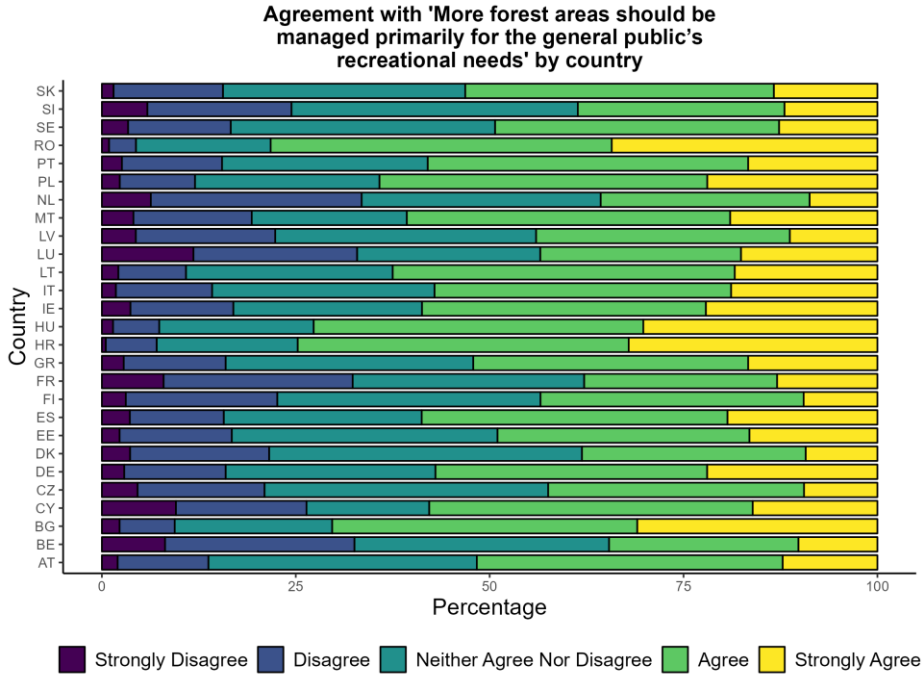


Appendix Figure E.5.2 Distribution of agreement with forest-based sector statement, "In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals,

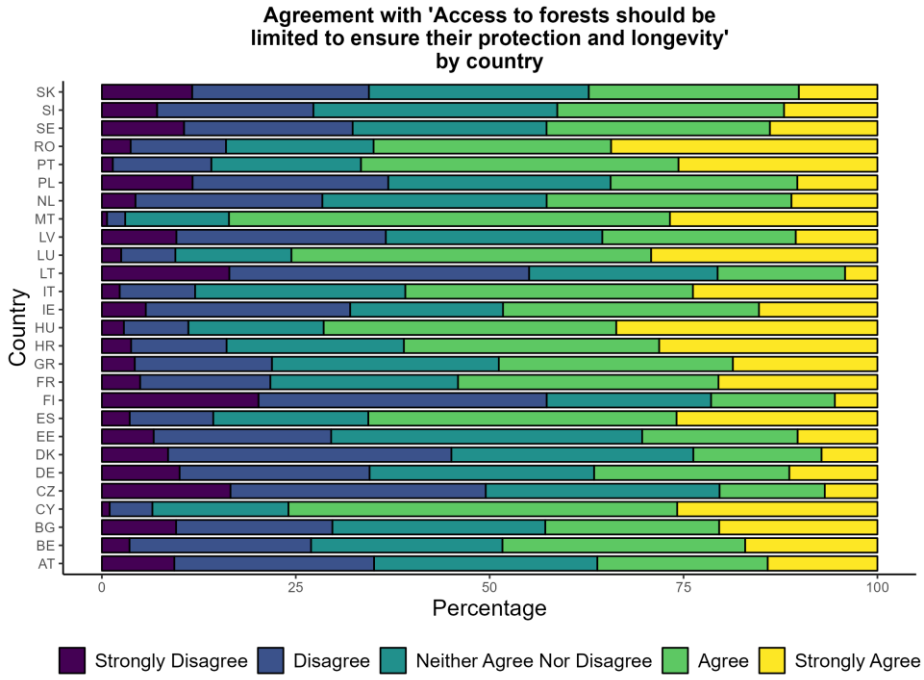
and plastics," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



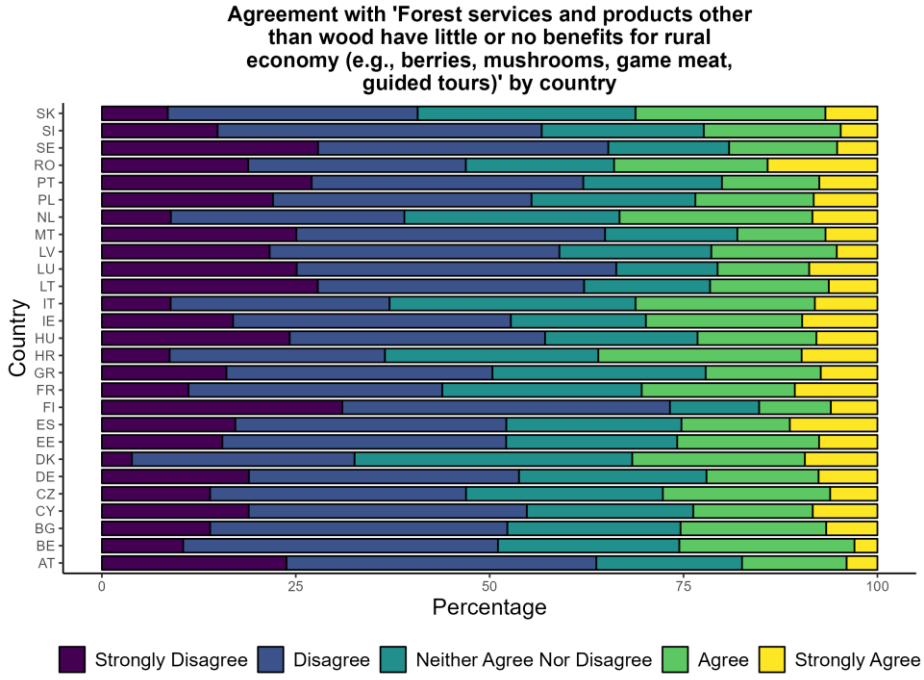
Appendix Figure E.5.3 Distribution of agreement with forest-based sector statement, "Using wood for fuel and energy does not contribute to solving the climate crisis," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



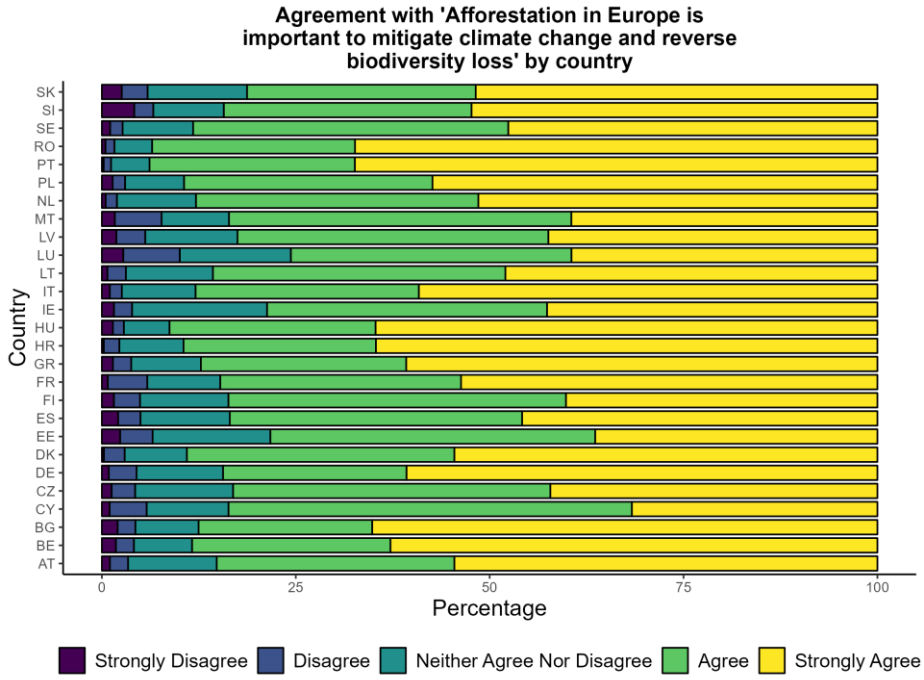
Appendix Figure E.5.4 Distribution of agreement with forest-based sector statement, "More forest areas should be managed primarily for the general public's recreational needs," for by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



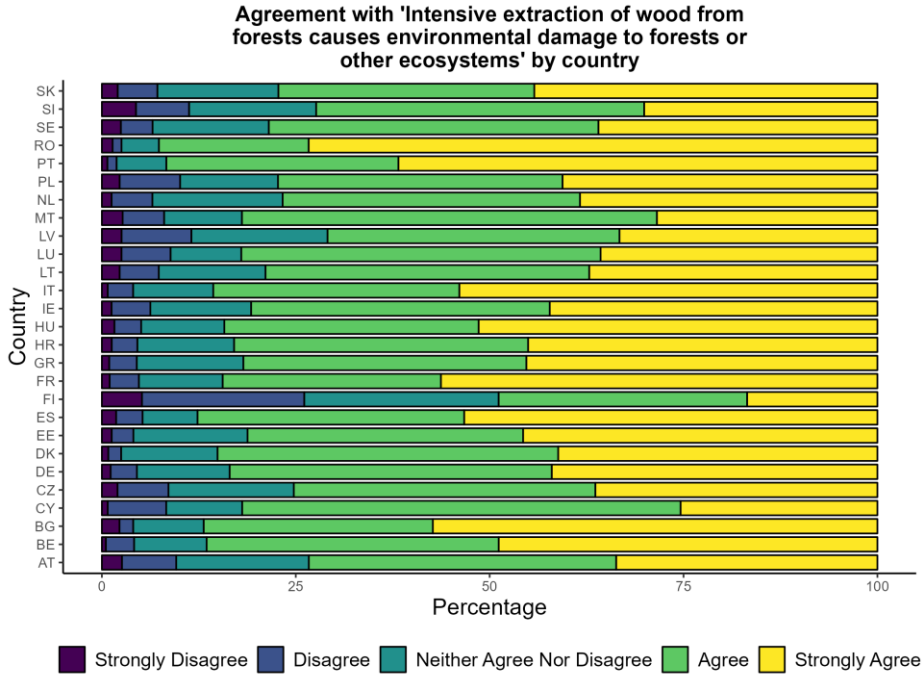
Appendix Figure E.5.5 Distribution of agreement with forest-based sector statement, "Access to forests should be limited to ensure their protection and longevity," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



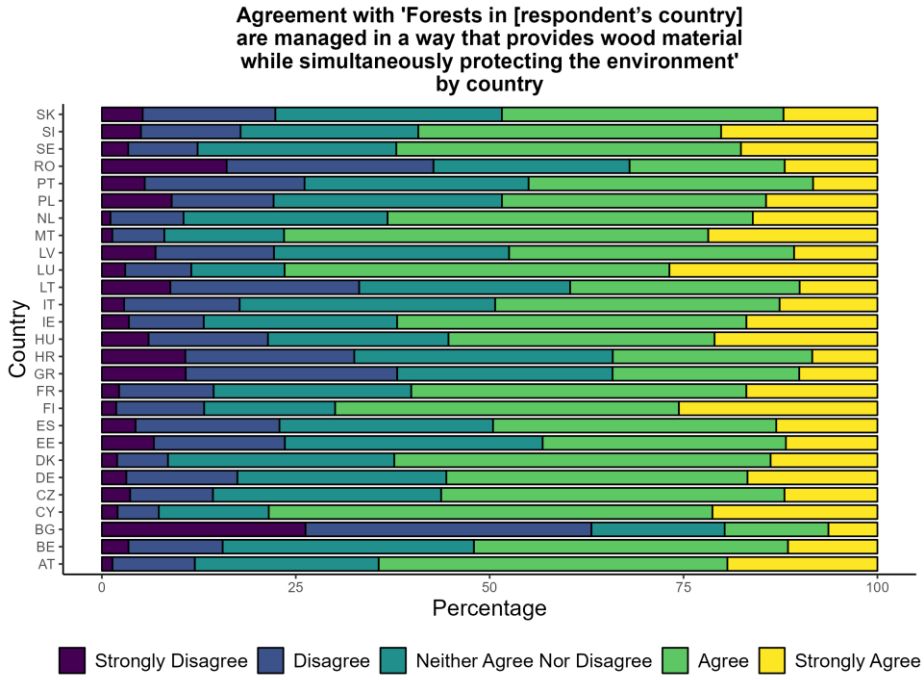
Appendix Figure E.5.6 Distribution of agreement with forest-based sector statement, "Forest services and products other than wood have little or no benefits for rural economy (e.g. berries, mushrooms, game meat, guided tours)," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



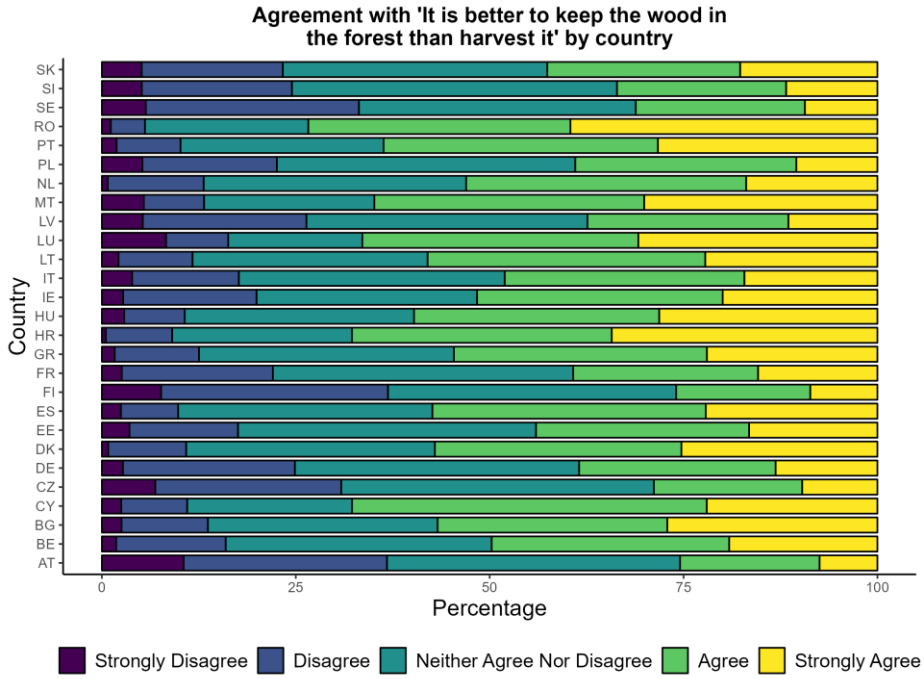
Appendix Figure E.5.7 Distribution of agreement with forest-based sector statement, "Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



Appendix Figure E.5.8 Distribution of agreement with forest-based sector statement, "Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



Appendix Figure E.5.9 Distribution of agreement with forest-based sector statement, "Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.



Appendix Figure E.5.10 Distribution of agreement with forest-based sector statement, "It is better to keep the wood in the forest than harvest it," by country. Scale: 1 = Strongly disagree, 5 = Strongly agree. Respondents selecting "I do not know" were removed from sample.

Appendix F: Forest-based Sector Statement Responses by Region

Appendix Table F.1 Mean and median agreement with forest-based sector statements of European citizens in Nordic region (N =2505). This sample includes Finland, Sweden, Denmark, Estonia, Latvia, and Lithuania. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.51	4	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.61	2	1
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.43	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.39	3	1
Access to forests should be limited to ensure their protection and longevity.	2.82	3	2
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.48	2	1
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.24	4	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	3.97	4	2
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.43	4	1
It is better to keep the wood in the forest than harvest it.	3.31	3	1

Appendix Table F.2 Mean and median agreement with forest-based sector statements of European citizens in West-Atlantic region (N=1261). This sample includes France, Ireland, and Portugal. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.39	3	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.52	2	1
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.47	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.43	4	1
Access to forests should be limited to ensure their protection and longevity.	3.51	4	1
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.64	2	2
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.37	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.34	5	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.47	4	1
It is better to keep the wood in the forest than harvest it.	3.54	4	1

Appendix Table F.3 Mean and median agreement with forest-based sector statements of European citizens in West-Central region (N=2095). This sample includes Germany, Austria, Belgium, Luxembourg, and Netherlands. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.41	4	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.50	2	1
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.62	4	1.3
More forest areas should be managed primarily for the general public's recreational needs.	3.27	3	2
Access to forests should be limited to ensure their protection and longevity.	3.31	3	2
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.58	2	1
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.32	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.12	4	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.65	4	1
It is better to keep the wood in the forest than harvest it.	3.38	3	1

Appendix Table F.3.4 Mean and median agreement with forest-based sector statements of European citizens in Eastern-Central region (N=1779). This sample includes Slovakia, Czech Republic, Hungary, and Poland. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.19	3	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.75	3	2
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.43	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.63	4	1
Access to forests should be limited to ensure their protection and longevity.	3.16	3	2
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.65	2	2
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.36	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.13	4	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.41	4	1
It is better to keep the wood in the forest than harvest it.	3.34	3	1

Appendix Table F.5 Mean and median agreement with forest-based sector statements of European citizens in South-Eastern region (N=1664). This sample includes Croatia, Bulgaria, Romania, and Slovenia. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.30	3	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.85	3	2
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.50	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.79	4	2
Access to forests should be limited to ensure their protection and longevity.	3.48	4	1
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.76	3	2
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.46	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.28	5	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	2.94	3	2
It is better to keep the wood in the forest than harvest it.	3.71	4	2

Appendix Table F.6 Mean and median agreement with forest-based sector statements of European citizens in Mediterranean region (N=1943). This sample includes Italy, Spain, Cyprus, Greece, and Malta. Exact translations of each question can be obtained upon request. Scale: 1 = Strongly disagree, 5 = Strongly agree. For these calculations, "I do not know" responses were not included.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.06	3	2
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.73	3	2
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.55	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.52	4	1
Access to forests should be limited to ensure their protection and longevity.	3.75	4	1
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.64	2	1
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.27	4	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.18	4	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.48	4	1
It is better to keep the wood in the forest than harvest it.	3.65	4	1

Appendix G: Survey Instrument

Societal expectations towards and perceptions of Europe's forests, forestry and the forest-based sector

INTRODUCTION TEXT

Welcome to our survey and thank you for your participation. We value your time and effort.

This survey is about societal preferences for forests and forest services across Europe.

By filling out this survey, you will provide information that is very much needed to understand what society demands and perceives in regards to forests, forestry, and the forest-based sector currently and in the future. It will take approximately 15 minutes to complete the survey.

This survey is being conducted by the University of Copenhagen (Denmark), Natural Resources Institute Finland, and the University of Natural Resources and Life Sciences, Vienna (Austria). Your participation is voluntary, and all responses are treated anonymously and confidentially. In this survey, there are no right or wrong answers; we would like your honest responses and opinions. The results of this research will be used to inform future policies in the EU aimed at forest research and innovation.

When you click on "Next", you give your consent that you would like to participate in the survey and that your answers may be used for research purposes. Of course, you have the right, at any time, to interrupt the completion of the questionnaire and withdraw your consent. The personal information (age, gender, etc.) that you submit as part of the survey cannot be used to trace your answers back to you personally. Your anonymized answers are stored on secured servers by research partners and will only be used for research. Please do not hesitate to contact us in case you have any questions or experience any technical problems.

*Footnote: This survey is part of a project under the Horizon Europe Programme called EUFORE. It supports the preparation for a possible European research and innovation partnership on forests. The project aims to develop a sustainable, transnational, co-creative environment to define, implement and evaluate research and innovation (R&I) agendas and roadmaps for the entire forest-based value chains in Europe.

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1. What is your age? *[open numeric answer]*

2. Please state your gender.

   (1) ☐ Woman
   (2) ☐ Man
   (3) ☐ Non-binary / Gender non-conforming
   (4) ☐ Other
   (5) ☐ I prefer not to answer

3. What region do you live in? *[Drop down menu with NUTS level]*

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SECTION A – Goods and Services from Forests

Forests can be different, from mountain forests to urban forests, and may serve multiple purposes. This can be timber production, recreational opportunities, and habitats for biodiversity among others. In the next series of questions, we would like you to think about how important you find these various goods and services that are provided by forests to you personally, to society currently, and to society in the future.

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In the following, we present you a series of goods and services that are **provided by forests**. For each of these goods and services, please indicate on a scale from 0 to 10, 0 being "not at all important" and 10 being " very important", how important these goods and services are to **you personally, how important you believe them to be to** *(insert respondent's country)* **society currently, and how important you believe they will be to** *(insert respondent's country)* **society in the future**.

4. Food from wild plants or mushrooms provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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5. Firewood, chips, and pellets (for household use)…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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6. Wood for energy (burning wood material for district heating, and/or energy for the power grid)…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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7. Wood production (for products such as buildings, furniture, paper, packaging, textiles, etc.)…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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8. Hunting opportunities provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know

…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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9. Forest biodiversity…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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10. Human health and wellbeing benefits provided by being in forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

country) society in the future.												

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11. Noise reduction provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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12. Air quality regulation provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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13. Natural hazard protection (flood control, avalanche protection, drought mitigation) provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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14. Temperature regulation (cooling and shelter effect) provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

15. Water quality regulation provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

16. Carbon storage by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

17. The beauty of forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…is important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…is important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

18. Recreational opportunities provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

19. Spiritual values provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

20. Cultural values provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know

…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

20. Education and research opportunities provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's country)* society in the future.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

22. Employment and income opportunities provided by forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…are important to me personally.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…are important to *(insert respondent's country)* society currently.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…will be important to *(insert respondent's*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

country) society in the future.												

<<Page Break>>

23. If you were to decide how policy should prioritize different forest goods and services in Europe, how much weight would you allocate to the following goods and services? *[Values input are between 0% and 100% for any given service. The sum of all services must be 100%]*

a. Wood production
b. Carbon storage
c. Biodiversity
d. Recreational opportunities

<<Page Break>>

SECTION B – Forest Goods and Services at Various Spatial Scales

We would like to know how important you find the proximity of certain forest goods and services. For each of these goods and services, please indicate on a scale from 0 to 10, 0 being "not at all important" and 10 being " very important", how important they are on a given spatial scale. If you feel that a particular good or service is important to you equally across spatial scales, please mark accordingly.

<<Page Break>>

24. How important is it to you that wood is produced in forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…in your local surroundings?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…in *(insert respondent's country)*?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…within Europe?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

25. How important is it to you that there is access to recreational opportunities in forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…in your local surroundings?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…in *(insert respondent's country)*?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…within Europe?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

26. How important is it to you that biodiversity is protected in forests…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…in your local surroundings?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…in *(insert respondent's country)*?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…within Europe?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

27. How important is it to you that forests store carbon…

	0	1	2	3	4	5	6	7	8	9	10	I do not know
…in your local surroundings?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…in *(insert respondent's country)*?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
…within Europe?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

<<Page Break>>

SECTION C – Forest-based Sector

28. In the following, we present you a series of statements about attitudes toward the forest-based sector. For each of the following statements please indicate to what degree you agree or disagree.

		(1) Strongly disagree	(2) Disagree	(3) Neither agree nor disagree	(4) Agree	(5) Strongly Agree	(77) I do not know
a	Wood should increasingly be used in buildings.	☐	☐	☐	☐	☐	☐
b	In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	☐	☐	☐	☐	☐	☐
c	Using wood for fuel and energy does not contribute to solving the climate crisis.	☐	☐	☐	☐	☐	☐
d	More forest areas should be managed primarily for the general public's recreational needs.	☐	☐	☐	☐	☐	☐
e	Access to forests should be limited to ensure their protection and longevity.	☐	☐	☐	☐	☐	☐
f	Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	☐	☐	☐	☐	☐	☐
g	Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	☐	☐	☐	☐	☐	☐
h	Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	☐	☐	☐	☐	☐	☐

i	Forests in *(insert respondent's country)* are managed in a way that provides wood material while simultaneously protecting the environment.	☐	☐	☐	☐	☐	☐
j	It is better to keep the wood in the forest than harvest it.	☐	☐	☐	☐	☐	☐

<<Page Break>>

SECTION D – Additional Questions

The next two questions are unrelated to the previous survey questions you have completed regarding forests and serve to gather additional information.

<<Page Break>>

29. Imagine the following situation: Today you unexpectedly received [purchasing power parity of 1,000 euro expressed in local currency]. How much of this amount would you donate to a good cause?

<<Page Break>>

We now ask you for your willingness to act in a certain way. Please again indicate your answer on a scale from 0 to 10. A 0 means "I would be completely unwilling to do so," and a 10 means "I would be very willing to do so."

30. How willing are you to give to good causes without expecting anything in return?

<<Page Break>>

SECTION E – Background Information

31. Please state your highest level of completed education.

(1) ☐ Less than primary education or no education
(2) ☐ Primary education
(3) ☐ Lower secondary education
(4) ☐ Upper secondary education
(5) ☐ Vocational education
(6) ☐ Bachelor's or equivalent

(7) ☐ Master's or equivalent
(8) ☐ Doctoral or equivalent
(9) ☐ Not elsewhere classified

32. What is your current employment status?

(1) ☐ Full-time
(2) ☐ Part-time
(3) ☐ Seeking work currently
(4) ☐ Retired
(5) ☐ Not in the workforce (taking a leave of absence, on sick leave, or studying)
(6) ☐ I prefer not to answer

33. What are your household's earnings per (*insert either month or year*) after taxes, insurances, and mortgage?

X or below	X - X	X - X	X - X	X - X
☐	☐	☐	☐	☐

X - X	X - X	X - X	X - X	Above X	I prefer not answer
☐	☐	☐	☐	☐	☐

34. Which of the following descriptions comes closest to how you feel about your household's income currently?

(1) ☐ Living comfortably on present income
(2) ☐ Difficult to make ends meet on present income
(3) ☐ Very difficult to make ends meet on present income
(4) ☐ Cannot make ends meet on present income
(5) ☐ Prefer not to answer

35. How many adults (18 years of age and above) are in your household? (including you) *[open numeric answer]*

36. How many children (under 18 years of age) are in your household? *[open numeric answer]*

37. How often do you visit a forest?

(1) ☐ Never
(2) ☐ Once a year
(3) ☐ 2-3 times a year
(4) ☐ Once a month
(5) ☐ 2-3 times a month
(6) ☐ Once per week
(7) ☐ 2-3 times per week
(8) ☐ 4-6 times per week
(9) ☐ Daily

38. Why do you visit forests? (mark all that apply)

(1) ☐ Recreation and leisure
(2) ☐ Wildlife observation
(3) ☐ Berry and mushroom picking
(4) ☐ Gathering wild plants
(5) ☐ Hunting
(6) ☐ Health and wellness
(7) ☐ To walk a dog
(8) ☐ To enjoy the beauty
(9) ☐ To feel the cooler temperature in summer or to shelter when windy
(10) ☐ As a part of my work and livelihood

39. What describes the area where you live best?

(1) ☐ A big city or metropolitan area
(2) ☐ Suburb of a big city or metropolitan area
(3) ☐ A smaller city or town
(4) ☐ Rural area nearby a city or town
(5) ☐ Rural area or countryside
(6) ☐ I prefer not to answer

40. Do you have any professional ties to forests or the forest-based sector?

(1) ☐ Yes
(2) ☐ No

41. Do you own a forest?

(1) ☐ Yes
(2) ☐ No

<<FILTER: If question 41 = (1) go to question 42>>

42. How important is income from your forest to you?

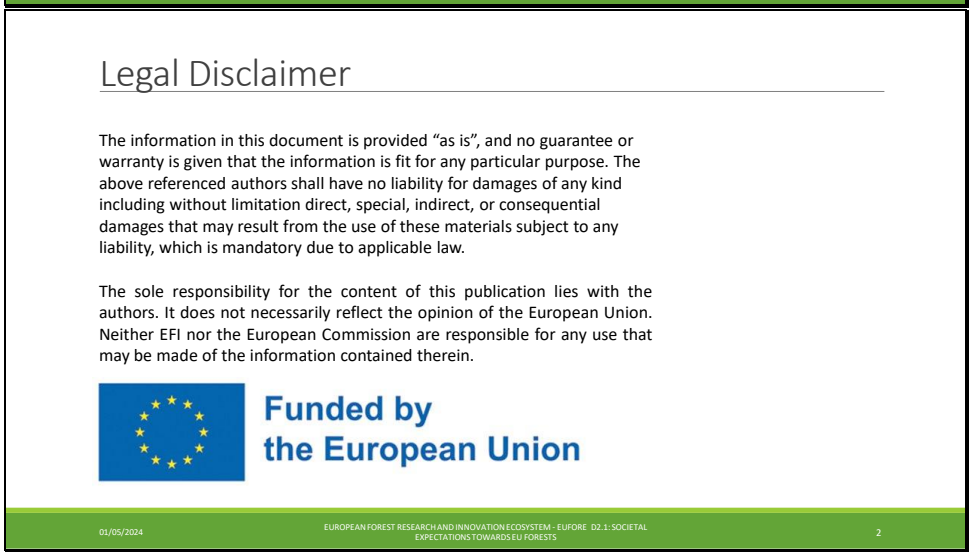
(1) ☐ Main source of income
(2) ☐ Complementary source of income
(3) ☐ No source of income

<<Page Break>>

Thank you for taking the time to fill out this survey. We appreciate it!

You can find more information about the EUFORE project by going to: https://eufore.eu/.

Appendix H: Slide Deck



Outline

- Motivation of the study
- Method
- Main results
  - forest ecosystem services at different temporal scales and relative to each other
  - forest ecosystem services at different spatial scales
  - prioritization of forest policy targeting different forest ecosystem services
  - attitudes towards forestry and forest-based sector

Why a study of the general public's perception?

Forests provide many services to humans ranging from marketed to non-marketed goods, and consumptive to non-consumptive.

The general public is a direct beneficiary of some of these forest ecosystem services while they benefit from others further down the value chain.

While most people do not have direct decision power over how forests are managed, they have a power through which politicians they vote for.

Politicians act on behalf of their constituents and as such, they take public perception into account.

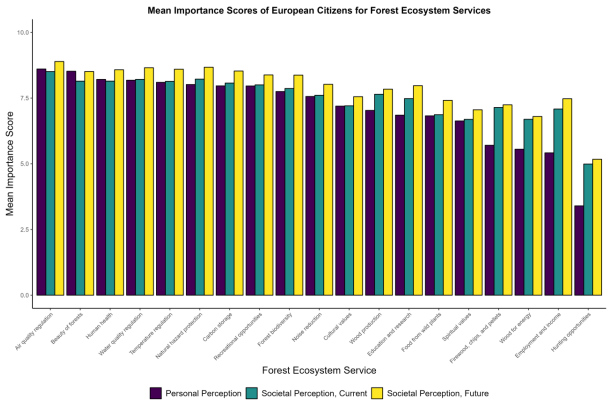
Method

- Survey instrument designed based on previous relevant empirical studies, meta-studies, and input from industry experts within EUFORE consortium.
- Focus groups conducted in Denmark, Finland, Croatia, Italy, Germany, and Slovakia.
- Aimed for nationally representative samples of the general public with respect to age, gender, and region in EU 27 (N=11,247)
- When sampling for region, NUTS 2 region used in most cases while NUTS 3 region was used in some cases.
- Did not remove respondents from countries that were over-sampled.
- Conducted chi-square goodness-of-fit tests to check for representativity.

Variable/Group	n	Sample percentage	Partials	Unopened
Age				
18 – 29	1816	16%		
30 – 39	2135	19%		
40 – 49	2072	18%		
50 – 59	1957	17%		
60 – 99	3267	29%		
Gender				
Women	5644	50%		
Men	5523	49%		
Non-binary / gender non-conforming	29	0.26%		
Other	13	0.12%		
Prefer not to answer	38	0.34%		
Country				
Austria	400	3.6%	36	15
Belgium	411	3.7%	67	19
Bulgaria	404	3.6%	64	5
Croatia	405	3.6%	62	10
Cyprus	401	3.6%	23	5
Czech Republic	406	3.6%	74	2
Denmark	401	3.6%	60	13
Estonia	403	3.6%	78	17
Finland	411	3.7%	48	17
France	415	3.7%	68	18
Germany	456	4.1%	40	8
Greece	430	3.8%	84	0
Hungary	515	4.6%	101	5
Ireland	416	3.7%	93	9
Italy	410	3.6%	40	6
Latvia	450	4.0%	112	6
Lithuania	440	3.9%	118	9
Luxembourg	401	3.6%	25	16
Malta	301	2.7%	7	8
Netherlands	427	3.8%	97	13
Poland	444	3.9%	80	8
Portugal	430	3.8%	65	3
Romania	440	3.9%	133	6
Slovakia	414	3.7%	123	3
Slovenia	415	3.7%	92	10
Spain	401	3.6%	51	5
Sweden	400	3.6%	84	10

Importance of FES across Europe

- Results confirms with prior studies that regulating and cultural values tend to be more important to European citizens than provisioning services.
- For some FES, people across Europe have a different perception when they take a societal perspective than when they reflect on their own perspective. These FES are often provisioning services.



Preferences on a spatial scale

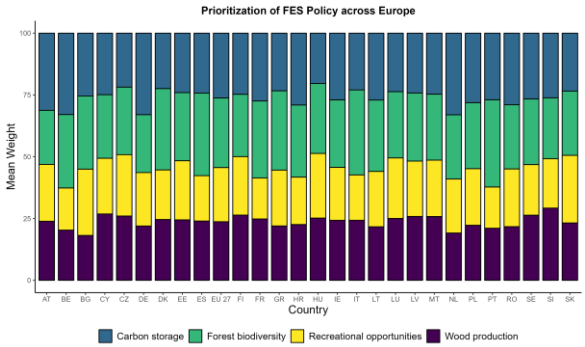
Mean and median perceived importance that FES is located within local surroundings, within own country, and within Europe. Scale: 0 = Not important at all, 10 = Very important.

	Within Local Surroundings			Within Own Country			Within Europe		
FES	Mean	Median	IQR	Mean	Median	IQR	Mean	Median	IQR
Carbon storage	7.89	9	3	8.10	9	3	8.24	9	3
Biodiversity	8.25	9	3	8.40	9	2	8.44	9	2
Recreational opportunities	7.69	8	4	7.85	8	3	7.60	8	4
Wood production	6.38	7	4	7.18	8	4	7.15	8	4

- Across Europe, the general public:
  - cares about forest ecosystem services at all spatial scales
  - find that provision at national and EU scale is more important than at local scale
- Local opportunities for recreation more important than European wide

Prioritization of FES across Europe

- In some countries, carbon storage is the most important; in others, it is biodiversity, and in yet others it is wood production.
- In all countries, people care about the all four ecosystem services.
- The least preferred is recreational opportunities in FR at around 16% and the most preferred is forest biodiversity in PT at around 35%.



Wood use and forest-based sector statements

- Across Europe, most people are positive towards afforestation.
- Europeans tend to agree, on average, that wood utilization in buildings should increase and that it has an advantage over other materials.
- Europeans, on average, have a slight negative perception of bioenergy in terms of its role in solving the climate crisis.

Mean and median agreement with forest-based sector statements of European citizens (N=11,247). Scale: 1 = Strongly Disagree, 5 = Strongly Agree.

Statement	Mean	Median	IQR
Wood should be increasingly used in buildings	3.32	3	1
In terms of environmental impact, wood has little or no advantage compared to other materials such as concrete, metals, and plastics.	2.66	2	2
Using wood for fuel and energy does not contribute to solving the climate crisis.	3.50	4	1
More forest areas should be managed primarily for the general public's recreational needs.	3.49	4	1
Access to forests should be limited to ensure their protection and longevity.	3.31	3	2
Forest services and products other than wood have little or no benefits for rural economy (e.g., berries, mushrooms, game meat, guided tours).	2.61	2	2
Afforestation in Europe is important to mitigate climate change and reverse biodiversity loss.	4.32	5	1
Intensive extraction of wood from forests causes environmental damage to forests or other ecosystems.	4.15	4	1
Forests in [respondent's country] are managed in a way that provides wood material while simultaneously protecting the environment	3.41	4	1
It is better to keep the wood in the forest than harvest it.	3.47	3	1

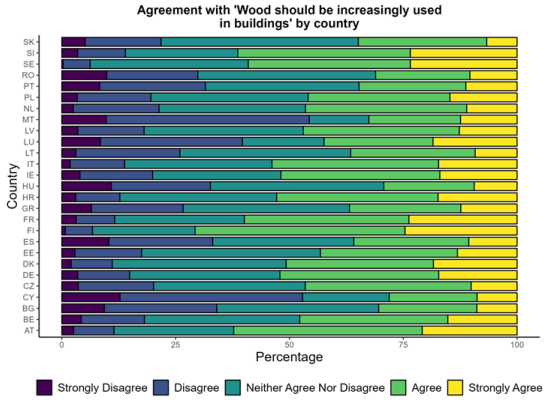
Key take aways:

1. People across Europe care about the provision of multiple FES, having more emphasis on cultural and regulating services than provisioning services.
2. Taken from a societal perspective, provisioning services received higher values than from a personal perspective.
3. People across Europe believe that all FES will become more important in the future than today.
4. Asking respondents to prioritize carbon storage, biodiversity, wood provision and recreational opportunities in EU policies revealed that they consider all of them very important.
5. Across Europe, most people are positive towards afforestation.
6. Europeans tend to agree, on average, that wood utilization in buildings should increase and that it has an advantage over other materials.
7. Europeans, on average, have a slight negative perception of bioenergy in terms of its role in solving the climate crisis.
8. There is large heterogeneity within countries and between countries of whether wood production is believed to be done in a way that simultaneously protects the environment.

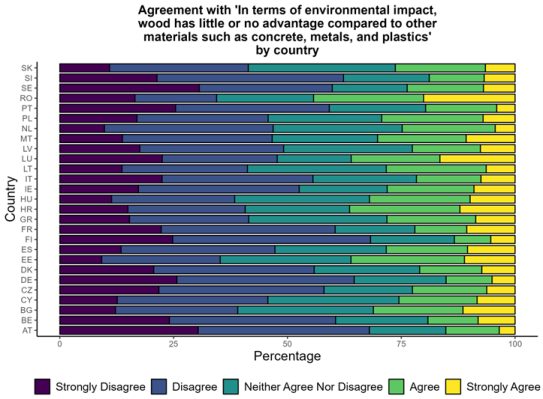
Country specific responses to forest-based sector statements

The following slides can be selected for stakeholder workshops to highlight results regarding the forest-based sector displayed by country.

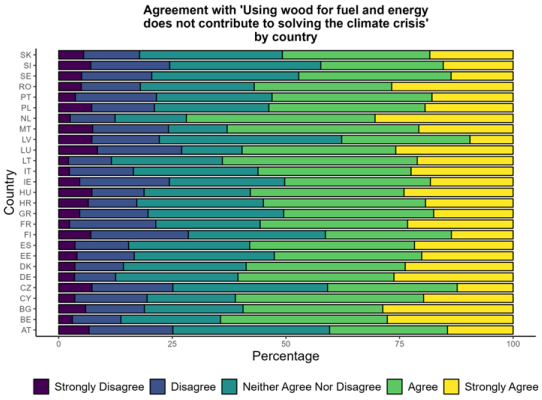
Wood use in buildings



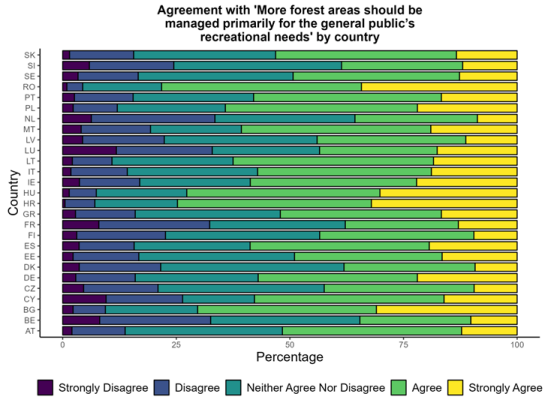
Wood compared to other materials



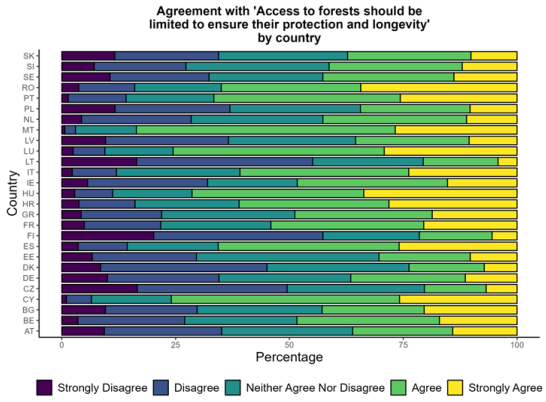
Biomass for bioenergy



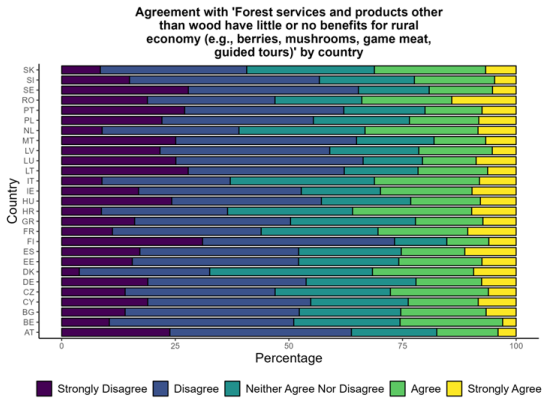
Forest areas managed for recreation



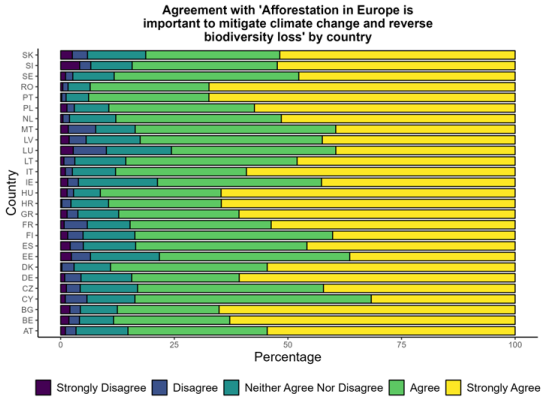
Access to forests



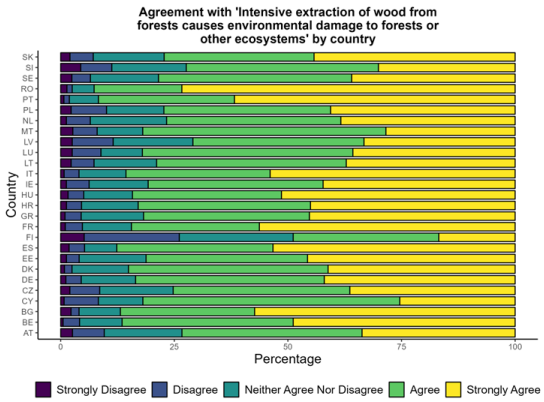
Nontimber forest products



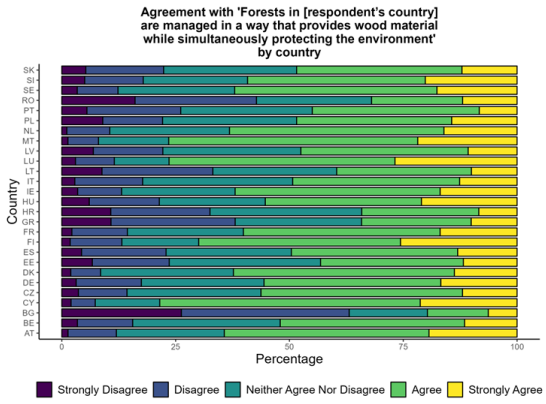
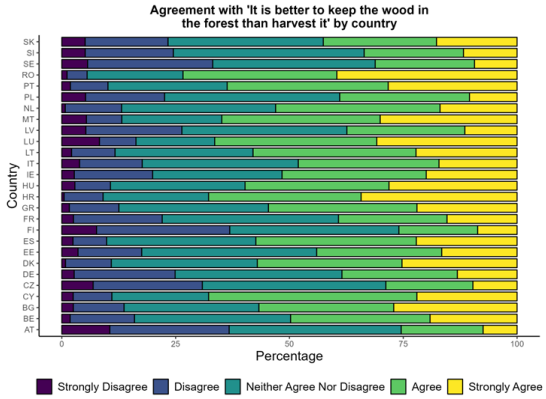
Afforestation



Intensive extraction of wood



Forest management



Unmanaged forests