Question 3

What do people think about forests in the EU?

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Perceptions of different forest ecosystem services: environmental aspects are considered most important

People living in Europe appreciate forests for the many societal benefits they provide, and literally all of them consume forest-based products ranging from furniture to paper products. However, European citizens appreciate forests the most for their environmental benefits, as indicated in a 2016 Eurobarometer study (European Commission 2016). Several research studies conducted in different countries confirm these findings. Tree planting and protection (Sisak, 2011, Czech Republic), air purification, biodiversity, and carbon sequestration (Lupp et al., 2016, Munich Metropolitan area), biodiversity and mitigating climate change by taking carbon dioxide out of the atmosphere (Howley et al., 2011, Ireland, similarly Upton et al., 2015) are environmental benefits that are usually ranked first by respondents of perception surveys in Europe (e.g. Paletto et al., 2013 and 2017 for Italy; Dobsinskaand Sarvasova, 2016 for Slovakia; Nordlund et al., 2017 for Sweden and Germany; Varela et al., 2017 for Catalonia; and Ranacher et al., 2017 for Austria, Germany, Finland and Slovenia).

Other studies also find recreational values scoring highly (Lupp et al., 2016; Howley et al., 2011; Paletto et al., 2017; Nordlund et al., 2017; Wippermann and Wippermann, 2010), yet the picture is more mixed when compared to the constantly highly ranked environmental benefits. The economic importance of forests, e.g. provisioning forest ecosystem services such as timber and fuelwood, but also berries and mushrooms is constantly ranked lower in the eyes of citizens in the studies mentioned. The wide range of non-material benefits include also opportunities for tourism, health and wellbeing benefits as well as for nature and aesthetic experiences, spiritual values and cognitive development (Millennium Ecosystem Assessment, 2005). During the COVID19 pandemic in 2020, recreation opportunities in forests have heavily increased as some studies show (e.g. Derks et al., 2020).

Forest management in Europe is perceived differently

This preference for the environmental benefits of forests also partially translates into the perceptions of forest management in Europe. Monocultures, clearcuts, or other visible signs of timber use are frequently perceived negatively (Gundersen snd Frivold, 2008; Wippermann and Wippermann, 2010; Giergiczny et al., 2015; Huber et al., 2017; Krejčí et al., 2019). Natural looking forests without clear signs of cuttings (Silvennoinen et al., 2002; Tyrväinen et al., 2017), small scale interventions, close to nature and continuous cover forestry are perceived more positively, and interestingly in some cases even more positively than non-management (Paletto et al., 2017). Some regional studies show that citizens are generally satisfied with the management of forests (e.g. Juutinen et al., 2017 for Finland; Mizaras and Mizaraite, 2015 for Lithuania; Lorenz und Elsasser, 2018 for Germany).

Forest management interventions are frequently supported when they relate to mitigating forest risks such as fire or pests (Gutsch et al., 2019 for Germany; Eriksson et al., 2018 for Sweden; Fabra-Crespo et al., 2012 for Spain; Carvalho-Ribeiro et al., 2011 for Portugal); in those cases mechanical interventions (e.g. tree removal) are more supported than the use of pesticides. Information signs explaining the rationale of forest management interventions increase people's acceptance (Huber et al. 2017). Interestingly, some studies indicate that the season may impact on the perception of forest management patterns (e.g., clear-cut areas being at least moderately suitable for visitors in Finland when covered with snow in winter, Tyrväinen et al., 2017).

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Studies point to regional differences regarding the acceptance of different forest management practices. These differences are linked to traditional forests uses across countries and their ecological characteristics that differ from boreal forests in the North to Mediterranean forests in the South. Yet, there is no systematic overview study at the European scale available that investigates such differences.

Mixed forests are preferred everywhere, large dimension trees and deadwood are mostly positively perceived

When asked about their preferences regarding forest structure - mixed and/or multilayered - forest stands are preferred by the majority of respondents (Edwards et al., 2012; Hunziker et al., 2012; Drábková, 2014 for Czech Republic; Almeida et al., 2018 and Arnberger et al., 2018 for Germany; Rambonilaza and Brahic, 2016 for France; Upton et al, 2012 for Ireland; Paletto et al, 2017 for Italy; Giergiczny et al., 2015 for Poland). Some studies do indicate the special importance of old and big dimension trees for recreational purposes (Edwards et al., 2012). Other studies indicate that deadwood (e.g. fallen, old, rotting trunks) as a structural feature of forests with importance for biodiversity is generally being perceived as positive (Drabkova, 2014 for Czech Republic; Hauru et al., 2014 for Finland; Rambonilaza and Brahic, 2016 for France; Pastorella et al., 2016 for Italy and Bosnia), while others show that visitors do on the contrary not appreciate dead or fallen trees (e.g. Gundersen et al., 2017; Gundersen and Frivold, 2008; Tyrväinen et al., 2003).

There are significant differences relating to the perceptions of forest ecosystem services with regard to different societal groups

Differences in the perceptions of forest ecosystem services, forest structures and forest management interventions with regard to the country can be expected and are shown by some comparative studies (Ciesielski and Stereńczak, 2018), but systematic cross-country comparisons are rare. Regional differences can be explained with the varying societal and economic importance of forests uses across countries, and with a historical interaction or co-evolution between people and forest that is unique to a particular region and the traditional livelihoods practiced. The key drivers behind the changing demands towards forests are, however, similar across Europe and include urbanization, decreased dependency of rural livelihoods, ageing and diversifying societies, rising environmental awareness and health and wellbeing trends (Bell et al., 2008; Nilsson et al., 2011; Carrus et al., 2017).

Studies also indicate differences within the same country regarding the perceptions of forests and forest management related to demographic patterns such as age, gender, education, or residency in urban or rural areas. As a rule, younger, female, urban and better educated citizens emphasize the environmental benefits of forests comparatively morethan older, male, rural and less educated citizens (Upton et al., 2012 and 2015; Paletto et al., 2013; Gutsch et al., 2019; Pülzl et al., 2020). Yet, some studies also indicate that younger people attach less value to biodiversity and cultural values of forests than older ones (Paletto et al., 2017), and are less opposed to genetic modifications of trees, at least for forest protection aspects (Hemström et al., 2014 for Sweden; Jepson and Arakelyan, 2017 for the UK).

Studies further indicate that significant differences regarding the perception of forests and forest ecosystem services exist with regard to different social groups or milieus in societies (e.g., Wippermann und Wippermann, 2010 for Germany; Jay and Schraml, 2009 focusing on migrants in Germany; Nijnik et al., 2016 for Scotland). For example, in Italy and Bosnia-Herzegovina, Pastorella et al. (2016) show that 60% of surveyed tourists prefer forests with a high level of naturalness such as unmanaged forests or close-to-nature managed forests, while the remaining 40% prefer forests which are managed in a more intensive way with low amounts of deadwood.

Several studies also indicate partially significant differences in perceptions of forest management between forest owners and the general public, with forest owners being more positive towards timber use and economic values of forests (Howley et al., 2011 for Ireland; Valkeapää and Karppine, 2013 for Finland; Nijnik et al., 2016 for Scotland; Dobsinska and Sarvasova, 2016 for Slovakia) partially ranking them even as first priority compared to recreational and environmental benefits. Other studies however show that environmental and recreational aspects are also a high priority for forest owners (Torralba et al., 2020; Lorenz and Elsasser, 2018), and several studies have distinguished between forest owners with regard to differences over their main emphasis and interests in managing their forests. In Finland, for instance, increased shares of multi-objective or amenity-value-oriented forest owners have been recognized in studies (e.g., Hänninen et al., 2011; Häyrinen 2019). The variety of goals has increased due to urbanization, changing values in society and forest owners' decreased dependence on forest-based incomes.

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Wood is appreciated as a natural renewable material but concerns regarding its environmental sustainability and contribution to climate change mitigation exist

Forest products such as mushrooms and berries are valued by the public but are considered less important than forest environmental benefits (e.g. Stachová, 2018; Sisak, 2011 for Czech Republic; Eriksson et al., 2012 and Goodwin et al., 2019; Nummelin et al., 2017 for Sweden; Almeida et al., 2018; Lupp et al., 2016 for Germany; Paletto et al., 2013 for Italy; Ranacher et al., 2017). Wood and wood products are overall perceived as environmentally friendly, of high quality and healthy in many European countries (Moresova et al., 2019 for Slovakia; Lähtinen et al., 2019 for Finland; Lindberg et al., 2013; Burnard et al., 2015; Costa et al., 2011 for Sweden, Finland, Norway, Slovenia and France). However, positive impacts on global climate, such as the substitution or carbon storage effect are being questioned.

This is especially the case for biofuels from forest resources which are positively perceived but their environmental sustainability and contribution to climate change mitigation is scrutinized in Finland, Austria, Germany and Belgium (Halder et al., 2011; Van Dael et al., 2017; Ranacher et al., 2017). While product safety, labour conditions, environmental impacts and the origin of wood are found to be important product attributes, the question remains in how far they influence consumer purchasing decisions (Lähtinen et al., 2019; Costa et al., 2011; Holopainen et al., 2014; Kuzman et al., 2012; Paluš et al., 2012; Švajlenka and Kozlovska, 2018; Toivonen, 2012). In general, higher levels of income, education and prevalence of environmental awareness leads to higher valuation of quality and environmental attributes of wood products positively impacting the purchasing decision (Holopainen et al., 2014; Toivonen, 2012; Halder, 2011; Van Dael et al., 2017; Costa et al., 2011; Osburg et al., 2016)

Limitations

Some limitations of the evidence presented should be noted. First, while the main trends, e.g. the societal preference for environmental values of forests, are clear and have been identified by many distinct research studies, there are still significant regional differences and which have up to this point not been investigated by a representative European study. The same holds true for differences in preferences between different demographic groups; while regional studies show similar trends regarding e.g. differences in perceptions between younger and older citizens, a European-wide systematic analysis of these differences is lacking.

Moreover, monitoring visitor numbers and participation to outdoor recreation and tourism is still rare in many countries, and therefore their demand and importance in forest management may be inadequate. A related interesting question is how societal preferences translate into the concrete appearance of forest management interventions. Apparently, there are trade-offs between societal preferences for environmental ecosystem services and little intervention through forestry, and the demand and appreciation of timber in relation to the bioeconomy. Dealing with those tradeoffs might not be considered by the general public when surveyed, but it is a big concern for forest policy and management. Finally, some studies also point out that a relatively high share of survey respondents feels rather little informed about forests and forestry and related value chains. Noting such limitations, the main lines of societal perceptions towards forests in the EU are clear and it is important to consider them in both forest policy making and concrete forest management in the EU.

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