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2023 Nature Awareness Study

Population survey on nature and biodiversity

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“Nature Awareness in Germany” is a study that the Federal Ministry for the Environment and the Federal Agency for Nature Conservation implement jointly every two years (“Research and Development” project, funding code 3522 85 0100).

The conceptual design and processing was carried out by Dr Christoph Schleer (SINUS-Institut, project management), Naima Wisniewski (SINUS-Institut), and Dr habil Fritz Reusswig (Potsdam Institute for Climate Impact Research) in collaboration with Sociotrend GmbH (survey implementation) as well as with technical support from the Federal Ministry for the Environment (BMUV) and the Federal Agency for Nature Conservation (BfN, Dr Andreas Wilhelm Mues).

The Nature Awareness Study is part of the National Strategy on Biodiversity. The strategy stands for life, nature, and diversity. It illustrates how we must act in order to maintain biodiversity for people living today and for future generations.

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die Strategie

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Foreword by the President


Sabine Riewenherm, © BfN/Feisel Grombaldi

Dear readers,

Climate change and the protection of nature and biodiversity are inextricably linked. In the meantime, we in Germany are also experiencing devastating extreme weather events, such as the severe flooding in the district of Ahrweiler in 2021, the “Christmas flood” in 2023, and the flooding in the summer of 2024. The latest Nature Awareness Study shows that the majority of respondents are concerned about climate change. The proportion of those who have noticed a deterioration in the state of nature and the landscape over the last few decades has risen significantly – from 27 percent in 2011 to 53 percent in 2023.

In light of this, I find it very encouraging that the majority of the population has recognised the importance of nature conservation as a political field of action: The results of the Nature Awareness Study provide a tailwind for the further implementation of the Federal Action Plan on Nature-based Solutions for Climate and Biodiversity (ANK) of the Federal Ministry for the Environment, which tackles the climate and biodiversity crises in one go. Through the ANK, the BfN supports, among other things, measures to re-naturalise moors, bodies of water, and floodplains, which act as a buffer against the consequences of the climate crisis and provide important habitats for endangered animal and plant species.

Progressive climate change also makes us aware of how important it is to increasingly allow nature in Germany to take its course. Wilderness areas are an essential factor in natural climate protection, but they are also “laboratories” from which we can learn how nature adapts to new climate conditions. The high level of public approval for the designation of wilderness areas and the desire for more wilderness support the implementation of nature conservation policy goals. The BMUV's “Wilderness Fund”, which was introduced in 2019, launched seven projects in 2023 with a total area of 1,051 hectares and funding amounting to more than 18 million euros.

The challenges of the future also include shaping the energy transition in an environmentally friendly way. I am therefore very pleased that 80 percent of adults and teenagers support this and 94 percent agree with the statement that nature conservation is necessary to combat climate change. The position of nature conservation is only strengthened by the fact that the population puts ecological and biodiversity-related aspects on an equal footing with climate arguments when it comes to the implementation of the energy transition, and that it believes natural climate protection must be promoted. Furthermore, a large majority is in favour of state funding for nature conservation, even in times of crisis.

However, the new Nature Awareness Study also shows that support for the energy transition varies between the different social milieus. It is primarily the wealthier and more highly educated who are in favour of an energy transition, rather than the middle classes or people with lower incomes. The implementation of an environmen-

tally friendly energy transition must therefore be more closely linked to issues of social justice. Successful nature conservation policy is therefore also successful social policy.

With warm regards,

Sabine Riewenherm
President of the Federal Agency for Nature Conservation

Key statements and recommendations

The **2023 Nature Awareness Study** is the eighth study in the series of population surveys of the same name, which has been implemented every two years by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection and the Federal Agency for Nature Conservation since 2009. The purpose of the study series is to investigate the population's awareness of nature, nature conservation, and biodiversity.

In addition to observing changes in awareness through repeated questions, new topics of current relevance to nature conservation policy are addressed. This study focuses on natural climate protection as well as the restoration of ecosystems. The study is also dedicated to the subjects of wilderness and water, as well as the willingness of the population to support a transformative change towards sustainable and environmentally compatible lifestyles and economic activities, the general commitment to nature conservation, the personal connection between people and nature, the subjects of the energy transition and genetic engineering, as well as the continuation of the societal indicator "Awareness of biodiversity".

The primary findings presented are from a comprehensive survey of 2,411 adults aged 18 and over, supplemented by a survey of 1,003 teenagers aged 14 to 17. The surveys were conducted between the end of October and mid-December 2023. The results presented are representative for the population in Germany.

Selected key statements of the study as well as references to nature conservation policy and example recommendations for nature conservation communication are presented below.

Planetary boundaries and transformative change

Key statements:

- People in Germany are well aware of the planetary boundaries. In 2023, the majority of people rate the state of the oceans, climate, and habitats, including their species diversity, as concerning or somewhat concerning. Compared to the previous survey in 2021, this assessment has increased – for the climate ("very" and "somewhat concerning": 2023: 85 percent, 2021: 63 percent), for the oceans (2023: 81 percent, 2021: 68 percent), and for other habitats (2023: 75 percent, 2021: 60 percent).
- The perception that a comprehensive, transformative change is needed to tackle the natural, environmental, and climate crisis has increased significantly: In 2023, almost three quarters of adults are very or at least somewhat convinced of the urgency ("yes" and "yes, somewhat": 74 percent), significantly more than in 2021 (60 percent). A two-thirds majority of teenagers aged 14 to 17 also see the need for transformative change, although there has hardly been any change here between the surveys (2023: 66 percent, 2021: 64 percent).

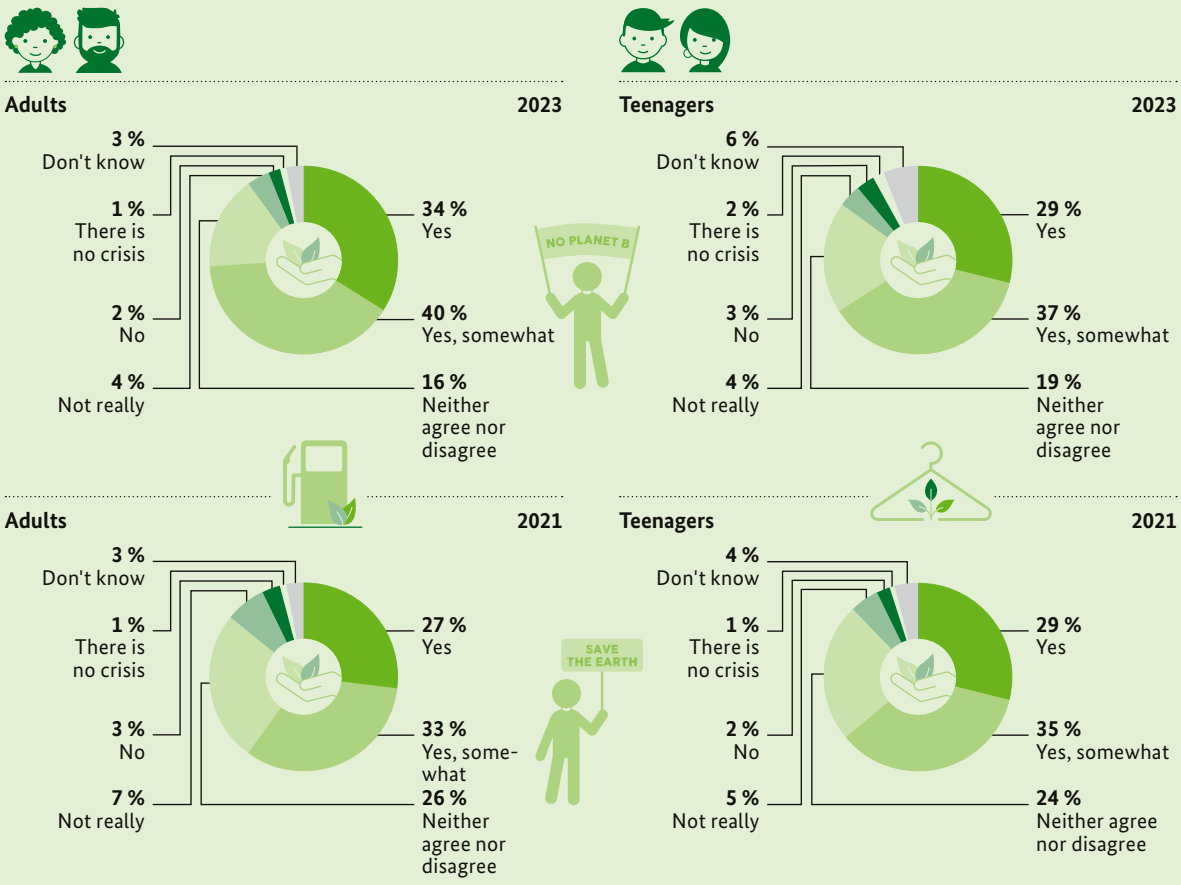
Recommendations:

The planetary boundaries model describes nine central aspects that are crucial to the stability of the Earth system.[1] As of September 2023,[2] six of these nine planetary boundaries are in a critical

range: The biodiversity of species and habitats, the state of the climate, biogeochemical cycles (phosphorus and nitrogen), the introduction of new substances, changes in land use (such as agriculture and the forestry sector), and the water balance (such as availability in ecosystems and access to fresh water). The Nature Awareness Study shows that **the population is highly aware of the planetary boundaries**, which is largely in agreement with the state of the Earth system. This is a good starting point for communication and education work in the context of nature conservation and sustainability: There is **knowledge of the problem, which is a good starting point for the further promotion of a socioecological transformation of lifestyles and economic activities**.

The current Nature Awareness Study also shows both a recognition of the need for transformative change and that there is a personal willingness to support this change. In a recently published position paper, the BfN highlighted the particular relevance of transformative change for nature conservation (see Berger et al., 2024)[3]. This paper also emphasises the importance of a change in awareness and values as an important area of transformation for nature conservation. The call for this necessary and comprehensive transfor-

In your opinion, is a comprehensive change in lifestyles and economic activities in Germany necessary to stop the global nature, environment, and climate crisis?



mative change, particularly from the scientific and political side, is not new (see WBGU 2011[4], IPBES 2019[5], BMUV and BfN in preparation[6]). Yet we also know all too well that there is a long way to go between knowledge and action: A wide variety of individual and social obstacles stand in the way of such processes. Furthermore, such comprehensive changes in our lifestyles and economic activities cannot be managed within one policy area, one sector, or through individual initiatives. Rather, they require **cooperation between individuals, social actors, and sectors**. Specific new and innovative solutions need to be developed. Political strategies such as the National Strategy on Biodiversity or the Paris Climate Agreement can, alongside other social levers, provide the framework for the legitimisation of measures and financial incentives. Nature, environmental, and climate protection must also be considered from a socio-political perspective in order to be able to address the diverse issues of social justice arising from the **transformation processes** (see Berger et al., 2024)[7]. This requires **new alliances**.[8,9] A stronger **integration of fields of work** across separate social and administrative structures is necessary – in favour of an actual structural change in which the underlying drivers of the loss of biodiversity are addressed and previous "silo thinking" is abandoned.

Climate change, natural climate protection, and moors

Key statements:

› Almost all respondents understand that nature conservation is necessary to combat climate change. Ninety-four percent of adults and teenagers agree strongly or at least somewhat. The same applies to the understanding that climate change is a threat to biodiversity (adults: 90 percent, teenagers: 89 percent).

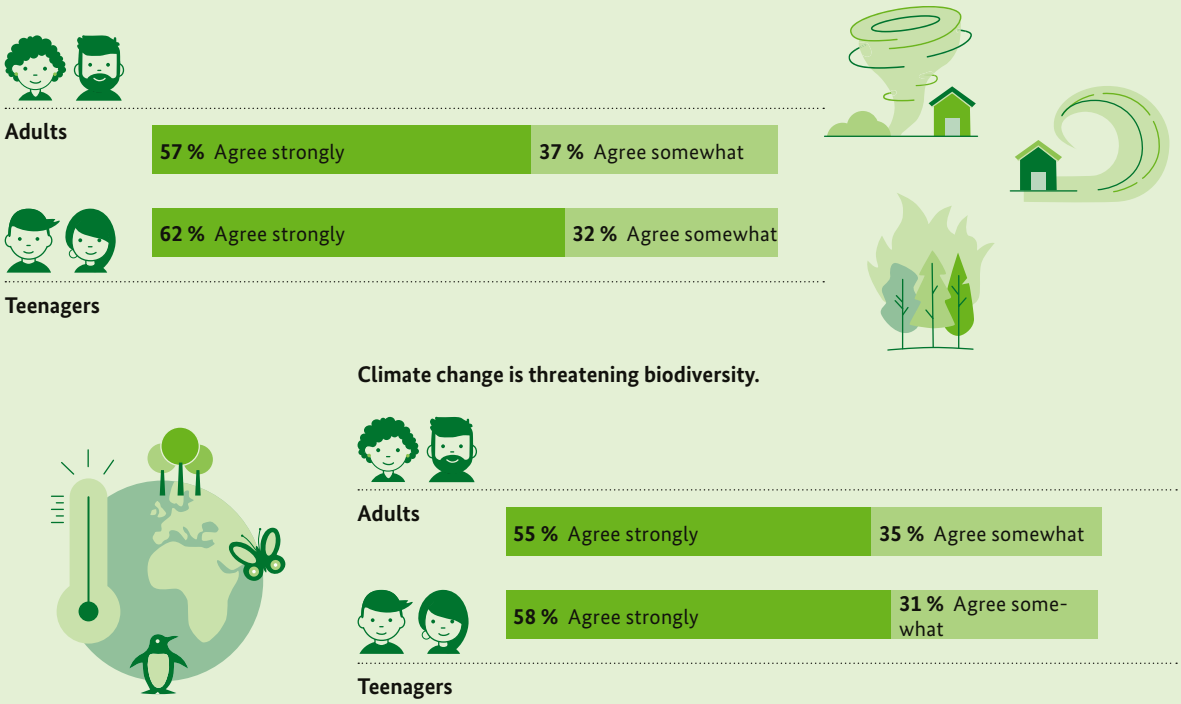
› Fifty-three percent of adults and 59 percent of teenagers are very or at least somewhat afraid that the climate crisis and destruction of nature will impact their personal lifestyle. There has been a significant increase among adults since the last survey (2021: 47 percent), while the level of concern among teenagers has remained the same (2021: 59 percent).

› In light of this, the population is also clearly in favour of state funding for natural climate protection in habitats: 88 percent of adults and 84 percent of teenagers agree strongly or at least somewhat.

› The rewetting of drained moorland is a specific, natural climate protection measure. The adult population surveyed had differing views on this: Rewetting with subsequent wet exploitation (paludiculture) is welcomed by the majority (52 percent). Just over a third (38 percent) is in favour of rewetting to restore moors as a habitat for animals and plants. By contrast, only 10 percent agree with retaining drained areas for agricultural or forestry use.

› With regard to state funding for corresponding measures, the picture is as follows: The reintroduction of animals and plants lies in first place (answers "very good" and "somewhat good": 87 percent), followed by state funding for moorland rewetting programmes (82 percent) and the promotion of paludiculture (78 percent).

Problem awareness regarding climate change, nature and nature conservation



Recommendations:

Climate change has been embedded in public discourse for years. Many people in Germany are now feeling its effects personally due to devastating extreme weather events, such as the severe flooding in the district of Ahrweiler in 2021 or the flooding in winter 2023 and summer 2024. The results of the Nature Awareness Study show that **most respondents are aware of the problem of climate change and are concerned about developments**. This represents a good starting point for the further implementation of measures to adapt to or mitigate climate change.

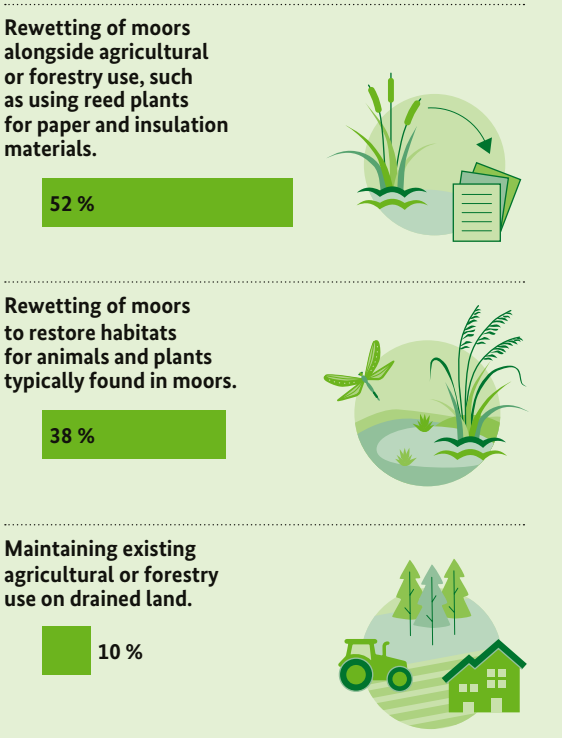
Compared to the previous survey, problem awareness and concern have increased in the adult population and remain high among teenagers. In order to stabilise or further increase existing awareness, **communication work on the climate crisis and on adapting to and mitigating climate change** must be further promoted. For example, people can be informed about the consequences of their own actions in order to encourage them to act with foresight. This includes promoting ethical discourse on questions of justice towards future generations and people in the Global South, as well as **communicating specific nature, environment, and climate-friendly behaviours** in everyday life.

Natural climate protection as a nature conservation policy concept places the focus of medium and long-term national environmental policy on the synergies between nature conservation and climate protection (see BMUV 2022[10]). The public awareness demonstrated by the Nature Awareness Study represents a good social starting

point for implementing the goals and measures formulated as part of the Federal Action Plan on Nature-based Solutions for Climate and Biodiversity (ANK). The task of the ANK is to protect and strengthen ecosystems such as forests and oceans so that habitats can maintain and further expand their climate-protecting function. A total of three and a half billion euros will be made available for this purpose by 2027 through a wide range of measures. One and a half years after the cabinet approval of the **Federal Action Plan on Nature-based Solutions for Climate and Biodiversity (ANK)** in March 2023, around half of the funding guidelines and funding measures with a widespread effect have been launched, and all funding programmes with a widespread effect are to be prepared by the end of 2024. These programmes are in high demand and some are quickly oversubscribed. The implementation of natural climate protection is flanked by information and advisory services as well as research projects.

In order to adequately address climate change and its consequences, **international efforts** are needed in addition to national activities. Climate change and the loss of biodiversity are mutually reinforcing and can largely be traced back to common causes. In its international co-operation, BfN therefore supports efforts to tackle the climate crisis and the loss of biodiversity together. It promotes the development of synergies in policy, research, and implementation practice. The BfN background paper “Strengthening synergies for biodiversity and climate” summarises recommendations for the implementation of such synergies for biodiversity and climate. Particular attention is paid to policy and governance, social aspects and financing issues.[11]

Please tell us which of the following options for managing moorlands you would most prefer.



Restoration of ecosystems

Key statements:

- The majority of respondents think that the state of nature and landscape has deteriorated over the last 20 years. The proportion of people who share this opinion is growing: Currently, 53 percent of the adult population see a deterioration: in 2021 it was only 50 percent and in 2011 only 27 percent.
- 85 percent of adults and 80 percent of teenagers are strongly or at least somewhat of the opinion that the preservation and restoration of ecosystems is a priority societal task.
- Approaches to restore ecosystems vary in popularity. Landscaping measures are the most favoured among the adult respondents (87 percent), followed by the introduction of natural elements into cultivated

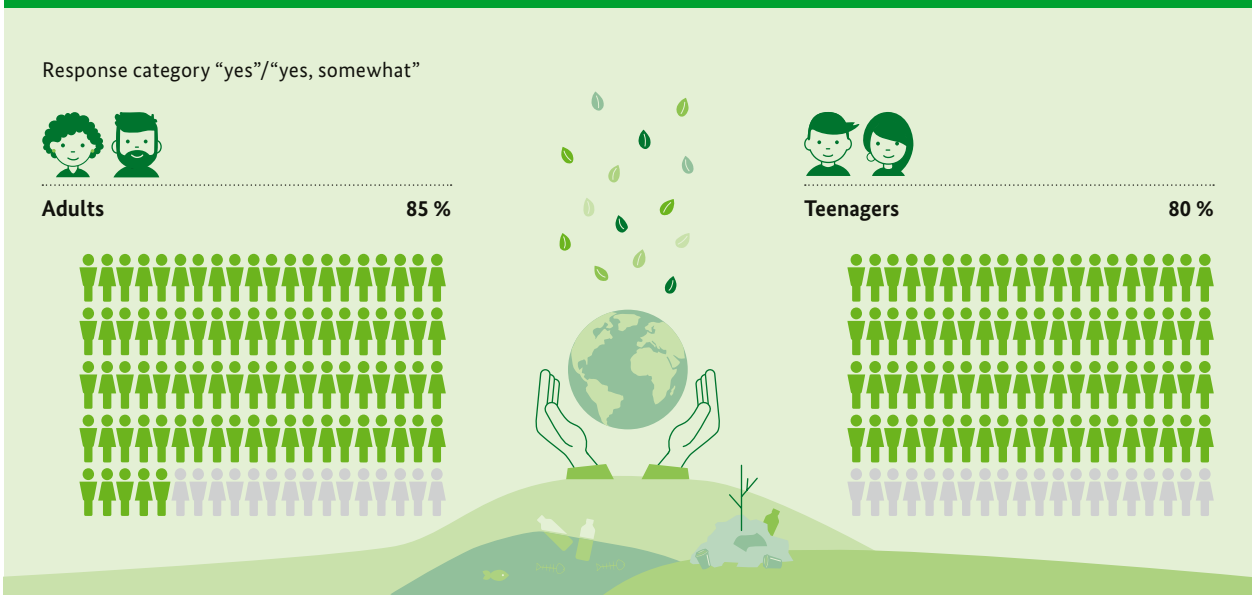
areas, such as hedges between fields (84 percent). Leaving nature to its own devices is the third most popular option (76 percent).

› Giving more space back to nature and restoring ecosystems meets with a high level of approval among adult respondents for the entire range of possible habitats in Germany. The strongest support for such measures is for forests (92 percent) and for rivers and floodplains (90 percent).

Recommendations:

The poor state of many ecosystems in Germany is endangering the animal and plant species that depend on these habitats. The Nature Awareness Study shows that the population is aware of these facts. A good half of adults state that they have noticed a deterioration in the state of nature and the landscape over the last 20 years. Intact ecosystems are of fundamental importance for people, as they safeguard the basis for human existence and ecosystem services, such as air pollution control, food production, and recovery areas. Intact ecosystems are also extremely important for natural climate protection and climate adaptation. Among other things, they make a decisive contribution towards flood protection, temperature regulation, and carbon sequestration. In light of this, the **United Nations Decade on Ecosystem Restoration 2021–2030** calls for halting the progressive degradation and destruction of ecosystems worldwide and restoring degraded ecosystems. The results of the Nature Awareness Study show that the population supports these efforts: A good four out of five respondents consider the restoration of ecosystems to be fully or at least somewhat of a priority societal task. Thanks to its global framework, the UN Decade offers a good opportunity to fill the proven principle of "think globally, act locally" with new ideas and innovative measures to combat the ecosystem crisis and the climate crisis. The national measures of the UN Decade aim to preserve and restore native ecosystems in order to reactivate and promote the vital ecological functions for people, nature, and the climate in Germany. As a communication campaign, the UN Decade is committed to raising social awareness of the issue of restoration.

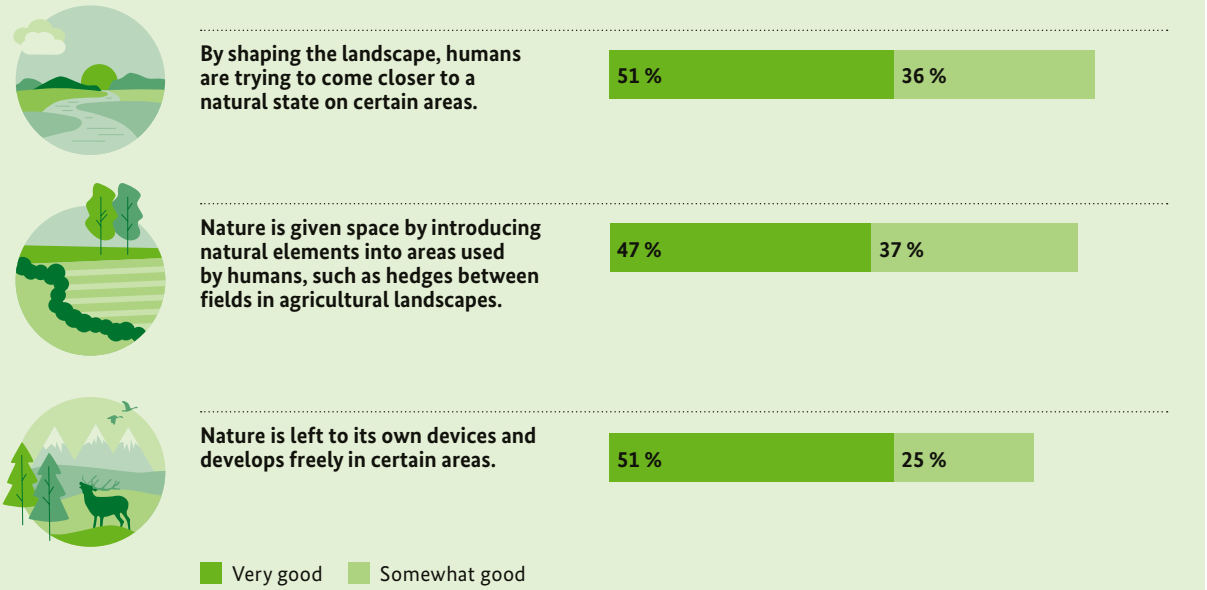
To what extent do you personally view the importance of conserving and restoring ecosystems as a primary societal task?



The success of this UN Decade is crucially dependent on winning over as many people and social actors as possible to support restoration measures. There is a wide range of possibilities: Financial support from institutions and companies for one of the ongoing or planned restoration projects is one example, but each building blocks for motivating people in your own environment to do the same.[12]

In terms of nature conservation policy, we must mention the **EU Nature Restoration Law**[13], which was finally adopted in June 2024 and, in conjunction with the UN Global Biodiversity Framework

Attitude towards approaches to restoring ecosystems



and every individual can also get involved. Social media activities offer the opportunity to be part of the **#GenerationRestoration**. Embedded in this international community, a wide range of social incentives for the restoration of ecosystems can be communicated and promoted. Another idea is to **rethink your own habits**. Even small actions can have a big impact on nature. By avoiding environmentally harmful products or activities and choosing sustainable alternatives, you can reduce your personal ecological footprint. Another option is direct **involvement in the restoration of an ecosystem in one's own region**. And finally, consciously **acting as a role model and actively participating in political discourse** are important

(GBF)[14] of December 2022, is key to the effective restoration of ecosystems in Germany and Europe. The Nature Restoration Law is an influential instrument that obliges the Member States to restore damaged ecosystems, to halt the loss of species diversity, and to reverse the trend of biodiversity decline within certain deadlines. To this end, the EU Member States are obliged to submit and implement national restoration plans, for which the law sets clear targets and deadlines.[15,16] The strong support of the population for measures to restore ecosystems, as demonstrated in the current Nature Awareness Study, provides a solid basis of legitimisation and argumentation for these processes.

Wilderness

Key statements:

- Wilderness is in trend: Both the proportion of perceived wilderness and the desire for even more wilderness have increased since the first survey in 2013: More than two thirds (69 percent) of the adult population are of the opinion that there is already wilderness in Germany (2013: 64 percent; teenagers, surveyed for the first time in 2023: 67 percent). Sixty-one percent of adults think that there should be more wilderness (2013: 42 percent).

- The designation of wilderness areas as open-air laboratories for climate impact adaptation is fully or at least somewhat supported by a good three quarters of the adult population (79 percent); teenagers are even more likely to share this opinion (84 percent). Only around a quarter of the adult population (27 percent) is concerned that this will mean land is no longer available for economic use.

- In the adult population, support for the reintroduction of wild animals has fluctuated over the years and is dependent on the species. Adults are least in favour of a further spread of the non-native raccoon ("good", 2023: 33 percent; 2013: 48 percent). Opinions of the further spread of the wolf remain unchanged ("good", 2023: 44 percent; 2013: 44 percent). Support for the lynx (2023: 75 percent; 2013: 64 percent) and the wildcat (2023: 74 percent; 2013: 63 percent) has risen significantly. Teenagers are slightly more cautious than adults about lynx (67 percent) and wildcats (65 percent), are on a par in terms of approval for wolves (44 percent), but are much more in favour of the spread of raccoons in 2023 (43 percent).

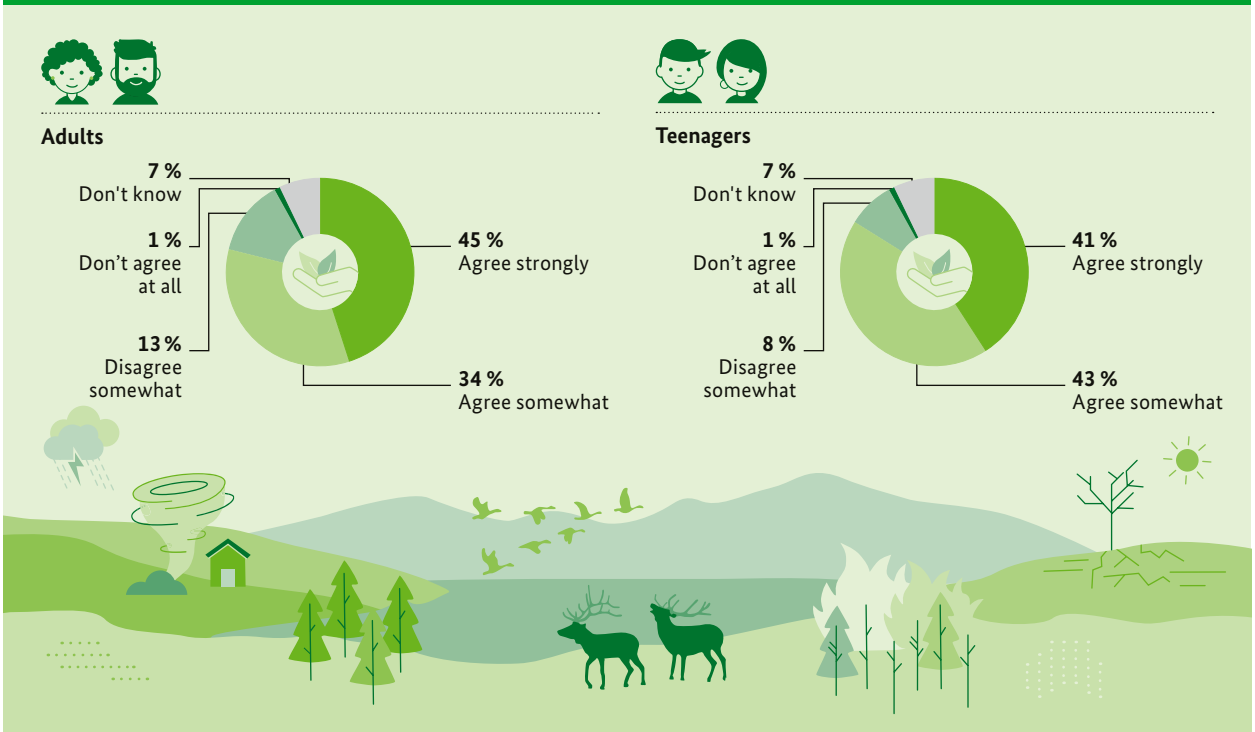
Recommendations:

Wilderness areas are adequately large and, for the most part, unfragmented, unused areas that serve to permanently guarantee a cycle of natural processes that is largely uninfluenced by people. The German government's National Strategy on Biological Diversity includes the goal that at least two percent of Germany's land area should be left to develop according to its own laws and predominantly into large-scale wilderness areas.[17] For comparison: At present, 50.4 percent of Germany's land area is used for agriculture.[18] In wilderness areas, nature is given space and time to develop on its own. In the context of the progressing climate change, wilderness areas are also "laboratories" from which we can learn how nature is adapting to the new climate conditions. At the same time, they are also a significant factor in natural climate protection, for example through natural regulation of the water balance or long-term carbon storage. The data from the Nature Awareness Study shows that the **population welcomes these nature conservation policy goals of expanding wilderness areas and designating them as open-air laboratories for climate impact adaptation**. With this support, these goals can be rigorously pursued.

To this end, the BMUV launched the "Wilderness Fund" support programme in 2019, which provides financial support for the purchase of land and usage rights for wilderness development. 2023 was a particularly successful year for the "**Wilderness Fund**": A total of seven projects covering 1,051 hectares were approved for funding. The BMUV provided a total funding amount of more than 18 million euros.

The **Climate Wilderness** funding programme is also being prepared as part of the Federal Action Plan on Nature-based Solutions for Climate and Biodiversity. In Germany, this is intended to support the safeguarding of smaller areas with autonomous development that are not covered by the Wilderness Fund. The aim is to create synergies between climate protection and biodiversity conservation. These measures are

There should be more wilderness areas to see how nature itself adapts to climate change.



to be supplemented by the deployment of local Climate Wilderness Ambassadors who will advise and educate people on the topic of wilderness in the context of natural climate protection, provide information on existing funding opportunities, and recruit, network, and support stakeholders for the implementation of measures. In May 2024, Federal Minister for the Environment, Steffi Lemke, opened the Climate Wilderness Centre in Berlin. This new service centre supports the federal government and stakeholders throughout Germany in the implementation of funding measures for wilderness policy.[19] The data from the Nature Awareness Study clearly shows that the **concept of wilderness is a successful instrument in nature conservation communication** and can also serve as a "lever" for broader topics of nature conservation communication due to its high level of acceptance among the population.

The findings on the acceptance of the continued spread of wild animals in Germany also deserve special attention. Despite a significant increase in the wolf population, reservations about wolves have remained constant over the past ten years. These reservations should continue to be countered by providing the public with fact-based and transparent information and funding opportunities for grazing livestock farming. The current significantly lower approval rating for raccoons than in 2013, on the other hand, is positive from a nature conservation perspective and, at the same time, is interesting, because it is in line with efforts to minimise the spread of[20] neobiotia. The very high level of support for the spread of the lynx and wildcat is also pleasing. It means that these wild animal species can be used as ideal eye-catchers and representatives of **wild animals in nature conservation communication and image campaigns** aimed at the general public.

Water

Key statements:

- To ensure protection against flooding and to guarantee the availability of water, the population supports a mix of political measures.
- All the packages of measures available for selection are fully or at least somewhat supported by a clear majority, with investments in natural measures such as floodplain restoration receiving the highest level of approval (adults: 86 percent, or teenagers: 82 percent), followed by rules and regulations for industry and agriculture regarding the use of water (adults and teenagers: 79 percent), and finally investment in technical measures such as dyke construction (adults: 67 percent, teenagers: 68 percent).

Recommendations:

Water is essential to life, but, as climate change progresses, the availability and distribution of water is increasingly characterised by extremes. As already mentioned, since the end of 2023, the global water balance is also considered to have transgressed the planetary boundary (see Richardson, K. et al., 2023). On the one hand, the drought summers of recent years demonstrate the serious consequences of water shortages. On the other hand, extreme weather events also clearly demonstrate the serious consequences of flooding. The topics of natural climate protection and climate adaptation therefore play an important role in the context of water: The renaturalisation of bodies of water and the reconnection of floodplains secures habitats for animals and plants and keeps water in the landscape. This not only helps to mitigate drought, but also creates flood zones for preventive flood protection.[21] A **systematic and conscious approach to water as a resource is urgently needed**. This is why the Federal Ministry for the Environment published the National Water Strategy[22] in 2023. Together with the Federal Ministry for Transport, it has also launched the federal "Blue Belt" programme[23] creating an operational framework for the coming years and decades in order to be able to invest more in the renaturalisation of federal waterways and their floodplains. The BfN is responsible for the technical and administrative management of funding projects from the “Floodplain Restoration Programme”. The Federal Action Plan on Nature-based Solutions for Climate and Biodiversity also aims to promote the renaturalisation of rivers and floodplains. In addition to improvements in water ecology, this also contributes to preventive protection against flooding, flash floods, and droughts in a contemporary and sustainable manner.

The data from the Nature Awareness Study shows broad public support for various packages of measures with regard to the safety and availability of water resources. The **high level of approval for natural watercourse design measures** is very pleasing from a nature conservation perspective. The equally high level of approval for rules and regulations for industry and agriculture also shows that the population is aware that an **appropriate approach to water as a resource needs to be considered from a sociopolitical perspective** and requires efforts by society as a whole.

The connection between people and nature

Key statements:

- People in Germany predominantly associate nature with positive emotions. The 2023 Nature Awareness Study is the first to survey a broad spectrum of emotions experienced in nature. This reveals that nature is overwhelmingly associated with positive emotions, with teenagers responding somewhat more cautiously than adults. The most frequently mentioned ("agree strongly" or "agree somewhat") is that people feel calm in nature (adults: 90 percent, teenagers: 79 percent), but also that they feel free (84 and 77 percent), excitement (79 and 71 percent), and gratitude (78 and 73 percent).
- Negative emotions are mentioned less frequently overall, and there are also fewer differences between adults and teenagers.
- An increased appreciation of nature compared to the time before the coronavirus crisis is clearly or at least somewhat perceived by 42 percent of adults, and has even increased slightly since the last survey (2021: 38 percent). Among teenagers, this change in appreciation due to the pandemic is slightly higher (49 percent, 2021: 44 percent).

Recommendations:

Nature conservation communication and educational programmes often focus on imparting knowledge. However, it has long been scientifically known that there is only a small correlation between knowledge and actual environmental behaviour. For the broad field of **emotions**, which can sometimes very clearly **guide our actions**, things are different. This is well known in **marketing and advertising**, and established nature conservation communication would do well to use this knowledge to its own advantage.

The current Nature Awareness Study examines a range of nature-related emotions in depth for the first time and brings to light a variety of different response profiles for social groups. This could form the basis for further research into the topic and could also be used to address specific target groups – especially when it comes to activating emotions to encourage a willingness to act in favour of nature conservation. Corresponding communication activities are widespread in other topics within culture, sport, and politics, and are passed on by people with a role model function, such as influencers in the field of social media. The range of possibilities is large and far from exhausted in nature conservation. Reflection on current nature conservation narratives, which can be used implicitly or explicitly to tell convincing "stories", is also relevant here. The current BfN publication 623, "Impactful nature conservation communication. Reaching, convincing, and motivating people" provides a variety of suggestions for this (see BfN 2024)[24].

The connection between humans and nature, and emotions

Being in nature calms me.

	Agree strongly	Agree somewhat
Adults	49 %	41 %
Teenagers	40 %	39 %

I feel free in nature.

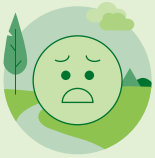
	Agree strongly	Agree somewhat
Adults	39 %	45 %
Teenagers	37 %	40 %

For me, being in nature is exciting.

	Agree strongly	Agree somewhat
Adults	40 %	39 %
Teenagers	34 %	37 %

I feel gratitude towards nature.

	Agree strongly	Agree somewhat
Adults	37 %	41 %
Teenagers	33 %	40 %



I am afraid in nature.

	Agree strongly	Agree somewhat
Adults	3 %	5 %
Teenagers	3 %	6 %

Agree strongly Agree somewhat

Political priorities

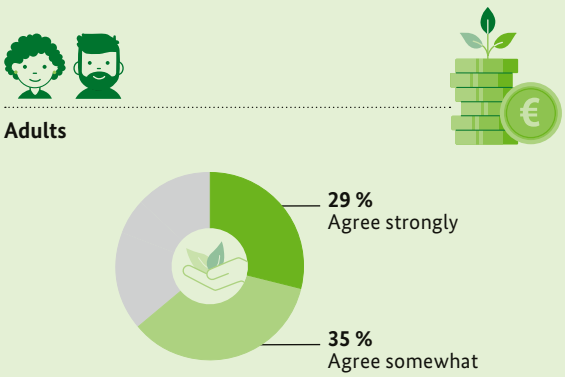
Key statements:

› When choosing the three most important policy areas, the topic of "protection of nature, the environment, and the climate", with 46 percent, can claim first place among adult respondents again in 2023. This is a drop from 2021, however, when 57 percent made this choice. At 45 percent, the second-place topic of "Immigration, migration, and xenophobia" was almost equal to the first place topic; in 2021, this topic was still in fifth place with 29 percent. The topic of "Poverty and social justice" ranks third in 2023 with 39 percent (2021: 43 percent, second place).

› A large majority of the population is in favour of state funding for nature conservation, even in times of crisis. Eighty-three percent of adults and 78 percent of teenagers agree strongly or at least somewhat with this.

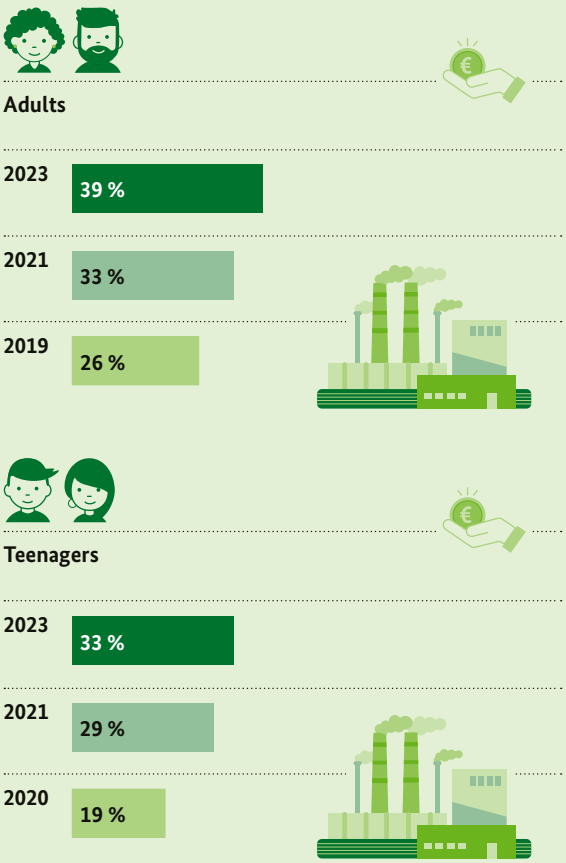
Attitudes towards economy and nature conservation

Nature conservation plays a positive role for economic development.



Nature must not be allowed to stand in the way of economic development.

Response categories:
"agree strongly"/"agree somewhat"



› Adults (64 percent) and teenagers (61 percent) are almost equally convinced that nature conservation plays a positive role in economic development. However, around a third of the population is of the opinion that nature must not stand in the way of economic development. This opinion has increased significantly over the last few surveys (adults, 2023: 39 percent, 2021: 33 percent, 2019: 26 percent; teenagers, 2023: 33 percent, 2021: 29 percent, 2020: 19 percent).

Recommendations:

The connections between the economy and nature conservation are varied and the vast majority of the economy is highly dependent on biodiversity. The data from the Nature Awareness Study suggests that teenagers and adults are generally aware of these connections and recognise the positive role of nature conservation for economic development. However, the data also makes it clear that **support for the compatibility of nature conservation and economic development has steadily declined over the last few years** and that people are increasingly of the opinion that nature must not stand in the way of economic development.

What is particularly relevant for policy-making is that this issue is closely linked to **issues of social justice**. For example, only 17 percent of the socially well-off Post-Materialists[25] agreed strongly or at least somewhat that nature must not stand in the way of economic development. However, 53 percent of members of the economically weakest, Precarious milieu agree with this statement. It therefore remains an important task of nature conservation policy and nature conservation communication to devote much more attention to social issues than in the past, in order to **create an understanding among the general public of the "win-win" possibilities of synergetic nature conservation and economic development**.

The policy area ranking shows that **the majority of respondents rate nature, environmental, and climate protection as a policy area of particular importance**. However, this opinion is significantly weaker than in the last survey in 2021. Given increasing social tensions and shifting values, it therefore remains an important task of nature conservation to promote its social significance and to design measures and instruments in a socially acceptable way.

Commitment to nature conservation

Key statements:

› With regard to the perceived self-efficacy of commitment to nature conservation, it can be seen that people consider themselves to be more successful in a collective ("agree strongly" and "agree somewhat": 83 percent) than through personal commitment alone (60 percent). In 2023, teenagers are on a par with adults in terms of collective and personal self-efficacy beliefs (84 and 59 percent respectively). However, at the highest level of agreement, a decline in the perceived collective self-efficacy of teenagers can be observed across the last surveys ("agree strongly", 2023: 43 percent, 2021: 49 percent, 2020: 59 percent).

› Forty-eight percent of adults but just 38 percent of teenagers agree strongly or at least somewhat that joint, peaceful demonstrations make a difference for nature conservation. In the eastern federal states, only 26 percent of teenagers are convinced of this, significantly less than teenagers in western Germany (40 percent).

Recommendations:

The results of the Nature Awareness Study provide a wealth of information on how to optimise voluntary nature conservation work as well as the associated nature conservation communication. It is and remains important to address specific target groups in order to strengthen voluntary commitment to nature conservation. Existing willingness to act must be taken into account as well as different expectations and obstacles. The in-depth analysis of the information on social milieus also provides many other suggestions for improving the design of voluntary activities in nature conservation.

With regard to stylistic devices in communication, this study suggests that simply **addressing the collective ("we") can activate significantly more belief in self-efficacy for nature conservation** than if the responsibility for action is focussed solely on the individual.

It is also interesting to note that teenagers now take a much more sober view than adults of their ability to make a difference for nature conservation through peaceful demonstrations. The discrepancy between the western and eastern federal states is also thought-provoking and could constitute a basis for targeted communication activities.

Energy transition

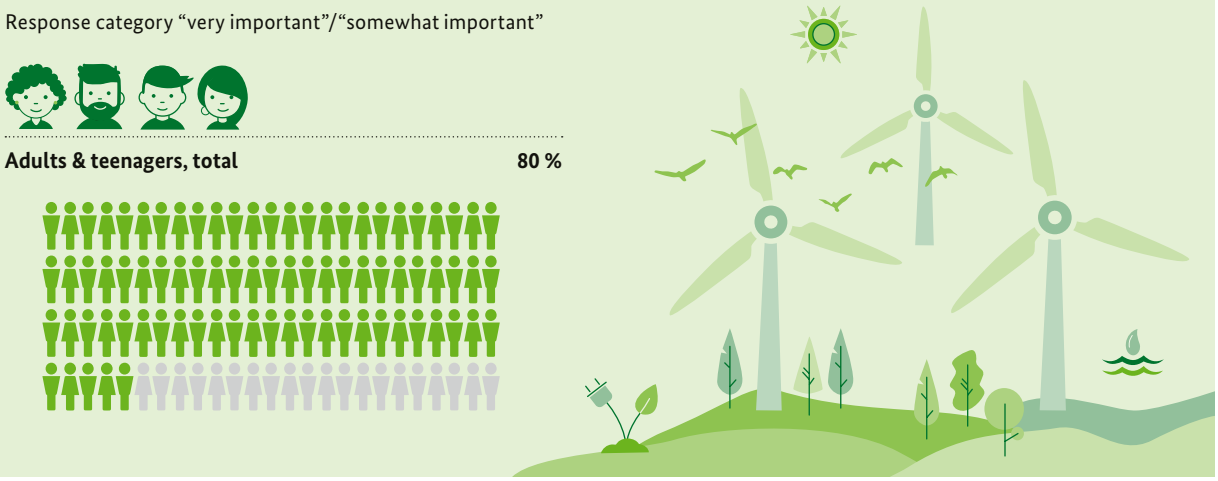
Key statements:

- Eighty percent of adults and teenagers agree strongly or at least somewhat with the need to shape the energy transition in an environmentally friendly way.
- In principle, the energy transition is supported by the majority of the population in 2023, with 59 percent of adults and teenagers agreeing with it. Following the decline in approval in 2021 (48 percent), this indicates that adults are returning to the previous level (e.g. 2019: 60 percent). Although teenagers are on a par in 2023, they have fallen in line with adults after previously better figures (2021: 64 percent, 2020: 66 percent).
- There are clear differences between the generations when it comes to willingness to save energy: 70 percent of adults, but just 52 percent of teenagers, are fully or at least somewhat prepared to save energy.

Recommendations:

The present Nature Awareness Study demonstrates a very high level of support for implementing the energy transition in an environmentally friendly way. Adults and teenagers are on a par here, with an average of four out of five people taking this view. This provides a strong tailwind for nature conservation actors in Germany to continue to clearly communicate the nature conservation and biodiversity aspects of the energy transition, alongside the often dominant climate arguments. With regard to fundamental support for the energy transition, a comparison over time shows that, after a significant decline in 2021 (48 percent), approval among adults in 2023 (59 percent) is back close to the population averages of 2015, 2017 and 2019 (60 to 61 percent). **From a nature conservation policy perspective, implementation of the energy transition in an environmentally friendly way can therefore generally build on the support of the population**, particularly because a clear majority of respondents are fully aware of the nature conservation aspects of the energy transition. The exploitation of inner-city or other already built-up areas, for example through photovoltaics, should be promoted to a greater extent in order to ensure flexibility in choosing the right location in the open

A predominantly renewable energy supply to address the climate crisis can also have negative impacts on nature, landscape, and biodiversity. For example, wind turbines can affect the landscape and the habitat of birds. How important is it to you that the implementation of the energy transition also takes the needs of nature into consideration?



countryside from a nature conservation perspective. This is because avoiding negative changes to the landscape is crucial to ensuring the continued acceptance of the energy transition.

However, a closer look at socio-demographic groups and social milieus in the population reveals that **opinions on the energy transition are more polarised than they have been for a long time**. It is above all the socially better-off who support the energy transition (approval between 74 and 85 percent depending on the milieu), less so the middle class (44 to 49 percent), or the socially less well-off milieus (23 to 39 percent approval). In addition to the ongoing economic discussions about the energy transition, greater attention should also be paid to its social dimension in future. The transformation of the energy system must increasingly go hand in hand with the **question of social justice** and citizens should be seen as co-creators and participants in the energy transition: For members of the less privileged classes in particular, the energy transition continues to be a feared cost issue, and the specific implementation of local measures can also represent an area of conflict that must be dealt with transparently.

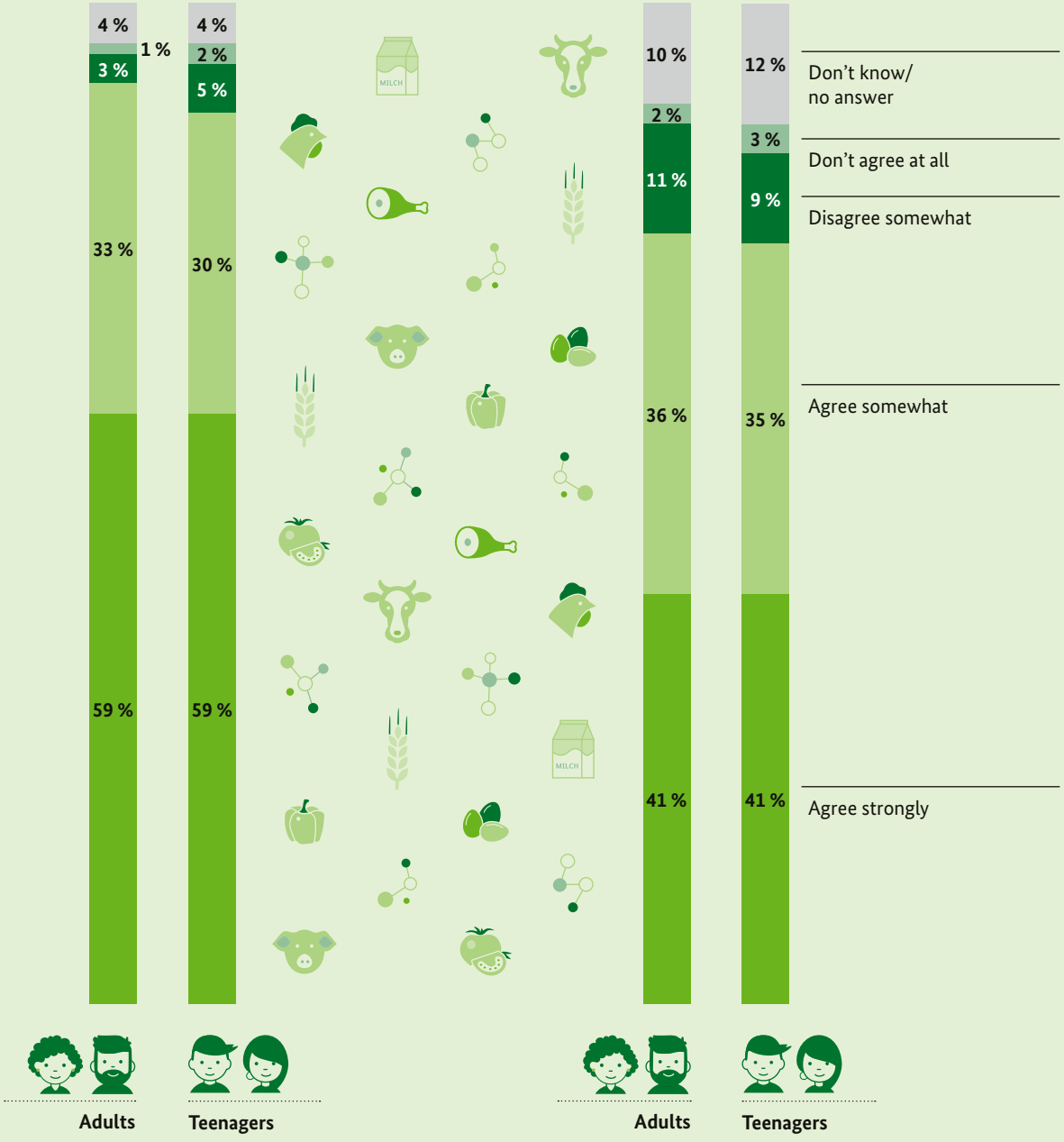
Genetic engineering

Key statements:

- Just over three quarters of adults (77 percent) and teenagers (76 percent) “strongly” or “somewhat” believe that the long-term consequences of new genetic engineering methods cannot be foreseen. A large majority of the population (92 percent of adults and 89 percent of teenagers) is therefore also “strongly” or “somewhat” of the opinion that potential effects of genetically engineered plants on nature should always be explored.
- At the same time, a large majority of the population (94 percent of adults and 90 percent of teenagers) also “strongly” or “somewhat” supports mandatory labelling of genetically engineered food.

Attitudes towards nature and genetic engineering

When plants are genetically engineered using new methods, the potential effects on nature should always be explored.



We are not yet able to predict the long-term effects of new genetic engineering methods.

Don't know/ no answer

Don't agree at all

Disagree somewhat

Agree somewhat

Agree strongly

› Just over half of adults (54 percent) and almost two thirds of teenagers (63 percent) are “strongly” or “somewhat” of the opinion that people do not have the right to genetically modify plants and animals.

Recommendations:

The results of the present Nature Awareness Study show the importance of **evaluating possible risks of genetically engineered organisms** for the population. The current regulation with the legally prescribed case-by-case assessment of risks to people and nature and the **precautionary principle**[26] enshrined therein therefore takes these concerns into account. With regard to technological progress and the resulting new genetic engineering methods and applications, a clear majority of respondents believe that the long-term consequences of new genetic engineering methods cannot yet be foreseen. Furthermore, the majority of respondents are also in favour of a fundamental examination of the possible effects on nature of genetically engineered plants produced using new genetic engineering methods.

The current legally regulated **mandatory labelling** of genetically engineered organisms also ensures a **freedom of choice** for consumers. The respondents clearly rejected the consumption of genetically engineered foods and were strongly in favour of mandatory labelling of foods produced using new genetic engineering methods. For teenagers and adults, the issue of transparency and the possibility of freedom of choice regarding the use of genetic engineering in food production remains of central importance.

Furthermore, the current Nature Awareness Study shows that the discourse on genetic engineering is complex and extends beyond environmental risks and freedom of choice. On the one hand, the majority of the population is of the opinion that people do not have the right to genetically modify plants and animals. On the other hand, the argument that genetic engineering is an important part of the fight against world hunger also meets with little approval among adults and teenagers. **Ethical and socioeconomic aspects** therefore also play a role in the societal discourse on genetic engineering. Ultimately, both the continued risk assessment and a large-scale **technology assessment** of new genetic engineering developments are not only relevant for nature conservation, but are also in the interests of the majority of the population.

Societal indicator “Awareness of biodiversity”

Key statement:

› Awareness of biodiversity has increased significantly among the adult population. The overall index has risen from 25 percent in 2021 (calibration value, proportion of the population with the highest awareness in 2021) to 38 percent in 2023: a substantial increase of 13 percent.

Recommendations:

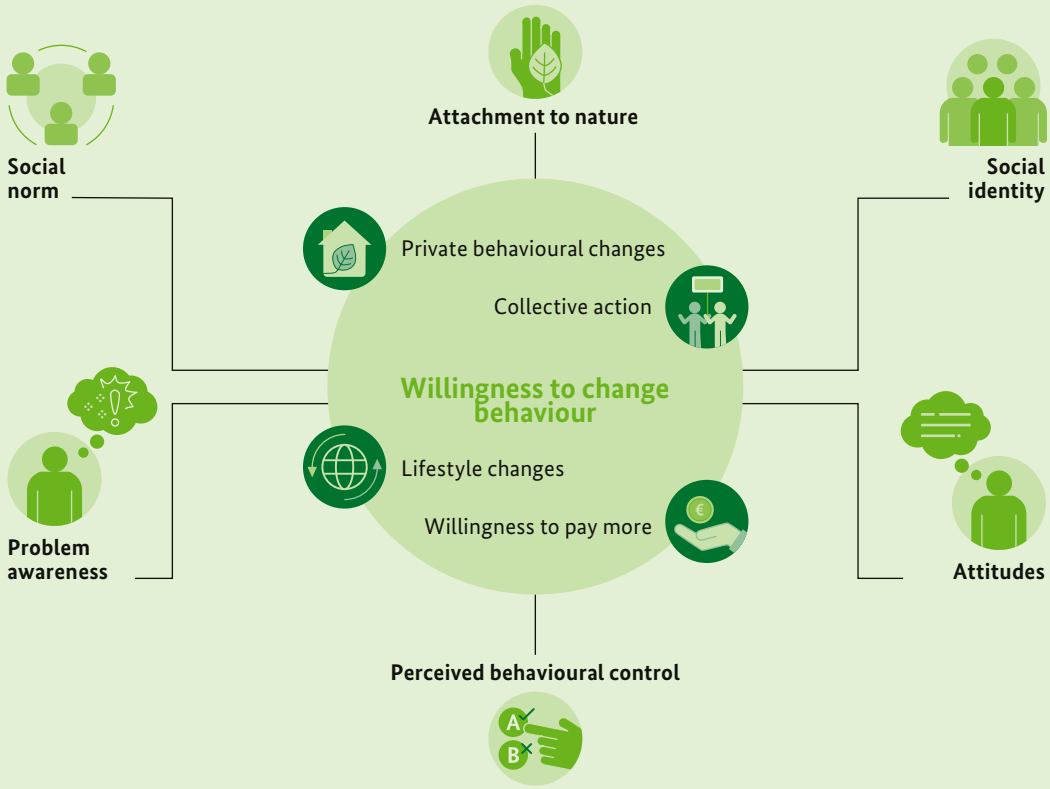
The 2023 Nature Awareness Study shows that the population’s awareness of biodiversity has increased significantly. The societal indicator used to measure this awareness since the 2021 Nature Awareness Study is characterised by a strong focus on willingness to change behaviour for biodiversity, which takes account of international efforts to bring about a necessary change in behaviour to achieve greater sustainability.[27]

In addition, the indicator includes six groups of questions with a psychological slant, which have been scientifically proven to have explanatory power in terms of eco-friendly behaviour: social identity, social norms, perceived behavioural control, attitudes, problem awareness, and attachment to nature. The overall index, which shows the amount of the population with the highest biodiversity awareness at all these levels, has increased substantially from the 2021 calibration value of 25 percent **to 38 percent in the population average** in 2023. This development is seen not only at the superordinate level of the index, but a positive development can also be seen in the overall picture of the population when looking at the response behaviour with regard to the willingness to act as well as the action-guiding psychological variables queried. This trend indicates a shift in social values towards sustainable development, which also shows that activities in the field of nature conservation communication and education pay off over time. In order to stabilise this trend, efforts in this area must not be allowed to weaken.

Looking from a differentiated, sociological perspective, however, we notice that the **relationship between people and nature biodiversity is contradictory at many levels**. This is particularly clear from the fact that in this and previous studies we repeatedly see that members of the upscale milieus express a significantly stronger awareness of biodiversity than the population average (51 to 59 percent) or than members of the social centre (22 to 26 percent) or the socially weaker milieus (12 to 28 percent). In contrast to the latter, however, socially better-off groups have a significantly poorer ecological balance and a more resource-intensive lifestyle (for example, through energy consumption and long-distance travel). At the same time, this sets the working direction for targeted communication work. **Activities to protect biodiversity should be called for in upscale social milieus, due to the wider range of individual design options. Conversely, for socio-economically disadvantaged social milieus, political work should focus on promoting social justice**, particularly due to the lower ecological footprint in these milieus. This also requires joint efforts by the legislative, executive, and judicial branches of government.

The awareness indicator presented here provides an initial starting point for accompanying, **evidence-based communication measures** to further promote awareness of biodiversity. The psychological, causal factors investigated here, which are relevant to nature conservation, such as attitudes, social norms, social identity, or perceived behavioural control, should be addressed more directly in public discourse in future and used in communication and education measures.

Awareness of biodiversity: The new overall indicator



1 Introduction

The present study is a representative population survey on nature and biological diversity in Germany. Commissioned by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Federal Agency for Nature Conservation (BfN), the Nature Awareness Studies have been conducted and published every two years since 2009.

The Nature Awareness Study investigates how people in Germany perceive nature, what they do to preserve it, and what they think about current nature conservation policy issues. As a monitoring instrument for social trends, it provides up-to-date and empirically sound data that offers a valuable basis for nature conservation policy, public discourse, and educational work.

The base population of the present study is the German-speaking resident population aged 18 and over. The study surveyed 2,411 people between the end of October and mid-December 2023. A mixed-method design was used for data collection: Approximately half of interviews were carried out as computer-assisted personal interviews (CAPI), the other half as online interviews (CAWI). Both samples (CAWI and CAPI) were taken as quota samples. Quota samples are not random samples, but are based on a deliberate selection of target persons in order to ensure the representative nature of the data. In a quota sample, the sample is composed through the definition of quota characteristics. The distribution of these characteristics is determined exactly in relation to their occurrence in the population. The quota plan is calculated strictly according to these specifications. The quota characteristics in this survey were age, gender, education and federal state.

Alongside the main study on nature awareness in the adult population, a separate survey of nature awareness among teenagers was carried out over the same period. The youth survey is representative of German-speaking 14 to 17 year olds. Online interviews were mostly used here (n = 800). In order to reach teenagers who are difficult to contact online, the survey was also conducted using face-to-face interviews (n = 203). The sample comprises 1,003 respondents and – as with the adult survey – was allocated according to gender, age, education (type of school attended or highest school-leaving qualification) and federal state.

The study was designed by Dr Christoph Schleer and Naima Wisniewski from SINUS Markt- und Sozialforschung GmbH, Dr habil Fritz Reusswig from the Potsdam Institute for Climate Impact Research (PIK), and with the specialist support of the BMUV and BfN. The data was collected by sociotrend GmbH in cooperation with Krämer Marktforschung GmbH. During development of the surveys and interpretation of the data, the project team was supported by an expert advisory group that included: Prof. Stefanie Engel (Osnabrück University), Dr Utal Eser (Büro für Umweltethik), Prof. Immo Fritsche (Leipzig University), Prof. Ulrich Gebhard (Bielefeld University), Dr Manuel Rivera (Research Institute for Sustainability (RIFS)) and Dr Angelika Gellrich (UBA).

1.1 Objectives and concept

The Nature Awareness Study is an instrument for monitoring society's awareness of nature, nature conservation, and biodiversity. The studies on nature awareness are anchored in the "National Strategy on Biodiversity" (NBS) as a specific goal for action. The studies collect the data required to calculate the "awareness of biodiversity" indicator agreed in the reporting obligations of the NBS.[28] In addition, the findings are to be used to

derive significant indications for the success and acceptance of nature conservation policy, general and target group-specific nature conservation communication, and educational work.

In order to identify social trends in nature awareness, a basic framework of unchanging questions is asked in each Nature Awareness Study. Furthermore, each study focuses on new topics that are linked to current discussions and nature conservation policy tasks. The main questions cover:

Planetary boundaries and transformative change

Does the population believe that Earth is in a stable state or are individual areas such as the climate, the state of the oceans, or species diversity perceived as worrying and unstable? Is a change in lifestyles and economic activities in Germany deemed necessary to combat the global nature, environment, and climate crisis? And to what extent are people willing to contribute to a change in lifestyles and economic activities in the spirit of a socio-ecological transformation of society?

Climate change, natural climate protection, and moors

How much do adults and teenagers think they know about the topic of "natural climate protection"? Do they feel sufficiently informed and are they interested in receiving more information on natural climate protection? To what extent are nature-based solutions such as the rewetting of drained moors favoured, and what individual and collective effectiveness is associated with them?

Restoration of ecosystems

What do people in Germany think are the most important services provided by nature (ecosystem services)? In their opinion, is there a social responsibility to restore (destroyed, disrupted) ecosystems? What approaches should be pursued? Where are people prepared to give nature more space?

Water – resource protection and accessibility

How does the population feel about protecting water as a resource? What kinds of measures should be taken to ensure water safety and availability?

Expansion of wilderness areas and reintroduction of wild animals

To what extent do Germans believe that there is wilderness in Germany? Would they like to see more wilderness areas in Germany or are they more concerned that this would mean land is no longer available for economic use? What about the reintroduction of native animal species? Which wild animals are they in favour of reintroducing, and which do they have reservations about?

The connection between humans and nature and commitment to nature conservation

What emotions are associated with nature? What is the personal significance of nature and how has the relationship with nature changed for adults and teenagers as a result of the coronavirus crisis? What is their opinion on the endangerment of nature in 2023? And what do they think they can do collectively and through their own actions to protect nature?

Setting policy priorities – how important is the protection of nature, the environment, and the climate?

How important does the population think it is to protect nature, the environment, and the climate? Do Germans consider it to be one of the most important policy areas or are there other topics that are even more important? In addition: Where do they situate nature conservation in the conflict between politics and economics?

Energy transition

What do adults and teenagers think about renewable energies? Do they agree with the energy transition towards an energy supply from predominantly renewable energies, or are they critical of and opposed to this? In this context, how important is it that the implementation of the energy transition also takes the needs of nature into consideration? What attitudes does the population have towards this and how do they view the expansion of wind turbines and solar installations?

Genetic engineering

What are the basic attitudes of adults and teenagers to the modern forms of genetic engineering? Are they in favour of mandatory labelling of genetically engineered foods? To what extent do they believe that it is not yet possible to predict the long-term effects of new genetic engineering methods?

Biodiversity

What is the impression of social awareness of the importance of biodiversity? Is the population sufficiently aware of the decline in biodiversity? What are the attitudes of Germans towards environmentally friendly behaviour and how willing are they to make their own contribution to protecting biodiversity – for example by changing their lifestyle, getting involved personally and collectively or paying higher prices for food produced in a sustainable and environmentally friendly way?

1.2 Introduction to the Sinus-Milieus

Since 2009, the socio-cultural approach of the Sinus-Milieus target group model has been integrated into the research design of the Nature Awareness Study. Through differentiated evaluation of the data according to the milieus of the respondents, the socio-demographic analysis is supplemented by lifestyle and value components.

The Sinus-Milieus group people who are similar in their outlook on life and lifestyle (see Flaig and Barth 2018). This is a scientifically based model of society. In contrast to an inductive-empiristic approach, according to which lifestyle types are generated by means of statistical ordering procedures such as cluster and correspondence analyses and are not determined a priori, the development of the Sinus-Milieus was based on qualitative findings (see Barth 2022).[29]

The milieu perspective does not replace the study of socio-demographic characteristics, but complements and refines them by taking into account fundamental values that determine lifestyle and life goals as well as everyday attitudes, for example to family, work, leisure, and consumption.

Figure 1 shows the current SINUS model for the adult population. By including the Sinus-Milieu indicator in the questionnaire design of the Nature Awareness Study, quantitative mapping of the members of the different milieus in the adult population is possible.[30] This makes it clear that the individual milieus represent different proportions of the population (see Figure 1).

The 2024 SINUS model for Germany consists of ten different social milieus. Since lifeworlds supposedly cannot be delimited as precisely as social classes – for example by income or school-leaving qualifications – the boundaries between the lifeworlds are fluid. SINUS calls this the “uncertainty relation of everyday reality”. This is a central component of the milieu concept: There are points of contact and transitions between the different lifeworlds. This is precisely what makes it a lifelike model.

The profiles of the Sinus-Milieus are presented below.

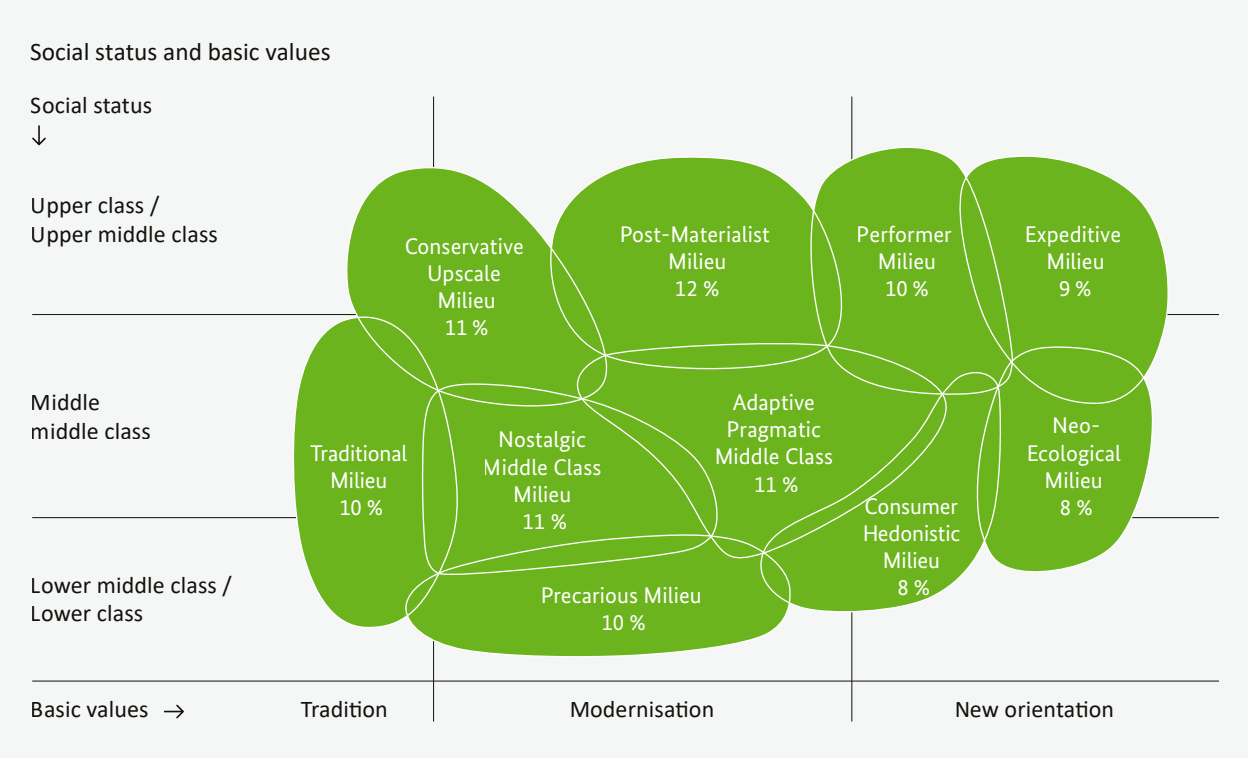


Figure 1: The Sinus-Milieus in Germany 2024

Conservative Upscale milieu

The Conservative Upscale milieu represents the older, structurally conservative elite with classical ethics of responsibility and success and clear claims to exclusivity and status. It is characterised by a desire for order and balance and has a self-image as a stable rock amidst the tide of post-modern arbitrariness. The Conservative Upscale see themselves as the classic conservative establishment. Their key values are, on the one hand, a sense of duty, purpose, seriousness, and responsibility towards themselves and society. On the other hand, they are advocates of Christian humanist principles and conservative middle-class values: tradition, intact family, integrity, decency, education and sophistication, authority, faith and religion. They are critics of the insubstantial post-modern zeitgeist and the progressive decline of values. In particular, they demonstratively distance themselves from the irresponsible society of fun and disposability.

Accordingly, they clearly express the desire for (more) order, discipline, balance, and sustainability.

Socio-demographic characteristics:

- Middle-aged to older milieu: the average age is 54.
- Average to higher educational qualifications.
- Predominantly in full-time employment or already retired, slightly above average proportion of self-employed, predominantly in qualified and managerial positions.
- Net household income is the average for the population as a whole.
- Very often married; above-average number of children, who, however, often no longer live in the household and already have children of their own.

Post-Materialist milieu

The Post-Materialist milieu is the committed and confident educated elite with post-materialist roots. Self-determination and self-development, orientation towards the common good, diversity, and non-discriminatory relationships are key values. They typically see themselves as a social corrective, especially as advocates of post-growth and sustainability. Post-Materialists see themselves as bearers of global responsibility and ecological admonishers. They are characterised by a self-confident liberal attitude. Open-mindedness, tolerance, a cosmopolitan world view, anti-fundamentalism, and enlightenment are the guiding maxims in this group. Typical of this milieu is a post-materialist individualism with the central values of authenticity, self-determination, and self-development: People want to create space for themselves, realise their own ideas, and not be bullied by authoritarian structures, rigid procedures, constraints, and bureaucracy.

Socio-demographic characteristics:

- Middle age groups: focus on 40 to 70 years, average: 53 years.
- High level of formal education; many with academic degrees.
- Often married or in a relationship.
- Highest proportion of academics, often employed in qualified or managerial positions, above-average proportion of civil servants in the upper civil service.
- Highest net household income in the milieu comparison.

Performer milieu

The Performer milieu is the efficiency and progress-oriented technocratic elite of our society with liberal and global economic thinking. Those in this milieu see themselves as the modern business elite and as digital, lifestyle, and consumption trendsetters. In recent years, Performers have shown clear tendencies towards establishment and are in the process of gradually losing their former visionary élan. Performers have a basic attitude characterised by determination, ambition, performance optimism, and pragmatic thinking. Their orientation towards efficiency, competition, and career is typical, combined with the striving for personal fulfilment and an intensive life. “Flexible in pursuit of success” can be considered the leitmotif for the milieu. People put a lot of energy and risk-taking into pursuing their own goals, mixing work, leisure, and social life.

Socio-demographic characteristics:

- Age focus under 60 years; average: 45 years.
- High proportion of couples, mostly married; often with children.
- Middle and often high level of education.
- High proportion of full-time employees; mostly in skilled jobs; higher net household income.

Expeditive milieu

The Expeditive milieu comprises the ambitious creative bohemians: urban, hip, digital, cosmopolitan, networked, and always in search of new frontiers and unconventional experiences, solutions, and successes. The milieu is very individualistic. Anchoring values are personal fulfilment, uniqueness, curiosity, diversity, coolness, and experimentation. Typical of Expeditives is a non-conformist, risk-accepting basic attitude without ideological fixations. They are open to everything, want to break through boundaries, expand horizons, accept new challenges, and find new solutions in unconventional ways. Many see life as a game – and the whole world as their stage. And they all have a fundamental curiosity and tolerance towards different ways of life and cultures.

Socio-demographic characteristics:

- Young milieu: over a third are under 30, average: 38 years.
- Many unmarried people and singles, often (still) without children of their own.
- High level of formal education: Almost half have university entrance qualifications or have completed a university degree.
- Above-average proportion of full-time employees.

Neo-Ecological milieu

The Neo-Ecological milieu is a milieu focused on global networking, social added value, and the post-growth society. Characteristic of this life-world are new value syntheses: disruption and pragmatism, success and sustainability, party and protest. On the one hand, the members of this milieu show pronounced self-development values such as independence, self-determination, authenticity, and openness to experimenting with alternative lifestyles; on the other hand, they stand for an ethic of responsibility, ecological awareness, and social conscience. In this, they clearly distance themselves from doomsday rhetoric and lamentation: It does not help to lament coral die-off or the desiccation of forests in the Harz Mountains; what is needed is realism and adaptability – a progressive pragmatism that seeks alternative solutions and concentrates on a few core positions that are no longer negotiable. Neo-Ecologicals are relevant initiation points for change processes, as they advocate modernisation and rethinking and are fundamentally open to altered behaviour, but they have a much less pronounced role model function for middle or upper class milieus than, for example, the Post-Materialist milieu.

Socio-demographic characteristics:

- Young milieu: two thirds are under 50; average: 42 years.
- Many unmarried people and singles without children of their own.
- Above-average high level of education.
- Mostly employed full-time or part-time or still at university; high proportion of ordinary and mid-level employees.
- Average household income.

Adaptive Pragmatic Middle Class milieu

The Adaptive Pragmatic Middle Class milieu is the modern mainstream of our society with a pronounced pragmatism towards life and utilitarian thinking as well as a strong willingness to adapt. Members of this milieu see themselves as flexible pragmatists. They typically combine a desire for experience with a need for security. Adaptive Pragmatists are determined and open to new things – and at the same time have a strong need for anchoring and belonging. Current social developments (especially the perceived polarisation of wealth) are leading to growing dissatisfaction and uncertainty in this milieu. Adaptive Pragmatists are open-minded, determined and willing to adapt, well educated and organised, but also conventional and down-to-earth. However, they distance themselves from “old-fashioned” values, lifestyles, and moral concepts. Their own guiding principle is to be fashionable and trendy, but not expressive. They strive for a higher standard of living, but not for excessive luxury.

Socio-demographic characteristics:

- Men slightly overrepresented.
- Age focus under 50 years; average: 48 years.

- Often married or living with a partner; often with children.
- Often medium level of education; predominantly in full-time employment as white-collar or blue-collar workers.
- Often all persons in the household have their own income; average household income.

Consumer Hedonistic milieu

The Consumer Hedonistic milieu represents the consumption and entertainment-focused (lower) middle class that wants to have fun in the here and now. Members of this milieu have a self-image as the cool lifestyle mainstream and often have a strong need for recognition. Many are increasingly annoyed by the dictates of sustainability and political correctness. The members of this milieu see themselves as easy-going hedonists who get on with everyday life, function in their jobs, and have fun in their free time. The desire is great for an intensive life in the here and now with lots of fun and action, spontaneous consumption, and luxury. People are demonstratively relaxed and carefree and take things as they come. Their maxim for life is designed for short-term satisfaction of needs and is: enjoy now ("live now, pay later"), not wait and save. Their willingness to do without is correspondingly low and their "fear" of missing out is great. Leisure time is seen by many in the milieu as where life actually takes place, where they pursue special leisure interests (from mangas to motor sports) single-mindedly and with great enthusiasm.

Socio-demographic characteristics:

- Men overrepresented.
- Younger to middle age groups: focus up to 50 years; average: 46 years.
- High proportion of unmarried people; only one in two has children.
- Predominantly average to higher level of education.
- Predominantly in full-time employment; slightly above-average proportion of self-employed; usually skilled workers or mid-level employees; above-average proportion of unemployed.
- All income classes.

Precarious milieu

The Precarious milieu represents the lower class striving for orientation and participation, who are trying to keep up with the standard of living of the broad middle class and often feel left behind. Those in this milieu are burdened by social disadvantages, exclusion, and bitterness. Many members of this lifeworld live in socially and financially difficult circumstances, but try to maintain the image of the normal average citizen (for themselves and to others). And many feel disadvantaged due to a series of deficits (lack of education, illness, family problems, unemployment) – through no fault of their own. There is also a widespread perception of being excluded through no fault of their own as victims of global change and neo-liberal reforms.

Socio-demographic characteristics:

- Older age groups, focus on the 60+ age cohort; average: 63 years.
- Above-average number of single and widowed people; highest proportion of divorced people in the milieu comparison; above-average numbers of children and grandchildren.
- Mostly low level of education (lower secondary school with or without apprenticeship).
- More than half are not employed (pensioners and unemployed); below-average proportion of full-time employees, often mini-jobs;

above-average proportion of white-collar workers, very high proportion of blue-collar workers.

› Low net household income.

Nostalgic Middle Class milieu

The Nostalgic Middle Class milieu is the harmony-oriented middle and working-class centre of society with a desire for secure circumstances and an appropriate status. This group feels increasingly overwhelmed by the perceived loss of learned rules and certainties which leads to a longing for the "good old days". They typically see themselves as the social middle-field who are being increasingly alienated by the dominating elites. The Nostalgic Middle Class milieu sees itself as the backbone of society: reasonable, reliable, and loyal, willing to perform and adapt, realistic, and prudent. They typically strive for orderly circumstances, harmony, balance, and security – both professionally and privately. Fulfilment in life means private happiness, security in an (intact) family, and being integrated into the local community with a reliable and accepting network of friends, neighbours, and clubs.

Socio-demographic characteristics:

› Middle age group and older people over 50 are overrepresented; average: 54 years.

› Mainly mid-level education qualifications.

› High proportion of married people with children, who have often already moved out; slightly above-average proportion of divorced and widowed people.

› Predominantly in full-time employment or already retired; above-average proportion of ordinary employees and skilled workers.

› Lower to middle income classes.

Traditional milieu

The Traditional milieu is centred around the security and order-loving older generation and is entrenched in the petit-bourgeois world or traditional working-class culture. Members of this milieu typically see themselves as the upstanding "little people". In the course of progressive social modernisation, the members of the milieu are developing an increasing feeling of being left behind. Members of the Traditional milieu have a hierarchical world view characterised by conformity and traditional moral concepts. They are, according to their self-image, "the little people", upstanding and the salt of the earth – but increasingly marginalised by social modernisation. The consequences are resignation and withdrawal into their own niche (home, family, community). Traditionalists are critics of the decline in morals (the too "loose morals"), the all-embracing sense of entitlement, and over-foreignisation. They also take a sceptical view of globalisation and diversity. The new norm of sustainability, on the other hand, is increasingly accepted (in the milieu-typical form of undemandingness and frugality).

Socio-demographic characteristics:

› Women overrepresented.

› The oldest milieu: Focus in the 70+ age segment; average: 65 years.

› Hardly any employed people, many pensioners, widows, and widowers.

› Mostly a low level of formal education (primary/secondary school).

› Very often small incomes.

1.3 Presentation of the youth lifeworlds

The SINUS Institute has been researching the socio-cultural diversity of young people in Germany for over 15 years. The result is a social and target group model for the younger generation. It groups together teenagers who are similar in terms of values, basic attitude to life, and lifestyle, as well as those with a similar social status. The different facets of daily life (such as leisure, family, school, friendship groups, media use, career orientation) are taken into account in order to provide as comprehensive an image as possible of teenagers' focuses and lifestyles. The SINUS model of teenagers' lifeworlds is not based on partial aspects of everyday reality, but focuses on teenagers and the overall frame of reference of their lifeworlds as a whole. These could also be referred to as social milieus. However, since teenagers' socio-cultural core identity is not yet fully developed and shaped, the lifeworlds term is more appropriate. These are real existing groups with common contexts of meaning and communication in their everyday world, with comparable concepts of what is valuable and important in life that guide actions, as well as similar ideas of quality of life and lifestyle.

By including the SINUS lifeworlds indicators in the questionnaire design of the youth survey, quantitative mapping of the members of the different lifeworlds in the youth population is possible.[31] Figure 2 shows the model of SINUS lifeworlds for teenagers aged 14 to 17 in Germany. It is made up of seven different lifeworlds, which are positioned in a two-dimensional axis system. The vertical axis indicates the level of education while the horizontal axis represents the normative basic values. The higher the position of the lifeworld in this graphic, the higher the level of education; the further right it is positioned, the more modern the values are from a socio-cultural perspective (for a more detailed explanation, see Calmbach et al. 2024).

The basic characteristics of the seven youth lifeworlds are described below.

Traditional Middle Class

The value profile of these teenagers is characterised by the need for stability, order, and balance. A modern middle-class lifestyle is also typical, characterised by the desire for social proximity and warmth as well as a balance between school and leisure, personal interests, and family obligations. The Traditional Middle Class milieu describes itself as unremarkable and reserved, familial, sociable, quiet, and grounded. While these attributes are discredited by many other teenagers as boring, the Traditional Middle Class consider them to be positive characteristics.

For the Traditional Middle Class, self-discipline is more important than self-expression. Accordingly, lifestyle ambitions and consumer trends are at their weakest in this lifeworld. Here, teenagers are economical and controlled with their money. They don't want to "pour it down the drain". The Traditional Middle Class take a primarily community-oriented approach to their leisure time. Many teenagers in this lifeworld take on volunteer work or at least sympathise with it. Direct experiences of nature (such as camping with a camp fire, bicycle tours in the countryside) are popular, with particularly positive mention of moments that create community (whether with family or friends). Nature is a symbol for home, peace, and harmony, and, for Christian believers, is also a part of God's creation.

Adaptives

Adaptives combine the middle-class basic values and virtues of harmony, family, honesty, respect, trust, punctuality, diligence, willingness to work, and determination with (post-)modern and hedonistic values such as personal fulfilment and flexibility as well as the desire for fun and an intensive life. Teenagers from this lifeworld perceive that the future will demand a high level of flexibili-

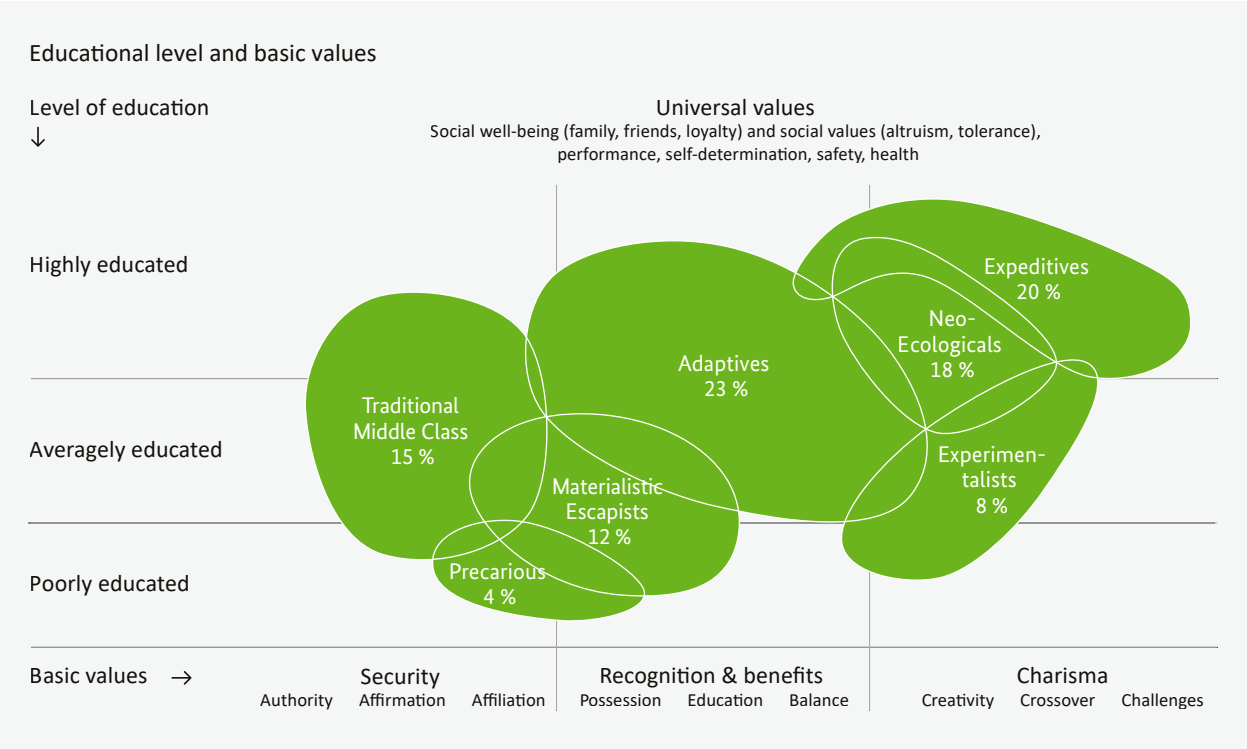


Figure 2: SINUS model for youth lifeworlds in Germany 2024

ty and self-management. They don't complain about it, but accept it. They name their strengths as adaptiveness and willingness to compromise as well as realism. They take a rather sceptical stance on ideologies. They are not focused on utopia but on the achievable. They do not have plans for making a "better world", but try to find their place in the middle of society. They are rational, grounded, and benefit-oriented instead of risk-oriented. In life, they consider it important to make forward-looking and meaningful decisions. They set themselves achievable goals and are guided by reason and calculating benefits.

If ever Adaptives do break away from their routines and "do something wild", they don't exaggerate it. However, they are fundamentally open to new things, in particular in relation to media and technologies. They adapt upcoming trends – even though they aren't really trendsetters (like the Expeditives). Intensive media consumption and high levels of activity in social networks are widespread. They often spend their free time doing hobbies, especially the girls: playing piano, singing, horse-riding, dancing. However, these leisure occupations usually take second place behind school work. Their consumer interest is pronounced, but is usually subject to rational control.

Precarious teenagers

The French word "précaire" means "precarious," "uncertain," and "revocable" – key terms which can be used to describe the attitude towards life and the living conditions of these teenagers. Their biography reveals initial fractures early on (for example incomplete, problematic family relationships, mental illness, expulsion from school). The everyday life of the Precarious is characterised by the battle for normality and keeping pace, and often marked by experiences of failure. While there are many indications that most of these teenagers will move permanently into the Precarious lifeworld because they are confronted with

a combination of different risk situations (parents with no educational background, unemployed parents, family income at or below the poverty line, poor prospects of graduating from school, problematic peer group), it is also conceivable that some of them are merely going through a phase of crisis, especially if there is a firm intention to "do everything to get out of here".

Precarious teenagers have a strong desire to belong and to "achieve something really good as well", but perceive that they will rarely succeed at this in everyday life. Justice and fairness in society are seen as unlikely. Many experience difficulties finding their way in life, resulting in some of them withdrawing (further). Precarious teenagers oscillate between withdrawal and delinquency in their leisure time. There are some who "go to school, come home, then sleep" and some who "go out straight away or even go out straight from school". The latter frequently report experiences of drugs (or dealing drugs), violent disputes, and petty criminal offences. At times they spend their free time at the boundaries of legality or even cross the line.

Materialistic Escapists

Among the Materialistic Escapists, girls and boys alike highly value status and prestige. Their handling of money is often uncontrolled and guided by a spontaneous pleasure principle. Short-term consumption goals are very important – the latest clothing and shoes as well as costume jewellery are extremely important to them. Traditional status symbols and luxury items (big house, fast cars, expensive clothes) are a very important aim in life. Materialistic Escapists feel at home on big shopping streets, because that's where "their" shops are. They find it extremely important to get hold of special luxury goods when they can, for example via eBay or "things that fell off the back of a lorry". They know where you can find bargains: end-of-line stores, outlets, etc. Expensive brands help to prevent them from getting lost in the mainstream, and instead to set themselves apart from it.

They have a low affinity with education in terms of school learning; they are happy when they're "out of there" and can quickly stand on their own two feet. Many aim to make up for their educational deficits through diligence at work in the future. While family provides a sense of security and safety, their friendship group represents fun and action. Going out with friends and "hanging out" is a fixed part of daily life. Next to going out, Materialistic Escapists consider shopping, money, and holidays to be the "coolest things in the world". They want to have fun and a "chilled life".

Experimentalists

Experimentalists want to enjoy life to the full and delay the seriousness of life for as long as possible. They live primarily in the here and now, and don't like it at all when life is made up of nothing but regulations. They have a strong desire for unhindered self-expression. Self-discipline and self-control are often difficult for Experimentalists. These teenagers want to cross boundaries, are willing to break the rules, "chance it", and jump in at the deep end – that's the only way to really live and learn. The fact that these teenagers are sometimes considered to be "rebellious" shows them that they are on the right track. Experimentalists often describe themselves as wilful, individual, and unruly.

They are characterised by a very low focus on routine. They emphasise how boring they find it when things constantly repeat themselves, people always want to play it safe, stick to what they know, and are against change. Of all of the life-worlds, the Experimentalists most clearly express the desire to "live differently". The subcultural, the underground, the esoteric impress and attract them. They find excitement in people who are different, who have something fascinating about them because they reject conventions. They want to set themselves apart, stand out from the crowd, and keep changing. For these teenagers, leisure primarily means creative personal fulfil-

ment: Learning new skateboard tricks, playing in a band, sewing their own clothes, dancing, photography, drawing, and painting (for example as part of a Manga or graffiti scene).

Neo-Ecologicals

Neo-Ecological teenagers can clearly formulate the extremely humanistic catalogue of values they find relevant. Democracy, freedom, pacifism, tolerance, justice, equality of all lifestyles, care for people, animals, and the environment as well as sustainability are maxims according to which they wish to live their lives. Some also have a comparatively strong sense of mission – they find it important to convince others of their opinions.

They distance themselves from ostentatious luxury and material excess, but don't reject material values per se. Neo-Ecologicals are not fans of asceticism – quite the opposite: They like "nice things" and want to enjoy life. Yet Neo-Ecologicals are slightly more cautious in this regard than teenagers from other lifeworlds. Sustainability is not an empty formula for most teenagers in this group, but a credible guideline in life.

Intellectuality, education, and literacy are of relatively high importance for Neo-Ecologicals. At the same time, they come across as cool and relaxed. They don't really give off the impression that they are bothered by pressure to perform. This is also due to the fact that Neo-Ecologicals are keen to educate themselves. They enjoy expanding their knowledge, their own horizons, and their personal skills, and find this important. They seek out a variety of intellectual, artistic, or creative experiences in their free time. They are "cultural omnivores". This ostentatious cultural openness is a marker of distinction – differentiation through openness: On the one hand, they differentiate themselves from their culturally entrenched peers, and on the other hand, in doing so, they express a certain "grown-upness".

Expeditives

A colourful patchwork of values is typical of Expeditives. They highly value a balance between personal fulfilment, self-expression, independence, and creativity on the one hand, and performance ideals, such as career aspirations and success, ambition, and diligence on the other hand. Of all teenagers, they are the most flexible, mobile, and innovative. Many of them are also often competitive and accepting of the market society. Continuously expanding their own range of experiences is a fundamental tenet for them.

Expeditives distance themselves from the characteristics of the established middle-class: unchallenged pursuit of conventions, subordination of fun and personal fulfilment in favour of security, fear of attracting attention, and change. They also don't want to be forced into ideological corsets and are not control or authority-oriented.

In this lifeworld, diversity and difference are celebrated. Expeditives go to great efforts to distance themselves from the mainstream. Yet they are less "dogged" and rigorous than Experimentalists. Their efforts for distinction appear less like rebellious fighting than as a natural result of their "obvious" intellectual and stylistic superiority (in particular compared against others of the same age). In this lifeworld, education occurs both deliberately – in school and during free time – and en passant. If they are interested in a particular issue, they take it as a matter of course to find out lots of information about it, by reading a specialised book, doing research on the Internet, or visiting an exhibition.

Expeditives travel a lot in their free time. They flock outside to public spaces and trendy locations, wherever music is playing and the people are exciting and different. Expeditives dream of a lively cultural life and the freedom of global metropolises.

1.4 Explanatory notes on the brochure

The survey results of the 2023 Nature Awareness Study are presented in the following chapters. Central findings are shown in diagrams and tables. For questions with a multi-level response scale, all response categories are shown. Four-point or five-point scales are predominantly used in such cases. The first two categories indicate the level of agreement (for example “agree strongly”/“agree somewhat”) and the last two categories indicate the level of disagreement (“disagree somewhat”/“don’t agree at all”). On a five-point scale, the middle category (“neither agree nor disagree”) shows that the respondent is undecided. Where necessary, the category “don’t know/no answer” is listed.

In the case of percentage values, decimal places have been omitted and the figures rounded up to the nearest whole number to ensure legibility and comprehensibility. If the sum of the different figures for all response categories was more or less than 100 percent as a result, an adjustment of up to 1.4 percentage points was made in the “don't know/no answer” category. In very rare cases, this approach was not sufficient and the highest value also had to be adjusted slightly.

The data set for the adult survey was examined for differences in the response behaviour of different population groups. The following socio-demographic characteristics of the adult respondents were considered here: Gender, age (18 to 29 years, 30 to 49 years, 50 to 65 years, 66 years and older), level of formal education (low, medium, high)[32], and net household income (up to 999 euros, 1,000 to 1,999 euros, 2,000 to 3,499 euros, above 3,500 euros). The results of the youth survey were also analysed for socio-demographic differences. Gender, age (14 and 15 years old, 16 and 17 years old), and level of formal education (low, medium, high) were considered[33].

The SINUS-Milieu indicator or the indicator for teenagers’ lifeworlds was integrated into the questionnaire in order to allow an evaluation according to milieu and according to the lifeworlds of teenagers, as described in Chapters 1.2 and 1.3. Significant differences are explained in the text. In addition, particularly interesting findings were graphically presented in figures or tables.

Established test methods of empirical social research were used to check the statistical significance of the survey results. Differences in the response behaviour of different population groups were examined using the chi-squared test (see Sedlmeier 2013, Eid 2013, or Janssen and Laatz 2010). This is based on a confidence interval of 95 percent (over or underrepresented) or 99 percent (significantly over or underrepresented), which is customary for social science purposes. Accordingly, traits are interpreted as overrepresented (above-average) or underrepresented (below-average) in the random sample if the probability is at least 95 percent (significance level of $p < 0.05$). Traits are interpreted as significantly overrepresented or significantly underrepresented if a probability of 99 percent (significance level of $p < 0.01$) can be assumed.

Overrepresentation and underrepresentation are colour-coded in the figures and tables and described in the legend. It should be noted that the results of the significance tests are also dependent on the size of the group being studied. The larger the group being studied (for example, people with a high level of education), the more likely it is to prove the significance of slight overrepresentations or underrepresentations (see Janssen and Laatz 2010, page 276). For this reason, in some cases, identical numerical values are shown as being underrepresented or overrepresented to varying degrees.

For data series, i.e. for questions that are repeated in each study, parametric (t-tests) and non-parametric test procedures (Mann-Whitney test) were used to examine the significance of the change over time.

The degree of agreement with a question as well as the frequency with which a characteristic occurs in the population group were colour-coded – as described above – and explained in the legend. The numbers were also colour-coded: In the case of overrepresented values and agreements (e.g. “agree strongly”/“agree somewhat”), the numbers are marked in black; for underrepresented values and disagreements (“disagree somewhat”/“don’t agree at all”), the numbers are marked in white. Thus, even with a black and white printout, all colour codings are distinguishable from each other. In the case of the milieu diagrams, the overlapping areas between two milieus are marked in the colour of the milieu that has the higher percentage value of the response category that is to be represented. Diagrams that present the results of the youth survey in addition to the results of the adult survey are labelled accordingly. “Teenagers” are people aged between 14 and 17. People aged 18 and above are considered “adults” in this report.

This brochure as well as the previous studies and the respective in-depth reports are available for download on the BfN’s website (www.bfn.de//en/nature-awareness). The English version of the base data brochure will be available in autumn 2024 at www.bfn.de/en/nature-awareness.

2 Planetary boundaries and transformative change

The concept of "planetary boundaries" is becoming increasingly important in the scientific debate on global ecological issues. The concept formulates resilience limits for nine central biophysical systems and processes on Earth, which together define a safe operating space for humankind (see Rockström et al. 2009 and Steffen et al. 2015). The definition of planetary boundaries is based on scientific findings as well as on the application of the precautionary principle. The precautionary principle follows the approach of risk avoidance, which states that a policy or measure must not be implemented if it could cause harm to the general public or the environment. Since the concept was first introduced and surveyed in 2009, the number of boundaries transgressed has risen from three to six. Even in areas that are currently still in the "safe operating range" (such as ocean acidification and aerosol pollution of the air), we are moving towards the limits of exposure worldwide (see Richardson et al. 2023).

The particular significance of this concept for nature conservation lies in the fact that the state of biodiversity can also be considered and assessed in relation to other important parameters of the Earth system (see Folke et al. 2021 and Rockström et al. 2021). Biodiversity and the integrity of the "living world" stabilise the entire Earth system. Human intervention in nature threatens this ecological stability. The destruction of ecosystems and the extinction of species have intensified, and the planetary boundary is already considered to be far exceeded.

For the second time, the Nature Awareness Study is investigating how the population perceives the state of the planetary boundaries and what attitudes exist towards a change in lifestyles and economic activities. This means we can compare the results between the first survey in 2021 and the second in 2023. As the Nature Awareness Study is able to differentiate between social milieus, the societal anchoring of the awareness of planetary boundaries can also be determined more precisely.

2.1 Social awareness of the state of planetary boundaries

The state of the climate is the biggest planetary concern of people in Germany.

Forty-six percent of respondents consider the state of the climate to be "very concerning and unstable", another 38 percent "somewhat concerning" (see Figure 3). After the climate, the state of the oceans and the state of habitats and species diversity are categorised as the second and third biggest problem areas: 36 percent of respondents consider the state of the oceans to be "very concerning and unstable", another 45 percent "somewhat concerning". The loss of habitats and species is considered "very concerning and unstable" by 29 percent, and "somewhat concerning" by a further 46 percent. The Earth's ability to compensate for human stresses, for example from chemicals and artificial substances, is seen by over half of the respondents as very or somewhat concerning ("very concerning and unstable": 22 percent, "somewhat concerning": 34 percent).

Further down the list of perceived pressures come land use and land consumption ("very concerning and unstable": 15 percent, "somewhat concerning": 34 percent), natural cycles ("very concerning and unstable": 13 percent, "somewhat concerning": 35 percent), the state of the ozone layer ("very concerning and unstable": 19 percent, "somewhat concerning": 26 percent), access to drinking water ("very concerning and unstable": 13 percent, "somewhat concerning": 32 percent) and air quality ("very concerning and unstable": 13 percent, "somewhat concerning": 30 percent).

The Earth offers many resources and means of existence that must be available reliably and in sufficient quantity for human well-being. The stability of these means of existence is also necessary in order to be able to compensate for human pressures on nature. Please indicate whether you find the global situation in each of the following areas to be very concerning and unstable, somewhat concerning, neither concerning nor unconcerning, somewhat unconcerning, or not at all concerning and stable.

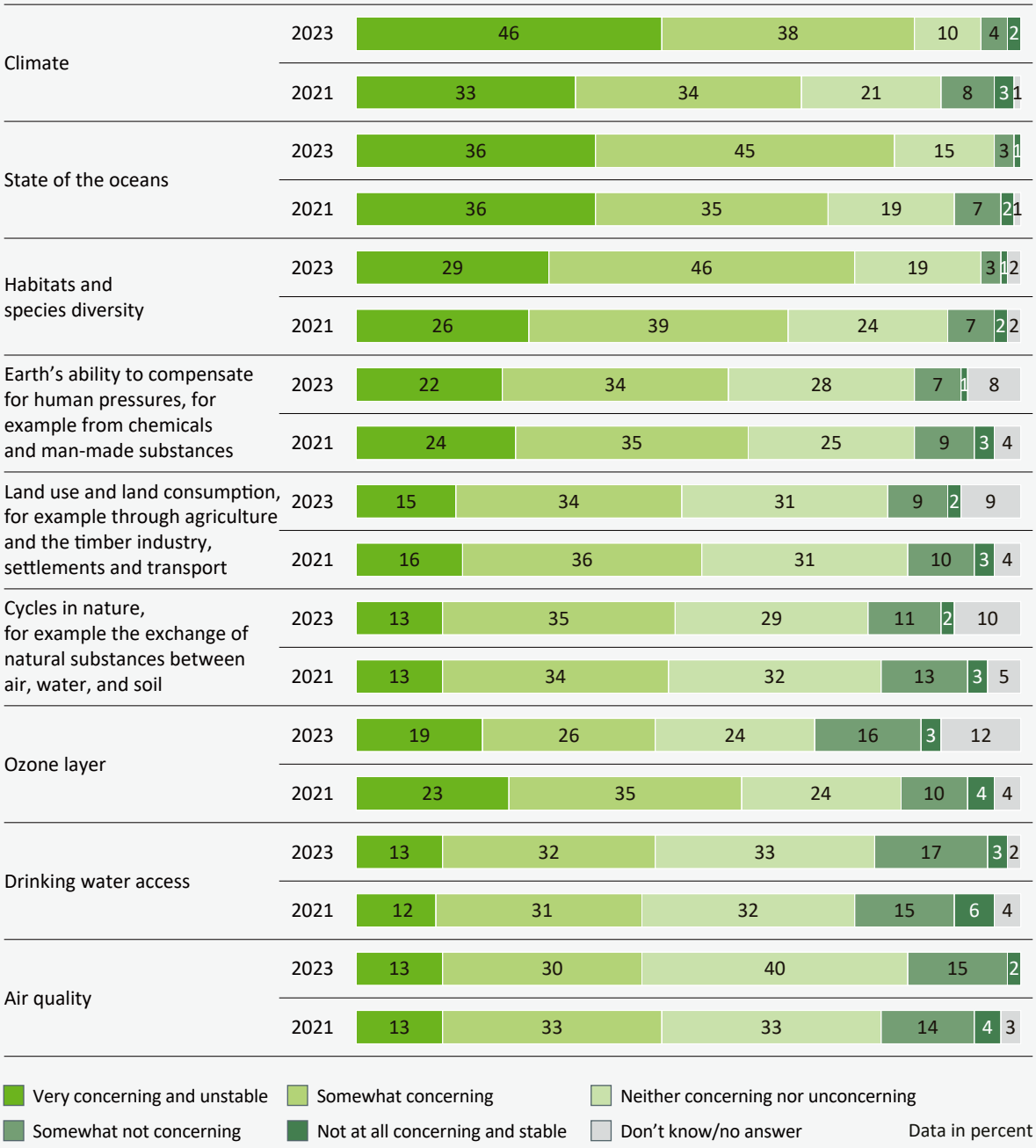


Figure 3: Perception of planetary boundaries among adults compared over time

It is also striking that the state of the Earth is not considered by a majority of respondents as "not at all concerning and stable" in any of the areas surveyed. The maximum approval rating for this response category is three percent in the area of access to drinking water.

Compared to the previous survey, the climate, the state of the oceans, and the loss of habitats and species are much more frequently rated as a cause for concern in the current survey (see Figure 3). The climate in particular appears to be of even greater concern to the population in 2023 than in 2021 ("very/somewhat concerning": climate: 84 percent in 2023 compared to 67 percent in 2021, state of the oceans: 81 percent in 2023 compared to 71 percent in 2021, habitats and species diversity: 75 percent in 2023 compared to 65 percent in 2021). Opinions on the other planetary boundaries surveyed are similar to opinions in 2021. Only the state of the ozone layer is seen as less problematic in 2023 ("very/somewhat concerning": 45 percent in 2023 compared to 58 percent in 2021).

The comparison with the scientifically defined limits (see Richardson et al. 2023) shows that respondents tend to underestimate the biodiversity crisis compared to the climate crisis. On the other hand, they agree with the scientific assessment with their relatively high pollution classification of the state of the oceans and relatively low classification of the drinking water supply as a cause for concern.

The results of the Nature Awareness Study can be compared with the findings of the 2022 Environmental Awareness Study, which also looked at planetary boundaries (see BMUV and UBA 2023). Top of the list of threatening environmental problems is the issue of plastic waste and plastic discharges into nature (for example the oceans,

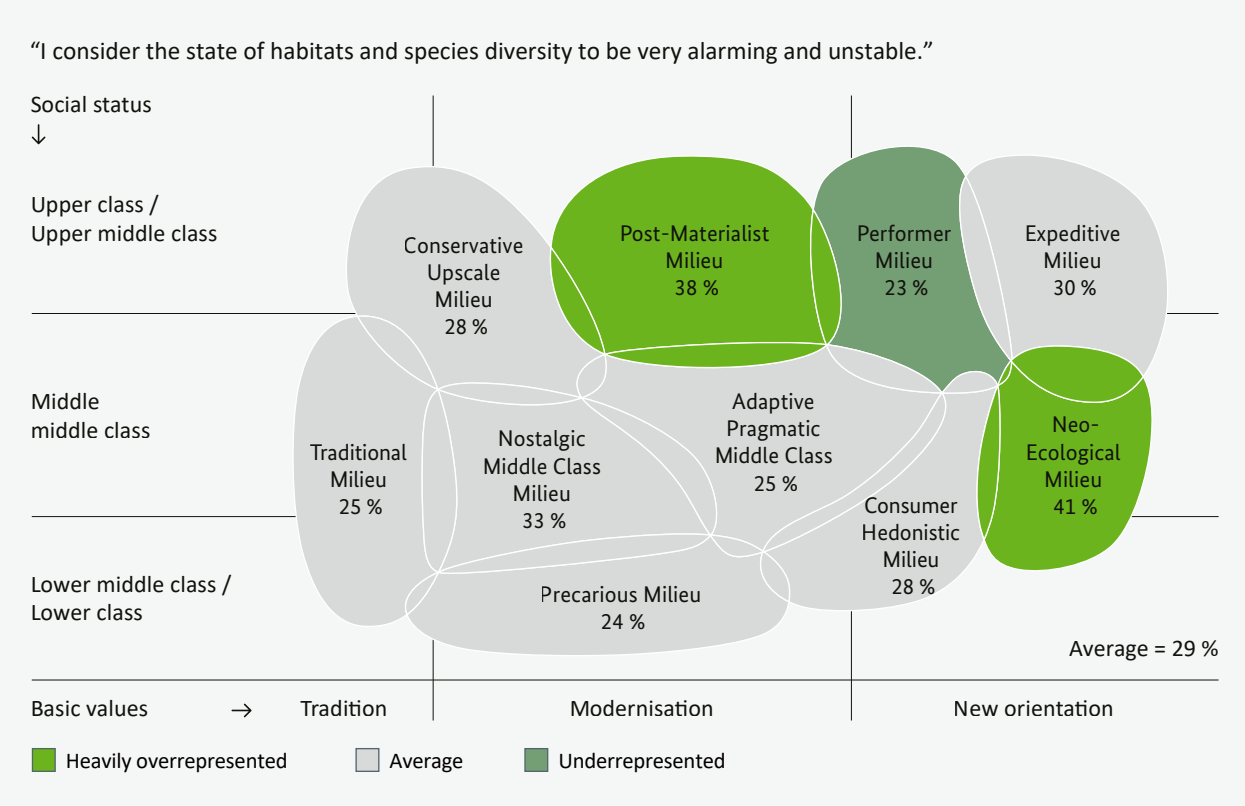


Figure 4: Perception of the state of habitats and species diversity among adults by milieu

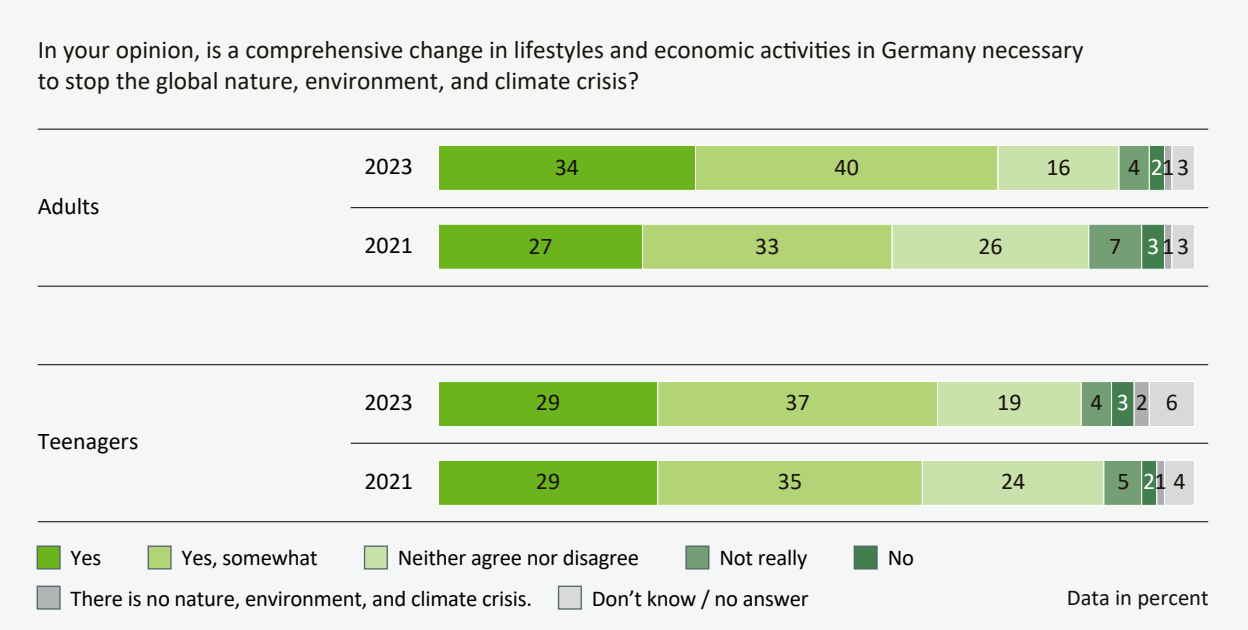


Figure 5: Attitude towards the need for change among adults and teenagers compared over time

soil) ("very threatening": 61 percent), followed by the shortage of fresh water reserves (59 percent), climate change (58 percent), the state of forests (51 percent), and the extinction of animal species and plant life (51 percent).[34]

Neo-Ecologicals and Post-Materialists are most aware of the loss of habitats and species.

The problem-conscious Neo-Ecological milieu and the sustainability-oriented Post-Materialists most frequently rate the state of habitats and species diversity as "very concerning" (41 percent and 38 percent respectively, see Figure 4). By comparison, the progress-optimistic performance elite of the Performer milieu are significantly less likely to express major concerns (23 percent).

2.2 Attitude and willingness to change lifestyles and economic activities

A comprehensive change in lifestyles and economic activities in Germany is increasingly viewed as a necessity.

Around three quarters of respondents aged 18 and over believe that a comprehensive change in lifestyles and economic activities in Germany is necessary to stop the global nature, environmental, and climate crisis ("yes/yes, somewhat": 74 percent). This is an increase of 14 percentage points compared to the 2021 survey (see Figure 5). Just over a third are fully convinced of the need for change ("yes": 34 percent). Sixteen percent are undecided on this question ("neither agree nor disagree"), only six percent answer "no" or "not really", and one percent say there is no nature, environmental, and climate crisis. Three percent of respondents were unable to give an answer ("don't know").

According to the youth survey too, a significant majority is of the opinion that a comprehensive change in lifestyles and economic activities is

necessary to combat the global nature, environmental, and climate crisis. In contrast to the adult survey, however, the levels of agreement have barely changed ("yes/yes, somewhat": 66 percent in 2023 compared to 64 percent in 2021).

The question of the need for change is answered differently in the different lifeworlds.

In the comparison of the adult milieus, opinions about the need for change are extremely varied in some cases (see Figure 6): While 92 percent of the progressive Neo-Ecologicals, 90 percent of the committed and confident Post-Materialists, 89 percent of the young trendsetters (Expeditive milieu) and 83 percent of the particularly conscientious Conservative Upscale consider a comprehensive change in lifestyles and economic activities in Germany to be necessary, this falls to 64 percent of the modern middle of society (Adaptive Pragmatic Middle Class), 61 percent of the Consumer Hedonistic milieu, 58 percent of the Nostalgic Middle Class, which is increasingly concerned with social decline, and 50 percent of the Precarious milieu.

The situation is similar among the youth lifeworlds (see Figure 7). Neo-Ecologicals ("yes/yes, somewhat": 85 percent) and Expeditives (76 percent) are much more likely to be convinced of the need for comprehensive change than the non-conformist and freedom-loving Experimentalists (51 percent), the Precarious teenagers (46 percent) and the experience-oriented Materialistic Escapists (42 percent).

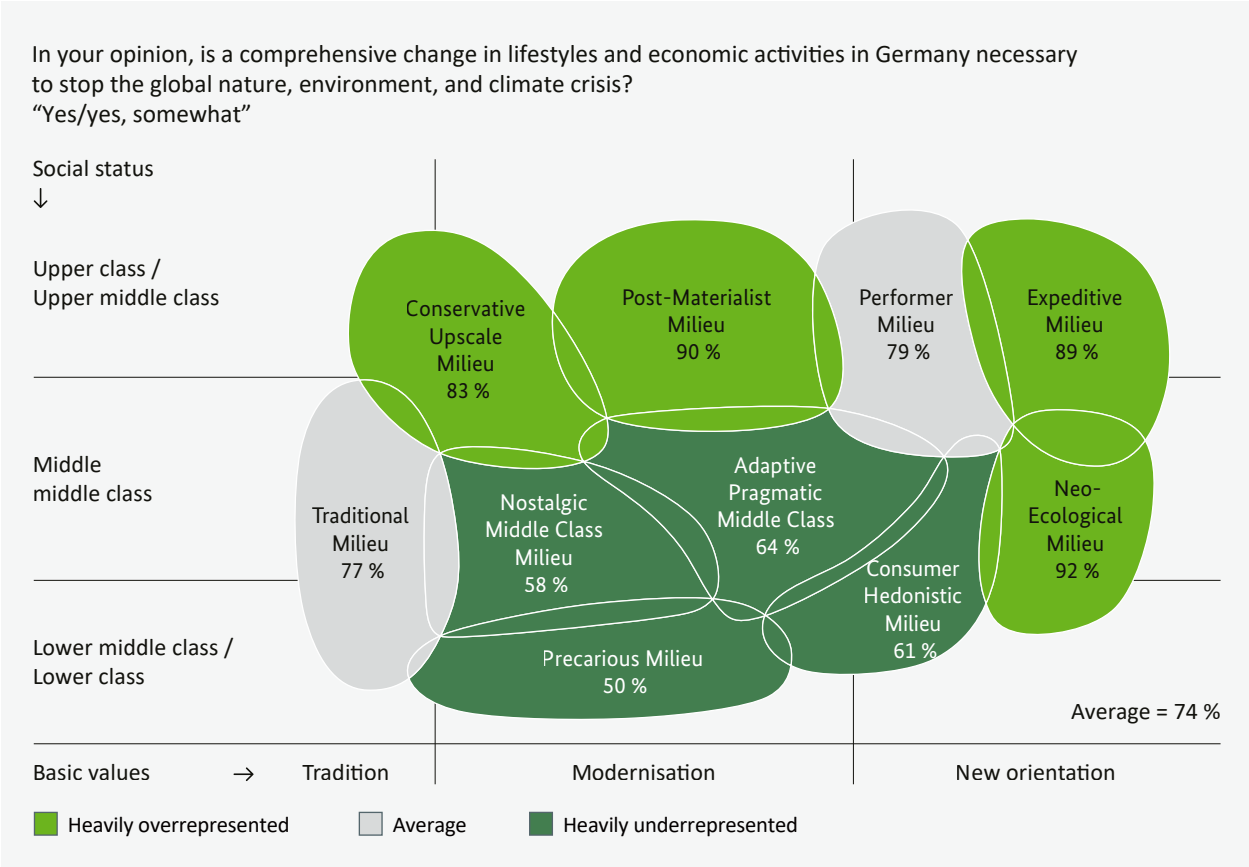


Figure 6: Attitude towards the need for change among adults by milieu

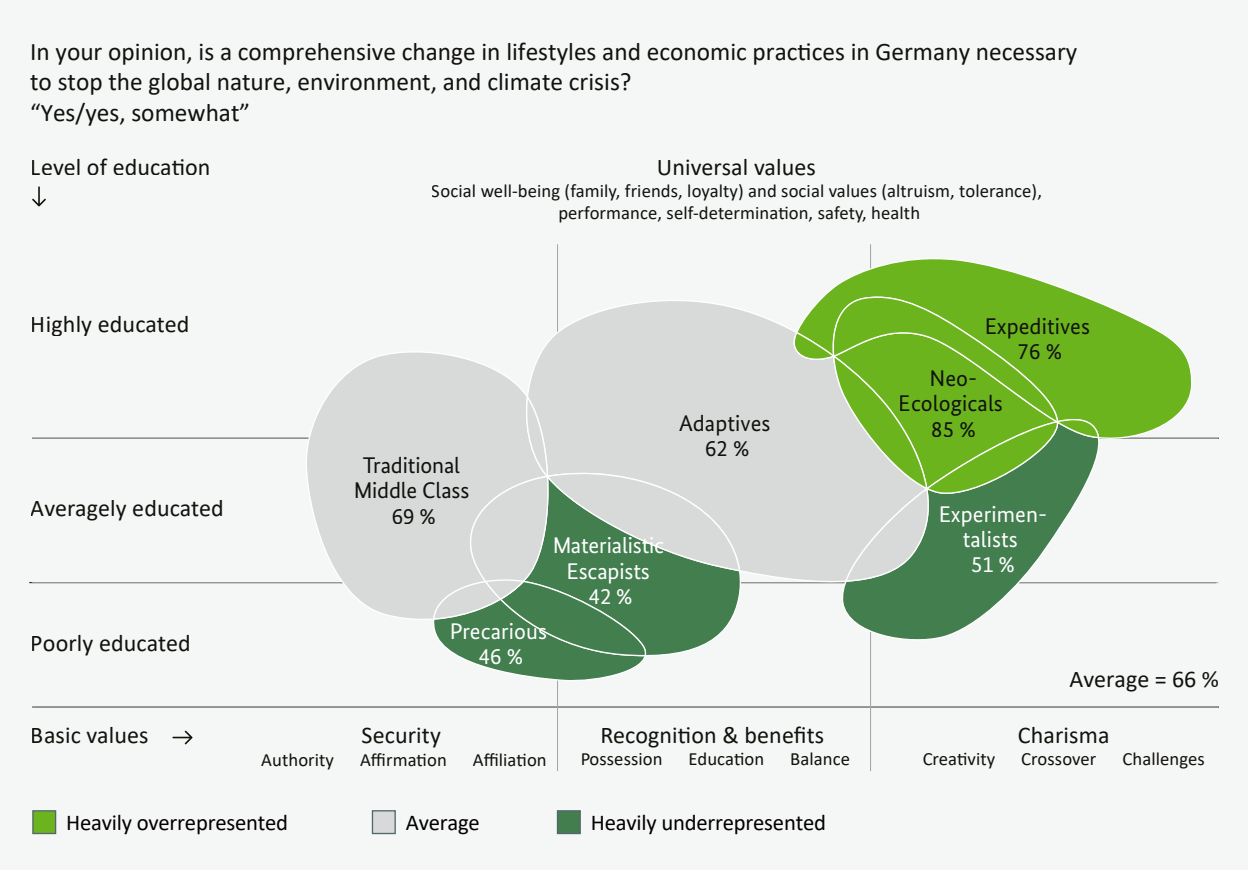


Figure 7: Attitude towards the need for change among teenagers by lifeworlds

Around 70 percent declare their willingness to actively contribute to a change in lifestyles and economic activities.

As in the previous survey, more than two thirds of adults once again declare themselves willing to actively contribute to social change through a sustainable and environmentally friendly lifestyle ("yes"/"yes, somewhat": 2023: 71 percent, 2021: 68 percent)[35] – one third even agree unreservedly (see Figure 8). This contrasts with only five percent who say they are not willing or are not

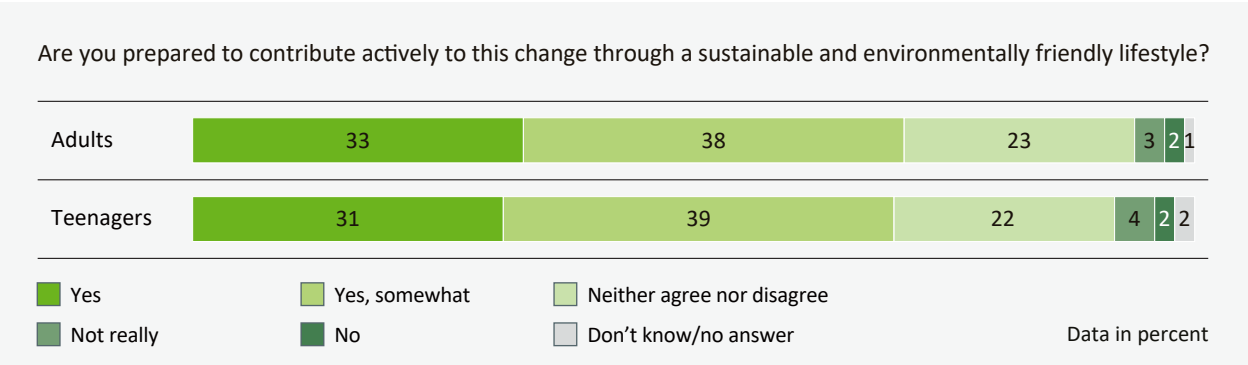


Figure 8: Willingness to change lifestyles and economic activities among adults and teenagers

really willing to do so. A further 23 percent are undecided on this question ("neither agree nor disagree"), and one percent states that they are unable to answer the question.

Compared to the youth survey, no significant differences can be seen (see Figure 8). This is not the case when looking at the milieus. The picture here is similar to the previous question: Post-Materialists ("yes/yes, somewhat": 94 percent), Neo-Ecologicals (90 percent), Expeditives (90 percent), and the Conservative Upscale (83 percent) are most likely to actively contribute to social change themselves by adopting a sustainable and environmentally friendly lifestyle. Much less willingness comes from the ranks of the Traditionalists (62 percent), Consumer Hedonists (61 percent), Adaptive Pragmatists (59 percent), Nostalgic Middle Class (55 percent), and the Precarious milieu (42 percent).

Examining the lifeworlds of teenagers is also revealing: While 87 percent of Neo-Ecologicals and 81 percent of Expeditives say they want to actively contribute to change, just 58 percent of Experimentalists, 47 percent of Materialistic Escapists and 36 percent of the Precarious milieu say the same.

In both surveys – among adults as well as teenagers – it is therefore more likely to be the more upscale lifeworlds that are willing to support a change in lifestyle and economic activities, while the socially less advantaged lifeworlds find it much more difficult to do so. This must be seen in light of the fact that per capita consumption of natural resources increases with social status (see Kleinhückelkotten et al. 2016).

3 Climate change, natural climate protection, and moors

Man-made climate change continues to progress. Although the parties to the UN Framework Convention on Climate Change (UNFCCC) agreed in Paris in 2015 to limit the global rise in temperature to well below 2 degrees Celsius and to endeavour to limit it to 1.5 degrees Celsius above pre-industrial levels, global greenhouse gas emissions are still rising steadily. Climate change has now also "arrived" in Germany, as indicated by the increase in heat and drought events and heavy rainfall-related flooding in recent years. Climate change is already having a negative impact on biodiversity (see Pörtner et al. 2021). Germany is not immune from this, and the impact can be clearly seen in protected areas, for example (see Scherfose 2023).

Most people's perception of climate change and climate policy is shaped by the media – for a long time mainly via the traditional mass media, but increasingly also via social media in recent years. Despite a certain ebb and flow in the frequency with which the topic is addressed – and of course in competition with other topics, such as pandemics, economic problems, or international crises and conflicts – media coverage of climate change is trending upwards.[36] The anthropogenic loss of biodiversity, on the other hand, is much less present in public perception and the media (see Legagneux et al. 2018).

In addition to extreme events and international climate conferences, climate policy measures are increasingly attracting media attention. In recent years, the degree of polarisation on climate change issues – including climate policy – has increased continuously, especially on social media (see Brüggemann and Pröschel 2024). It is now clear that climate change is one of the most emotionally polarising issues in Germany and Europe (see Herold et al. 2023). The willingness to support the climate protection movement fell significantly between 2021 and 2023 (see More in Common 2023).

This explains why the current Nature Awareness Study once again addresses the issue of climate change in "turbulent times". It will be particularly interesting to see whether and, if so, how the results of the adult and youth surveys differ. Immediately before the COVID-19 pandemic, the issue of climate change had risen to the forefront of public awareness, as expressed not least in the global climate protests of the Fridays for Future movement, which was strongly supported by children and teenagers (see Pollex and Süßdorf 2023). But more recent studies show that support for the right-wing populist party AfD (Alternative for Germany), which tends to reject climate protection, has also increased among teenagers: In January 2022, nine percent of teenagers stated that they would vote for the AfD, but by January 2024 this figure had risen to 22 percent – a result that is due not least to the party's high social media presence (see Schnetzer et al. 2024).[37] This raises the question of whether we are now seeing a split or rather a convergence of attitudes towards climate change between the generations.

The present Nature Awareness Study once again focuses on the connection between biodiversity and climate, but this time with the perspective of possible solutions through nature-based solutions. The keyword here is "natural climate protection". Natural climate protection measures are aimed at preserving and, where possible, enhancing the environmental performance of terrestrial or marine ecosystems in harmony with the protection of biodiversity (see BMUV 2023). These measures therefore contribute to both biodiversity conservation and climate protection. Natural climate protection measures often also contribute to adapting to the consequences of the climate crisis (see ANK, page 6).

The most important areas of natural climate protection here include the protection and renaturalisation of moorland areas, the renaturalisation of forests, the improvement of carbon storage in soils, and the restoration of floodplain landscapes.

This time, the Nature Awareness Study focuses on natural climate protection in order to find out whether this relatively new topic and policy field has "arrived" in the public consciousness, what support it has, and what individual or collective effectiveness is associated with it.

3.1 Level of knowledge and interest in information on natural climate protection

At the beginning of this block of questions, adults and teenagers were asked to assess their level of knowledge on the subject of natural climate protection. As this is a relatively new topic and policy area, the respondents were first given a brief introductory explanation:

"Certain habitats, such as moors, forests, and floodplains, have properties that naturally counteract climate change by binding the greenhouse gas carbon dioxide from the air in wood or in the soil. Preserving or restoring these areas contributes to climate protection."

When it comes to natural climate protection, both adults and teenagers feel inadequately informed.

Thirty-three percent of adults and 37 percent of teenagers rate their own level of knowledge as very or somewhat good, while 43 and 39 percent respectively see themselves as partly well informed, partly less well informed and 24 percent in each case see themselves as less well informed or not at all informed (see Figure 9). The majority of respondents therefore need more information on the topic.

The socio-demographic analysis reveals some differences: Men are more likely to feel (very) well informed than women (38 percent compared to 28 percent). In addition, the proportion of well-informed people increases with education (low: 28 percent, medium: 32 percent, high: 39 percent). The same is true when it comes to income (up to 999 euros: 26 percent, 1,000 to 1,999 euros: 28 percent, 2,000 to 3,499 euros: 35 percent, over 3,500 euros: 38 percent). It is also worth noting that below average numbers of the 65+ cohort feel (very) well informed (29 percent).

Education plays a role not only for adults, but also for teenagers. For example, 44 percent of teenagers with a high level of formal education believe they are (very) well informed. This compares to just 18 percent in the group with a low level of formal education.

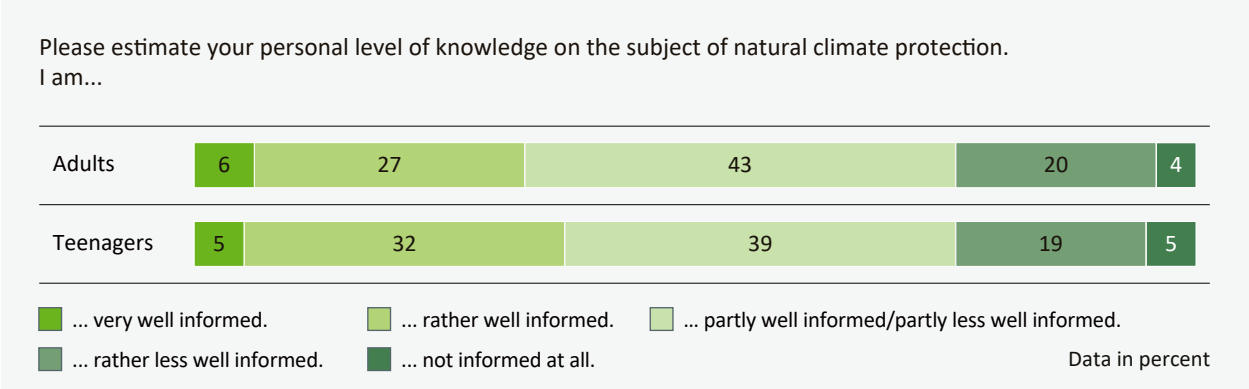


Figure 9: Level of knowledge about natural climate protection – adults and teenagers in comparison

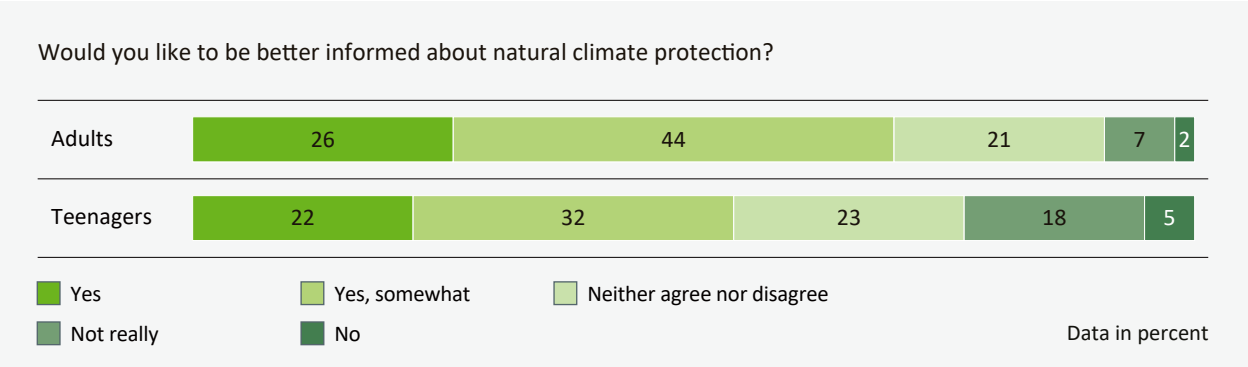


Figure 10: Interest in information on natural climate protection – adults and teenagers in comparison

The majority are interested in information on natural climate protection – among adults, as many as 70 percent would like to be better informed.

Given the relative novelty of this topic and policy area, it is not particularly surprising that the level of knowledge and information on natural climate protection can be categorised as low to moderate. This is why it is all the more important to find out the extent to which there is an interest in receiving more information on natural climate protection.

Seventy percent of adults say they want to know more about natural climate protection. Twenty-one percent are undecided ("neither agree nor disagree"), only nine percent answer "no" or "not really" (see Figure 10). Teenagers responded somewhat more cautiously to the question, but here too a majority of 54 percent are interested in more information.

Among both adults and teenagers, the groups with a high level of formal education express the greatest interest in being better informed about natural climate protection (adults, high education: 75 percent, average: 70 percent; teenagers, high education: 61 percent, average: 55 percent).

The milieu analysis also shows that: People who want to know (somewhat) more about natural climate protection are more likely to belong to the social milieus of the Post-Materialists (86 percent), the Neo-Ecologicals (85 percent), the Expeditives (83 percent), and the Conservative Upscale (79 percent), while the Consumer Hedonists (57 percent), the Nostalgic Middle Class (56 percent) and members of the Precarious milieu (42 percent) express less interest (see Figure 11).

The results of the milieu analysis illustrate that, in addition to the level of education, other factors also result in a higher or lower level of interest in information. In the core milieu for "green topics" – the Post-Materialists – it is probably the combination of climate protection and nature conservation that is perceived as particularly attractive and generates demand for knowledge. In the modern Neo-Ecological and Expeditive milieus, the fact that the term "nature-based solutions" is a more recent expression of nature conservation communication that promises a breath of fresh air may also play a positive role. For the Conservative Upscale milieu, it is probably the idea of preserving nature that makes natural climate protection appear more interesting than measures aimed at changing their own behaviour (such as lower energy consumption).

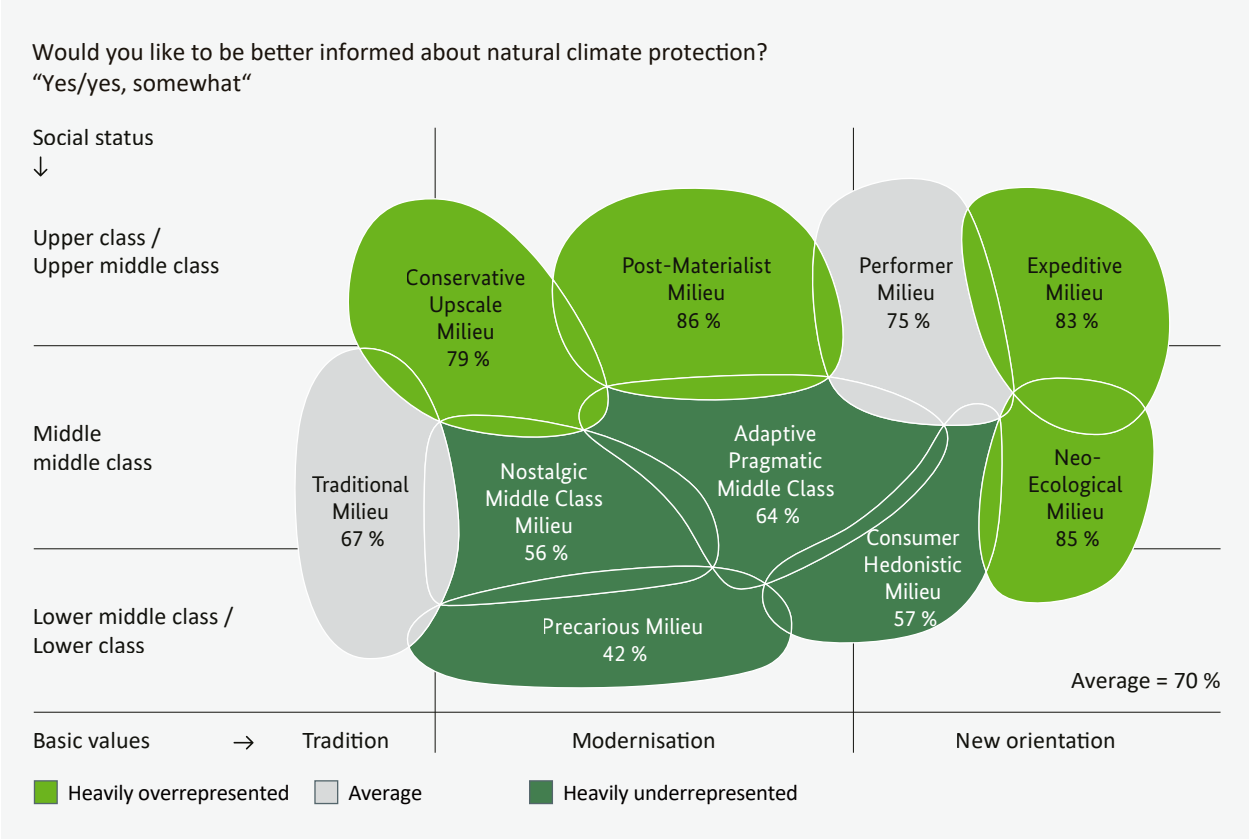


Figure 11: Interest in information on natural climate protection – adults by milieu

3.2 State funding for natural climate protection

In order for natural climate protection to make progress, state funding is sensible and necessary. The Federal Action Plan on Nature-based Solutions for Climate and Biodiversity (ANK), through which numerous measures for natural climate protection are currently being promoted and implemented, was developed for this purpose. The newly founded "Competence Centre for Natural Climate Protection" (KNK) acts as a nationwide contact point, organises information events, and advises those interested in funding.[38] As part of the 2023 Nature Awareness Study, we wanted to find out how adults and teenagers view such state funding measures.

The vast majority of the population supports state funding for natural climate protection.

Eighty-eight percent of adults and 84 percent of teenagers are in favour of state funding for natural climate protection – in both surveys, around half of respondents even answered "yes" without reservation (adults: 48 percent, teenagers: 47 percent). Only a fraction of respondents disagree – only two percent of adults and teenagers say "not really" or "no" (see Figure 12). The basic acceptance of state funding for natural climate protection is therefore very high, and there is no significant rejection. Even those social milieus that express less interest in information on natural climate protection (see previous section) support state funding with approval ratings of 70 percent (Consumer Hedonists), 77 percent (Precarious milieu) and 83 percent (Nostalgic Middle Class) – admittedly this is below-average, but it is still a large majority.

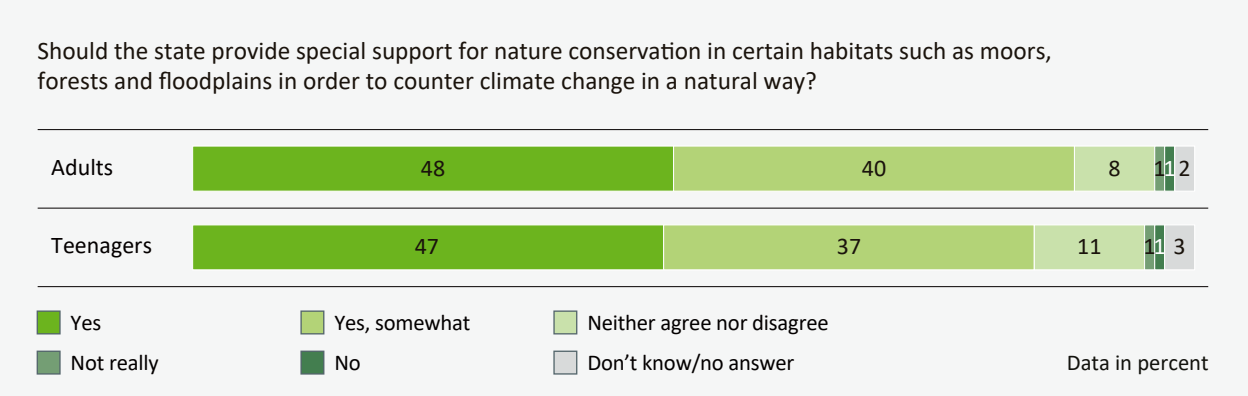


Figure 12: State funding for natural climate protection – adults and teenagers in comparison

The rewetting of drained moors enjoys strong support in society.

The rewetting of drained moors is an important measure in the field of natural climate protection, but one that the general public are not yet so familiar with. In order to find out how the population feels about it, the following question was only asked of adults and was introduced with a longer explanation:

"Most of the moors in Germany have been drained over the last few centuries. On the one hand, this enables intensive agricultural and forestry use of the drained areas. Yet large quantities of the greenhouse gas carbon dioxide are released as a result of dewatering. Intact, wet moors, on the other hand, are habitats for animals and plants that only occur there, and they have a positive effect on the climate. It is possible to restore previously drained moors to a more natural state through what is known as 'rewetting'. Please tell us which of the following options you would most prefer in terms of managing moors."

Three options were offered as possible answers: (1) Continue to manage these areas as they are currently managed (i.e. no rewetting), (2) rewetting alongside adapted agricultural and forestry use, and (3) rewetting without such use, where the sole purpose is to restore typical moorland habitats (see Figure 13).

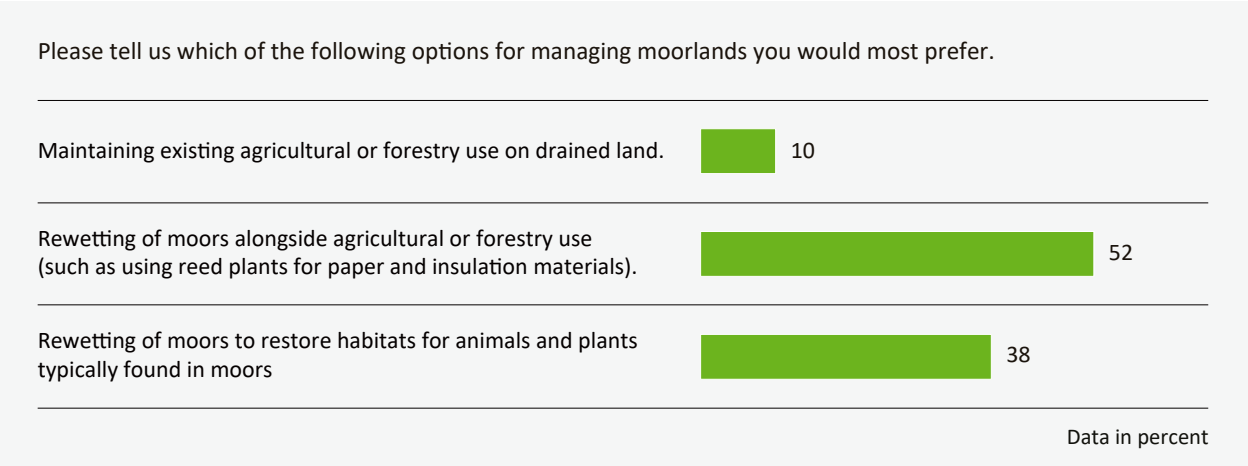


Figure 13: Attitude towards the "rewetting" of drained moors among the adult population

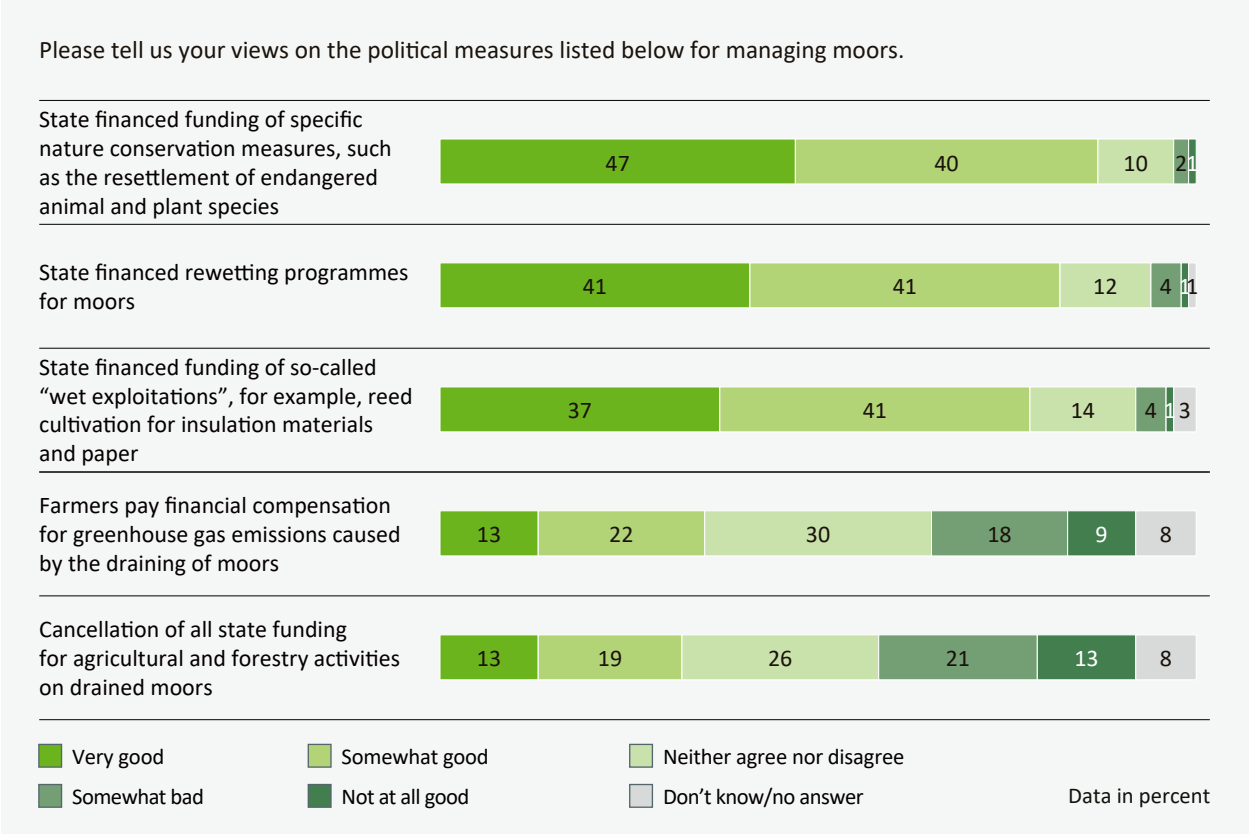


Figure 14: Attitudes towards political measures for the handling of moors among the adult population

The answer from adults is relatively clear: At 52 percent, the majority favours rewetting alongside agricultural or forestry use – the level of agreement is slightly higher still in the oldest group of respondents (over 65 years: 59 percent). The option of rewetting purely for nature conservation purposes is favoured by 38 percent, and 32 percent of those over 65. Only a minority of ten percent voted in favour of retaining the current use of drained areas. The highest level of approval here comes from the group with a low net household income (up to 999 euros: 18 percent).

The process of rewetting moorlands is often lengthy and contentious, and sometimes stubbornly opposed by individual farmers or landowners (see Dorndorf 2024). Practical solutions require dialogue, cooperation (including with the water industry), and long-term prospects for economic value creation (see Stüber et al. 2023). In light of this, it is an encouraging result to know that the rewetting of drained moors enjoys strong support among the population as a whole. It remains to be seen which political measures will be used to achieve nature-based solutions. This is the aim of the next question (see Figure 14).

The clear majority is in favour of state-funded support measures on moorland sites.

Eighty-seven percent are in favour (very good/somewhat good) of state-funded support for specific nature conservation measures (e.g. the reintroduction of endangered animals and plants), 82 percent are in favour of state-funded rewetting programmes for moors, and 78 percent support state-funded support programmes for "wet exploitations" (e.g. reed cultivation for insu-

lation materials and paper). By contrast, only 35 percent think it would be very or somewhat good if farmers had to pay compensation for greenhouse gases caused by draining moors. There is also little support for the proposal to completely abolish subsidies for agriculture and forestry on drained moors – only 32 percent would find this (somewhat) good.

It can thus be stated that there is clear support for state-funded support measures when dealing with moors, while financial "penalties" (compensation payments from farmers for greenhouse gases escaping from drained moors) or a withdrawal of funding for drainage-based moors used for agriculture and forestry are met with considerable rejection.

3.3 Nature conservation in the face of climate change

With nature-based solutions, it is possible to combine climate protection, adaptation to climate change, and the conservation of biodiversity. But what does the population think of this? Are climate protection and nature conservation seen as two sides of the same coin? Or are competition and conflicts also perceived? To find this out, the respondents were presented with several statements.

Over 90 percent of Germans recognise the importance of nature conservation for climate protection and climate adaptation.

Ninety-four percent of adults agree that nature conservation is necessary to meet the challenges of climate change, and 57 percent even agree strongly. The situation is similar with the ques-

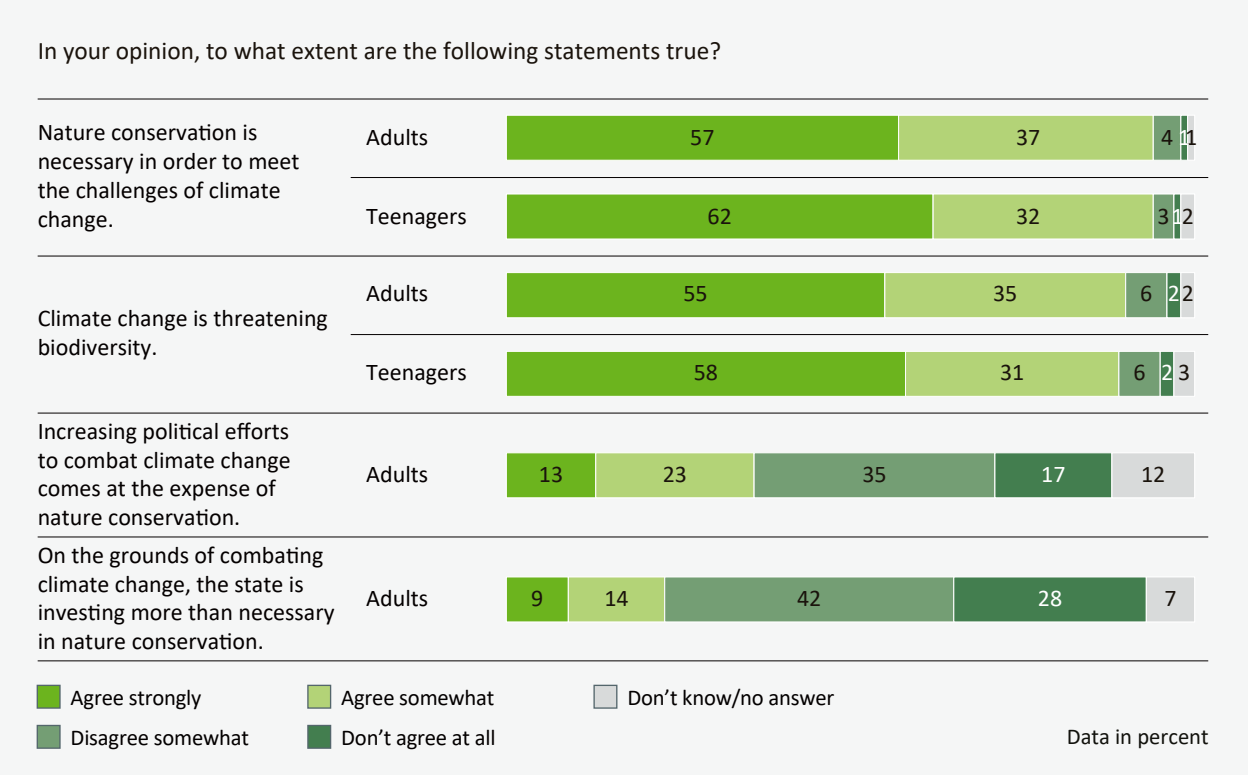


Figure 15: Attitudes towards nature conservation and climate change – adults and teenagers in comparison

tion of whether climate change is threatening biodiversity: Overall, 90 percent agree, with 55 percent agreeing strongly. Over the course of the years 2019 to 2023, the approval ratings for both statements have remained at a high level overall, with slight fluctuations.

The comparison with the youth survey also reveals only slight differences (see Figure 15). This applies both with regard to the assessment of the threat posed to biodiversity by climate change (89 percent agreement in principle) and with regard to the need for nature conservation to tackle climate change (94 percent agreement in principle).

Overall, the findings indicate that a large majority of the population recognises the importance of nature conservation for climate protection and climate adaptation. However, 36 percent of adults are also of the opinion that the intensification of political efforts to tackle climate change is at the expense of nature conservation (both levels of agreement). The reason behind this question is the federal government's efforts to accelerate the expansion of renewable energies, to which end the Federal Nature Conservation Act has also been amended: The distances between wind turbines and the nests of breeding birds have been standardised and reduced nationwide, and the list of species considered at risk of collision has been limited to 15 (see KNE 2023). Many nature conservation associations had protested against this – while at the same time supporting the energy transition in principle. A BfN-funded monitoring project on the expansion of renewable energies concluded that protected objects with a high protection status, such as nature reserves and biosphere reserves (core zone), have been successfully protected against the installation of renewable energy plants. In European bird sanctuaries, nature parks, landscape areas, and forests, on the other hand, a progressive expansion trend can be observed. According to the monitoring report, this development indicates that many siting decisions were made in the interests of avoiding conflicts with settlement areas, for example, rather than in the interests of nature compatibility (see Thrän et al. 2024).

Based on the data presented here, it is not possible to determine the extent to which these debates and findings, some of which were conducted from a very legal and specialist nature conservation perspective, have actually reached the general population. However, a not insignificant proportion of the adult population feels unable to assess the restriction of nature conservation through climate protection (“don't know”: 12 percent). A narrow majority of 52 percent does not (or does not really) see this as an adverse effect, but, given the above-mentioned 36 percent who do see it as such, this indicates a perceived conflict in parts of the population.

Yet this conflict, which is perceived by a good third of respondents, does not clearly translate into criticism of state funding for nature conservation as a measure against climate change: Only 23 percent of adults believe that the state invests more than necessary in nature conservation to combat climate change (both levels of agreement). On the other hand, 70 percent of respondents (somewhat) reject this statement.

3.4 Perceptions of effectiveness in the context of climate change

Protecting nature and the climate requires individual efforts (vegan diet, ecological product purchases, etc.), but also collective action, such as to achieve political majorities in favour of more climate protection. But how effective do people consider their own actions and their actions in the collective to be?

About half of respondents said that they felt personally and collectively able to make an active contribution to protect nature and the climate.

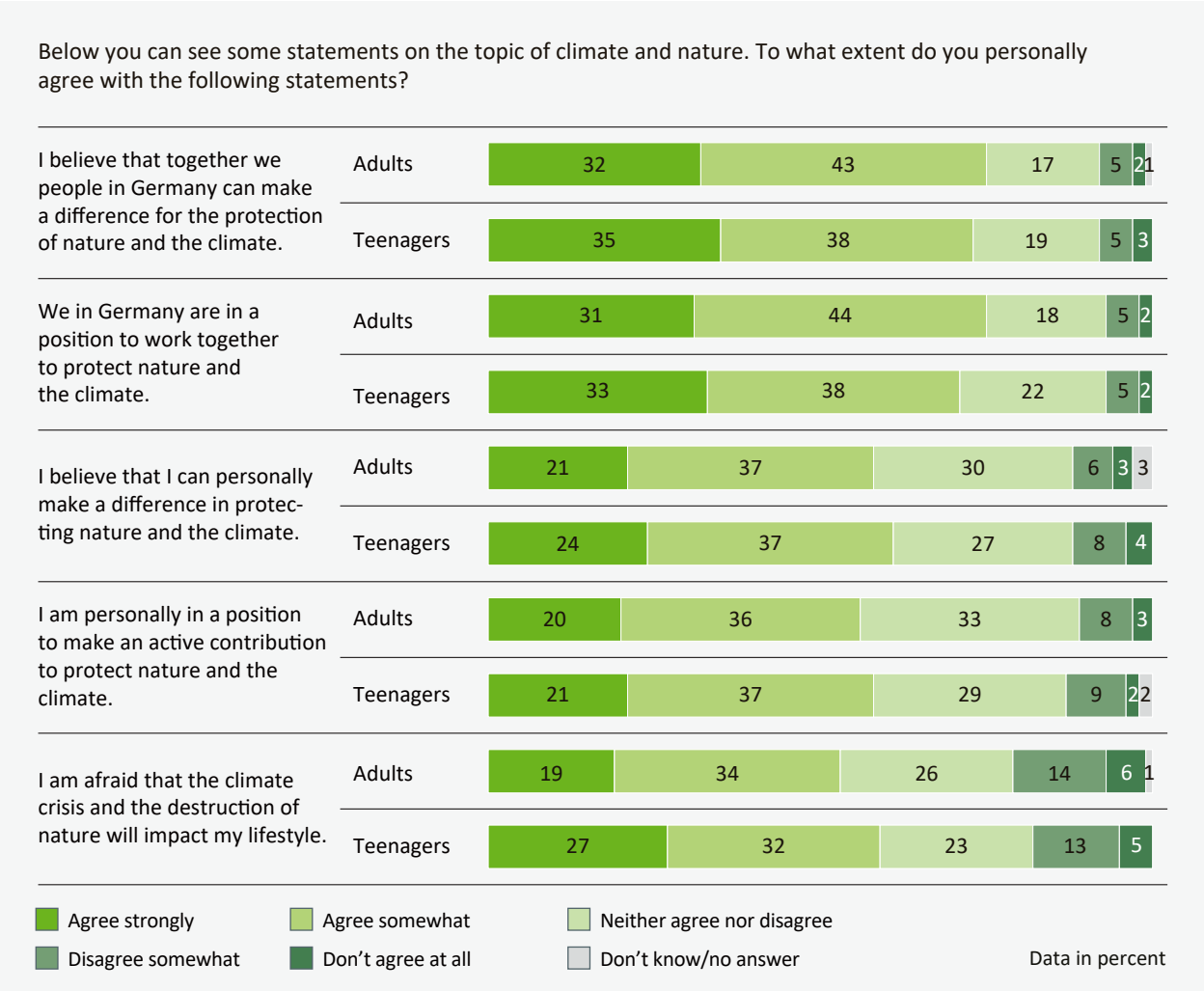


Figure 16: Individual and collective perceptions of effectiveness in the context of climate change – adults and teenagers in comparison

Seventy-five percent of adults believe that, together, people in Germany can achieve something for the protection of nature and the climate (both levels of agreement). Just as many think that we in Germany are able to work together to protect nature and the climate (both levels of agreement). Furthermore, 58 percent also think they can personally achieve something to protect nature and the climate (both levels of agreement), and 56 percent think they are personally in a position to make an active contribution to protect nature and the climate (both levels of agreement). In this context, 53 percent say they are afraid that the climate crisis and the destruction of nature will negatively impact their own lifestyle (both levels of agreement).

If we compare the results of the adult survey with the results of the youth survey, we notice that both adults and teenagers rate collective self-efficacy higher than individual self-efficacy (see Figure 16). The levels of agreement are similar in all cases. A larger difference is apparent for just one of the statements: While 19 percent of adults "strongly" agree with the statement that they are afraid that the climate crisis and the destruc-

tion of nature will impact their own lifestyle (a further 34 percent of them "agree somewhat"), 27 percent of teenagers agree strongly (a further 32 percent agree somewhat). This confirms the findings of other youth studies (see Schnetzer et al. 2024), according to which large parts of the young generation are shaped by ecological fears about the future, which relate not only to environmental assets in general, but also to their own lifestyle.

The perceived self-efficacy of adults has increased.

Compared to the findings from the previous survey, it is noticeable that both the collective and individual perception of effectiveness among adults has increased. In 2021, a total of 60 percent of adult respondents agreed with the statement that we could work together in Germany to protect nature and the climate (highest level of agreement: 25 percent), compared to 75 percent in the current survey (highest level of agreement: 32 percent). Whatever the basis for this increased perception of self-efficacy, it does not appear to be due to naïve optimism. In the same period, the proportion of people who were afraid that the climate crisis and the destruction of nature would affect their own lifestyle also increased: from 47 percent in 2021 (highest level of agreement: 14 percent) to 53 percent (highest level of agreement: 19 percent) in 2023. Among teenagers, a total of 73 percent agreed with the statement that we could work together in Germany to achieve something for nature conservation and climate protection (highest level of agreement: 35 percent). In contrast to the adult data, the youth data shows no significant changes when compared over time – the perceived self-efficacy of teenagers in 2021 was already at the level of adults in 2023.

The socio-demographic analysis of the adult survey highlights education and age effects in particular. People with a low level of formal education, low incomes, and the older generation of over 65s are less confident in the ability of society (collectively), but especially themselves personally, to effectively combat the climate and nature crisis. Thus, only 47 percent of people with a low level of education, 43 or 44 percent of respondents with a low net household income (up to 999 euros and 1,000 to 1,999 euros), and 44 percent of over 65s feel that they are in a position to make an active contribution to protect nature and the climate. This compares to 65 percent in the group with a high level of formal education, 67 percent in the group with the highest income (over 3,500 euros), and 67 percent of 18 to 29 year olds.

The perception of individual and collective self-efficacy varies between social milieus.

If the results are analysed according to social milieus in the adult population, a clear distinction can be seen between the more "optimistic" milieus – those who have more confidence in collective and individual self-efficacy – and the more "pessimistic" milieus, where the levels of agreement are significantly lower (see Table 1). The following can be considered as "optimistic" in this sense: Conservative Upscale, Post-Materialists, Performers, Expeditives and Neo-Ecologicals. On the other hand, the following can be labelled as "pessimistic": Adaptive Pragmatists, Hedonists, Precarious, Nostalgic Middle Class and (to some extent) Traditionalists. It is striking that the two milieus of the social centre (Adaptive Pragmatists and Nostalgic Middle Class) are also rather sceptical when it comes to assessing the effectiveness of measures to combat current ecological crises.[39]

Table 1: Individual and collective perceptions of effectiveness in the context of climate change – adult population by milieu

Below you can see some statements on the topic of climate and nature. To what extent do you personally agree with the following statements?											
Response category: "Agree strongly/somewhat" Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonists	Precarious	Nostalgic Middle Class	Traditionalists
I believe that together we people in Germany can make a difference for the protection of nature and the climate.	75	84	89	82	91	87	70	58	50	65	77
We in Germany are in a position to work together to protect nature and the climate.	75	84	89	85	90	88	68	52	51	58	76
I believe that I can personally make a difference in protecting nature and the climate.	58	70	77	58	81	72	50	51	32	42	50
I am personally in a position to make an active contribution to protect nature and the climate.	56	63	74	61	75	71	52	47	27	42	42
I am afraid that the climate crisis and the destruction of nature will impact my lifestyle.	53	58	50	62	68	56	49	48	37	49	56

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

4 Restoration of ecosystems

This chapter focuses on the current perception of changes to nature and landscapes and the question of whether the restoration of ecosystems should be a primary task for society as a whole – for example, in view of the fact that only intact ecosystems can provide the ecosystem services necessary for people and maintain species diversity in these places. Why does the population think habitats are worth preserving? Which ecosystem services do people actually find important in nature and which therefore need to be preserved or restored? How should the renaturalisation of ecosystems be approached? And finally: On which types of nature and landscapes should renaturalisation primarily take place? Where are people in Germany prepared to give nature more space?

4.1 Perception of nature and landscape changes

This Nature Awareness Study was the third to ask whether people are aware of the changes in nature and the landscape. As a result, we can now see developments over time, which are of particular interest here.

The population increasingly perceives a deterioration in the state of nature and landscape in Germany.

Fifty-three percent of adult respondents state that the condition of nature and landscape has deteriorated in the last 20 years, while four percent perceive an improvement. Thirty-two percent do not see any significant changes, and another 11 percent were unable to answer (see Figure 17).

Compared over time, we see that regardless of how nature and landscape have actually developed over the last twelve years, the population increasingly perceives a deterioration in the state of nature and landscape in Germany: In the 2011 Nature Awareness Study, 27 percent of respondents said they had noticed a deterioration in the state of nature and landscape over the past 20 years. In the 2021 survey, this proportion had risen significantly to 50 percent. In the present survey, it is even slightly above the 50 percent mark (53 percent). Most significant were the age group of 18 to 29 year olds (59 percent) as well as the groups of people with a high level of formal

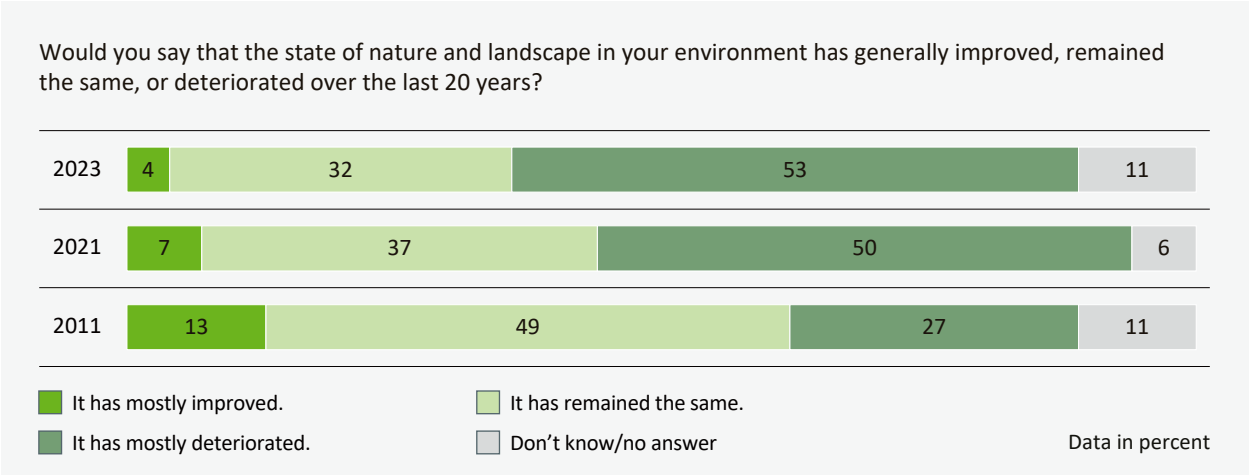


Figure 17: Perception of nature and landscape changes among adults compared over time

education (57 percent) and a high net household income (more than 3,500 euros: 61 percent).

The opinion of the respondents largely correlates to the scientific findings on the state of nature. The population seems to have a good sense for the development of nature and the landscape, as the state of many ecosystems, not only in Germany, has actually deteriorated to such an extent that large-scale renaturalisation is urgently needed to preserve them as the foundation of health and well-being (see SRU 2024).

4.2 Perception of ecosystem services

Nature provides many services, known as ecosystem services: For example, groundwater regenerates itself, soils remain fertile, and photosynthesis produces plant biomass. We humans derive many benefits from these ecosystem services, whether for food, water supply, recreation, or protection against natural hazards (see Grunewald and Bastian 2023). These services of the ecosystem are based on ecosystem functions and require them to be intact. However, which services provided by nature do people perceive and consider to be important?

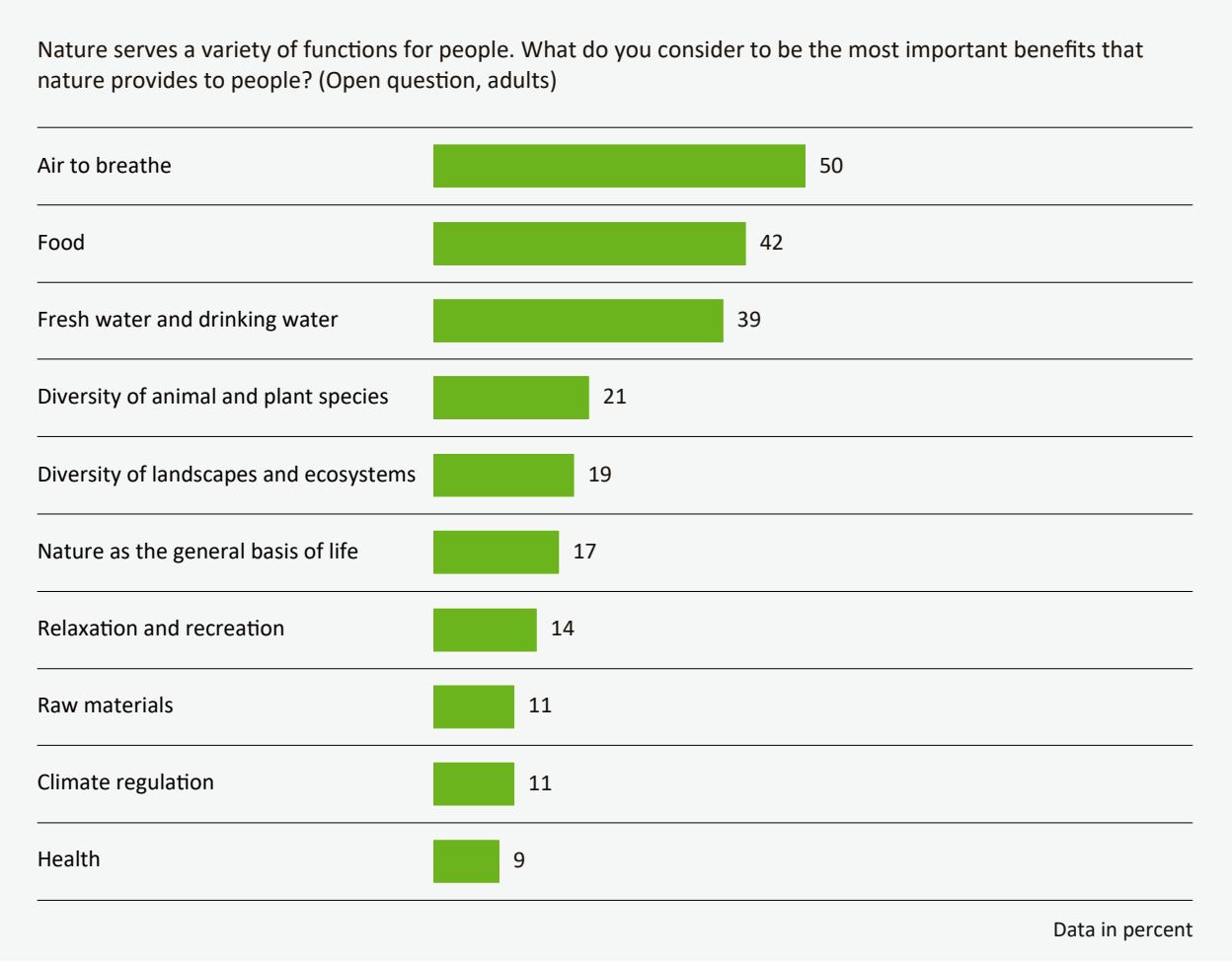


Figure 18: Perception of ecosystem services among adults

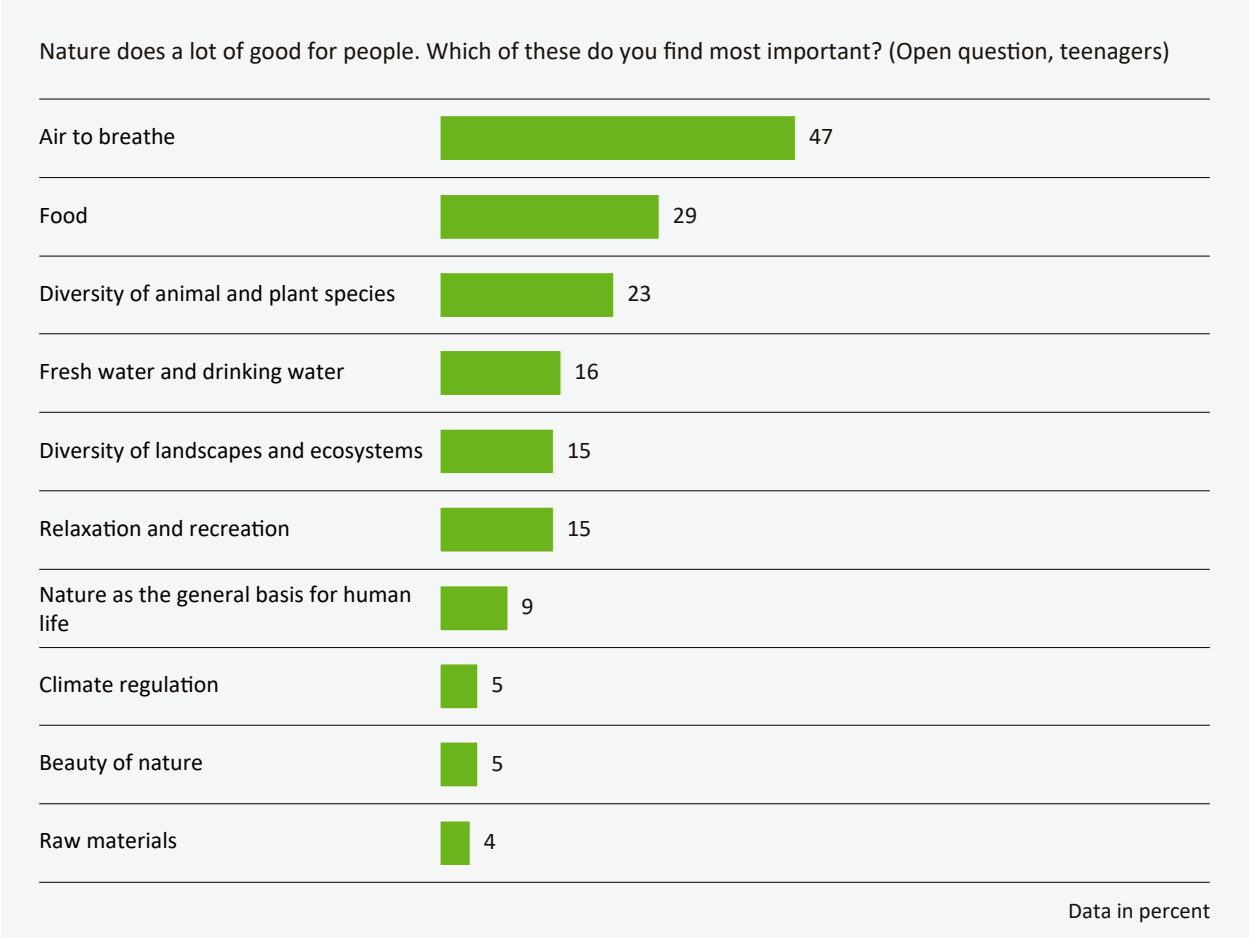


Figure 19: Perception of ecosystem services among teenagers

In order to find out the extent of the population's knowledge about the services provided by nature as well as which ecosystem services are considered particularly important, adults and teenagers were asked open questions (without predetermined answers) regarding what they consider to be the most important services provided by nature that benefit humans. The respondents' freely formulated answers were categorised. Figures 18 and 19 show the ten categories most frequently addressed by adults and teenagers respectively.

Air to breathe, the provision of food, and the supply of fresh water and drinking water are perceived as the most important ecosystem services. For one fifth, biodiversity is (also) one of nature's most important services.

Among adults, it is clear that basic human needs characterise the perception and evaluation of ecosystem services (see Figure 18): Mentioned in 50 percent of cases, the provision of air to breathe is the most frequently cited ecosystem service provided by nature, followed by the provision of food (42 percent) and the supply of fresh water and drinking water (39 percent). This is followed by services by nature that are not directly related to needs: Diversity of animal species and plant life (21 percent), landscape/ecosystem diversity (19 percent) and nature as the general basis for life (17 percent). This is followed by relaxation and recreation (14 percent), raw materials (11 percent) and health (9 percent). Eleven percent see climate regulation (e.g. carbon storage) as one of nature's most important services.

The response pattern of teenagers is similar to that of adults (see Figure 19). Here, too, the list of the most frequent mentions begins with the air we breathe (47 percent) and the provision of food (29 percent). However, teenagers place the diversity of the animal species and plant life in third place (23 percent) – ahead of the supply of fresh water and drinking water (16 percent). This slightly higher appreciation of biodiversity is quite remarkable. It is also noticeable that, among teenagers, the category of climate regulation is one of the ten most frequently cited services provided by nature – albeit less frequently than by adults (5 percent compared to 11 percent of adults).

4.3 Social responsibility for the restoration of ecosystems

Alongside the question of which ecosystem services are perceived as particularly important, the respondents were asked to state whether they think there is a social responsibility to restore (destroyed, disrupted) ecosystems with their functions and services? To ensure the question was understood correctly, it was preceded by the following explanation of ecosystems:

"The diversity of habitats and ecosystems describes the communities of living organisms in certain places. For example, different animals and plants live in a forest than in a meadow or a pond. The living organisms in an ecosystem are interrelated and in some cases directly dependent on each other."

Four out of five people in Germany see the conservation and restoration of ecosystems as a primary societal task.

Asked whether the conservation and restoration of ecosystems was a priority societal task, 42 percent of adults answered unreservedly with "yes" and another 43 percent with "yes, somewhat". The response from teenagers was similar: 44 percent agree strongly and another 36 percent agree somewhat (see Figure 20).

The sociodemographic analysis reveals that unreserved agreement is lowest in the oldest group of respondents (65+: 34 percent), above average in the 50–65 age group (48 percent) and in the group with a high level of formal education (47 percent) and with a high net household income (47 percent).

When differentiated according to social milieus, it is primarily the Post-Materialists ("Yes": 68 percent), the Expeditives (60 percent), and the Neo-Ecologicals (56 percent) who unreservedly consider the conservation and restoration of ecosystems to be a priority societal task. By contrast, awareness of the problem is below average in the socially disadvantaged milieus – among the Precarious (24 percent) and the Consumer Hedonists

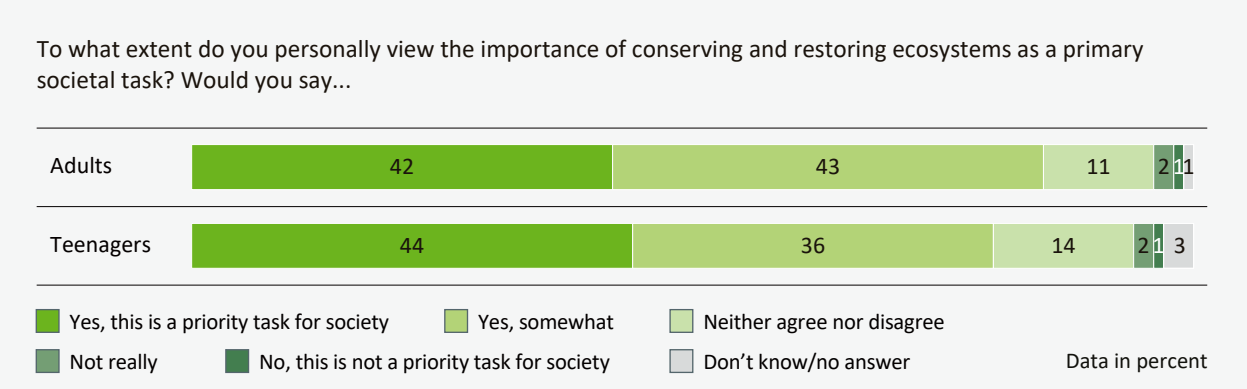
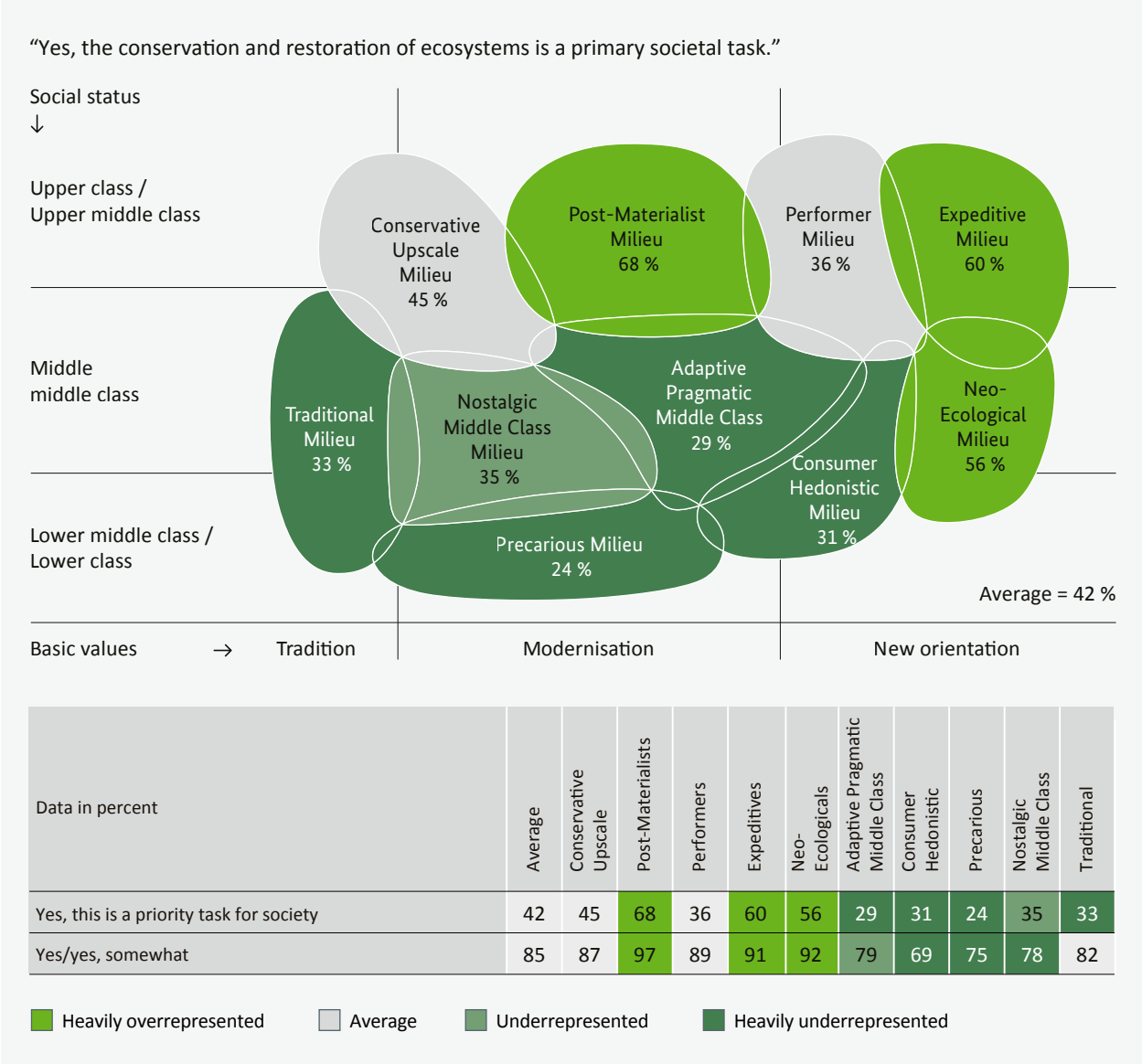


Figure 20: Social significance of the restoration of ecosystems – adults and teenagers in comparison



Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonistic	Precarious	Nostalgic Middle Class	Traditional
Yes, this is a priority task for society	42	45	68	36	60	56	29	31	24	35	33
Yes/yes, somewhat	85	87	97	89	91	92	79	69	75	78	82

Heavily overrepresented | Average | Underrepresented | Heavily underrepresented

Figure 21: Social significance of the restoration of ecosystems – adult population by milieu

(31 percent) – but also in the Traditional milieu (33 percent) and in the middle milieus (Adaptive Pragmatists: 29 percent, Nostalgic Middle Class: 35 percent) (see Figure 21).

4.4 Attitude towards renaturalisation approaches

Even if unreserved support for the preservation and restoration of ecosystems varies greatly between social milieus: If the "yes, somewhat" votes are included, then there is a clear majority in all milieus who see this as a priority societal task (see Figure 21). But which renaturalisation approaches should be pursued? Experts are dis-

cussing terms such as passive or active renaturalisation, recultivation, revitalisation, or ecological restoration (see SRU 2024). These technical differentiations are not suited to a general population survey. Therefore, a major simplification has been made at this point. Adult respondents were only given three options to evaluate. The guiding question was in regard to the extent to which people should shape nature or rather leave it to its own devices.

Renaturalisation approaches are generally very popular with the population.

The first option characterises renaturalisation as the attempt to "recreate" a desired natural state as closely as possible through human planning and design. It is important here that the entire area or all essential ecosystem functions are captured by human design and thus come close to a desirable near-natural state. At the other end of the scale is the option of leaving nature to its own devices in certain areas ("letting nature be nature"), by intervening without fixed expectations and without planning or shaping. In between, an option is described in which man-made elements or elements used by people are combined with natural/near-natural elements, such as hedges or flower strips in agricultural landscapes.

The results show that all three options receive high levels of agreement (very good/somewhat good) (see Figure 22): 87 percent support is given to option 1 (human design), 84 percent to option 2 (natural elements in landscapes used for economic purposes) and 76 percent to option 3 (nature is left to its own devices). The rejection rates for all options are very low (less than 5 percent in each case).

No noticeable socio-demographic differences can be recognised for the first two options. However, the option "Leave nature to its own devices in certain areas" shows that support is particularly high in the young age group of 18 to 29 year olds (very good/somewhat good: 86 percent, average: 76 percent), those with a high level of formal education (81 percent), and in the group with a

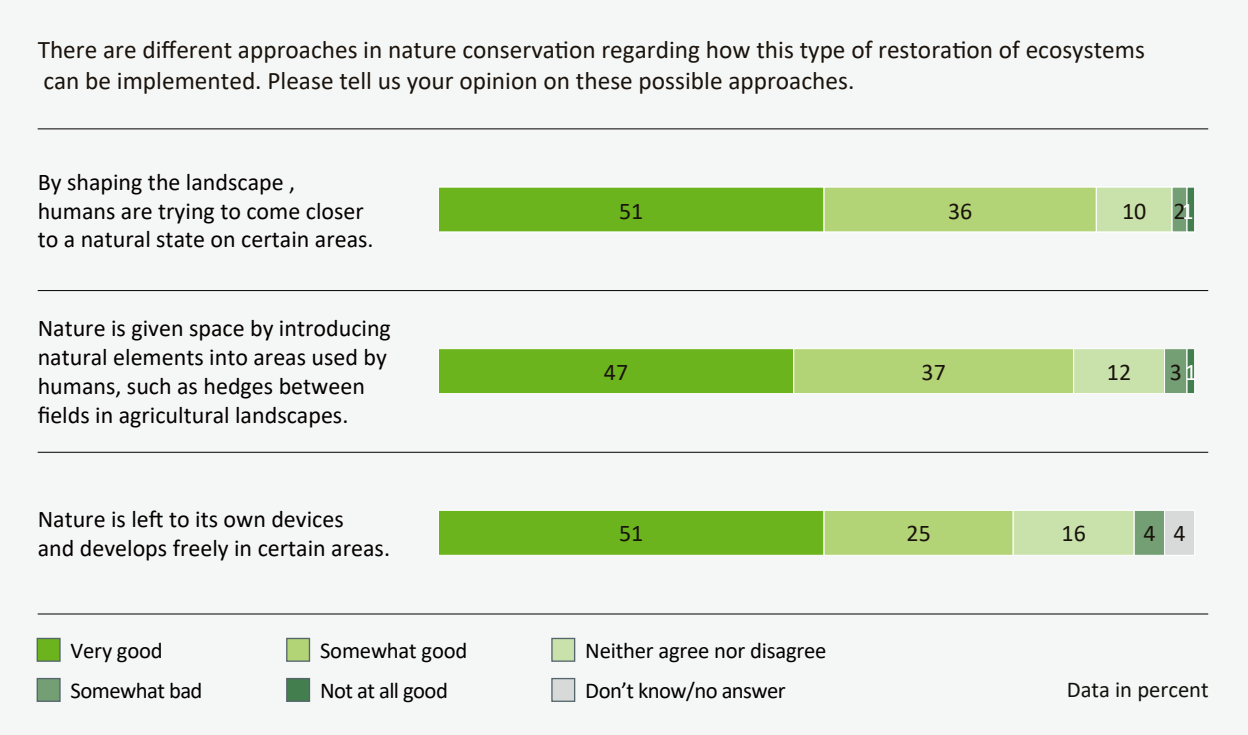


Figure 22: Preference for renaturalisation approaches among the adult population

net household income of at least 3,500 euros (89 percent). By contrast, agreement is below average in the oldest group of respondents (over 65 year olds: 56 percent), those with a low level of formal education (68 percent), and in the group with a net household income of 1,000 to 1,999 euros (63 percent).

4.5 Preference for certain ecosystems

The results to date show that renaturalisation – regardless of the approach – meets with great approval among the population. This raises the question of where – in which areas of the landscape, for which land uses – renaturalisation measures should take place. Because there is not an unlimited amount of available land. On the contrary, land consumption for purely human purposes continues to grow. Settlement and transport areas in Germany have been growing for decades, currently by 55 hectares per day (four-year average for the years 2018 to 2021, see Federal Statistical Office 2023). This is happening primarily at the expense of agricultural land. This new land use also reduces the land potential for alternative uses or uses combined with agriculture, including renaturalisation measures (see SRU 2024). The German sustainability strategy sets the goal of limiting the use of additional

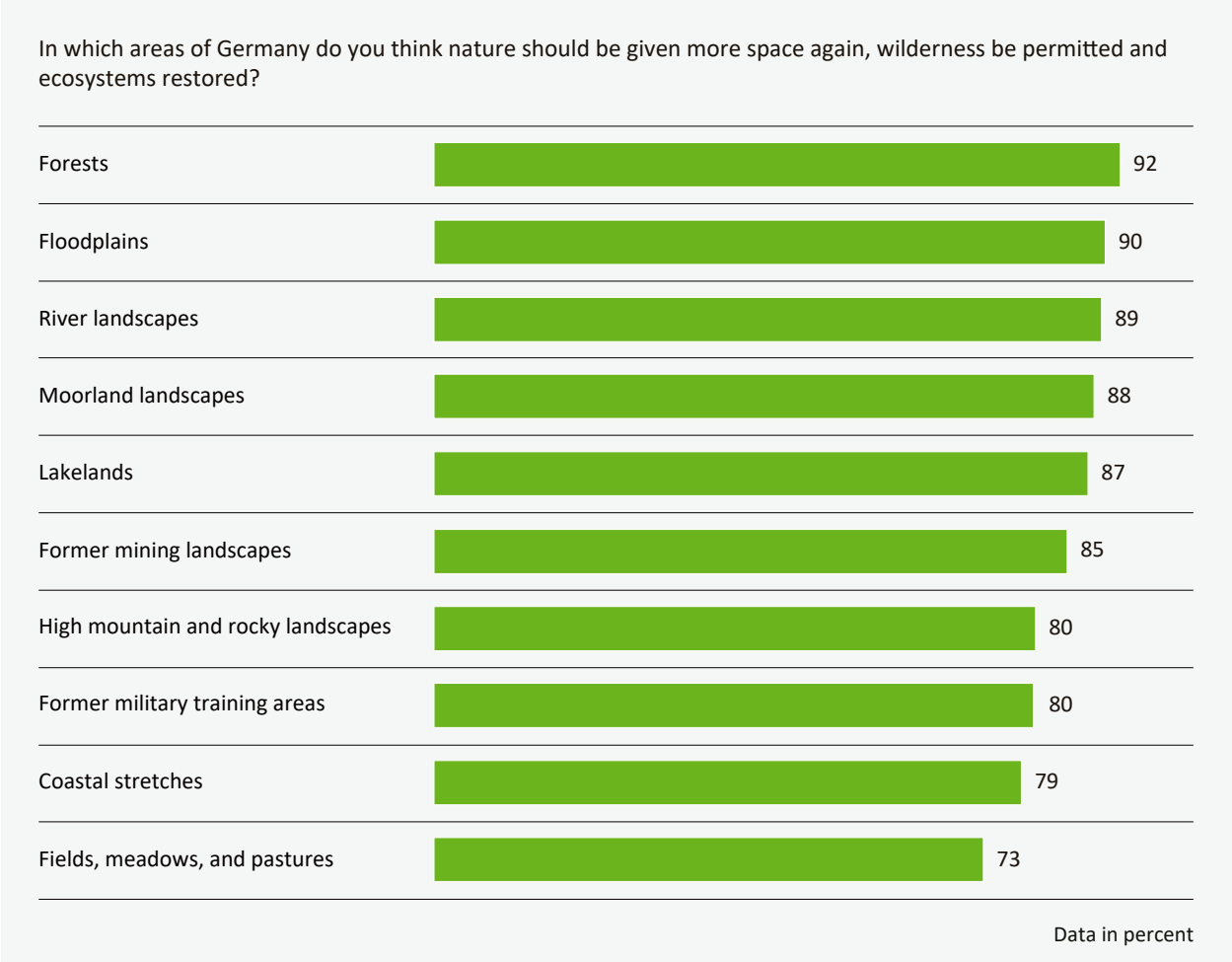


Figure 23: Preference for renaturalisation areas among the adult population

land for settlement and transport purposes to an average of less than 30 hectares per day by 2030 (see Federal Government 2021). This makes it all the more urgent to ask the population what land it believes should be renaturalised. Therefore, the adult respondents were asked to state, based on a specified list of land types, in which areas they think nature should be given more space again (see Figure 23).

The request to give nature more space in Germany again, to allow wilderness, and to restore ecosystems, meets with a high level of approval.

Top of the list of land use types that the respondents consider to be target areas for renaturalisation measures are forests (92 percent), followed by floodplains (90 percent), river landscapes (89 percent), moor landscapes (88 percent), lakelands (87 percent), former mining landscapes (85 percent), high mountain and rocky landscapes (80 percent), former military training areas (80 percent), coastal areas (79 percent), and fields, meadows, and pastures (73 percent).

In terms of actual land use in Germany (see UBA 2023), the largest land use category – a good 50 percent of Germany's land is used for agriculture – is at the bottom of the list, but with 73 percent of responses, there is also broad support for renaturalisation measures on agricultural land. Forests are at the top of the list – and covering almost 30 percent of Germany's land area, they also represent a significant land use. From a nature conservation perspective, it should be noted that the categories of rivers and floodplains, river landscapes, and moor landscapes are very high on the list of the population's favourite areas for renaturalisation. All three landscape types are linked to the topic of water, which is another focus of this Nature Awareness Study (see Chapter 6).

5 Wilderness

The topic of wilderness has long been a focus of the Nature Awareness Study. One reason for this is that, from a nature conservation perspective, the expansion of wilderness areas is an important step towards preserving biodiversity, yet it is difficult to achieve in as densely populated and anthropologically shaped a country as Germany. Wilderness areas are adequately large and, for the most part, unfragmented, unused areas that serve to permanently guarantee a cycle of natural processes that is largely uninfluenced by people (see Finck et al. 2013). However, the growth of settlement and transport areas – by 28.8 percent between 1992 and 2022 (see UBA 2024) – is leading to competition for land. Therefore, not only does the German government want to limit land consumption, but it also wants to improve the protection of wilderness areas and establish more wilderness areas. The "National Biodiversity Strategy" (NBS) lists several targets. One is that nature should be left to its own devices again on at least two percent of Germany's land area. This goal is to be realised primarily through large-scale wilderness areas. The wilderness areas are also to be integrated into the transnational biotope network. In addition, forests should be able to develop naturally on five percent of the forest area (see BMU 2007).

Wilderness areas in the sense of the NBS exist today mainly in core zones of national parks, on areas of the "National Natural Heritage" and in some large nature reserves. According to current estimates, they currently account for around 0.6 percent of the land area (see BfN 2024). In addition to large-scale wilderness areas, smaller areas that develop with their own momentum are also valuable, such as urban wilderness areas (see Hartmanshenn et al. 2023) or areas that fulfil many, but not all, of the criteria for wilderness (see Brackhane et al. 2021).

The establishment, protection, and expansion of wilderness areas depend on their acceptance by the population and on the active support and co-operation of administrations and civil society. That is why this year's Nature Awareness Study analyses the population's attitude towards wilderness in Germany.

5.1 Desire for more wilderness in Germany

Before being asked to what extent the population would like to see more wilderness in Germany, respondents were first asked to assess whether they thought wilderness existed in Germany at all. As this question had already been asked in the 2013 Nature Awareness Study, it was possible to look at the extent to which the social perception

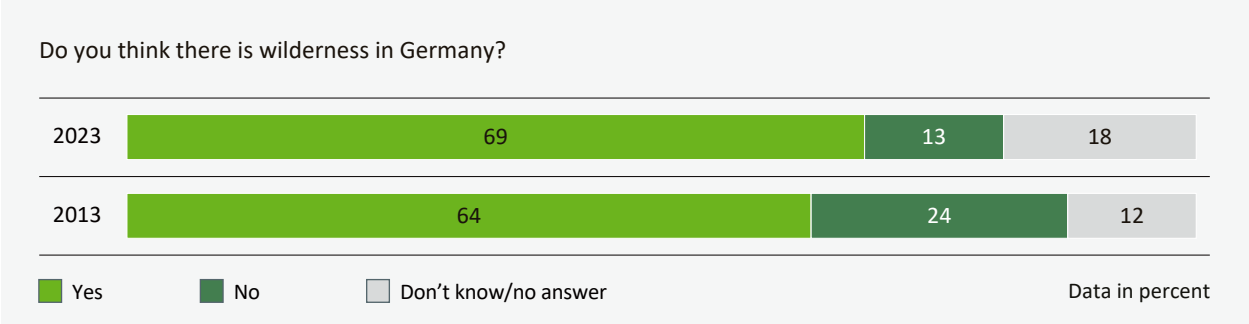


Figure 24: Perception of wilderness in Germany among the adult population compared over time

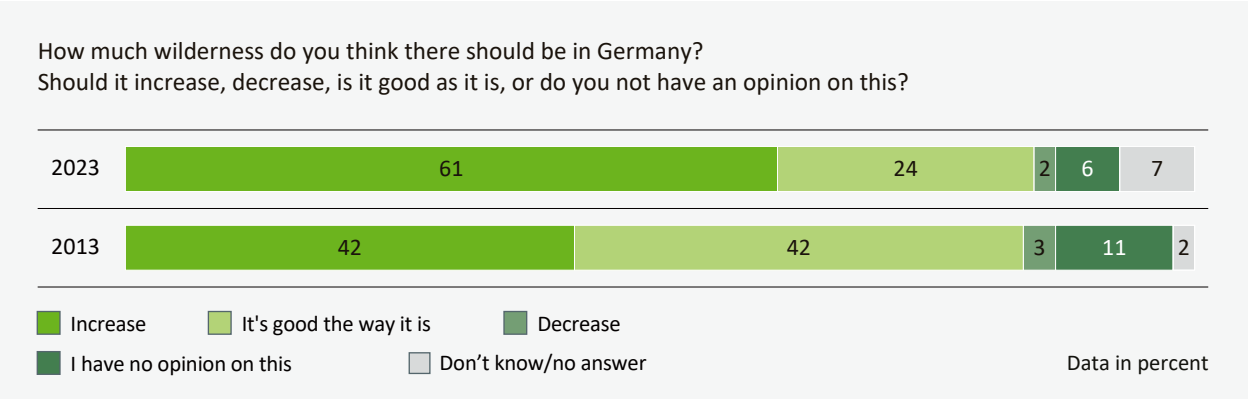


Figure 25: Desire for more wilderness in Germany among the adult population compared over time

of wilderness in Germany has changed. In addition to the adults, teenagers also answered this question for the first time.

Around two thirds of the population believe that there is wilderness in Germany.

When asked whether there is wilderness in Germany, 69 percent of adults answered "yes", while 13 percent answered "no" and 18 percent did not give an opinion ("don't know"). The proportion of "yes" votes rose by five percentage points compared to 2013, while the proportion of "no" votes fell by eleven percentage points (see Figure 24).

Men ("yes": 73 percent, average: 69 percent), the 50 to 65 age group (74 percent), those with a high level of formal education (74 percent), and people with a high net household income (78 percent) are more likely than average to believe that there is wilderness in Germany. The results of the youth survey ("yes": 67 percent, "no": 15 percent, "don't know": 18 percent) show no significant differences from the average values for adults.

In order to be able to assume a uniform understanding of wilderness for the rest of the questions, all respondents were presented with the following definition:

"Wilderness areas are large, unfragmented areas in which nature can develop freely because they are not utilised by people. Such areas exist in Germany in the Wadden Sea and the Bavarian Forest, for example."

The proportion of people who would like to see more wilderness in Germany has increased significantly.

Sixty-one percent of adults would welcome more wilderness in Germany. Twenty-four percent think there is enough wilderness areas as things currently stand and only two percent are in favour of less wilderness in Germany. The remaining 13 percent do not express an opinion or do not trust themselves to make an assessment.

The comparison over time is interesting: Compared to the survey in 2013, the proportion of those who would welcome an increase in wilderness areas has risen from 42 percent to 61 percent. At the same time, the proportion of those who do not want any change has fallen from 42 percent to 24 percent (see Figure 25).

The socio-demographic analysis reveals that the proportion of those who would welcome more wilderness in Germany is lowest in the oldest group of respondents: While 49 percent of those in the 65+ age group would like to see more wilderness, the figure is 70 percent for young adults (18 to 29 year olds) and 66 percent for teenagers (14 to 17 year olds).

However, the desire for more wilderness in Germany is not only a question of age, but rather a question of social milieu (see Figure 26): Four out of five members of the nature conservation-conscious Post-Materialist and progressive realist (Neo-Ecologicals) milieus are in favour of a greater expansion of wilderness in Germany. Among those in favour of more wilderness, cosmopolitan Expeditives (74 percent) and members of the structurally conservative elite (Conservative Upscale: 68 percent) are also overrepresented. By contrast, the Performers (54 percent), Traditionalists (53 percent), Adaptive Pragmatists (51 percent), Consumer Hedonists (50 percent), and Precarious (40 percent) are underrepresented.

Around four fifths of Germans are in favour of expanding wilderness areas to see how nature adapts to climate change.

Seventy-nine percent of adults and 84 percent of teenagers are of the opinion that there should be more wilderness areas to see how nature itself adapts to climate change (both levels of agreement). Only around 27 percent of adult respondents are concerned that this will mean land is no longer available for economic use (see Figure 27). Although this is slightly more than in the 2013 survey (23 percent), those who do not share these reservations still make up the clear majority (disagree somewhat/don't agree at all in 2013: 72 percent, in 2023: 63 percent). People with a high level of formal education are particularly unwilling to accept the argument that wilderness areas are detrimental to economic use (70 percent).

This result indicates that a majority of people take a positive view of the concept of protecting wilderness, above all as a kind of “open-air laboratory” to observe adaptation to climate change.

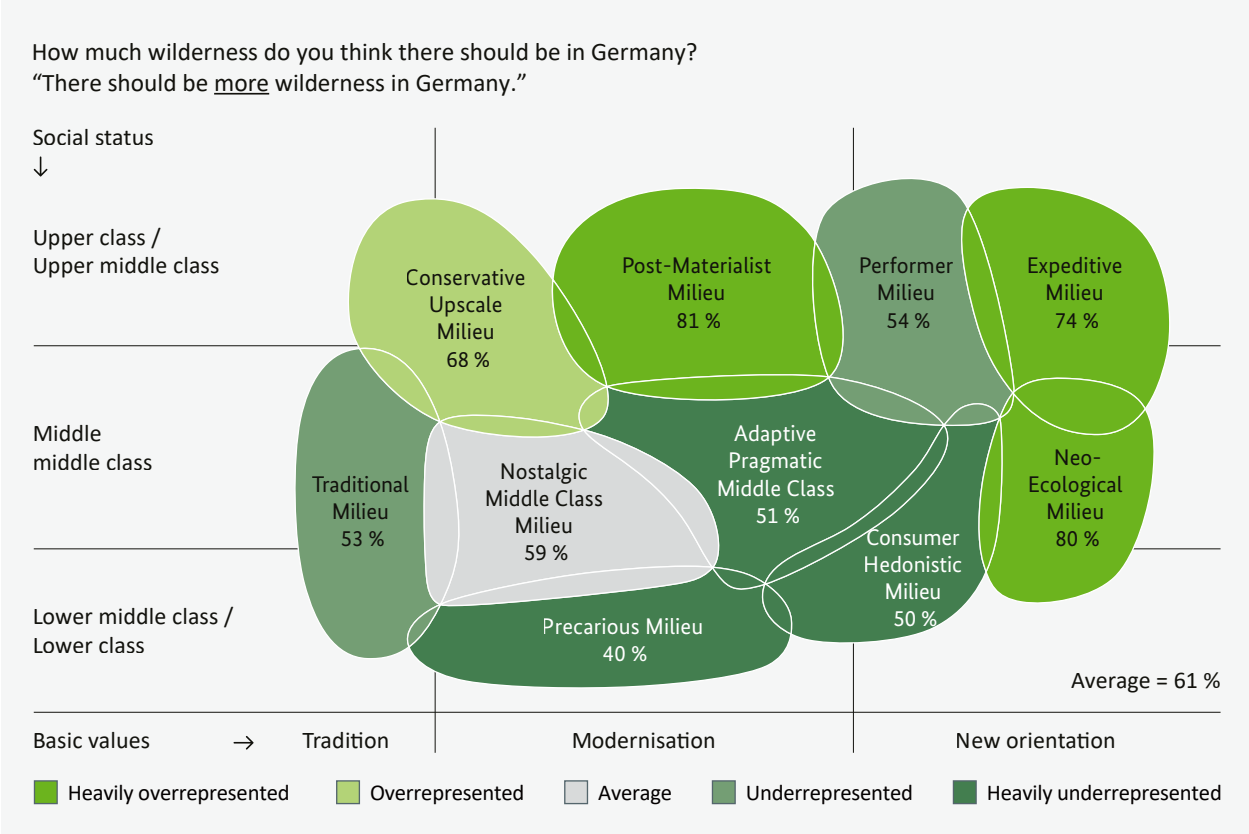


Figure 26: Desire for more wilderness in Germany among the adult population by milieu

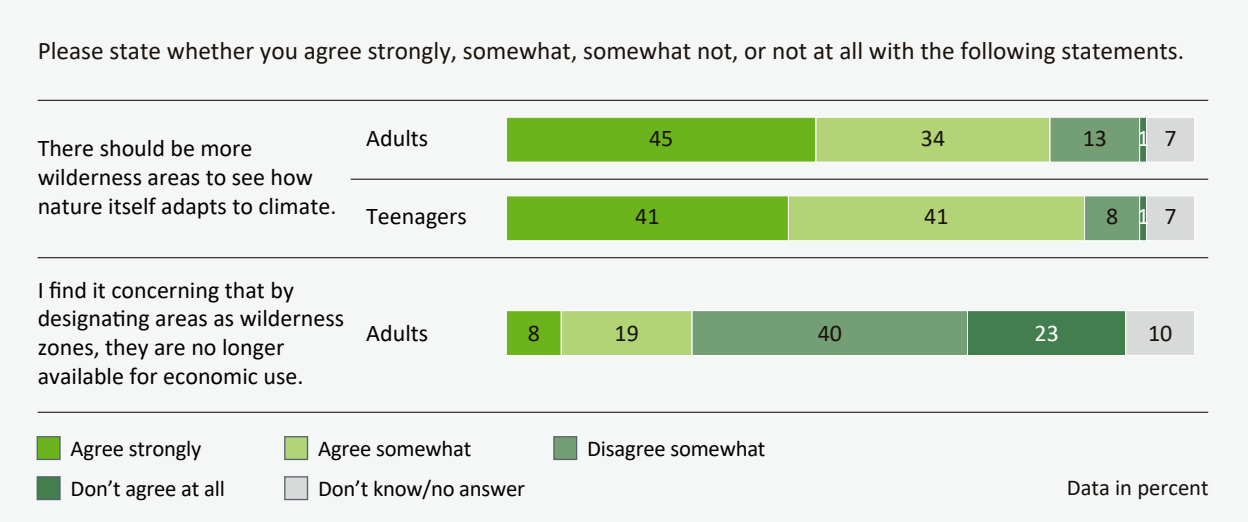


Figure 27: Opinions on the expansion of wilderness areas – adults and teenagers in comparison

This also implicitly recognises the "learning ability" of a natural environment that is largely undisturbed by humans in the face of a "stress situation" that we have unwittingly triggered through anthropogenic climate change. These results emphasise the positive findings of this study on nature-based solutions for climate protection and climate adaptation (see Chapter 3).

5.2 Attitude towards the reintroduction of wild animals in Germany

In order to counteract the decline in biodiversity and safeguard the ecological balance, there are many calls for the reintroduction of native animal species whose populations have declined in recent decades. But what does the population say? Following the surveys in 2013 and 2021, adults were asked this question for the third time. For the first time, teenagers were also asked for their opinion. In addition to native and endangered wild animals, questions were also asked about the spread of a non-native species – the raccoon.

Both adults and teenagers express the strongest reservations about wolves and raccoons.

Most Germans take a positive view of the spread of the lynx, wildcat, otter, and beaver: In each case, more than two thirds of adults and teenagers are in favour of their spread and a maximum of 14 percent are against it (see Figure 28). Respondents are more reserved about the spread of wolves. In each case, 44 percent of adults and teenagers think it is a good thing if the wolf spreads in Germany, but 40 percent of adults and 32 percent of teenagers are against it. The strongest reservations are about the raccoon,[40] which is not native to Germany and is classified as invasive – particularly among adults: Only a third think the spread of the racoon is a good thing, while 45 percent are against it. Agreement among teenagers is higher. Forty-three percent are in favour of the spread of the raccoon, while 30 percent are against it.

Compared to the previous survey (survey of adults only), agreement with the spread of lynx ("good", 2021: 55 percent, 2023: 75 percent), wild cats (2021: 54 percent, 2023: 74 percent), otters (2021: 58 percent, 2023: 71 percent), and beavers (2021: 56 percent, 2023: 66 percent) has increased, after the lynx ("good", 2013: 64 percent), wild cats (2013: 63 percent), and beavers ("good", 2013: 67

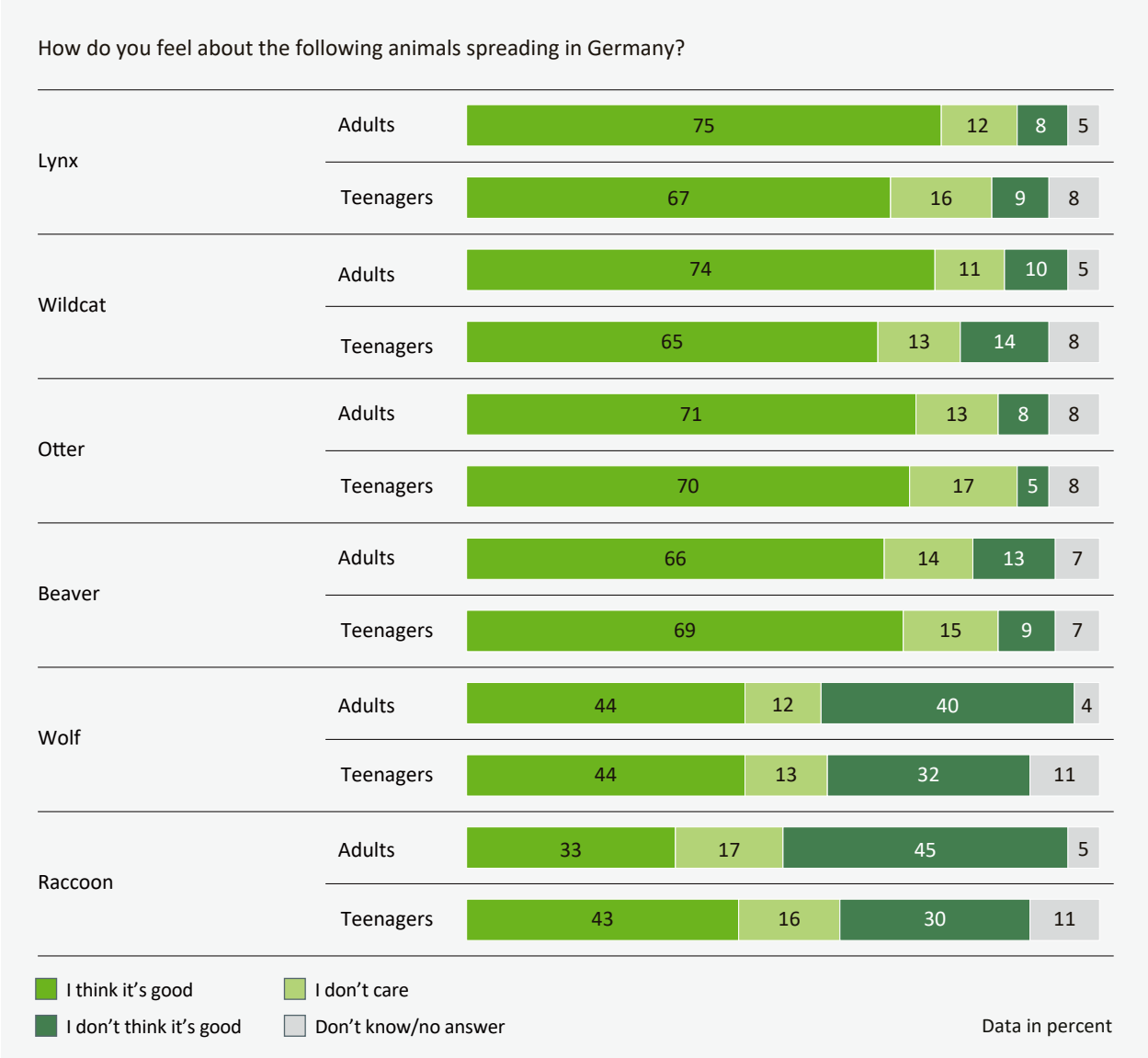


Figure 28: Attitude towards the spread of wild animals – adults and teenagers in comparison

percent) had lost popularity in a comparison of the 2013 and 2021 surveys (otters were not surveyed in 2013). Support for the spread of the wolf has remained constant across the three survey dates ("good", 2013: 44 percent, 2021: 40 percent, 2023: 44 percent), while support for the raccoon fell significantly in 2021 and was again the lowest of all wild animals in the current survey ("good", 2013: 48 percent, 2021: 34 percent, 2023: 33 percent). Given that raccoons are an invasive species, these results are positive from a nature conservation perspective.

When comparing the age groups, the over-65s are, in some cases, significantly more critical of the spread of the wild animals surveyed than the younger respondents – only for lynx and wildcats is this not the case (see Table 2).

The spread of wildlife polarises strongly between social milieus in some cases – in particular regarding the wolf.

Table 2: Attitude towards the spread of wild animals among the adult population by age

How do you feel about the following animals spreading in Germany?					
Response category: "Good"	Average	Age (years)			
Data in percent		under 29	30–49	50–65	over 65
Lynx	75	68	73	77	78
Wildcat	74	70	71	76	75
Otter	71	71	74	75	63
Beaver	66	70	70	69	56
Wolf	44	49	47	48	32
Raccoon	33	32	40	34	24

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

While the Post-Materialists, Neo-Ecologicals and Expeditives are significantly more likely than average to agree with the spread of almost all wild animals surveyed (exception: raccoon), the Precarious milieu is significantly less likely to agree. When it comes to agreement with the spread of the wolf, it is also noticeable that, alongside the Precarious, there is also a much more cautious response from the benefit-orientated economic elite (Performers) and the Traditionalists, who are concerned about safety (see Figure 29).

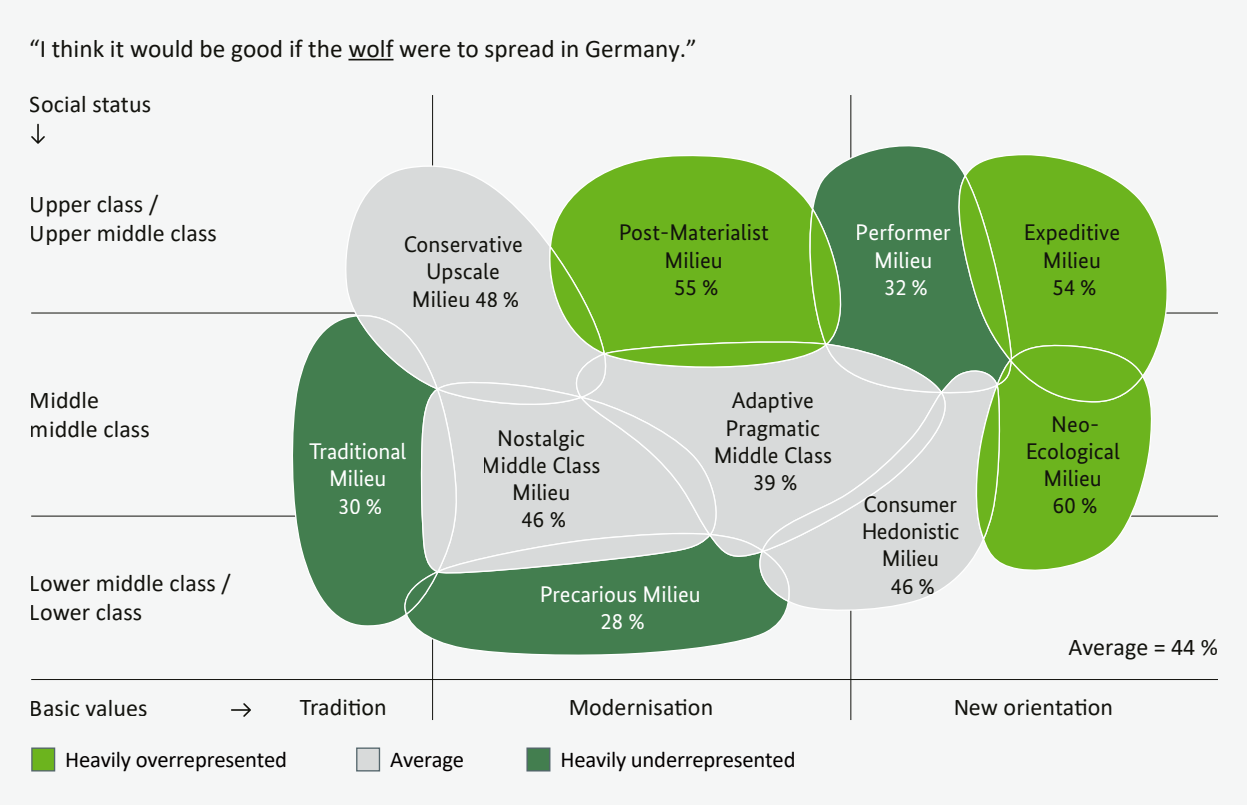


Figure 29: Agreement with the spread of the wolf among the adult population by milieu

6 Water

Water is essential to life. Springs, streams, rivers, lakes, groundwater, wetlands, and seas provide habitats for a wide variety of plants and animals. Access to clean drinking water is a basic human right. Water is therefore not simply a commodity, but a public good that must be protected and used with care. Germany is traditionally regarded as a country rich in water. Every summer holiday in the Mediterranean, where water is sometimes a scarce and contested commodity, confirms this perception. But unfortunately it corresponds less and less to reality. In the years 2003, 2018, and 2019, our country was afflicted by major heat events and low rainfall, which resulted in agricultural and forestry drought situations and regional water shortages. Agricultural yields collapsed, in many parts of the country the dried-out forests were infested by pests, surface waters dried up, and the groundwater level fell (see Riedel et al. 2021).

Climate scenarios predict a further rise in temperatures and changes in precipitation patterns: In winter there will be more rain than snow and in summer there may be a slight decrease in precipitation. In addition, precipitation is increasingly occurring in the form of heavy rainfall events and less frequently as the popular steady rain. This means less water remains for groundwater regeneration. Heat events also lead to more evaporation, which means less water for bodies of surface water and groundwater. This also affects water-based terrestrial ecosystems with their protected species and habitats. Depending on the

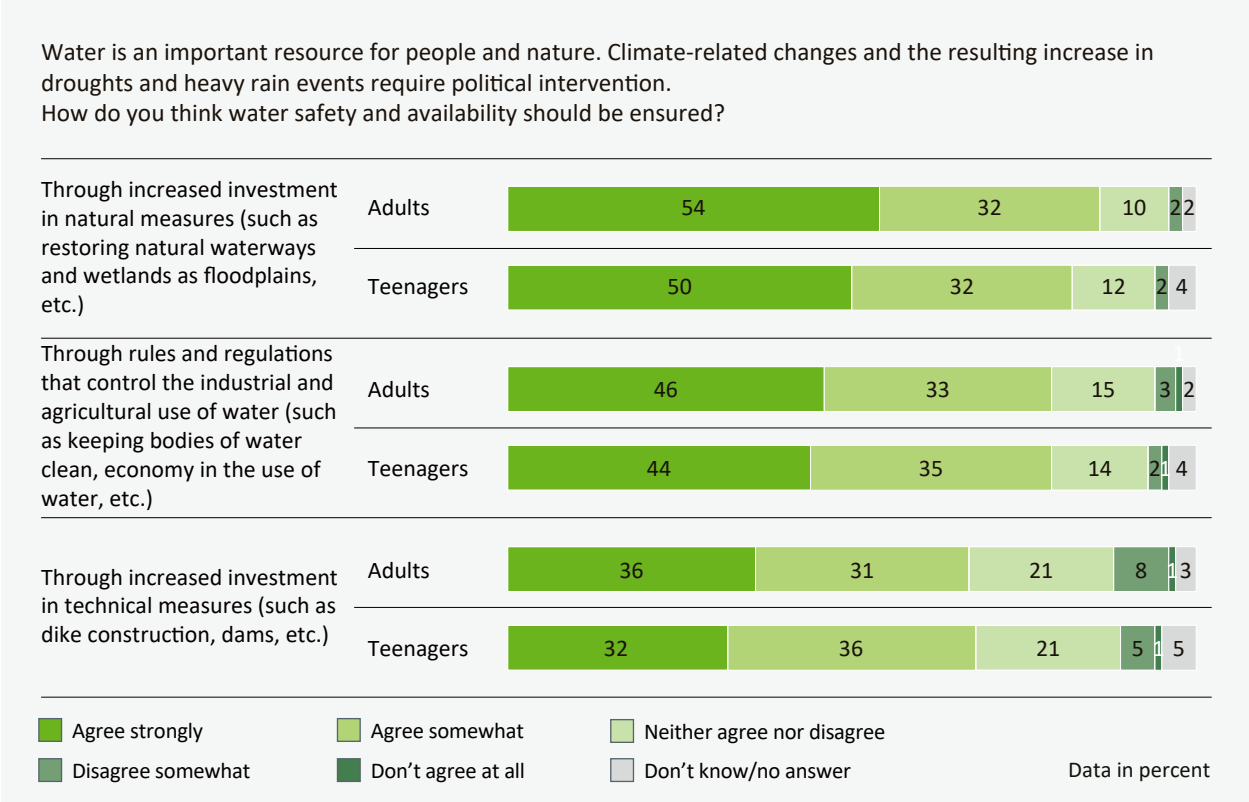


Figure 30: Measures to ensure the safety and availability of water – adults and teenagers in comparison

scenario and region, water crises are absolutely possible in Germany (see Fritsch et al. 2021 and Kunstmann et al. 2023).

Yet we are not helpless and defenceless in these scenarios. Measures to adapt to climate change can protect us against the worst of the negative consequences. The topic of natural climate protection is also important here: The renaturalisation of bodies of water and the reconnection of floodplains secures habitats for animal species and plant life. At the same time, floodplains filter surface water and keep it in the landscape, thus preventing droughts and providing catchment areas as preventive flood protection (see BMUV 2023b). The National Water Strategy (see BMUV 2023a) is also aimed at climate adaptation in the water sector in view of the risks of climate change. Various natural, organisational, and technical measures for the protection and economical use of water resources are discussed there.

And so we must ask how the population feels about protecting water as a resource and what kind of measures are popular. In the 2023 Nature Awareness Study, respondents were asked about their agreement with three measures: (1) Increased investment in natural measures (e.g. the restoration of natural river courses and floodplains as inundation areas), (2) rules and regulations to control water use by agriculture and industry, and (3) more investment in technical measures (e.g. dykes, dams). Both adults and teenagers were surveyed.

6.1 Resource protection and accessibility

There is a lot of support from the population for measures to ensure the safety and availability of water.

Eighty-six percent of adults and 82 percent of teenagers are in favour of increased investment in natural measures (both levels of agreement), while 79 percent of adults and teenagers are in favour of rules and regulations to control the industrial and agricultural use of water, and around two thirds of adults and teenagers (67 and 68 percent respectively) support increased investment in technical measures. Looking at the highest level of agreement ("agree strongly"), a clear order of preference emerges: Support for natural measures is highest, followed by rules and regulations regarding use, and finally technical measures (see Figure 30). For all three types of measure, however, the level of disagreement (disagree somewhat or do not agree at all) is very low (less than 10 percent). This is an important finding for policymakers, because sometimes a preference for one measure goes hand in hand with a rejection of the other. In this case, it seems that not everyone likes everything, but hardly anyone is really against anything. This finding could be interpreted as meaning that the main thing is for something to be done to protect our water resources from climate change.

There are two points of interest in the socio-demographic analysis: The groups of people with a high level of formal education and a high income are more likely than average to be in favour of rules and regulations that control the industrial and agricultural use of water (86 and 84 percent respectively, average: 79 percent). Technical measures are preferred by older people in particular (over 65s: 77 percent, average: 67 percent).

The milieu analysis shows that nature-based solutions (for example, the restoration of natural river courses and floodplains as inundation areas) are very popular with all social groups. The lowest value was measured in the Consumer Hedonistic milieu – but here too, 70 percent fully or somewhat agree (average: 86 percent). By comparison, opinions on rules and regulations governing the industrial and agricultural use of water differ widely in some cases (see Table 3): Most support for this measure is found in the Post-Materialist (both levels of agreement: 94 percent), Neo-Ecological (93 percent), Expeditive (91 percent) and Conservative Upscale (86 percent) milieus. In these milieus, the prevailing view seems to be that without more rules and regulations, it is un-

Table 3: Measures to ensure the safety and availability of water – adults by milieu

Water is an important resource for people and nature. Climate-related changes and the resulting increase in droughts and heavy rain events require political intervention. How do you think water safety and availability should be ensured?											
Response category: "Agree strongly/somewhat" Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonists	Precarious	Nostalgic Middle Class	Traditionalists
Through increased investment in natural measures (such as restoring natural waterways and wetlands as floodplains, etc.)	86	88	96	92	94	89	82	70	79	82	88
Through rules and regulations that control the industrial and agricultural use of water (such as keeping bodies of water clean, economy in the use of water, etc.)	79	86	94	83	91	93	70	69	53	74	76
Through increased investment in technical measures (such as dike construction, dams, etc.)	67	74	63	73	58	68	67	58	68	66	69

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

likely to be possible to effectively protect water resources from overuse in the face of climate change. By contrast, the Adaptive Pragmatist Middle Class (70 percent), the Consumer Hedonistic milieu (69 percent) and especially the Precarious milieu (53 percent) are less likely to see the need for rules and regulations.

7 The connection between people and nature

The development of positive nature-related emotions and the development of positive pro-social emotions run largely in parallel: Appreciation for nature and appreciation for other people often go hand in hand (see Castillo-Huitrón et al. 2020, Weinstein et al. 2009, Zelenski et al. 2015). We also know that proximity to natural areas (parks, forests, meadows, etc.) reduces the prevalence of social, emotional, and behavioural disorders (see McCrorie et al. 2021). In addition, nature and landscape make a positive contribution towards the health and well-being of people (see SRU special report 2023). This is also referred to as "therapeutic landscapes" (see Gebhard and Kistemann 2016 as well as Rathmann 2020). The diversity of landscape perception and the emotional dimension of the effect of nature on people has been highlighted in recent studies (see Bell et al. 2023).

In light of this, it makes sense to investigate the emotional side of the human-nature relationship more comprehensively than before in the Nature Awareness Study – in line with the new focus of the humanities and social sciences on the complex of affects, emotions, and feelings that has been evident for around 20 years and is referred to in the scientific community as the "affective" or "emotional turn" (see Clough and Hard 2007 and Lemmings and Brooks 2014). The nature-related emotions surveyed here were based and selected on environmental psychological research findings (Landmann 2020).

Alongside the question of what emotions and feelings can arise in nature, this chapter also shows whether the personal significance of nature has changed compared to the time before the coronavirus crisis and to what extent the appreciation of nature is also reflected in individual behaviour.

7.1 Feelings and emotions in nature

Nature is primarily associated with positive feelings.

The survey of a broad range of emotions that can arise in nature shows that most adults associate nature with positive feelings (see Figure 31): Nature has a calming effect (both levels of agreement: 90 percent), people feel free in nature (84 percent), nature is perceived as exciting (79 percent), gratitude is experienced (78 percent), and people often feel deeply moved (57 percent).

In addition, 67 percent feel in awe of nature, 52 percent feel pity for nature, and 35 percent feel guilty. By far the fewest adults state that they are afraid of nature (eight percent).

A comparison with the youth survey reveals that positive emotions such as calm, freedom, excitement, or gratitude are felt (slightly) less frequently by teenagers than by adults (see Figure 31). The same applies to the emotion of "awe". While 67 percent of adults say they feel in awe of nature, the figure for teenagers is 55 percent. There are no major generational differences in the negative emotions of pity and guilt. When it comes to the negative emotion of fear, however, it is noticeable that adults are slightly more likely than teenagers to deny that they are afraid of nature (disagree somewhat/do not agree at all: 83 percent of adults compared to 73 percent of teenagers).

The emotional connection with nature is least pronounced in the Precarious milieu.

In a comparison of milieus, the socially disadvantaged Precarious milieu feels the fewest emotions in nature overall. This applies to both positive and negative emotions. For example, only 32 percent

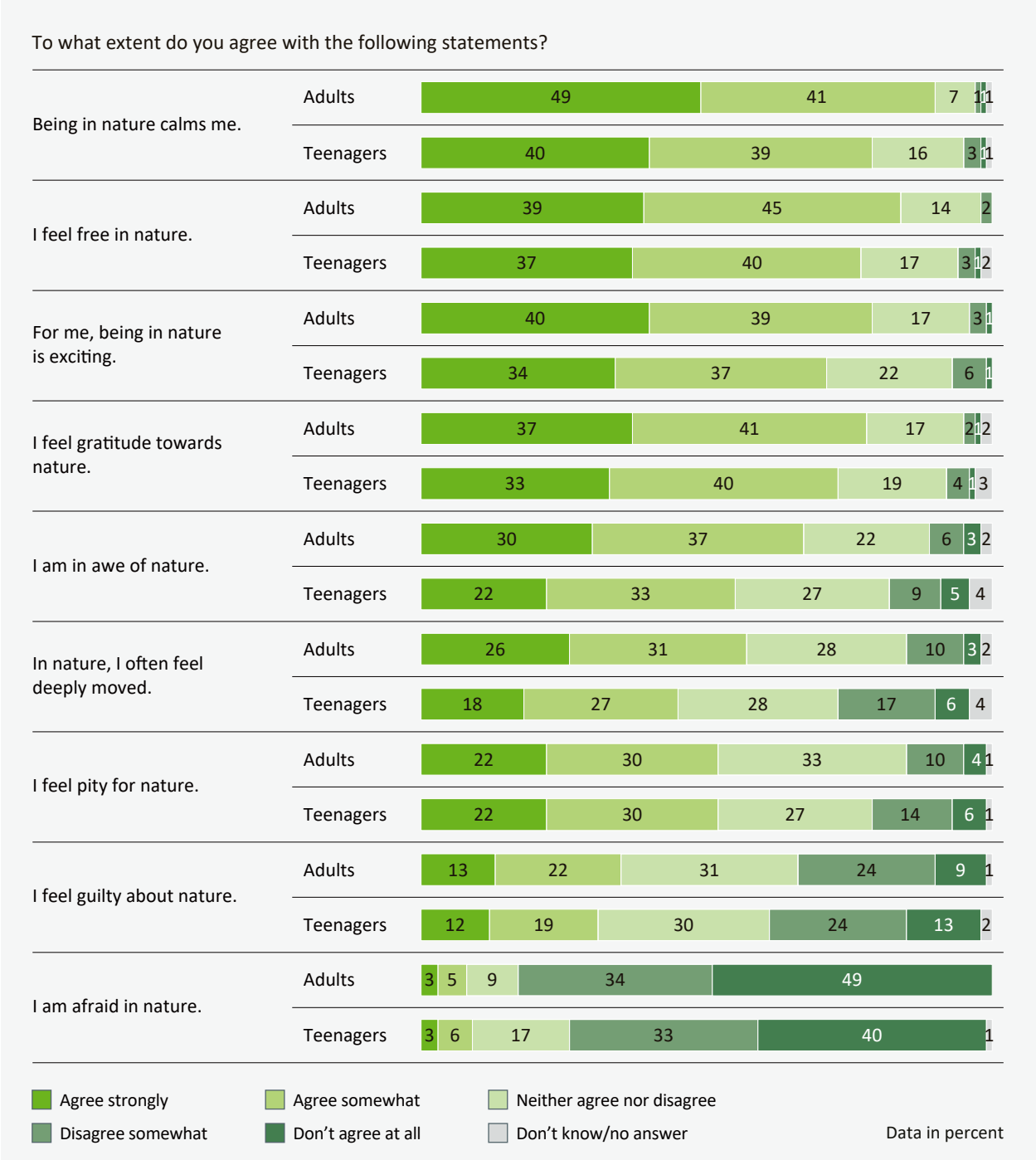


Figure 31: Feelings and emotions in nature – adults and teenagers in comparison

of Precarious adults strongly agree that being in nature has a calming effect. By comparison: Among Post-Materialists and Neo-Ecologicals, 65 percent each say that nature has a calming effect (see Table 4).

Table 4: Feelings and emotions in nature – adult population by milieu

To what extent do you agree with the following statements?											
Response category: "Agree strongly" Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonists	Precarious	Nostalgic Middle Class	Traditionalists
Being in nature calms me.	49	54	65	54	54	65	40	39	32	45	44
For me, being in nature is exciting.	40	54	53	35	47	46	31	37	24	33	35
I feel free in nature.	39	45	51	30	44	49	31	35	33	34	35
I feel gratitude towards nature.	37	49	55	27	40	46	26	31	25	32	40
I am in awe of nature.	30	35	51	19	34	31	23	31	20	30	27
In nature, I often feel deeply moved.	26	37	34	21	32	29	18	22	14	23	27
I feel pity for nature.	22	26	33	14	25	25	15	19	16	19	25
I feel guilty about nature.	13	17	15	10	14	14	12	11	9	10	17
I am afraid in nature.	3	5	3	2	1	3	3	4	2	4	1

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

7.2 Personal significance of nature and altered appreciation during the pandemic

Before the participants of the study were asked whether their appreciation of nature had changed compared to the time before the coronavirus crisis, they were asked to state what nature means to them personally.

In the adult population, the appreciation of nature increased.

The results of the survey show once again that large sections of society feel a high personal significance of nature. For 98 percent of adults, nature is part of a good life (both levels of agreement). Ninety-seven percent say it makes them happy to be in nature and just nine percent say they don't feel comfortable in nature. At the same time, 74 percent think they like nature better the wilder it is.

Compared over time, the appreciation of nature has even increased further. This is particularly apparent in the highest level of agreement (see Figure 32): At present, 65 percent "agree strongly" with the opinion that nature is part of a good life. In 2021, just 50 percent said the same. Furthermore, 54 percent currently agree strongly that it makes them happy to be in nature, compared to 46 percent in 2019. In addition, in 2023 nine percent say they do not feel comfortable in nature (agree strongly: four percent), compared to 18 percent in 2021 (agree strongly: eight percent).

In contrast to the adult survey, no major deviations can be identified in the youth survey when compared over time. However, the levels of agreement by teenagers in 2021 were already at the level of the adult survey in 2023. A larger difference is apparent in just one question: Whereas 54 percent of adults currently strongly agree that it makes them happy to be in nature (both levels

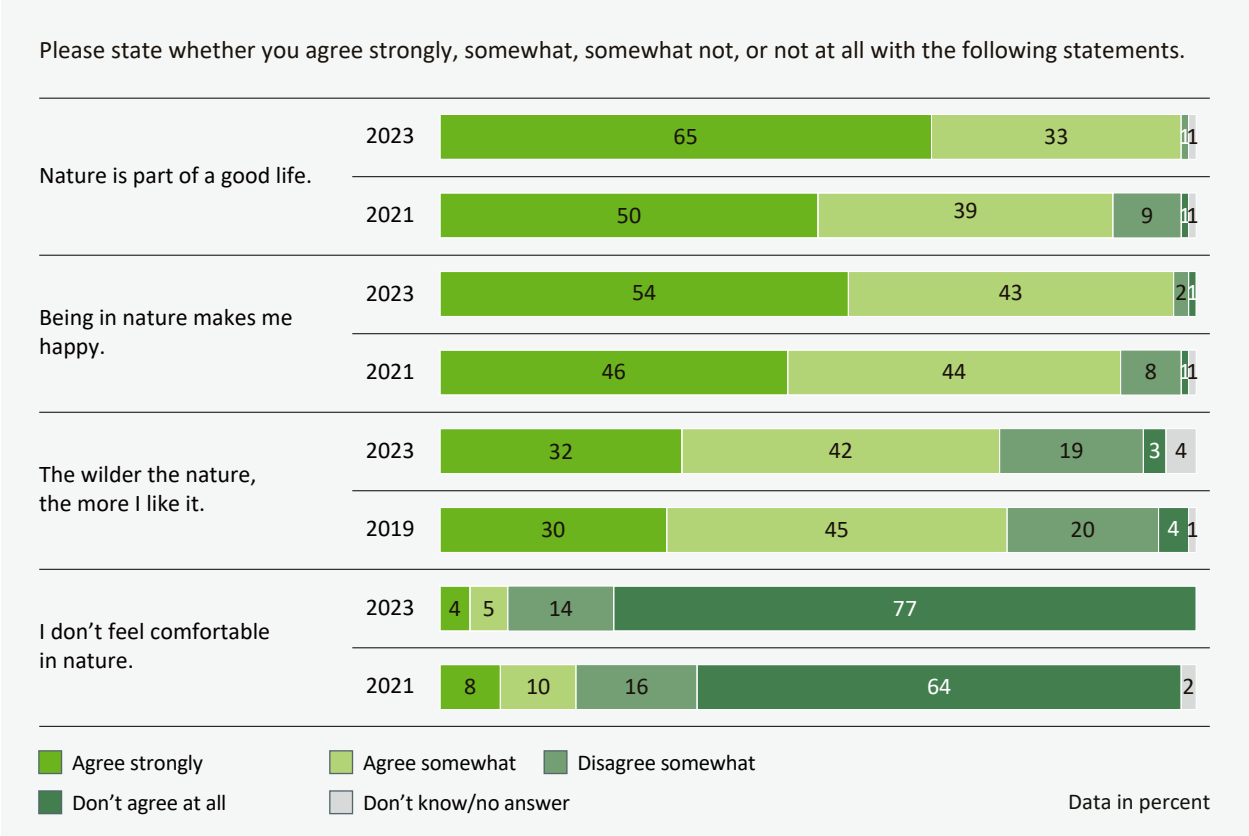


Figure 32: Personal significance of nature among the adult population compared over time

of agreement: 97 percent), only 44 percent of 14 to 17 year olds say the same (both levels of agreement: 91 percent). It should be emphasised that there are considerable socio-cultural differences, particularly among teenagers (see Figure 33). Fifty-eight percent of Traditional Middle Class and 54 percent of Neo-Ecologicals strongly agree that it makes them happy to be in nature. By contrast, just 19 percent of the Materialistic Escapists and 18 percent of the Precarious say the same – amounting to a range of 40 percentage points.

The personal significance of nature changed permanently for many Germans during the pandemic.

Well over a third of adults state that the personal significance of nature increased during the coronavirus crisis (see Figure 34): While 58 percent of adults think their opinion of nature has not changed ("just as important"), 42 percent think it has become more important compared to the time before the pandemic (16 percent "far more important", another 26 percent "somewhat more important"). Compared to 2021, this proportion has increased slightly by four percentage points (2021: 38 percent).

The opinion that nature has become more important is emphasised above all by 18 to 29 year olds (52 percent, average: 42 percent). People with a high level of education (48 percent) also say this more often than average. On the other hand, the group with a low level of formal education agree the least (34 percent).

In the youth survey, 49 percent state that nature has become more important (20 percent "far more important", 29 percent "somewhat more important"). In 2021, it was 45 percent. This means that there are still more teenagers than adults (2021 and 2023) who say that nature has

become more important compared to the time before the coronavirus crisis (see Figure 34) – the highest proportion is found among 14 to 17 year old girls (far more important/somewhat more important: 56 percent).

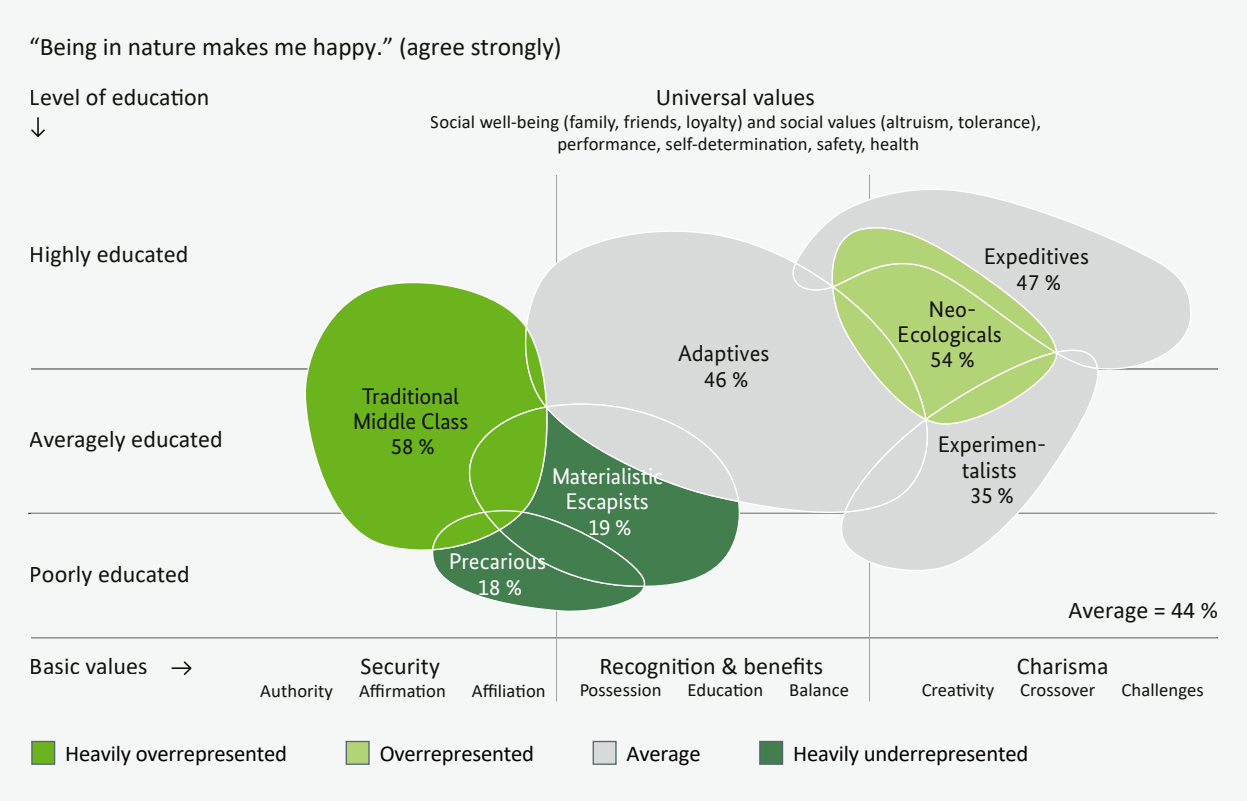


Figure 33: Personal significance of nature according to the youth lifeworlds

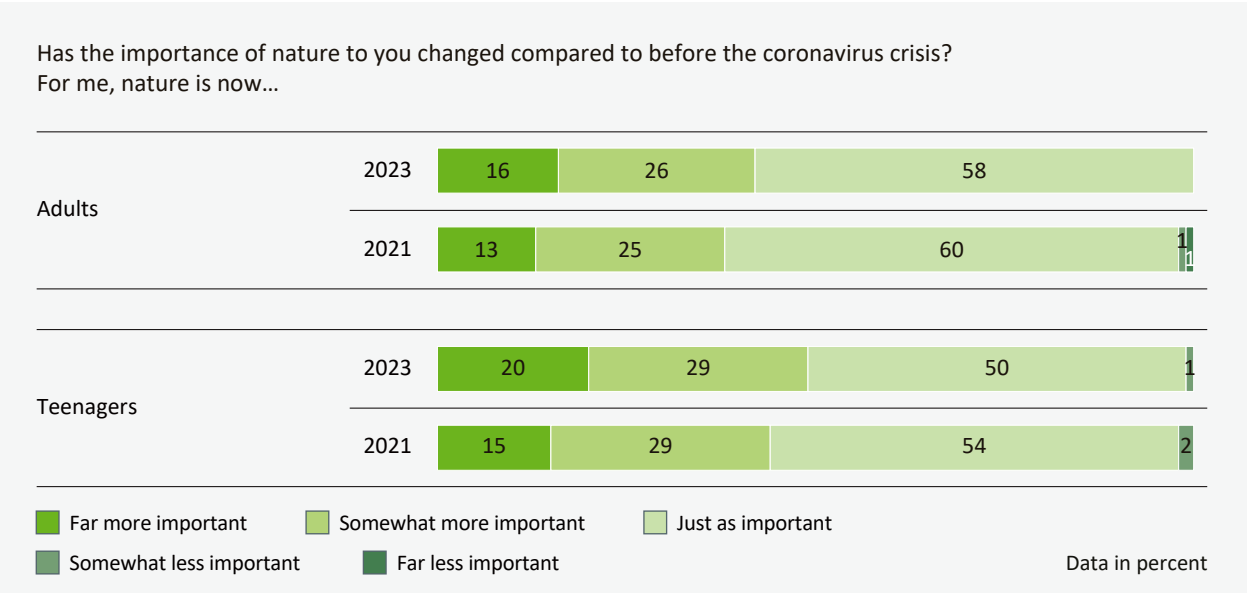


Figure 34: Altered appreciation of nature among adults and teenagers compared over time

7.3 Experiences of the connection between people and nature

In order to find out the extent to which the appreciation of nature is reflected in individual behaviour, adults and teenagers were asked about their (daily) dealings with nature and resources.

Adults and teenagers alike are personally very willing to take care of nature.

Ninety-six percent of adults and teenagers are very or somewhat willing to take care of nature and treat it well when they are in it. In addition, 96 percent of adults and 94 percent of teenagers can envisage being less wasteful with food and water. Furthermore, 94 percent of adults and 93 percent of teenagers declare their general willingness to deliberately organise sports and leisure activities in nature with consideration for animals and plants (see Figure 35).

Overall, there is therefore a high personal willingness to protect nature. This is all the more true as the unreserved willingness ("very willing") to take care of nature and resources is over 50 percent for all three questions – for adults it is even over 60 percent in each case (see Figure 35).

Two of the three question items had already been surveyed in the 2021 Youth Nature Awareness Study. A comparison of the youth data over time clearly shows that the unreserved willingness to treat nature with care has increased significantly (2021: 59 percent, 2023: 67 percent). The same applies to the unrestricted willingness to deliberately organise sports and leisure activities in nature with consideration for animals and plants (2021: 47 percent, 2023: 55 percent).

In the socio-demographic analysis, differences in education and gender are apparent (see Table 5): For all three question items, unrestricted willingness is most pronounced among women and adults with a high level of formal education. The situation is similar with the youth survey: Overall, unreserved willingness to take care of nature increases with the level of formal education and is more pronounced among girls than among boys.

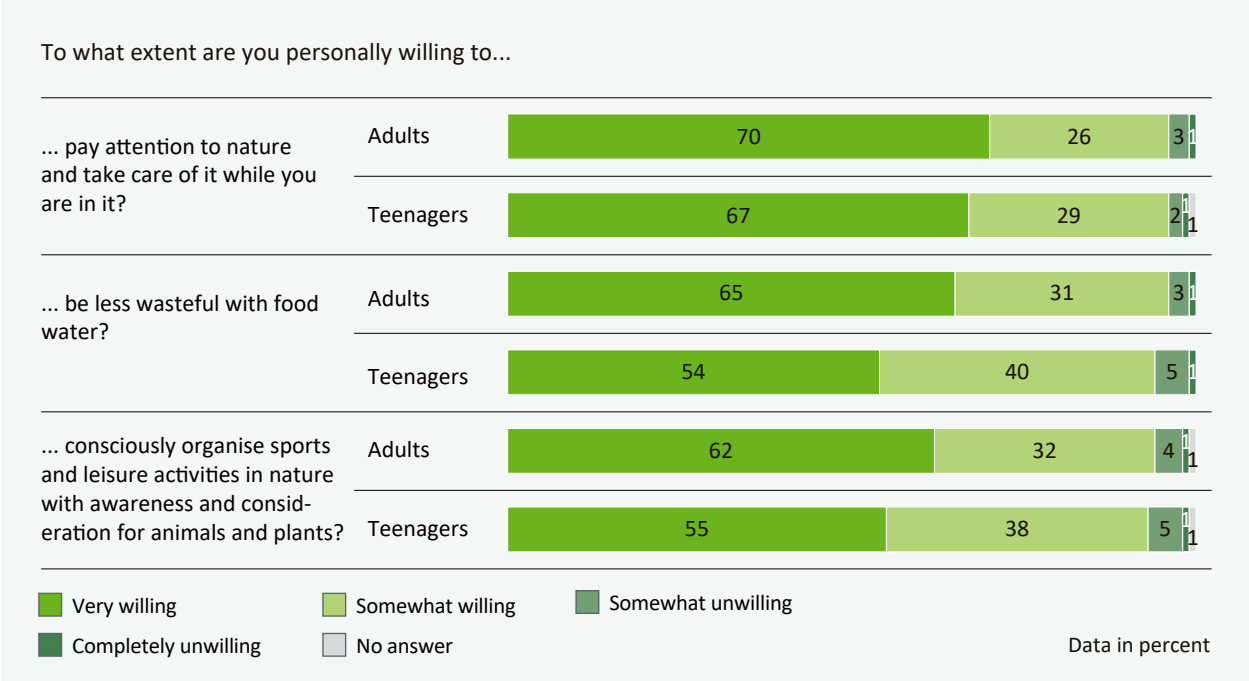


Figure 35: Experiences of the connection between people and nature – adults and teenagers in comparison

Table 5: Experiences of the connection between people and nature by gender and by level of education of adults and teenagers

To what extent are you personally willing to...						
Response category: "Very willing" Data in percent	Average	Gender		Education		
		Male	Female	Low	Average	High
Adults						
... pay attention to nature and take care of it while you are in it?	70	67	75	68	69	75
... be less wasteful with food and water?	65	59	72	60	64	72
... consciously organise sports and leisure activities in nature with awareness and consideration for animals and plants?	62	58	65	59	59	65
Teenagers						
... pay attention to nature and take care of it while you are in it?	67	63	72	56	64	72
... consciously organise sports and leisure activities in nature with awareness and consideration for animals and plants?	55	49	61	43	50	60
... be less wasteful with food and water?	54	52	56	39	48	60

Heavily overrepresented Overrepresented Underrepresented Heavily underrepresented

The milieu analysis shows that the willingness to treat nature with care is most pronounced in the particularly nature-loving and sustainability-oriented Post-Materialist milieu. Thus – without exception – all Post-Materialists surveyed state that they are generally willing to take care of nature and treat it well. Of these, 82 percent express their unreserved willingness (average: 70 percent).

8 Commitment to nature conservation

Nature conservation is not just a task for the state, but requires the commitment of civil society and the support of society as a whole. In the meantime, nature conservation associations have more members than the political parties (see Statista 2019). Donations for nature conservation have increased in recent years, but inflation and economic stagnation are currently having a negative impact. The Nature Awareness Study therefore examines whether current developments are having an impact on the commitment to protecting nature.

Commitment thrives on making a difference. Anyone who constantly has the feeling that their own commitment is not making a difference will increasingly lose the motivation to act in a way that protects nature. This makes it all the more important to analyse people's perceived self-efficacy – both personally and collectively: This is based on the assumption that nature conservation can only be driven forward on both "tracks" together, the "I" and the "we" (see Chokrai et al. 2022). Looking at the more recent climate protection movement Fridays for Future, we can see how collective commitment in the form of demonstrations and protests can emerge in the short term. In any case, those involved in the protests experienced a significant increase in self-efficacy at times (see Waechter and Steinmann 2024). The present Nature Awareness Study therefore also asks how Germans rate their individual and collective commitment to nature conservation.

8.1 Attitudes towards the endangerment and protection of nature

The German population believes that people are responsible for protecting nature.

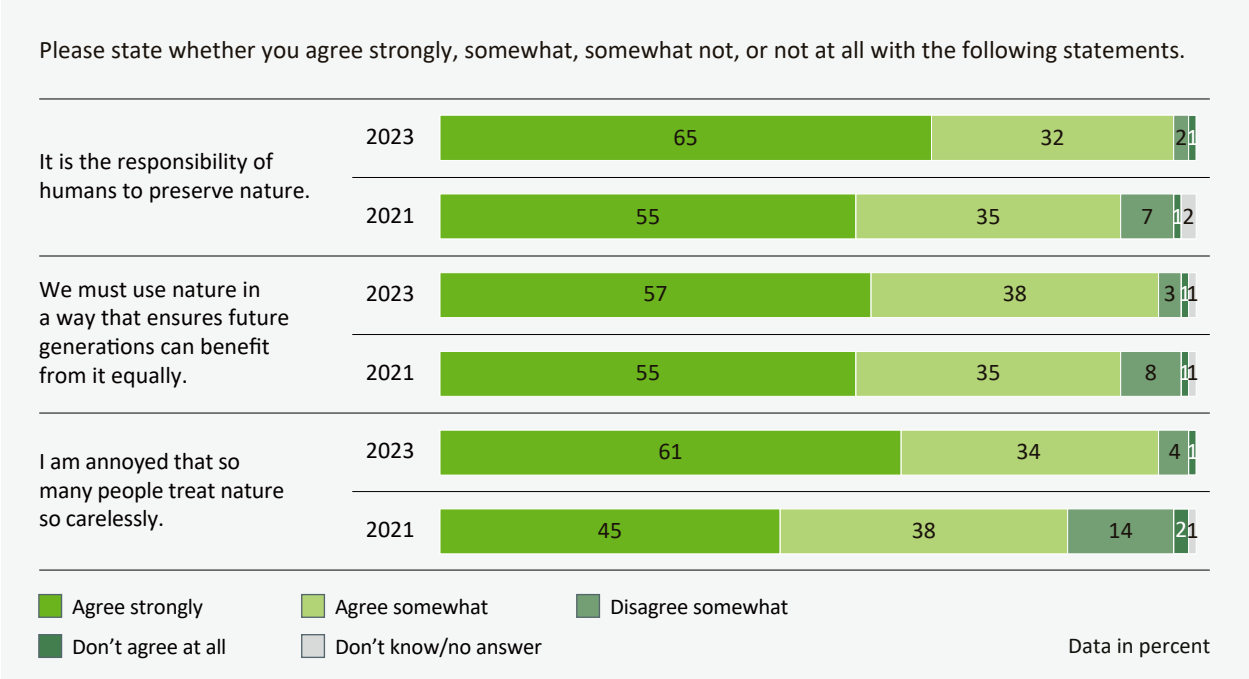


Figure 36: Attitudes towards the endangerment and protection of nature among the adult population compared over time

Ninety-seven percent of adult respondents believe that people have a duty to protect nature (both levels of agreement). Ninety-five percent think that we should only use nature in such a way that this will also be possible to the same extent for future generations and another 95 percent are angry that so many people treat nature so carelessly (see Figure 36).

A comparison over time reveals that the proportion of respondents who agree strongly with the statements on the endangerment of nature and nature conservation has risen significantly. In particular, it is apparent that anger about the careless treatment of nature has increased. In 2021, 45 percent said that they were very angry, while the figure is 61 percent in this present survey. The milieu analysis also shows that the Post-Materialist milieu is most likely to express anger (highest level of agreement: 74 percent), but the level of indignation expressed is also high in all other milieus (see Figure 37). The lowest proportion was measured in the Precarious milieu (highest level of agreement: 48 percent).

Teenagers were also asked to express their attitudes towards the endangerment and protection of nature for the second time after 2021. Compared to the adult survey, there are no significant differences for any of the three statements. Compared over time, however, we notice that anger about the careless treatment of nature has increased among teenagers too – from 50 percent unreserved agreement in 2021 to 57 percent in 2023.

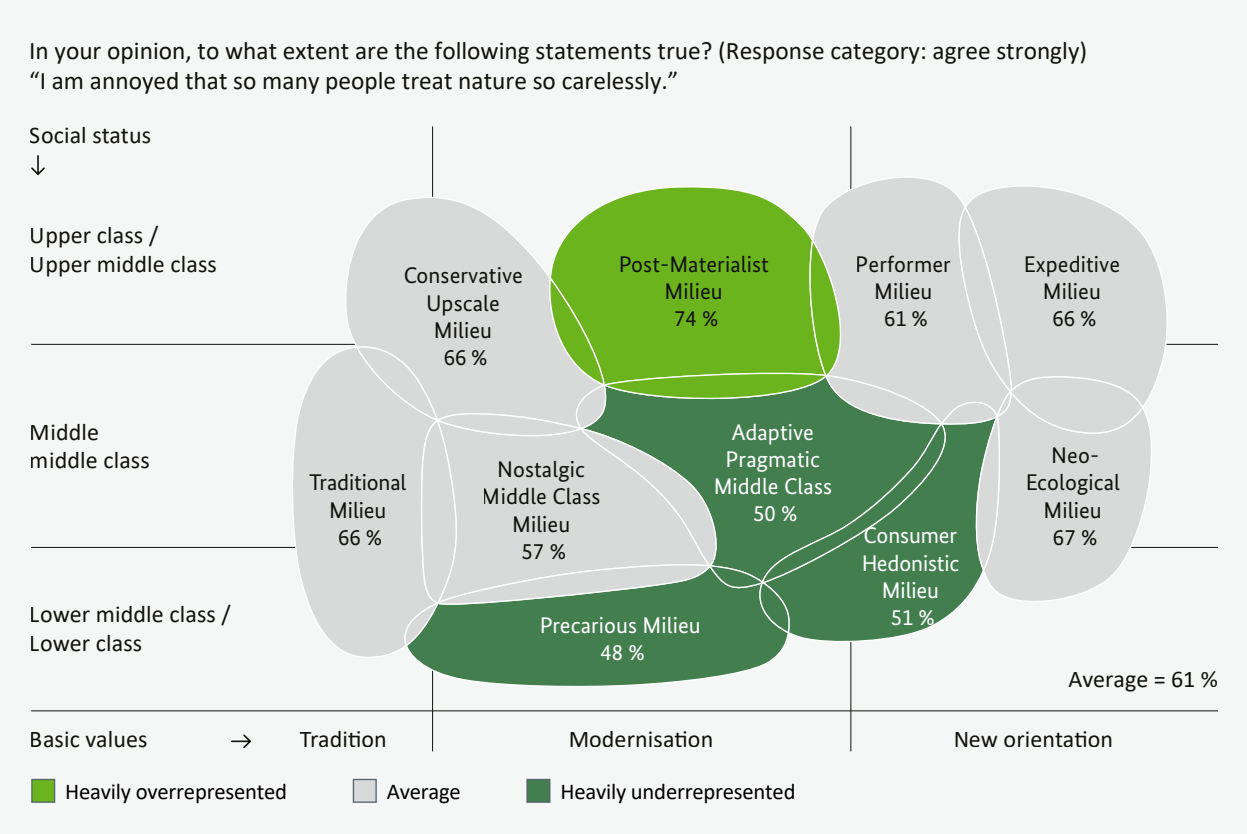


Figure 37: Anger about the careless treatment of nature among adults by milieu

8.2 Collective and personal perceptions of effectiveness

Even given a belief that people are responsible for protecting nature, there is still the question of the extent to which we perceive our own actions to be effective. This question is examined below.

A distinction is made between collective (through joint efforts) and individual (personal) effectiveness.

A clear majority is of the opinion that they can make an active contribution to protecting nature.

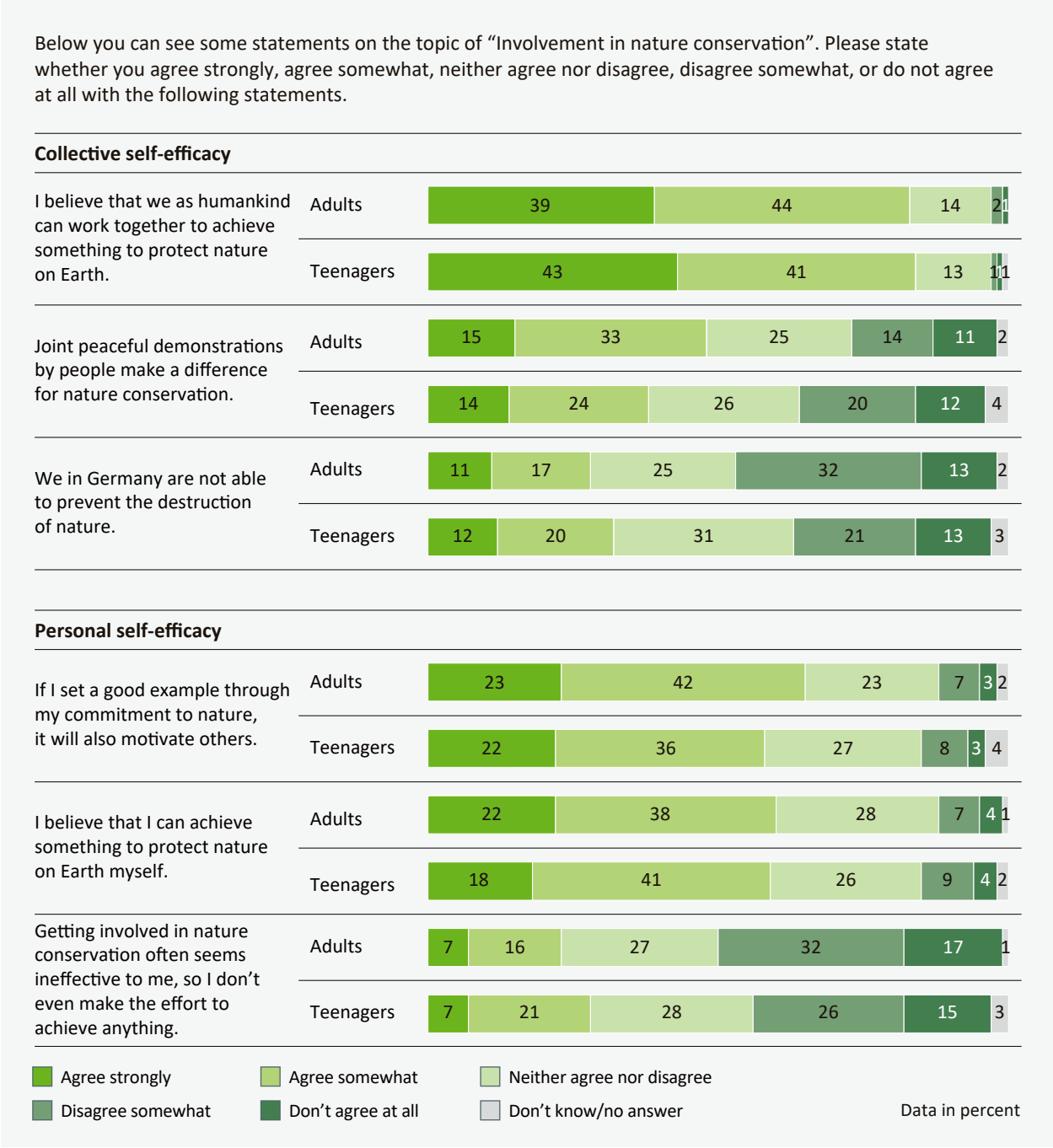


Figure 38: Collective and personal perceptions of effectiveness among adults and teenagers

At 83 percent agreement, the statement that we as people can work together to achieve something to protect nature on Earth met with just as much agreement among adults (both levels of agreement) as in 2017 when this question was asked for the first time (82 percent). Furthermore, in the present survey, 48 percent believe that joint peaceful demonstrations could make a difference for nature conservation. Twenty-eight percent of adults think that we in Germany are not in a position to stop the destruction of nature.

As in previous Nature Awareness Studies, it is again evident that collective effectiveness is rated higher than individual effectiveness (see Figure 38). Nevertheless, 60 percent believe that they can do something themselves to protect nature (both levels of agreement) and 65 percent believe that they can motivate others through their own commitment. By contrast, 23 percent of adults think getting involved in nature conservation often seems ineffective, so they don't even make the effort to achieve anything.

Adults with a high level of formal education and a high income (from 3,500 euros) are most convinced that they can be effective in protecting nature – both in terms of joint efforts and through personal commitment. For example, around two thirds of those with a high level of formal education and in a financially strong position (net household income greater than 3,500 euros) are "strongly" or at least "somewhat" convinced that they themselves can achieve something for nature conservation. This compares to 53 percent in the group with a low level of formal education and 50 percent in the group with a net household income of 1,000 to 1,999 euros.

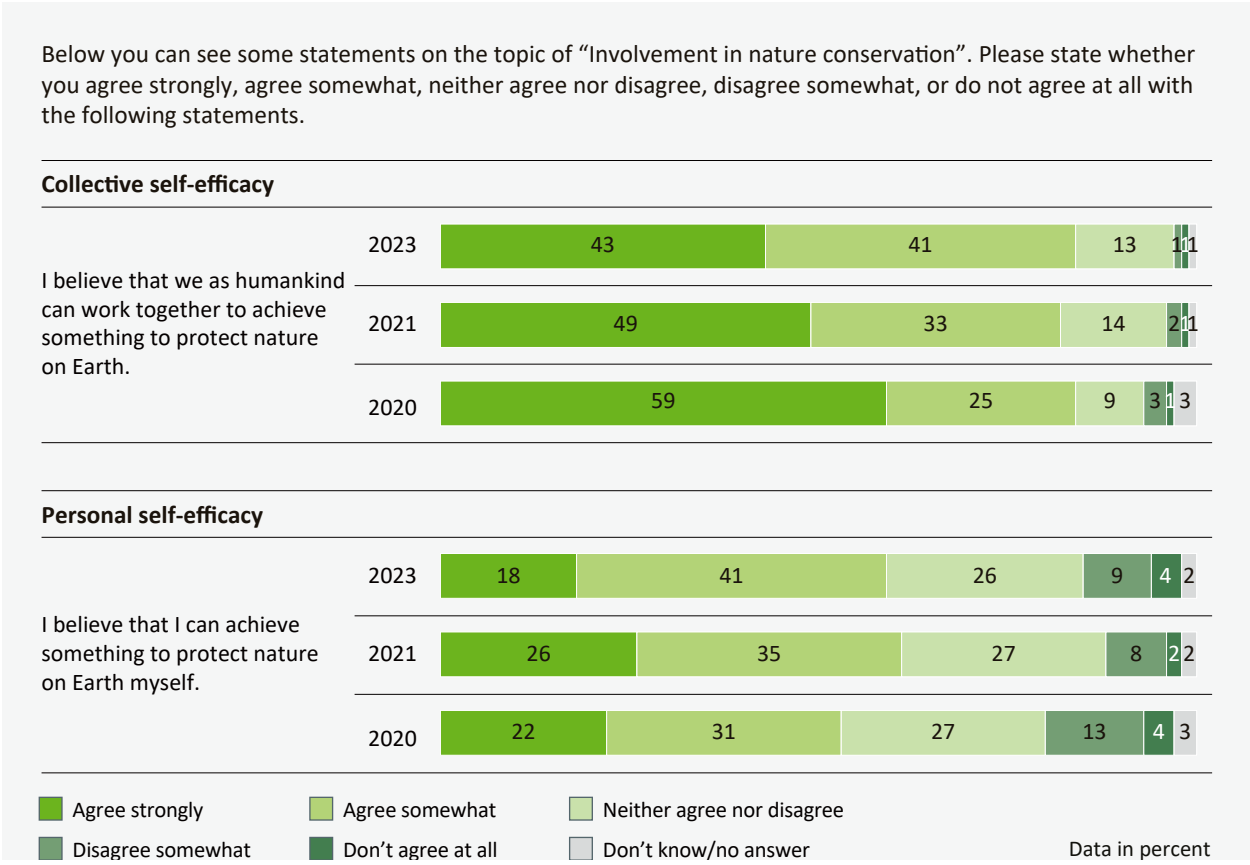


Figure 39: Collective and personal perceptions of effectiveness among teenagers compared over time

Teenagers are less convinced that they can drive nature conservation forward through peaceful demonstrations.

Teenagers and adults are about equally convinced that they can actively contribute towards protecting nature in their private lives and together with others (see Figure 38): 84 percent of 14 to 17 year olds believe that we as humanity can achieve something together to protect nature (adults: 83 percent), and 59 percent believe they can personally achieve something (adults: 60 percent). However, the youth data also shows that unreserved agreement has decreased over time for both statements (see Figure 39). In 2020, 59 percent of teenagers “strongly agreed” that they could improve the protection of nature together with others. In the current survey, the figure is just 43 percent. Given the multiple crises of recent years, it is reasonable to assume that coronavirus, wars, and climate disasters have caused many teenagers to feel powerless, which could have had a negative impact on their perception of self-efficacy.

Another finding is that for two of the six statements surveyed, agreement among teenagers is more cautious than among adults (see Figure 38). While around half of the adult respondents said that joint peaceful demonstrations for nature conservation can make a difference, only 38 percent of 14 to 17 year olds said the same (both levels of agreement). The difference in the extent to which people believe they can motivate others through their own commitment is slightly smaller, but still worth mentioning: In the adult survey, around two thirds agree (65 percent), while the youth survey shows that 58 percent agree.

As with adults, it is primarily teenagers with a high level of formal education who believe they can make an active contribution to protecting nature: In the group of respondents with a high level of formal education, 88 percent agreed strongly or somewhat that we as humankind can work together to achieve something to protect nature (low level of formal education: 67 percent), and 64 percent think they can also make a difference themselves (low level of formal education: 50 percent). It is also noticeable that teenagers in western Germany are much more likely than those in eastern Germany to believe that peaceful demonstrations can make a difference for nature conservation (both levels of agreement, western Germany: 40 percent compared to 26 percent in eastern Germany). The situation is similar with regard to confidence in being able to motivate others through one's own commitment – in western Germany 60 percent are strongly or somewhat convinced, while just 48 percent in eastern Germany are convinced.

In the young lifeworlds of the Precarious and Materialistic Escapists, respondents are least likely to be convinced that they can make an active contribution to protecting nature.

The analysis according to young lifeworlds reveals big differences (see Figure 40): For both collective and personal self-efficacy, it is always the Materialistic Escapists and the Precarious teenagers who are by far the least likely to believe that they can achieve something. For example, only 19 percent of Materialistic Escapists and just 15 percent of Precarious teenagers believe that we can drive nature conservation forward through joint and peaceful demonstrations (both levels of agreement). Confidence levels are significantly higher in the Expeditive (48 percent) and Neo-Ecological (52 percent) lifeworlds.

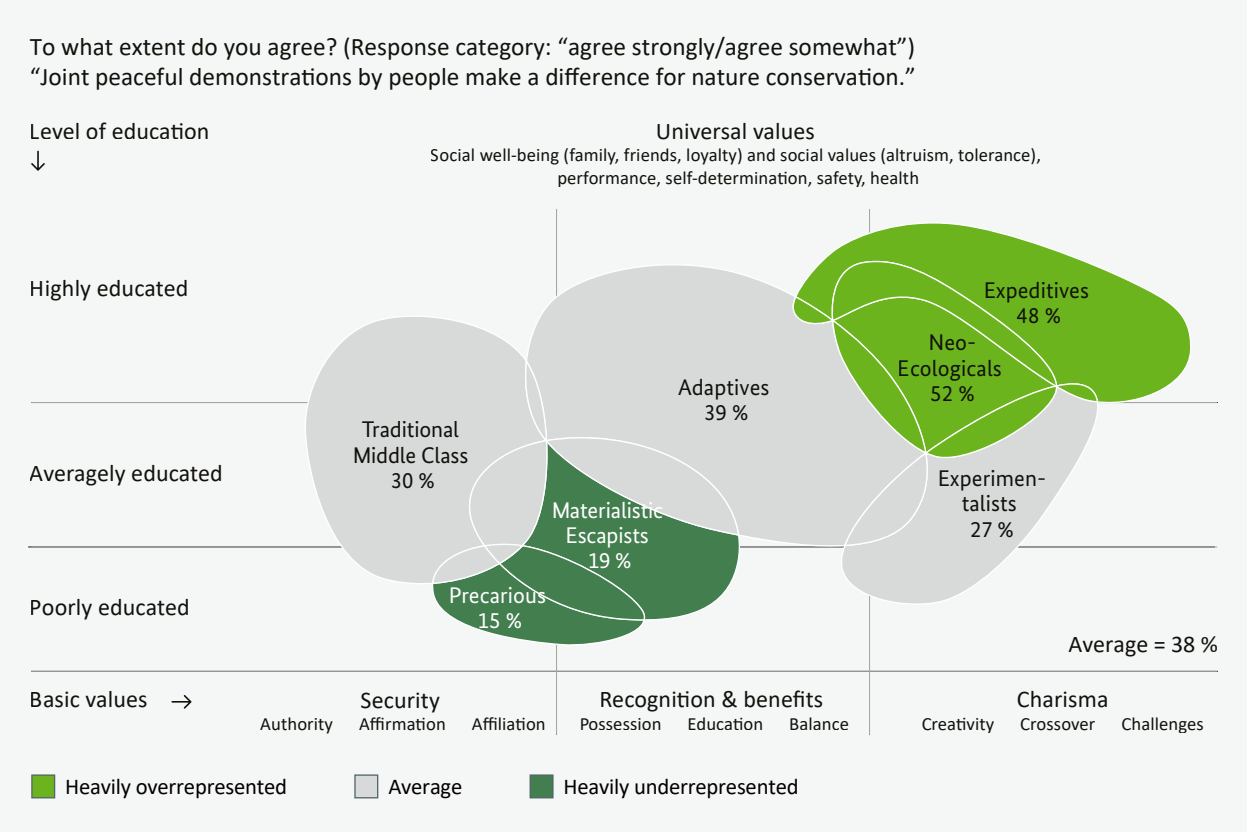


Figure 40: Perception of the effectiveness of demonstrations for nature conservation according to youth lifeworlds

9 Nature conservation in politics and economics

In times of crisis, people's political priorities change. The importance of protecting nature, the environment, and the climate is questioned time and again in this context. In the present Nature Awareness Study, a comparison with the 2021 survey is useful, because a number of crises and conflicts that did not (yet) exist at that time have occurred within the space of two years, such as the war in Ukraine, the war in the Middle East, or the sharp rise in consumer prices and the poor economic forecasts for Germany. These topics dominate the media and, in part, have a direct impact on people's everyday lives. That is why it is important to ask the population about the perceived significance of the protection of nature, the environment, and the climate in the context of political priorities.

9.1 Policy areas ranking: Perceived significance of the protection of nature, the environment, and the climate

In order to examine the importance that the population attaches to the protection of nature, the environment, and the climate in the context of other policy areas, the respondents over the age of 18 – as in the previous survey too – were presented with a list of ten policy areas, of which they were asked to name the three that they considered to be the most important. This question was not asked in the youth survey.

Protecting nature, the environment, and the climate is most frequently counted among the most important political tasks – but for many

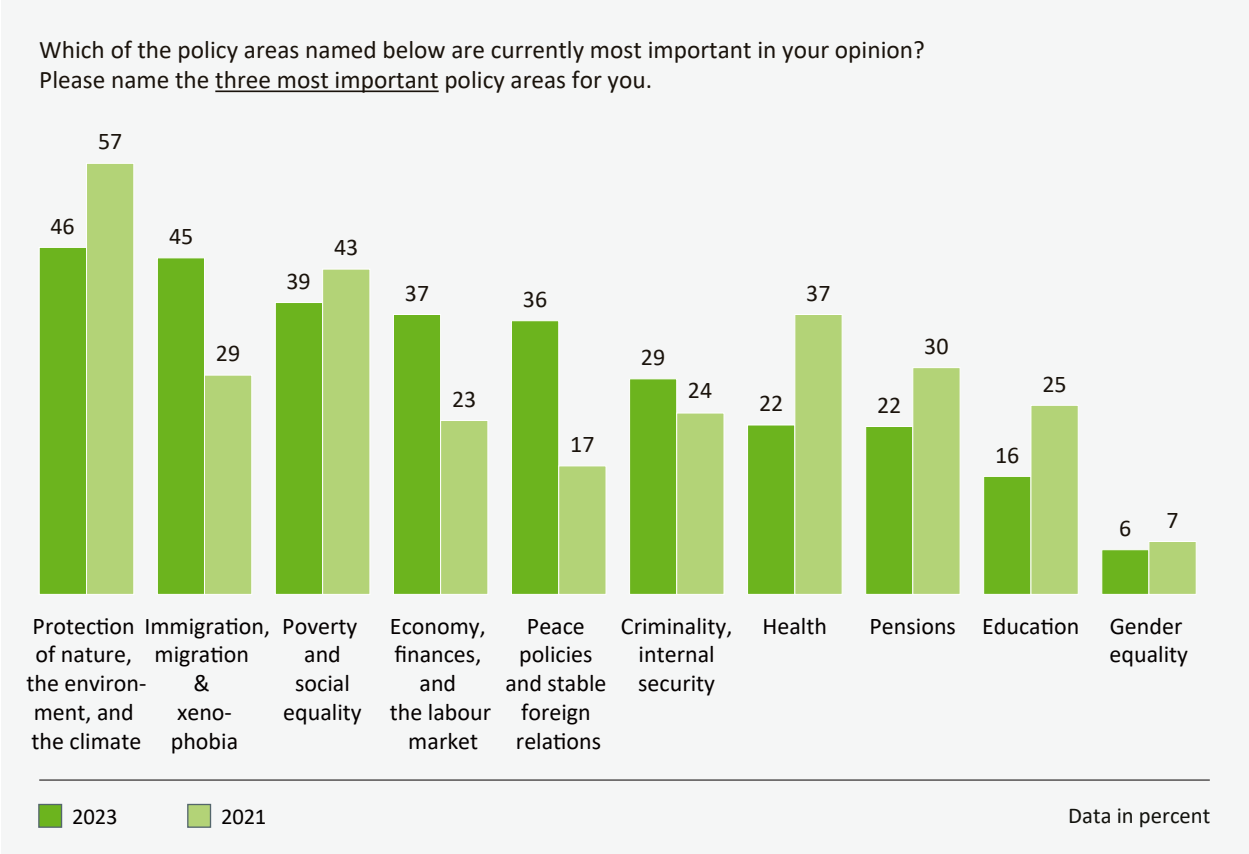


Figure 41: Policy areas ranking: Perceived significance of the protection of nature, the environment, and the climate among adults compared over time

respondents, other issues have become more important.

With 46 percent of mentions, the protection of nature, the environment, and the climate is narrowly the most frequently mentioned among the three most important policy areas. However, in 2021, 57 percent still gave political priority to protecting nature, the environment, and the climate. The second most frequently mentioned policy area is immigration, migration, and xenophobia – with 45 percent of respondents citing it much more frequently than in the previous survey (29 percent).

At 39 percent, the policy area of poverty and social justice is one of the most important political tasks for a similar number of respondents as in 2021 (43 percent). This is followed by two topics that many respondents believe have become more important: Economy, finance, and labour market (37 percent compared to 23 percent in 2021) as well as peace policy and stable foreign relations (36 percent compared to 17 percent in 2021).

All other topics are mentioned by less than 30 percent (see Figure 41). It is worth noting that the areas of health (2023: 22 percent, 2021: 37 percent), pensions (2023: 22 percent, 2021: 39 percent), and education (2023: 16 percent, 2021: 25 percent) are no longer viewed as priorities as often as in 2021.

The big "winners" in a comparison of the two years are therefore the economy, finances, and

Table 6: Policy areas ranking: Perceived significance of the protection of nature, the environment, and the climate among adults by age, education, and income

Which of the policy areas named below are currently most important in your opinion? Please name the three most important policy areas for you.												
Data in percent	Average	Age (years)				Education			Net household income (€)			
		under 29	30–49	50–65	over 65	Low	Average	High	up to 999	1,000–1,999	2,000–3,499	3,500
Protection of nature, the environment, and the climate	46	56	48	49	34	36	47	53	42	32	50	55
Immigration, migration, and xenophobia	45	34	42	50	48	49	45	41	36	49	43	45
Poverty and social equality	39	42	39	40	34	41	40	36	61	43	37	30
Economy, finances, and the labour market	37	36	37	31	43	37	35	38	21	39	41	32
Peace policy and stable foreign relations	36	40	33	37	38	29	33	45	25	32	38	42
Criminality, domestic security	29	19	28	29	34	38	28	21	23	37	27	22
Health	22	22	25	21	22	22	26	21	28	23	21	23
Pensions	22	16	18	22	31	29	24	16	36	29	19	16
Education	16	23	21	11	10	10	16	21	15	11	15	23
Gender equality	6	10	5	7	4	6	5	6	6	3	7	7

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

the labour market (up 14 percentage points), immigration, migration, and xenophobia (up 16 percentage points), but above all peace policy and stable foreign relations (up 19 percentage points). People's political priorities here are clearly focused on current perceptions of crises. The protection of nature, the environment, and the climate is one of the topics that have lost relevance (a drop of 11 percentage points), but is still narrowly most frequently counted among the three most important policy areas.[41] Even in times of massive crises, environmental issues may lose relevance in relative terms, but they are by no means "overlooked"; on the contrary, they remain at the top of the population's political priorities.

Looking at the socio-demographic findings, we see that young adults (18 to 29 year olds: 56 percent) and people with a high level of formal education (53 percent) and a high net household income (2,000 to 3,499 euros: 50 percent, over 3,500 euros: 55 percent), rank the protection of nature, the environment, and the climate among the three most important policy areas more frequently than average (see Table 6). This is also illustrated in the comparison of milieus: Protection of nature, the environment, and the climate is seen as a priority policy area above all in the sustainability-conscious milieu of Post-Materialists (68 percent), among the young trendsetters of the Expeditive milieu (67 percent), and in the progressive milieu of the Neo-Ecologicals (62 percent). In the milieus of the lower social margins (Precarious and Consumer Hedonists), but also in the Traditional and Middle Class milieus (Nostalgic Middle Class, Adaptive Pragmatists), other issues such as immigration, migration, xenophobia or poverty and social justice are often rated as even more important (see Table 7). It is also noticeable that the modern economic elite of the Performer milieu rank the protection of nature, the environment, and the climate among the most important policy areas just as often as the economy, finance, and labour market (51 percent each).

Table 7: Policy areas ranking: Perceived significance of the protection of nature, the environment, and the climate among adults by milieu

Which of the policy areas named below are currently most important in your opinion? Please name the three most important policy areas for you.											
Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonists	Precarious	Nostalgic Middle Class	Traditionalists
Protection of nature, the environment, and the climate	46	49	68	51	67	62	33	34	26	35	33
Immigration, migration, and xenophobia	45	47	45	39	35	42	45	38	60	50	43
Poverty and social equality	39	32	45	31	45	43	36	44	32	41	40
Economy, finances, and the labour market	37	34	27	51	40	34	40	31	46	34	35
Peace policy and stable foreign relations	36	40	42	45	48	42	33	31	15	33	33
Criminality, domestic security	29	30	19	20	7	16	38	30	50	35	37
Health	22	23	19	19	18	22	23	32	19	20	29
Pensions	22	20	12	17	10	16	24	23	37	30	32
Education	16	13	17	17	21	16	15	24	10	17	9
Gender equality	6	9	6	7	6	7	8	6	3	5	4

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

9.2 Nature conservation caught between politics and economics

Around four fifths are in favour of nature conservation receiving sufficient financial support from the state even in times of crisis.

Eighty-three percent of adults (both levels of agreement) are in favour of the state providing sufficient funding for nature conservation even in times of crisis – even in the lowest income group (less than 1,000 euros), three quarters of respondents agree. Furthermore, 64 percent believe that nature conservation plays a positive role for economic development – rising to 75 percent in the group with the highest income (greater than 3,500 euros). However, there are still 39 percent of respondents, who are of the opinion that nature must not be allowed to stand in the way of economic development. People in the over 65s age group (49 percent), respondents with a net household income of 1,000 to 1,999 euros (47 percent), and people with a low level of formal education (45 percent) are most likely to say this.

The comparison with the youth survey does not reveal any major differences either (see Figure 42). However, the youth data shows that teenagers with a high level of formal education are significantly more likely than teenagers with a low level of formal education to agree that the state should provide sufficient funding for nature conservation even in times of crisis (both levels of agreement: low education: 66 percent, medium education: 75 percent, high education: 83 percent). It is also worth noting that teenagers who live in rural areas (less than 20,000 inhabitants) are by far least often of the opinion that nature should not stand in the way of economic development (both levels of agreement: 17 percent, average 33 percent). This is surprising because we might expect that economic development (including the development of jobs and tax revenue for the communities) should be a particular priority in rural areas, which are sometimes considered to be neglected and economically underdeveloped, and that nature would have to be sacrificed in the event of a conflict between the two – for example through commercial settlements or new housing developments, or even by reducing nature con-

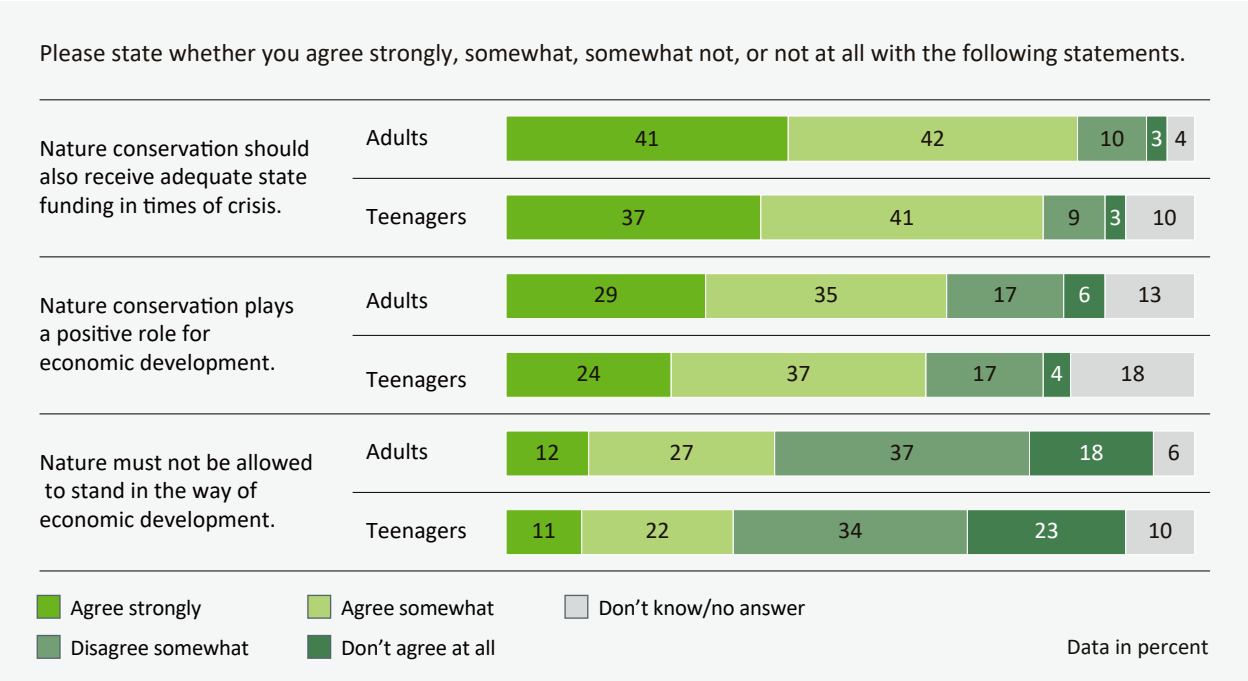


Figure 42: Nature conservation caught between politics and economics – adults and teenagers in comparison

servation requirements for agriculture. But that is obviously not the case: Teenagers in rural areas do not seem to want to prioritise economic development over nature.

The comparison over time is interesting, because it shows that the proportion of those who attribute greater importance to economic development than to nature has increased in the most recent surveys. This is true both of the adult survey (2019: 26 percent, 2021: 33 percent, 2023: 39 percent) and of the youth survey (2019: 19 percent, 2021: 29 percent, 2023: 33 percent). This development deserves particular mention. To counteract it, the synergies and interdependence between the economy and nature should be emphasised in order to break up the – still widespread – idea of a game that can only have one winner ("one thing must take priority: nature or the economy"). The data from the 2023 survey provides a good starting point for this: The statement that nature conservation plays a positive role for economic development is shared by the majority of teenagers and adults.

In the Post-Materialist milieu especially, economic development is only rarely given priority over nature conservation.

Of all milieus, the nature conservation-oriented Post-Materialists are the least likely to think that nature should not stand in the way of economic development (both levels of agreement: 17 percent). Agreement among Expeditives (22 percent) and Neo-Ecologicals (30 percent) is also below average. By contrast, around half of respondents in the Precarious milieu, the Consumer Hedonist milieu, and the modern Middle Class (Adaptive Pragmatists) prioritise economic development over nature (see Figure 43).

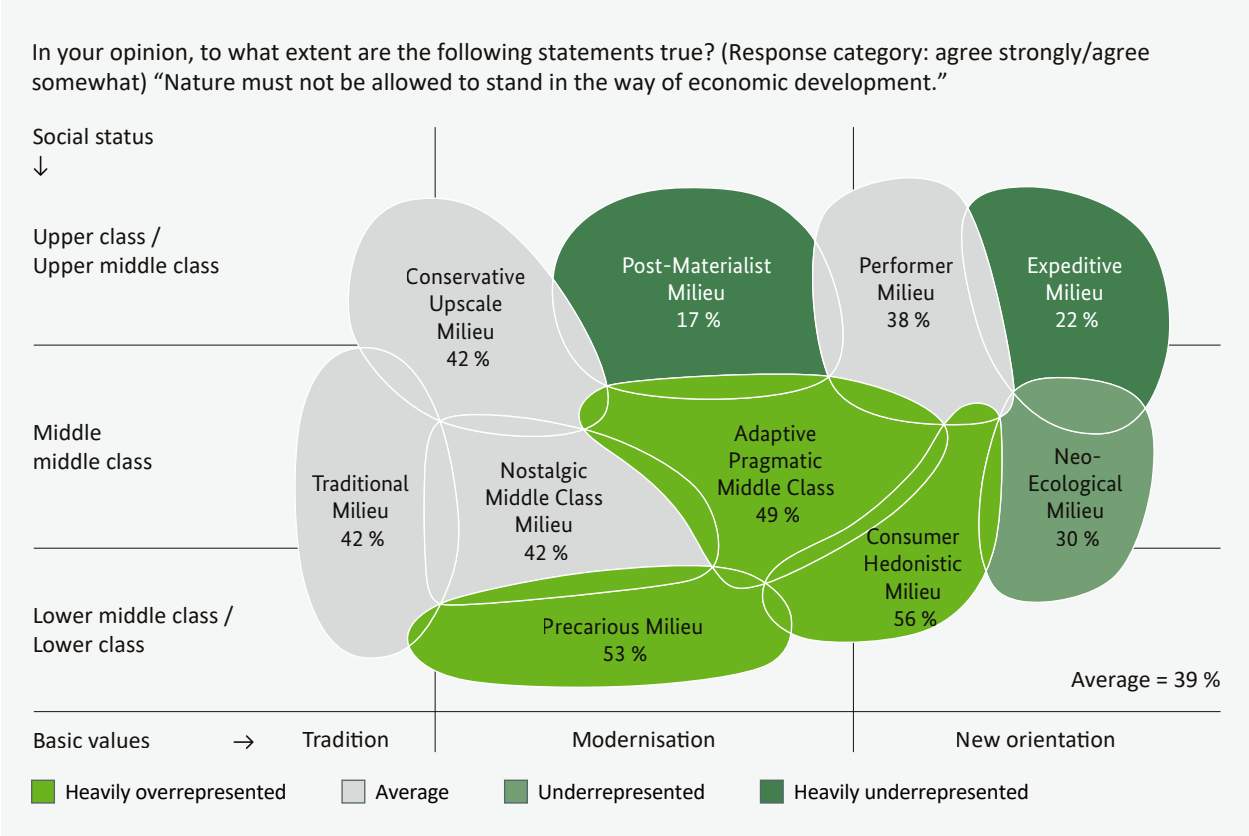


Figure 43: Nature conservation caught between politics and economics – adult population by milieu

10 Energy transition

Given the increasing challenges of climate change and the depletion of conventional energy sources, the energy transition is a decisive response to the urgent need for a sustainable energy supply (see IPCC 2018). Global dependence on fossil fuels not only harbours considerable environmental dangers, but also economic and geopolitical risks, as the war in Ukraine since 2022 has shown. The energy transition offers an opportunity to minimise these risks and at the same time opens up new economic opportunities (see Becker and Lutz 2021 as well as Kahlenborn et al. 2019).

Climate change, which is caused by the emission of greenhouse gases, is one of the main causes of the loss of species diversity and habitats. The energy transition aims to reduce the proportion of fossil fuels and rely more heavily on renewable energies such as solar, wind, and water. Making this switch will reduce greenhouse gas emissions, which will help to slow down climate change and protect the habitats of many animal species and plant life. On the other hand, renewable energy plants can negatively affect (and possibly also endanger) certain species, and indeed nature conservation concerns play an important role in public opposition to the expansion of renewables, especially wind power (see Winkelmann and Birner 2022). It is not always easy to distinguish between the presentation of genuine nature conservation concerns and their populist instrumentalisation or even staging (see Reusswig et al. 2020).

One thing is certain: Support and acceptance by the population is of fundamental importance for the success of the energy transition, as it requires far-reaching changes in energy policy and energy behaviour and at the same time shapes the landscape (see Hübner et al. 2020). That’s why it is so important to take the concerns, opinions, and needs of the population seriously and include them in the political decision-making process. Broad public support can help overcome barriers, drive political initiatives, and accelerate the transition to a sustainable energy supply. Conversely, rejection, resistance, and protests can be indicative of flaws in the design of the energy transition, as is also indicated by current surveys (see Gagné 2024). This Nature Awareness Study – like those before it – asked about attitudes towards the energy transition as well as about people's willingness to support it by changing their own behaviour.

10.1 Agreement with the energy transition

Adult agreement with the energy transition has increased again after a significant decline.

Since 2011, adults have been asked about the attitude towards the energy transition every two years in the Nature Awareness Study. Until 2021, the level of agreement has hovered around 60 percent with minor fluctuations (see Figure 44). In 2021, however, a significant decline was reported for the first time. Only just under half of the respondents were still in favour of the energy transition. In the current measurement, the level of agreement has risen to the previous level again: In 2023, 59 percent of adults think the energy transition is the right thing to do, 26 percent are undecided, and eleven percent are against it.

In the youth survey too, 59 percent stated that they think the energy transition – towards predominantly renewable energies – is the right way to go (see Figure 44). However, the level of agreement has now fallen by seven percentage points since the first youth survey in 2019 (2019: 66 percent, 2021: 64 percent).

We can only speculate here about the reasons for the increase in the level of agreement among adults. But it stands to reason that the war in Ukraine could play a certain role, as the expansion of renewables also serves to reduce Germany's dependence on Russian energy supplies.

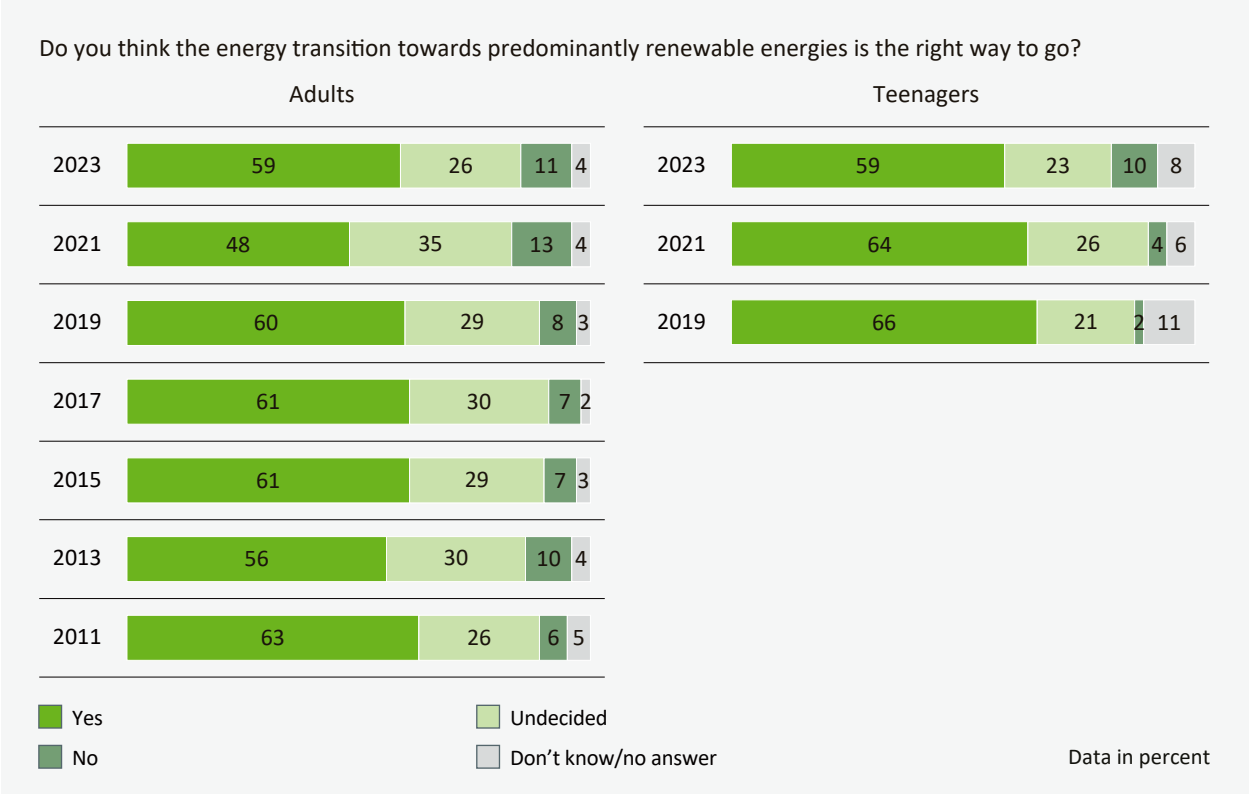


Figure 44: Attitude towards the energy transition – adults and teenagers compared over time

The energy transition is increasingly polarising society.

The socio-demographic analysis reveals significant differences in the response behaviour: Among adults, approval of the energy transition increases with the level of education (low level of education: 47 percent, medium level of education: 58 percent, high level of education: 71 percent) and is above average in the higher income groups (2,000 to 3,499 euros: 66 percent, over 3,500 euros: 65 percent), and is higher in the western German states than in the eastern German states (61 percent compared to 53 percent). Furthermore, the age comparison shows that While the lowest level of agreement came from the oldest group of respondents (over 65 years: 54 percent), the highest level of agreement was measured in the group of 18 to 29 year olds (69 percent).

As with adults, educational effects are also evident among teenagers (low level of education: 42 percent, medium level of education: 46 percent, high level of education: 69 percent), as are east-west differences (western German federal states: 61 percent, eastern German federal states: 50 percent). Furthermore, the comparison of town sizes reveals that while 74 percent of teenagers living in villages and small towns (population under 20,000) were still in favour of the energy transition in 2021, this figure had fallen to 53 percent by 2023. By contrast, the level of agreement among teenagers living in large cities (population over 500,000) is 67 percent (there is no difference here compared to the last survey, which was also 67 percent in 2021).

It is not only in the analysis of socio-demographic characteristics that increased polarisation on the topic of the energy transition is evident. The

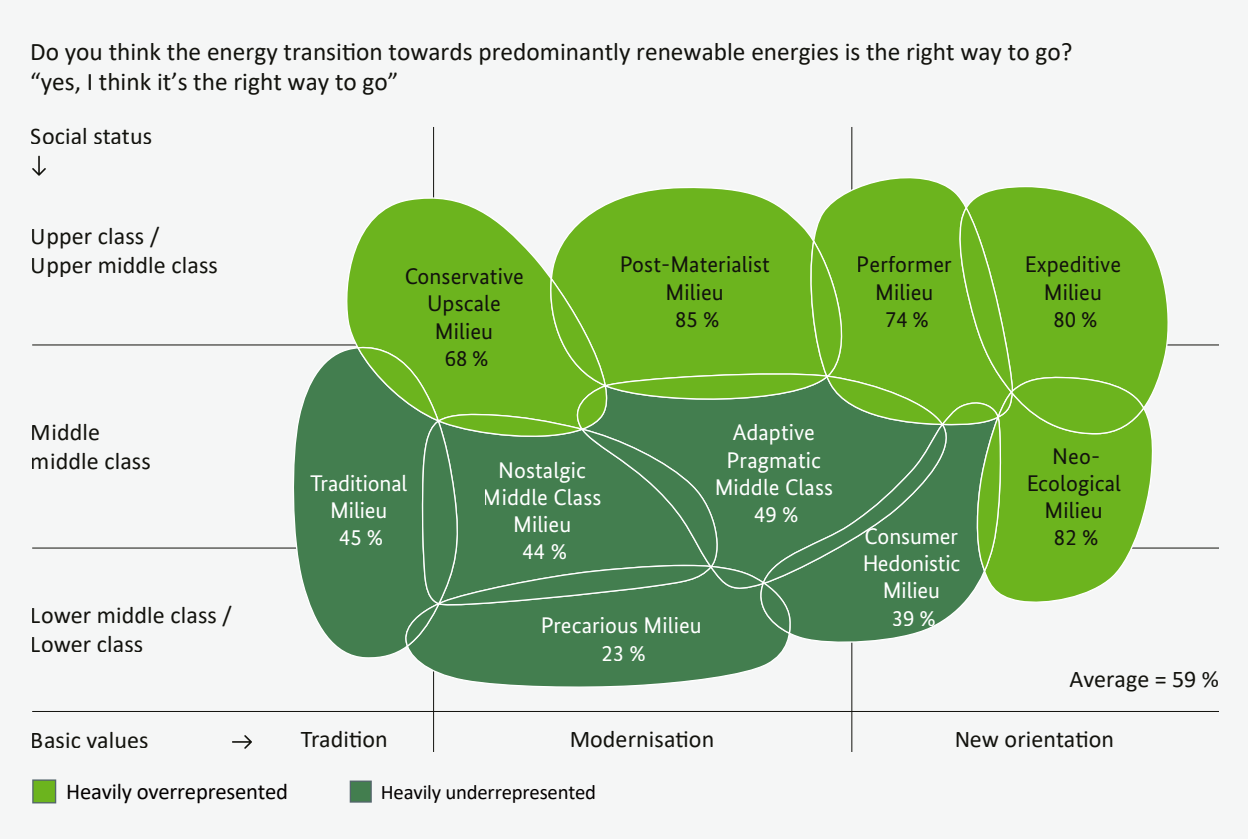


Figure 45: Attitude towards the energy transition among adults by milieu

milieu analysis reveals even greater differences: Particularly among the Post-Materialists (85 percent) and Neo-Ecologicals (82 percent), but also among the Expeditives (80 percent), the Performers (74 percent), and the Conservative Upscale (68 percent), the levels of agreement are significantly above the average of all respondents (59 percent). The levels of agreement for all other milieus are significantly lower. This means that not a single milieu represents the survey average. The levels of agreement are either significantly overrepresented or significantly underrepresented (see Figure 45). The range extends from 23 percent in the Precarious milieu to 85 percent in the Post-Materialist milieu – a difference of 62 percentage points. This increasing polarisation demonstrates that there are doubts and resistance in parts of society, which are evidently increasing the closer the energy transition gets to people's everyday lives.

10.2 Impact of the energy transition on nature, landscape, and biodiversity

Four out of five Germans consider it important to shape the energy transition in an environmentally friendly way.

Since a predominant supply from renewable energies can also have negative impacts on nature, landscape, and biodiversity, the question arises as to how important the population believes it is to shape the energy transition in an environmentally friendly way.

Forty-one percent of adults think shaping the energy transition in an environmentally friendly way is “very important” and a further 39 percent think it is “somewhat important”. Fifteen percent are undecided (“neither agree nor disagree”), and three percent find the environmentally friendly

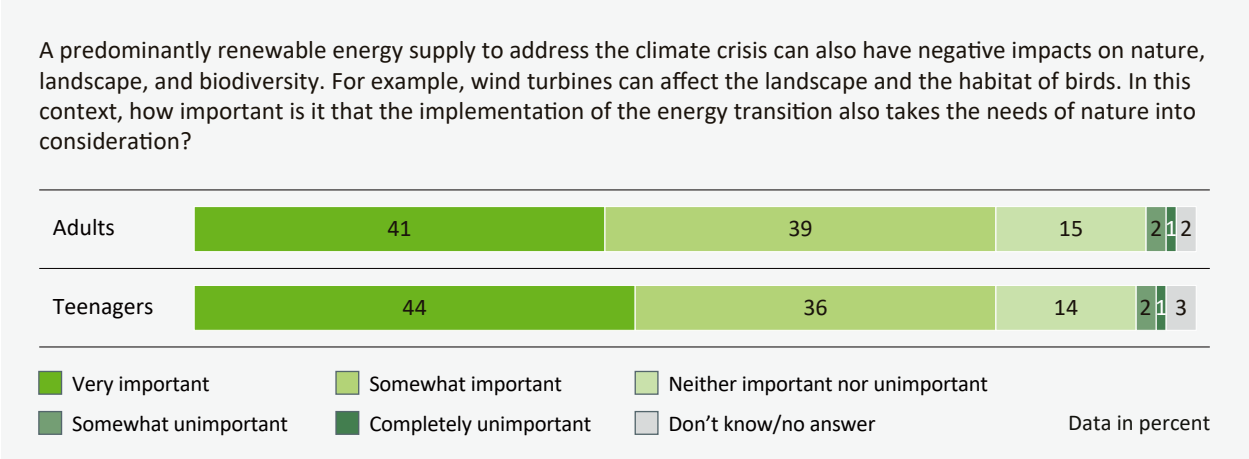


Figure 46: Importance of implementing the energy transition in an environmentally friendly way among adults and teenagers

implementation somewhat unimportant or completely unimportant. Two percent cannot give an answer to this question (see Figure 46).

Compared to the youth survey, no significant differences can be seen: Among 14 to 17 year olds, four out of five respondents are also in favour of shaping the energy transition in an environmentally friendly way ("very important": 44 percent, "somewhat important": 36 percent).

Around three quarters of adults are of the opinion that new wind turbines and solar plants should only be built where they do not disturb animals and plants – four fifths of teenagers say the same.

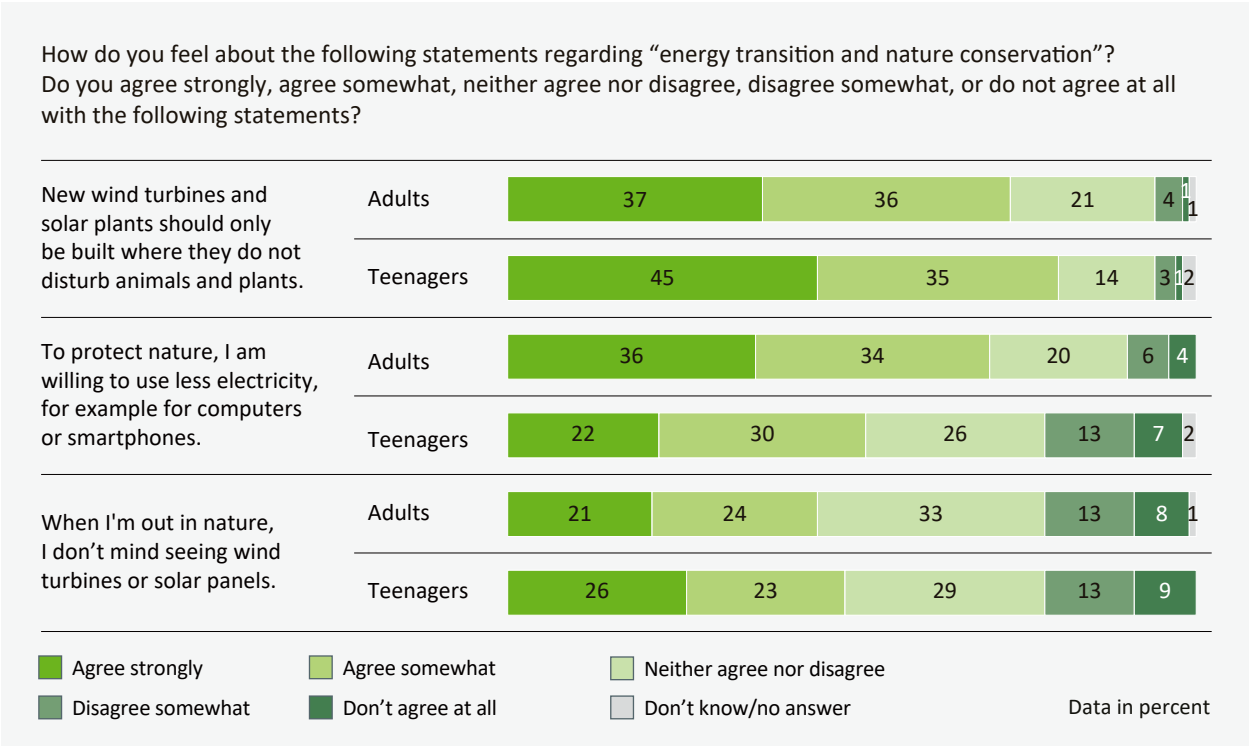


Figure 47: Attitudes towards the expansion of wind turbines and solar installations among adults and teenagers

Seventy-three percent of adults are of the opinion that new wind turbines and solar plants should only be built where they do not have an adverse effect on animals and plants (both levels of agreement). Yet 45 percent say that when they are out in nature, it does not bother them to see wind turbines or solar panels. Furthermore, 70 percent state that they would be willing to use less electricity (for computers or smartphones, for example) in order to protect nature (see Figure 47).

The socio-demographic analysis reveals that in the over-65 age group, only 37 percent say it does not bother them to see wind turbines or solar panels when they are out in nature. In the group of 18 to 29 year olds, however, 55 percent of respondents said this. Adults with a high level of formal education (50 percent) and a high net household income (more than 3,500 euros: 56 percent) are most likely to say that it does not bother them to see wind turbines or solar panels when they are out in nature. The differences in willingness to save electricity (for computers or smartphones, for example) are less pronounced: Women (74 percent, average: 70 percent) and the over-65s (77 percent) show above-average willingness.

Teenagers are more likely than adults to think that new wind turbines and solar plants should only be built where they do not disturb animals and plants (both levels of agreement: 80 percent). Compared to the measurement in 2021, when 14 to 17 year olds were also asked this question, the level of agreement has risen by 19 percentage points (2021: 61 percent). The situation is similar with regard to the willingness to save electricity (for computers and smartphones, for example): Although the willingness to consume less electricity is significantly lower among teenagers than among adults (both levels of agreement: 52 percent compared to 70 percent), it has increased noticeably by twelve percentage points compared to the previous survey (2021: 40 percent).

The socially disadvantaged lifeworlds and middle-class milieus are less willing to save electricity.

The greatest willingness to save electricity comes from the ranks of the Conservative Upscale (78 percent), the Traditionalists (80 percent), the Expeditives (82 percent), and the Post-Materialists (85 percent). In the middle-class milieus (Nostalgic Middle Class: 61 percent, Adaptive Pragmatists: 57 percent) and in the lower-status lifeworlds (Consumer Hedonists: 58 percent, Precarious milieu: 53 percent), the willingness to save electricity is lower (see Figure 48). It should be noted that higher-status milieus consume more electricity on average than lower-status milieus (see Kleinhückelkotten et al. 2016).

In a comparison of youth lifeworlds, the educationally disadvantaged groups of Precarious teenagers (30 percent) and Materialistic Escapists (31 percent) as well as the fun-loving Experimentalists (36 percent) are the least (somewhat) willing to use less electricity (for computers or smartphones, for example). The Expeditives and Neo-Ecologicals express significantly greater willingness: With approval ratings of 66 and 69 percent respectively, the willingness of these youth groups is on a par with the adult population (average: 70 percent).

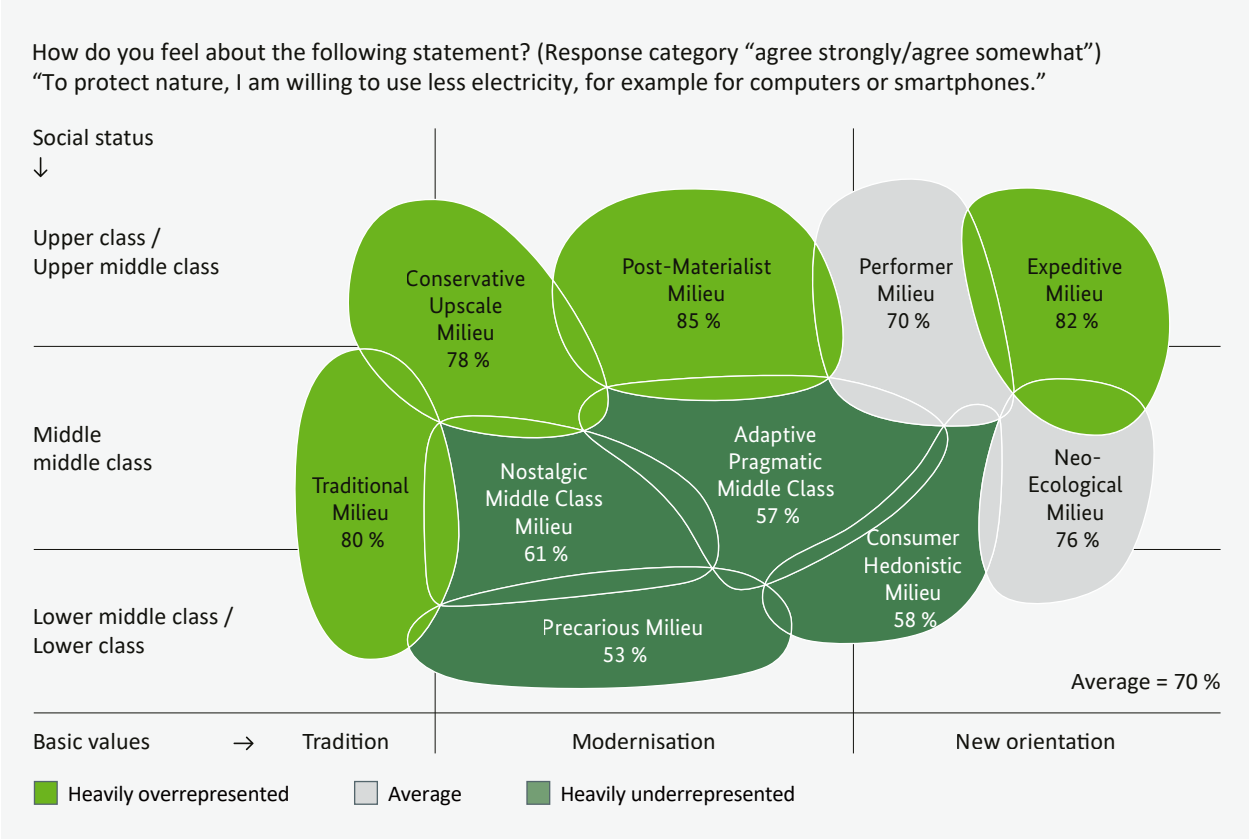


Figure 48: Willingness to consume less electricity among adults by milieu

11 Genetic engineering

For around 20 years, food and animal feed in the EU that contains genetically modified organisms (GMOs), consists of GMOs, or is produced from GMOs has been subject to risk assessment and labelling requirements (see BMEL 2019). The precautionary principle with regard to possible risks to people and nature is therefore taken into account and freedom of choice for consumers is ensured.

Technological progress means that many new genetic engineering methods and applications are being developed. These may result in new impacts, which is why both the continued risk assessment and the broader technology assessment of genetic engineering developments and applications are especially important for nature conservation (see BfN 2022 and BfN 2024).

Society's view of the use of genetic engineering is regularly analysed (in Germany, for example, as part of what is known as the "Genetic Engineering Report", most recently Hampel et al. 2021). Questions on genetic engineering have also been included in the Nature Awareness Studies since 2009. Over the years, this has shown that a large majority of the population is in favour of investigating the effects of genetically engineered plants on nature and extending mandatory labelling to products derived from animals fed with GMOs (see BMU and BfN 2018, BMU and BfN 2020 and BMUV and BfN 2023). Scientific surveys also showed early on that the different attitudes to genetic engineering observed in the population are often differentiated and rational (see Marris 2001). The objectives pursued by using genetic engineering and the techniques used both play a role here (see Pardo et al. 2009). Consequently, discourse about genetic engineering is complex and, in the technology assessment, raises many questions that go beyond risks to health and the environment.

The 2023 Nature Awareness Study picks up on this discourse in the population, both among adults and among teenagers. Before those taking part in the study were asked to answer questions about genetic engineering, they were given introductory explanations about new genetic engineering methods and – specifically for teenagers – the meaning of the term genetic engineering.[42]

11.1 Attitudes towards genetic engineering

The vast majority of the population is in favour of mandatory labelling of genetically engineered foods.

Ninety-four percent of adults "agree strongly" or "agree somewhat" that any food items produced through new genetic engineering methods should always be labelled by retailers (see Figure 49). In the youth survey, 84 percent (teenagers with a low level of formal education) to 91 percent (teenagers with a medium and high level of formal education) of respondents also "agree strongly" or "agree somewhat" with the statement (both levels of agreement, see Table 8).

Adults and teenagers express significant concerns about new methods in genetic engineering.

Ninety-two percent of respondents aged over 18 and 89 percent of 14 to 17 year olds "strongly" or "somewhat" believe that possible effects on nature should always be investigated when plants are genetically modified with new methods. Once again, it is teenagers with a low level of formal education who agree less frequently – although their overall level of agreement is high (78 percent, see Table 8).

Significant concerns about new genetic engineering methods are also reflected in the fact that just

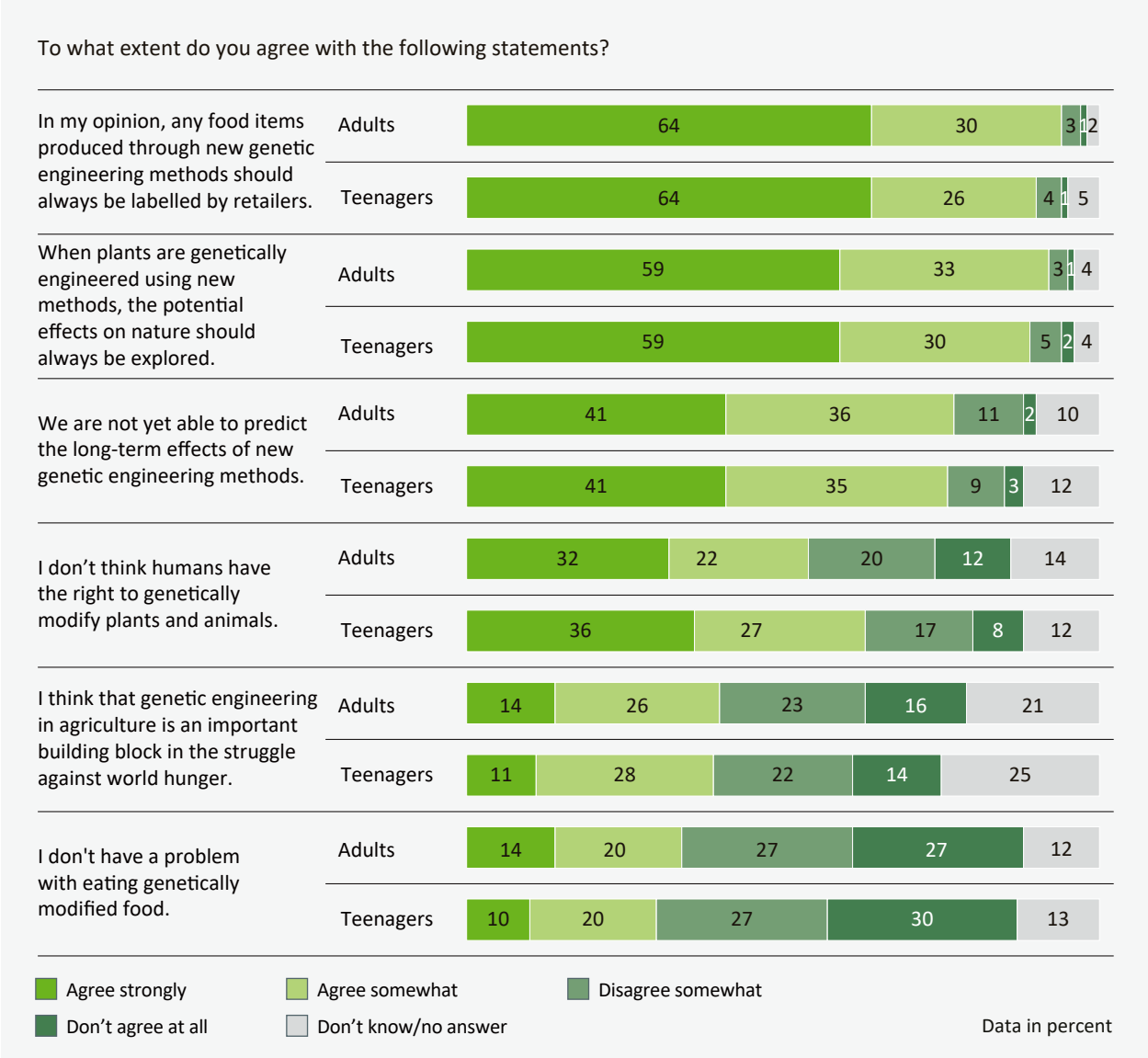


Figure 49: Attitudes of adults and teenagers towards genetic engineering

over three quarters of adults (77 percent) and teenagers (76 percent) "strongly" or "somewhat" believe that the long-term consequences of new genetic engineering methods cannot currently be foreseen. In addition, only 34 percent of adults and 30 percent of teenagers consider eating genetically modified food to be "no problem" or "a somewhat insignificant problem" – the figures are even lower among women (somewhat insignificant/no problem: 28 percent), in the over 65s group (28 percent), and in the low-income groups (up to 999 euros): 26 percent, 1,000 to 1,999 euros: 29 percent).

The majority of respondents expressed ethical reservations against genetic engineering interventions in nature – concerns are highest among teenagers.

Fifty-four percent of adults are "strongly" or "somewhat" of the opinion that people have no right to genetically engineer plants and animals, although those with a high level of education (48 percent) and the 18 to 29 age group (45 percent) are less likely to agree. Ethical concerns are particularly evident in the youth survey, where 63 percent of 14 to 17 year olds "strongly" or

Table 8: Attitudes of teenagers towards genetic engineering, differentiated by level of education

To what extent do you agree with the following statements?				
Response category: "Agree strongly/somewhat" Data in percent	Average	Education		
		Low	Average	High
In my opinion, any food items produced through new genetic engineering methods should always be labelled by retailers.	90	84	91	91
When plants are genetically engineered using new methods, the potential effects on nature should always be explored.	89	78	88	92
We are not yet able to predict the long-term effects of new genetic engineering methods.	76	75	77	76
I don't think humans have the right to genetically modify plants and animals.	63	67	70	59
I think that genetic engineering in agriculture is an important building block in the struggle against world hunger.	39	25	35	44
I don't have a problem with eating genetically modified food.	31	25	25	34

Overrepresented Underrepresented Heavily underrepresented

"somewhat" agree with this statement. Only 40 percent of adults and 39 percent of 14 to 17 year old teenagers "strongly" or "somewhat" agree with the argument that genetic engineering in agriculture is an important building block in the struggle against world hunger.

Ethical reservations are highest among the traditional milieus.

A closer look at the differentiation between the milieus shows that ethical concerns are primarily expressed in the traditional milieus of the Conservative Upscale (both levels of agreement: 62 percent), Nostalgic Middle Class (62 percent), and Traditionalists (63 percent) (see Table 9). But even in more modern lifeworlds, around half of the respondents expressed ethical reservations. Only in the progress-driven Performer milieu are significantly fewer respondents of the opinion that people have no right to genetically engineer plants and animals (37 percent).

Even the argument that genetic engineering in agriculture is an important building block in the struggle against world hunger is viewed differently in the different social milieus. The greatest level of agreement is found in the modern middle (Adaptive Pragmatists: 51 percent), the progressively minded Neo-Ecologicals (50 percent), and the Consumer Hedonists (50 percent). Consumer Hedonists are also by far the most likely to state that they have no problem eating genetically engineered food (53 percent, average: 34 percent).

Table 9: Attitudes towards genetic engineering in the adult population by milieu

To what extent do you agree with the following statements?											
Response category: "Agree strongly/somewhat" Data in percent	Average	Conservative Upscale	Post-Materialists	Performers	Expeditives	Neo-Ecologicals	Adaptive Pragmatic Middle Class	Consumer Hedonists	Precarious	Nostalgic Middle Class	Traditionalists
In my opinion, any food items produced through new genetic engineering methods should always be labelled by retailers.	94	96	98	93	95	98	93	89	88	94	95
When plants are genetically engineered using new methods, the potential effects on nature should always be explored.	92	94	98	94	96	97	87	86	85	94	92
We are not yet able to predict the long-term effects of new genetic engineering methods.	77	81	85	68	74	82	70	77	65	81	79
I don't think humans have the right to genetically modify plants and animals.	54	62	57	37	48	53	48	56	52	62	63
I think that genetic engineering in agriculture is an important building block in the struggle against world hunger.	40	41	41	41	38	50	51	50	29	38	26
I don't have a problem with eating genetically modified food.	34	37	36	38	31	38	40	53	20	30	20

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

12 Biodiversity

The term “biological diversity” – or also “biodiversity” – encompasses the diversity of animal species and plant life, the diversity of ecosystems and habitats, as well as genetic diversity. Maintaining biodiversity and protecting it against damage or even destruction is a core task of nature conservation. The central policy document that regulates the safeguarding of the diversity of life at international level is the United Nations Convention on Biological Diversity (CBD). In this Convention, ratified in 1992 in Rio de Janeiro, all member states undertook to develop strategies at national level for the conservation and sustainable use of biodiversity.

Germany fulfilled this obligation with the National Strategy for Biodiversity (NBS) in 2007 (see BMU 2007). This clearly states the objective of creating awareness in society of the importance of biodiversity and of increasing people's willingness to take action to protect biodiversity (see BMU 2007, p. 60 et seq.). Information on the level of fulfilment of these objectives is provided in the “societal indicator of biodiversity”, which, according to the NBS, must be regularly recorded and evaluated (see Ackermann et al. 2013). The data used to calculate this societal indicator is collected every two years as part of the Nature Awareness Studies.

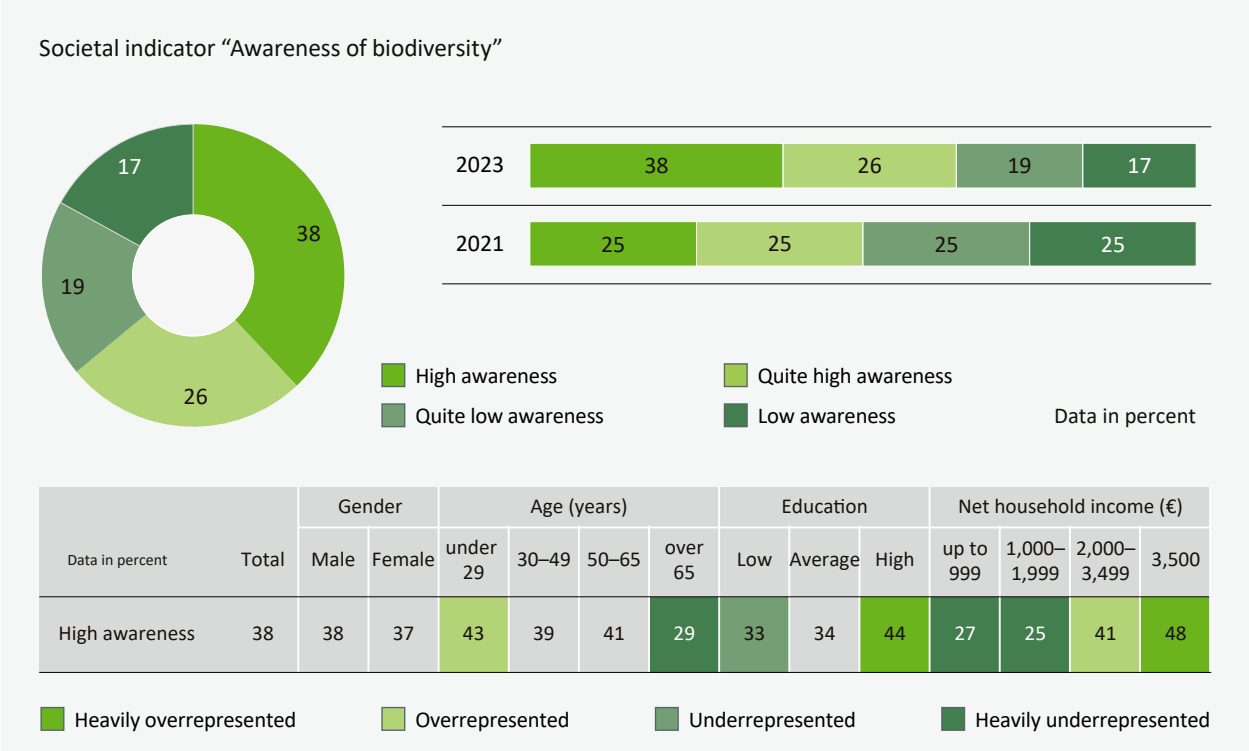
The societal indicator, which has been used since 2009, was revised in 2020/2021 in a research project led by Prof. Dr Sebastian Bamberg (Bielefeld University of Applied Sciences) to include a broader spectrum of variables relevant to environmental behaviour (for the reason behind the revision, see Hoppe et al. 2019). In the 2021 Nature Awareness Study, the new societal indicator was surveyed for the first time. This chapter presents the newly developed indicator for the 2023 survey, including the empirical findings of the questions used as the basis for calculating the indicator.

The indicator was developed for the adult population in terms of content and level of complexity and can therefore not be calculated for teenagers.

12.1 Awareness of biodiversity – the societal indicator

For the empirical recording of the new societal indicator, Bamberg et al. (2023) developed and tested a set of 33 questions. Based on criteria relating to content and methods, 17 questions were developed to measure six psychological factors, which are significant in explaining nature-friendly and environmentally friendly behaviour (predictor variables): Attachment to nature, problem awareness, connectedness with groups working to protect biodiversity (social identity), perception of environmentally friendly behaviour as a social norm, attitudes towards environmentally friendly behaviour, and perceived behavioural control.

Another 16 questions were used to measure four facets of environmentally friendly behavioural intentions: willingness to make lifestyle changes, willingness to make private behavioural changes, willingness to take collective action, and willingness to pay to protect nature. All in all, the new societal indicator thus consists of ten psychological factors that can be combined into a single overall index value. The index value formed per person is based on the sum of the mean values of the psychological factors, weighted by the standardised factor loadings.[43] Here, the higher the index value, the more likely it can be assumed that there is a strong awareness of biodiversity.



Data in percent	Total	Gender		Age (years)				Education			Net household income (€)			
		Male	Female	under 29	30–49	50–65	over 65	Low	Average	High	up to 999	1,000–1,999	2,000–3,499	3,500
High awareness	38	38	37	43	39	41	29	33	34	44	27	25	41	48

Heavily overrepresented | Overrepresented | Underrepresented | Heavily underrepresented

Figure 50: Societal indicator “Awareness of biodiversity” – adult population by socio-demography and compared over time

The new societal indicator was surveyed for the first time as part of the 2021 Nature Awareness Study. Three thresholds were calculated, dividing the sample of respondents into four equally sized groups (quartiles). The fourth group (the top quartile) includes the 25 percent of respondents with the highest index value and therefore with the highest awareness of biodiversity. This 25 percent share of respondents with a high level of awareness of biodiversity was established as an empirical calibration value. The current survey has now analysed the extent to which the proportion of the population with a high level of awareness of biodiversity has changed compared to the initial survey in 2021.

Societal awareness of biodiversity has increased.

Figure 50 presents the results of the new societal indicator. According to this, 38 percent of (adult) Germans have a high awareness of biodiversity. This is an increase of 13 percentage points compared to the first measurement. The proportion of respondents for whom a “quite high” level of awareness was measured has remained almost constant compared to 2021 (2023: 26 percent, 2021: 25 percent). By contrast, the number of those with a “quite low” or “low” level of awareness has fallen significantly (2023: 36 percent, 2021: 50 percent).

In the socio-demographic analysis, we see a high awareness of biodiversity in particular in the groups of respondents with a high level of formal education (44 percent) and a high net household income (above 3,500 euros: 48 percent). The age comparison is also revealing (see Figure 50):

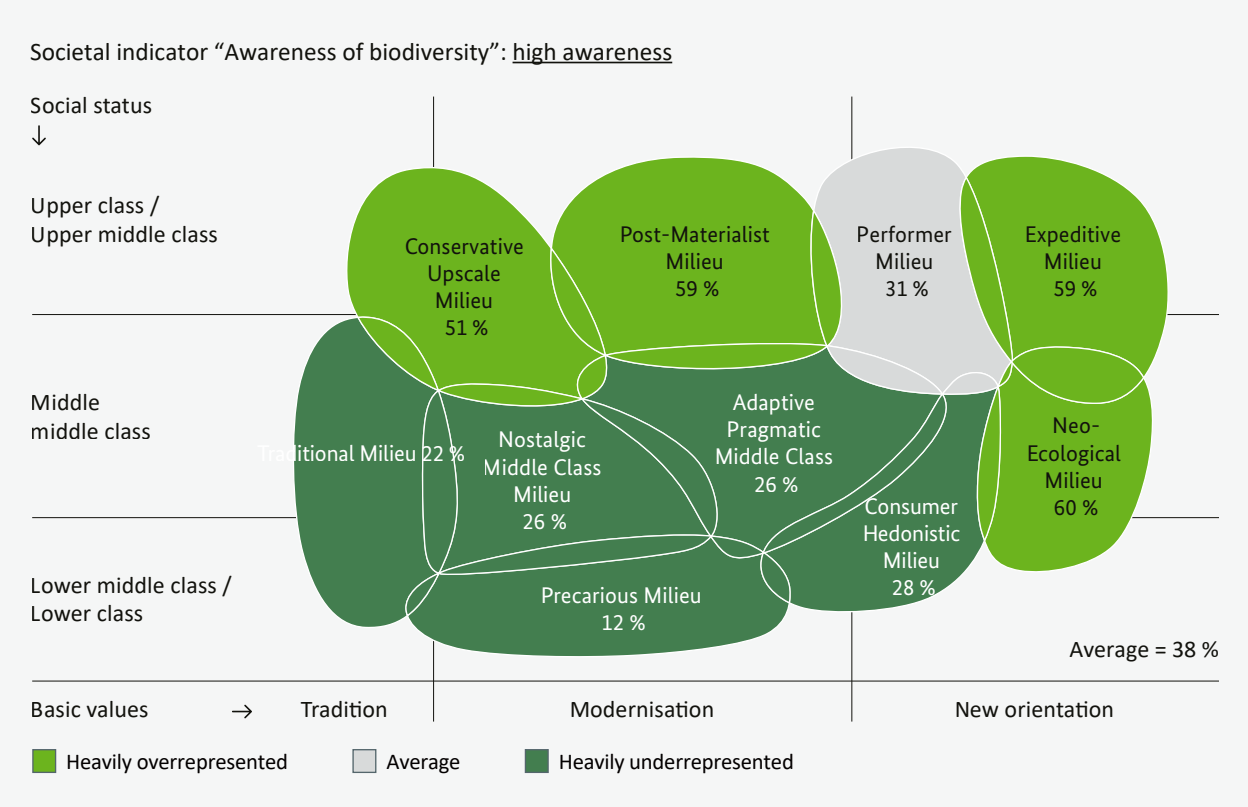


Figure 51: Societal indicator “Awareness of biodiversity” – adult population by milieu

While young adults have an above-average level of awareness of biodiversity (18 to 29 year olds: 43 percent), awareness is below average in the oldest group of respondents (over 65s: 29 percent).

There is a much bigger difference between the social milieus than in the socio-demographic comparison (see Figure 51): In the Neo-Ecological (60 percent), Post-Materialist (59 percent), Expeditive (59 percent), and Conservative Upscale (51 percent) lifeworlds, more than half of those in each milieu have a high level of awareness of biodiversity. This is significantly lower among Consumer Hedonists (28 percent), the middle milieus (Adaptive Pragmatists and Nostalgic Middle Class: 26 percent respectively), Traditionalists (22 percent), and the Precarious lifeworld (12 percent).

For a closer look at the individual factors used for the calculation of the societal indicator, the survey results for all ten psychological factors are presented below with a comparison of the results from 2021 and 2023. Teenagers were also asked individual questions. In these cases, the results of the youth survey are presented alongside the results of the adult survey.

12.2 Awareness of biodiversity in the individual psychological factors

Connection with nature:
More than three quarters of adults feel connected to nature.

Seventy-seven percent of adults and 69 percent of teenagers feel connected to nature (both levels of agreement). Seventy percent of adults see themselves as part of nature and 50 percent say they feel connected to something greater when in nature. Compared to the first measurement in

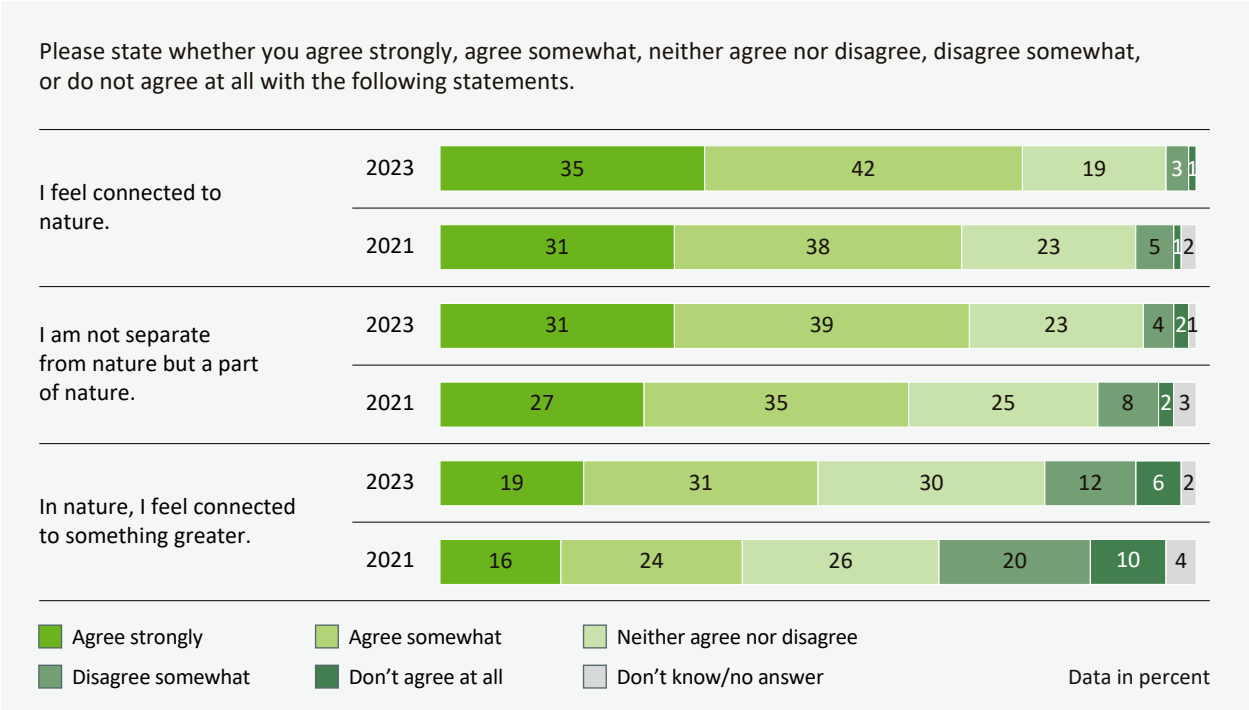


Figure 52: Attachment to nature among the adult population compared over time

2021, adults' agreement with all three statements has increased significantly (see Figure 52).

Problem awareness:
Around four out of five respondents believe that by destroying biodiversity, humankind is endangering its means of existence.

Eighty-three percent of adults and 81 percent of teenagers are aware that biodiversity on Earth is declining (both levels of agreement). In addition, 82 percent of adults believe that by destroying biodiversity, humankind is endangering its means of existence. In addition, 77 percent of adults and 81 percent of teenagers believe that our lifestyle is contributing to the degradation of biodiversity in other countries. When compared over time, we can see an increase in problem awareness among the adult population: For all three statements, the number of those who strongly or at least somewhat agree has risen (see Figure 53).

Social identity:
Four out of ten adults feel connected to groups that are actively working to protect biodiversity.

Forty-five percent of adults state that they have a lot in common with people who actively work in groups for the sustainable use of nature and resources (both levels of agreement). Forty-two percent feel a connection with groups that are actively involved in protecting biodiversity, and 38 percent say that intensive contact with groups that are actively involved in nature and biodiversity conservation corresponds to their own interests and wishes. Compared to the previous survey, agreement with all three statements has increased noticeably (see Figure 54) – this applies in particular to the statement that they have a lot in common with people who are collectively committed to the sustainable use of nature and resources (2021: 23 percent, 2023: 45 percent).

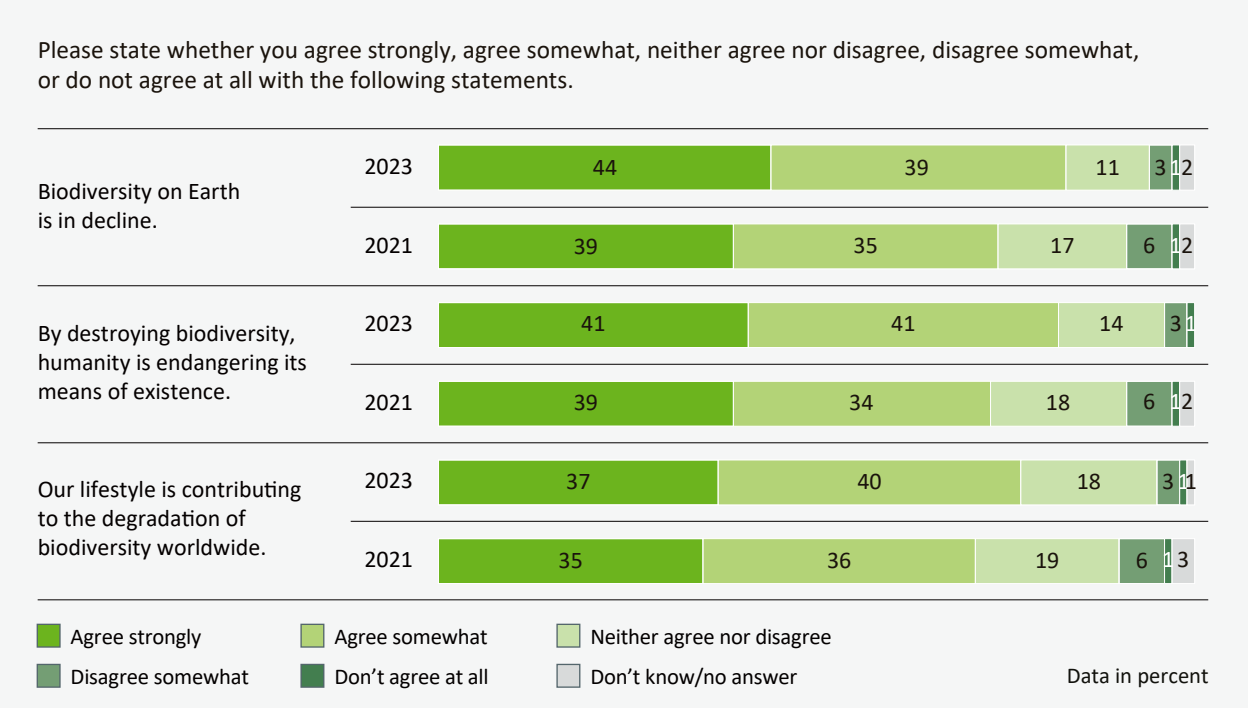


Figure 53: Problem awareness among the adult population compared over time

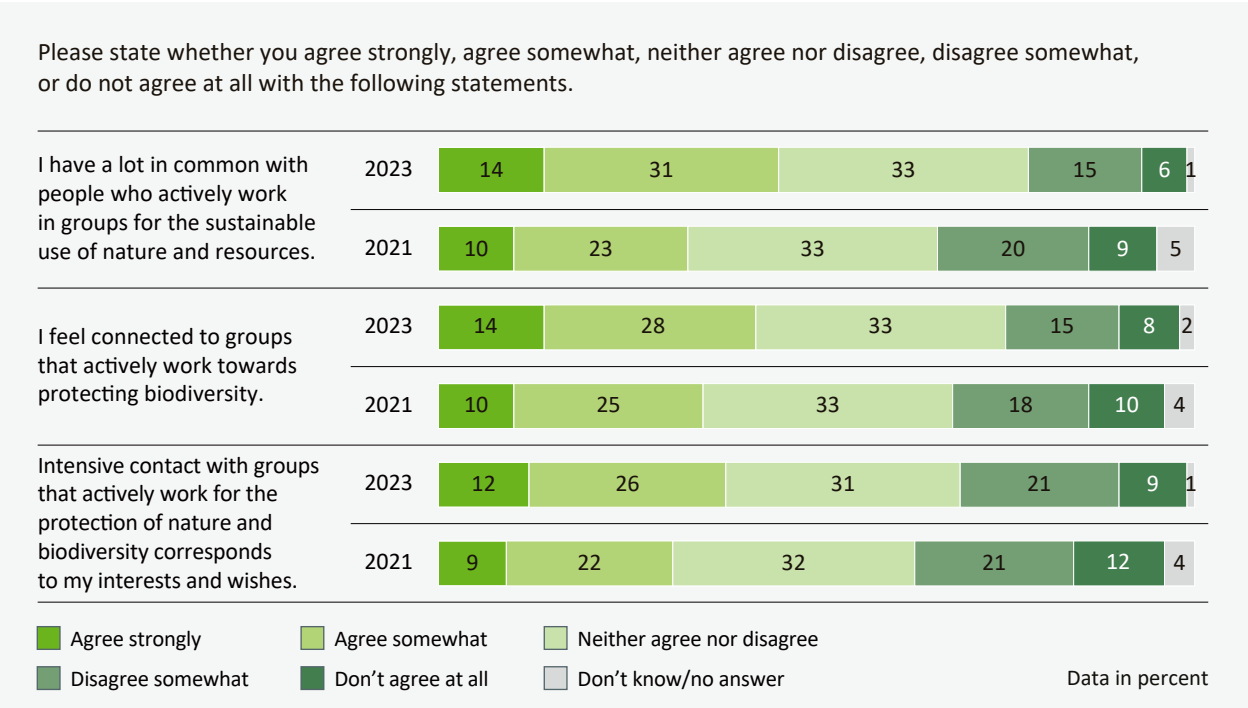


Figure 54: Connectedness of the adult population with groups working for the protection of biodiversity, compared over time

Descriptive social norm:
Almost one in two adults state that they are surrounded by people in their immediate personal environment who prefer environmentally friendly products when shopping.

Fifty percent of adults state that the people important to them do their everyday journeys (for example to work or for shopping) mainly on foot or by bike (both levels of agreement). Furthermore, 47 percent say they are surrounded by people who prefer to buy naturally produced products when they shop. In addition, 44 percent say that these people are (also) willing to pay more for products produced in an environmentally friendly way.

Agreement with these statements too is higher in 2023 than in 2021 (see Figure 55). The biggest difference can be seen in the question on mobility behaviour: In 2021, 34 percent stated that the people important to them do their everyday journeys mainly on foot or by bike. In the current survey, almost one in two people say this.

Attitudes towards environmentally friendly behaviour:
Just over three quarters of adults say that, when shopping, they give preference to products that are produced in an environmentally friendly way.

Eighty-three percent of adult respondents find it good or somewhat good to do everyday journeys mainly on foot or by bike (both levels of agreement). Seventy-seven percent say that, when shopping, they give preference to products that are produced in an environmentally friendly way. On the other hand, far fewer people think it is very or somewhat good to pay more for such products (41 percent, see Figure 56).

Compared to the previous survey, the proportion of those in favour of walking or cycling more often has increased considerably (2021: 59 percent, 2023: 83 percent). The proportion of those who (tend to) prefer environmentally friendly products when shopping has increased by slightly less, but still significantly (2021: 66 percent, 2023: 77 percent). However: Slightly fewer adults are in favour of paying more for such products in 2023 (41 percent) than in 2021 (47 percent).

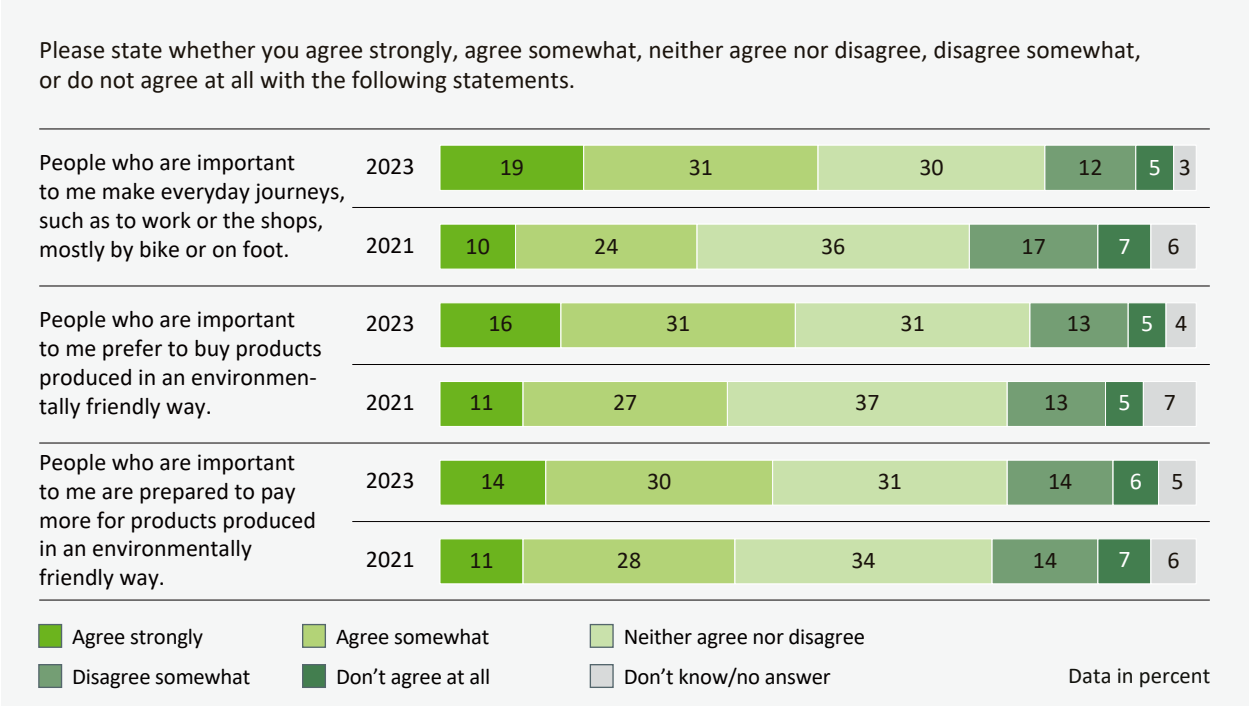


Figure 55: Descriptive social norm among the adult population compared over time

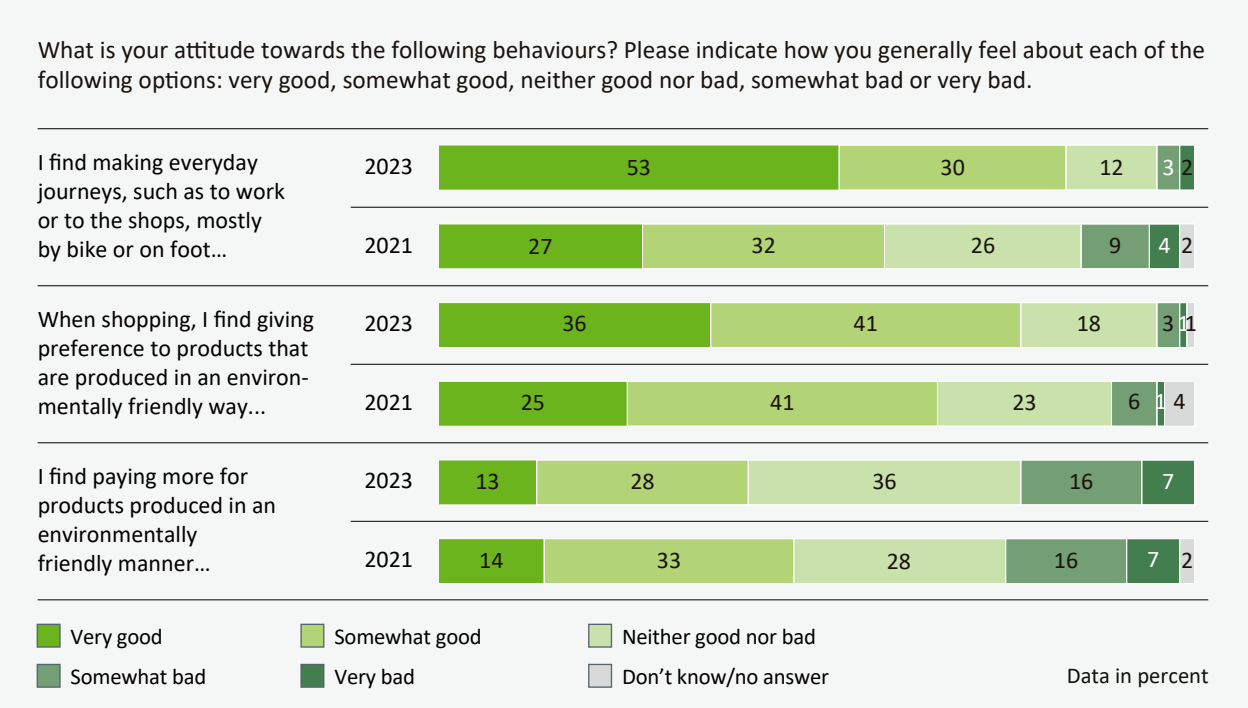


Figure 56: Attitudes towards environmentally friendly behaviour among the adult population compared over time

Perceived behavioural control:
Less than a third of adults find it (somewhat) easy to pay more for products produced in an environmentally friendly manner.

Fifty-eight percent of adults personally find it very easy or somewhat easy to give preference to products produced in an environmentally friendly way when shopping – which is more than in 2021 (47 percent, see Figure 57). However, only 30 percent find it (somewhat) easy to pay a premium for such products – and that is also slightly less than in 2021 (36 percent).

Willingness to make lifestyle changes:
In large parts of the population, there is a fundamentally high willingness to make behavioural changes aimed at a change in lifestyle.

Eighty-six percent of adults are very or somewhat willing to change brands of cosmetics or toiletries if they find out that their production is hazardous to biodiversity. In each case, around four fifths declare their willingness to buy more organically produced food and to live more sparingly so that future generations can continue to enjoy the diversity and richness of nature. When shopping, 77 percent can imagine using a guide that provides information about endangered fish species, for example.

Compared to the 2021 survey, all of the surveyed levels of willingness are higher (see Figure 58). The greatest increase was seen in the willingness to use a guide when shopping. In 2021, 63 percent of adults could see themselves doing this, and in the current survey the figure is 77 percent.

Willingness to make private behavioural changes:
The basic willingness to make private behavioural changes is high among both adults and teenagers.

Nine out of ten adults can see themselves choosing the environmentally friendly behavioural alternative in everyday life, because the next generation has a right to an intact nature. Eighty-five percent of adults and 77 percent of teenagers are very or somewhat willing to learn about current developments in the field of biodiversity.

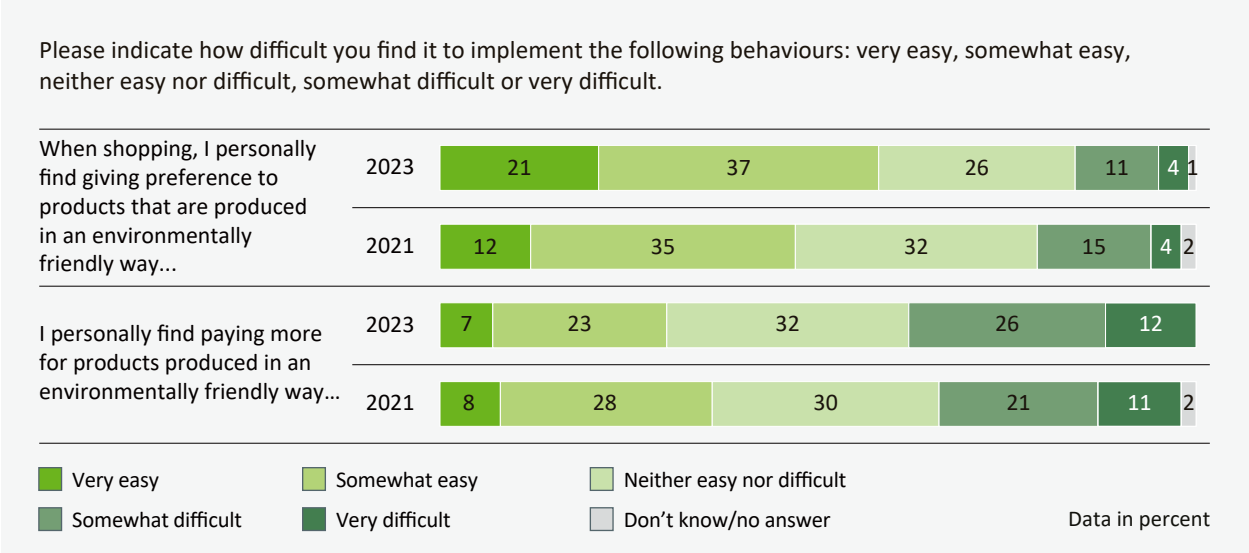


Figure 57: Perceived behavioural control among the adult population compared over time

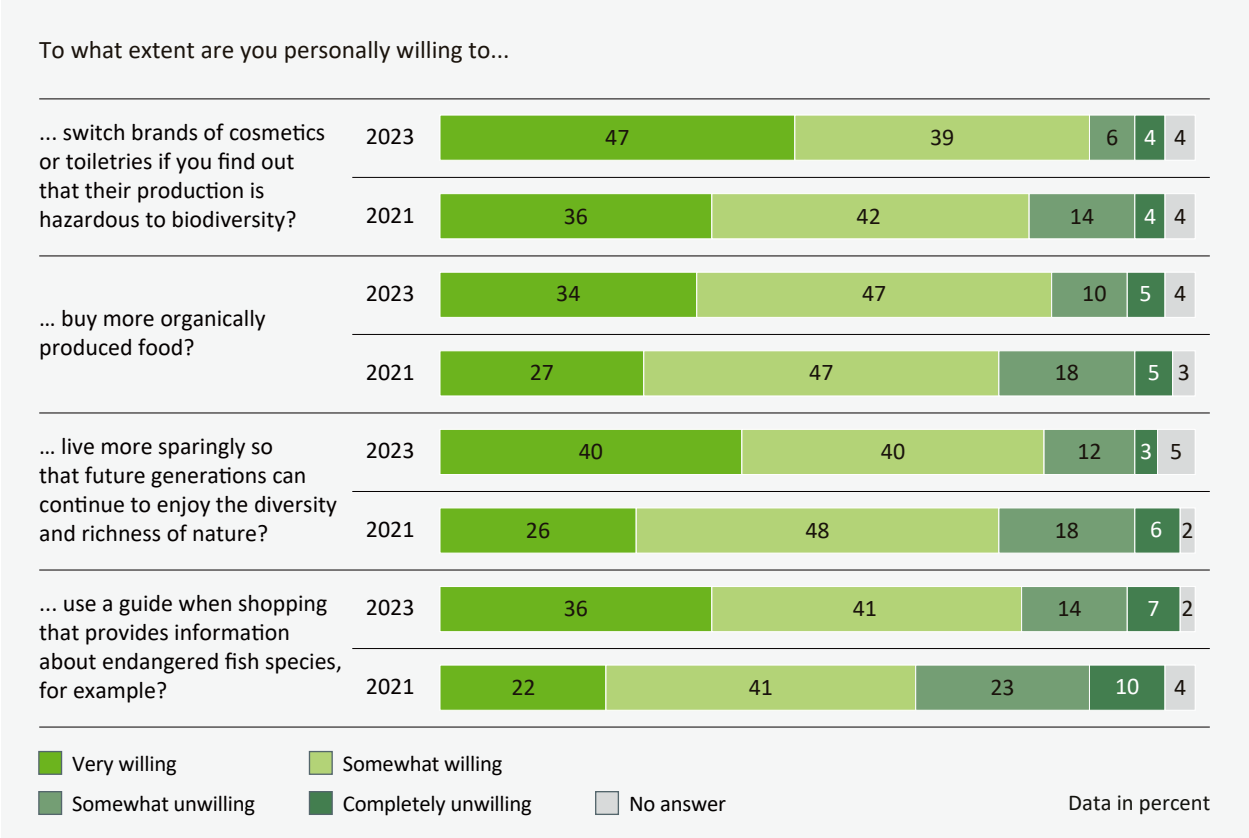


Figure 58: Willingness to make lifestyle changes among the adult population compared over time

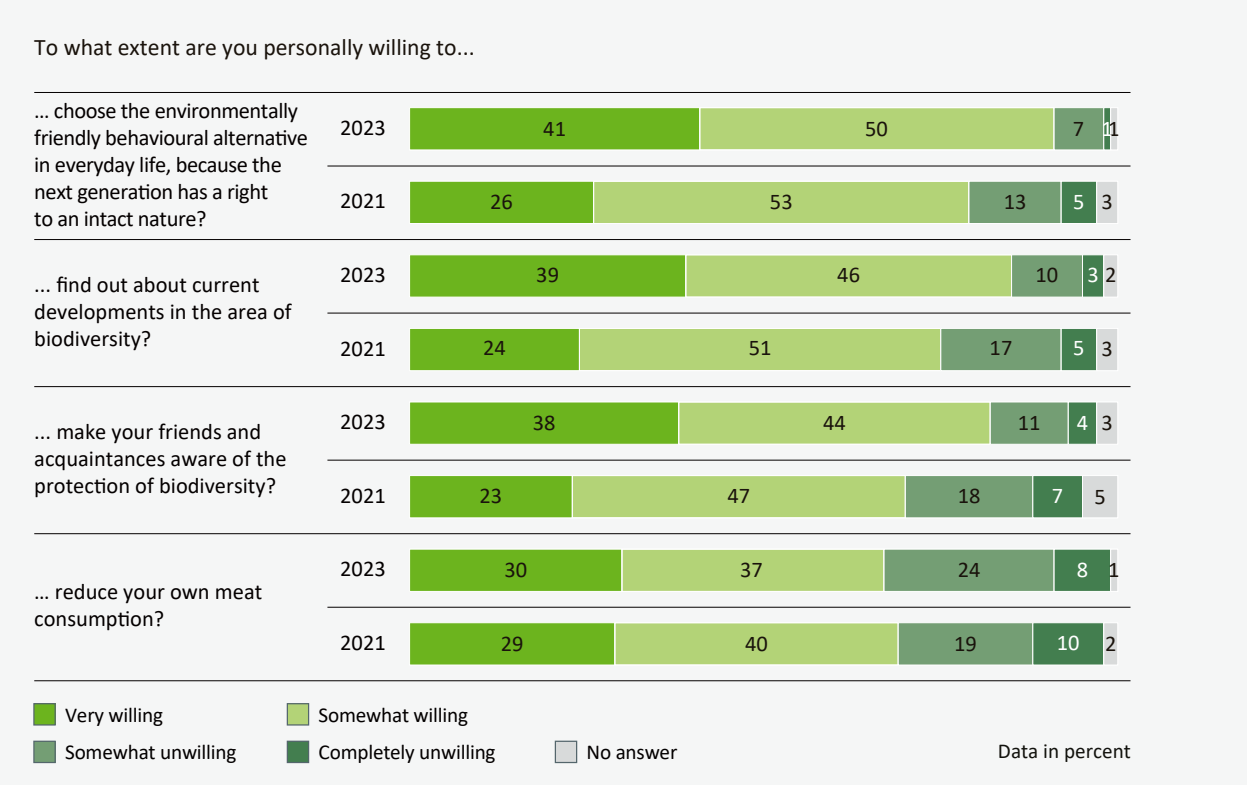


Figure 59: Willingness to make private behavioural changes among the adult population compared over time

Furthermore, 82 percent of adults and 77 percent of teenagers express their general willingness to make friends and acquaintances aware of the protection of biodiversity. The proportion of those who can see themselves reducing their own meat consumption is slightly lower – both among adults (67 percent) and among teenagers (68 percent).

Compared over time, the adult survey shows that three of the four behavioural attitudes surveyed have increased by 10 to 12 percentage points (see Figure 59). Only the willingness to reduce their own meat consumption has not changed significantly (2021: 69 percent, 2023: 67 percent).

Willingness to take collective action:
One in two respondents can imagine working for a nature conservation association to protect biodiversity.

Compared to willingness to change one's behaviour in the personal and private sphere, willingness to act collectively is lower overall: Sixty-four percent of adults and 52 percent of teenagers are fundamentally willing to publicly campaign (for example through petitions, demonstrations) for politicians to do more to protect nature for all people living today and for future generations. In addition, 57 percent of adults and 67 percent of teenagers are willing to help maintain a nature reserve together with other people. Sixty-one percent of adults can imagine working with other people to create habitats for animals and plants. In addition, around half of adults and teenagers say they are willing to actively work for a nature conservation association to protect biodiversity.

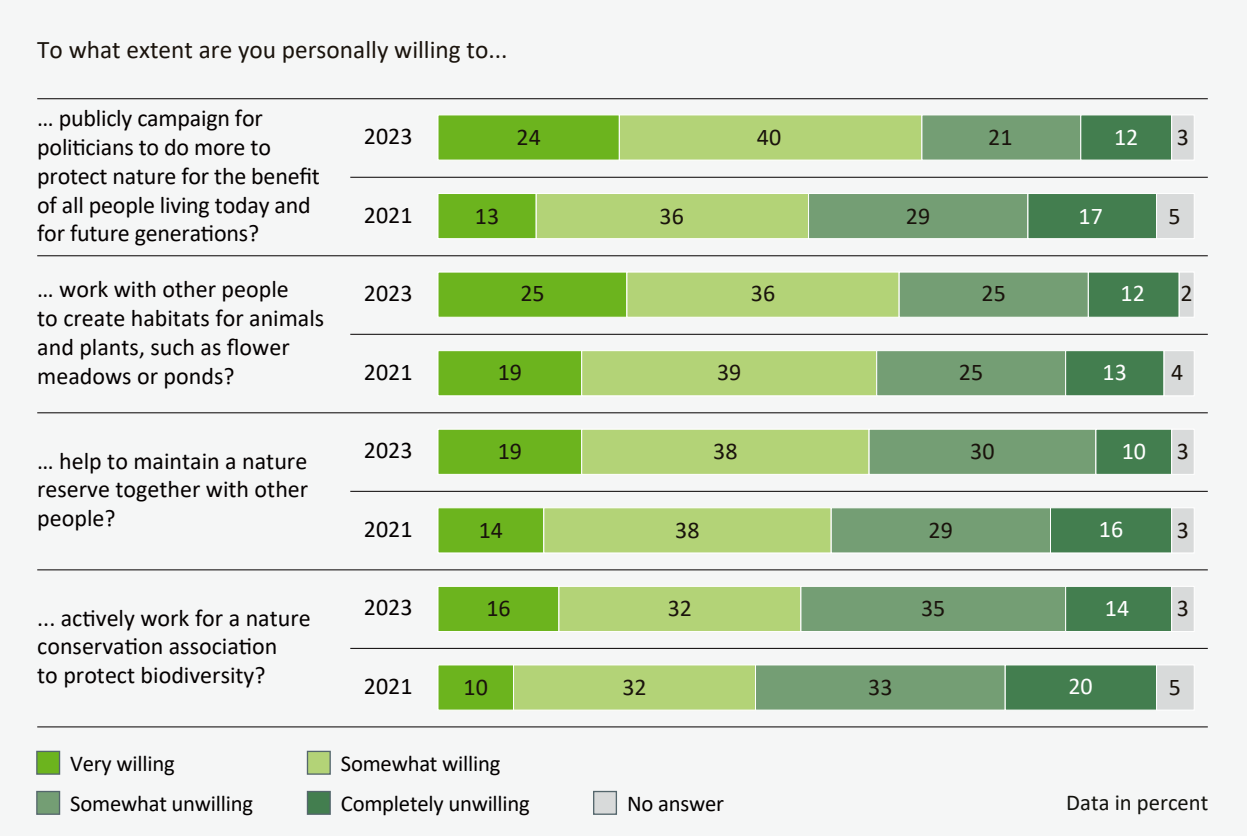


Figure 60: Willingness to take collective action among the adult population compared over time

Compared over time, the adult survey shows a particular increase in the willingness to campaign publicly via petitions or demonstrations for politicians to do more to protect nature (see Figure 60). In 2021, 49 percent could imagine this, and in the current survey the figure is 64 percent.

Willingness to pay:
More than half of adults can imagine paying a premium for food produced in a sustainable and environmentally friendly way in principle – but unreserved willingness to do so is significantly lower.

Sixty-nine percent of adults can imagine donating to the upkeep and conservation of a protected area. Sixty-three percent are very or somewhat willing to pay more for products that are produced in an environmentally friendly way, if this means that they are supporting economically weaker regions in Germany. Furthermore, 61 percent believe that they would be (somewhat) willing to pay more for such products if this resulted in benefits for economically weaker countries. In addition, 59 percent are willing to pay higher prices for foods produced in a sustainable and environmentally friendly manner. For all four behaviours surveyed, unreserved willingness to pay more is a maximum of 21 percent (see Figure 61).

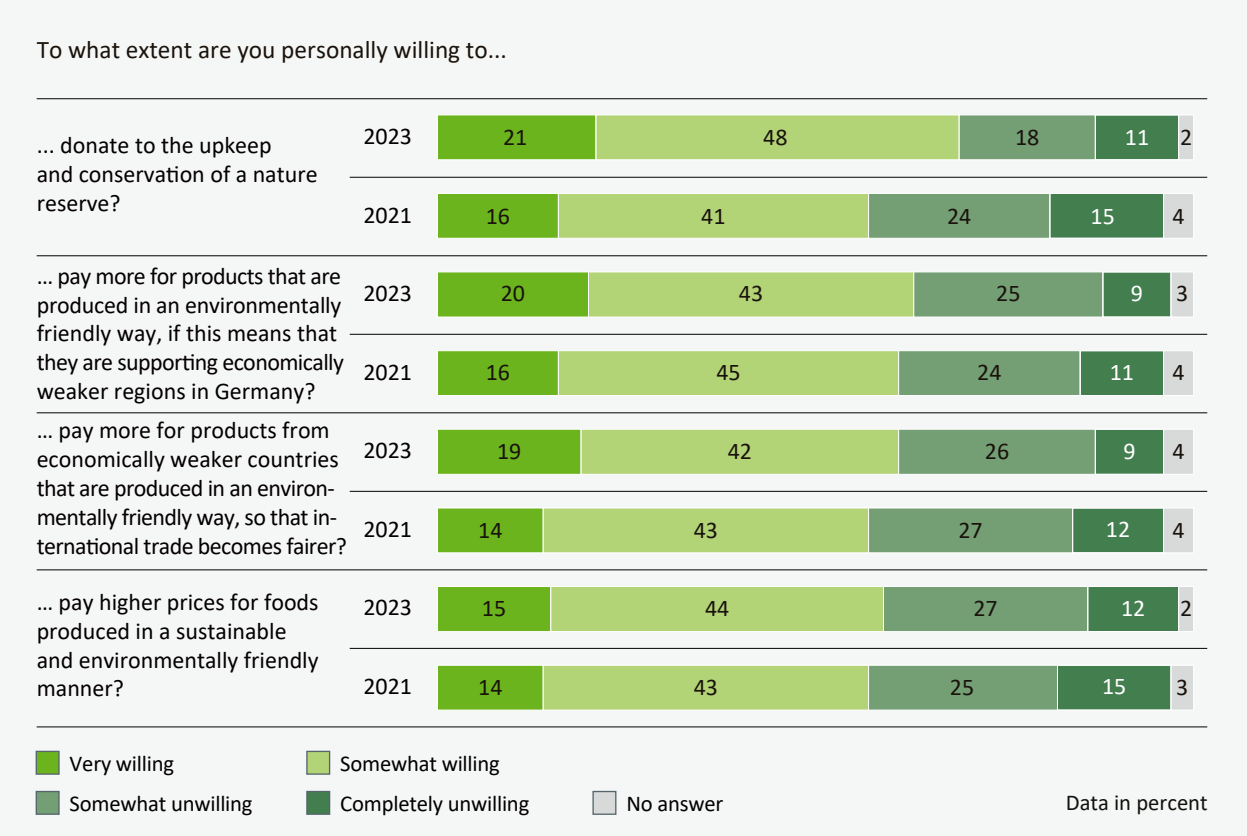


Figure 61: Willingness to pay more among the adult population compared over time

Compared to the previous survey, it is evident that only the willingness to donate has increased noticeably when compared over time (2021: 57 percent, 2023: 69 percent). No significant changes can be identified in the other three questions regarding willingness to pay.

Overall, a comparison of the individual psychological factors over time shows that the levels of agreement have increased in the direction of a greater awareness of biodiversity for most questions, or have at least remained constant.

A decline was recorded in just two cases – both of which were in relation to the respondents' own money: While 47 percent thought it was (somewhat) good to pay more for environmentally friendly products when shopping in 2021, the figure in the current survey is 41 percent. The same applies to the question of how easy or difficult it is to pay a premium for products produced in an environmentally friendly way. In 2021, 36 percent found this (somewhat) easy, in 2023 it is 30 percent.

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Abbreviations

ANK	Aktionsprogramm Natürlicher Klimaschutz – Federal Action Plan on Nature-based Solutions for Climate and Biodiversity
BfN	Bundesamt für Naturschutz – Federal Agency for Nature Conservation
BMEL	Bundesministerium für Ernährung und Landwirtschaft – Federal Ministry of Food and Agriculture
BMU	Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit – Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMUV	Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz – Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
bpb	Bundeszentrale für politische Bildung – Federal Agency for Civic Education
CAPI	Computer-assisted personal interviews
CAWI	Computer-assisted web interviews
CBD	Convention on Biological Diversity
COVID-19	Coronavirus disease 2019
DOI	Digital Object Identifier
EE	Erneuerbare Energien – Renewable energies
EMBO	European Molecular Biology Organization
et al.	et alii/et aliae/et alia (and others)
etc.	et cetera (and so on)
EU	European Union
GBF	Kunming-Montreal Global Biodiversity Framework
GESIS	German Social Science Infrastructure Services Association
GmbH	Gesellschaft mit beschränkter Haftung – Limited liability company
GMO	Genetically modified organism
GMO	Genetically modified organisms
GWS	Gesellschaft für Wirtschaftliche Strukturforschung – Institute of Economic Structures Research
Publ.	Publisher
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change

KNE	Kompetenzzentrum Naturschutz und Energiewende – Competence centre for nature conservation and the energy transition
KNK	Kompetenzzentrum Natürlicher Klimaschutz – Competence centre for natural climate protection
LMU	Ludwig-Maximilian University, Munich
MIDEM	Mercator Forum Migration and Democracy
NBS	National Strategy on Biological Diversity
NIMBY	Not in my backyard
PIK	Potsdam-Institut für Klimafolgenforschung – Potsdam Institute for Climate Impact Research
RIFS	Research Institute for Sustainability
SPSS	Statistical and analytic software from IBM (Statistical Package for the Social Sciences)
SRU	Sachverständigenrat für Umweltfragen – Germany Advisory Council on the Environment
UBA	Umweltbundesamt – German Environment Agency
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
WBGU	Wissenschaftlicher Beirat der Bundesregierung für globale Umweltveränderungen – German Advisory Council on Global Change
WSL	Eidgenössische Forschungsanstalt für Wald, Schnee und Landschaft – Swiss Federal Institute for Forest, Snow and Landscape Research

Abbreviations for the Sinus-Milieus

ADA	Adaptive Pragmatic Middle Class milieu
EPE	Expeditive milieu
HED	Consumer Hedonistic milieu
CON	Conservative Upscale milieu
NOS	Nostalgic Middle Class milieu
NEO	Neo-Ecological milieu
PER	Performer milieu
PMA	Post-Materialist milieu
PRE	Precarious milieu
TRA	Traditional milieu

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19 https://www.bmuv.de/pressemitteilung/bundesumweltministerin-steffi-lemke-eroeffnet-klimawildniszentrale-in-berlin, retrieved on 16.10.2024. 18

20 Neobiota (non-native species) are animal, fungus or plant species that do not naturally occur in Germany, but have only arrived in Germany through human influence. See https://neobiota.bfn.de/grundlagen/neobiota-und-invasive-arten.html, retrieved on 16.10.2024. 18

21 https://www.bfn.de/publikationen/positionspapier/vorsorgender-hochwasserschutz, retrieved on 16.10.2024. 19

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25 Explanations of the social milieus according to SINUS can be found in the introductory chapter of the study. 23

26 The precautionary principle is enshrined in European primary law and is an important guideline for nature conservation policy, which aims to prevent hazards from arising in the first place. It is reflected, among other things, in the General Principle of the Federal Nature Conservation Act, Section 13: “Significant damage to nature and the landscape must be avoided by the polluter as a matter of priority (…).” 27

27 See, for example, the “Theory of Change” of the UN's “New Global Biodiversity Framework”, as well as the focus on behavioural change in the associated communication strategy, https://www.cbd.int/gbf/communication, retrieved on 16.10.2024. 27

28 The adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022 at the Conference of the Parties to the Convention on Biodiversity (CBD) resulted in the NBS being further developed in an ongoing process. As with the 2007 NBS, the 2030 NBS also demands that the societal indicator "Awareness of biodiversity" be surveyed in a two-yearly cycle through the Nature Awareness Studies, see also https://dialog.bmuv.de/bmu/de/home/file/fileId/810/name/Ziele-%20&%20Ma%C3%9Fnahmenkatalog%20zur%20NBS%202030.pdf, retrieved on 16.10.2024. 30

29 Methodologically, this is implemented through recourse to survey methods from ethnology, such as the non-directive narrative interview, in which the respondents describe in their own language all areas of life that are relevant from their point of view (see Flaig and Barth 2018). 32

30 The milieu indicator contains statements that represent the typical values of the individual lifestyles and thus also make it possible to reconstruct the boundaries between the groups. Statements that capture the respondents' basic beliefs or diagnose motives that are effective in everyday life have proven to be the most effective. The criterion for the selection of such statements is their differentiating power, i.e. their suitability for optimally separating the different groups. On this basis, the respondents are assigned to the lifeworlds on the basis of a probability model using a specially adapted form of cluster analysis. This is done by determining a specific distribution of response probabilities across all indicator items for each group (norm profiles). Lifestyle classification is then done according to similarity of individual response patterns with the probability model, according to the logic of profile matching. 32

31 The indicator for youth lifeworlds contains statements that represent the typical values of the individual lifestyles and thus also make it possible to reconstruct the boundaries between the groups. The assignment of 14 to 17 year old respondents to the youth lifeworlds follows the same procedure as the assignment of adult respondents to the Sinus-Milieus. 38

32 Low: Without lower secondary/primary school leaving certificate or with lower secondary/primary school leaving certificate or polytechnic secondary school with 8th or 9th grade leaving certificate; Medium: Secondary school leaving certificate or leaving certificate from the 10th grade of a polytechnic secondary school or vocational school qualification; High: General or subject-linked higher education entrance qualification/ Abitur or degree from a university, college, or university of applied sciences. 42

33 Low – School type: Lower secondary school/vocational secondary school or highest level of education: Lower secondary school leaving certificate/vocational secondary school leaving certificate/left school without leaving certificate or intended school leaving certificate of the community school pupils: Lower secondary school leaving certificate/vocational secondary school leaving certificate; Medium – School type: Secondary school or highest level of education: Secondary school leaving certificate or intended school leaving certificate of community school pupils: Secondary school leaving certificate; High – School type: Grammar school or highest level of education: University of applied sciences entrance qualification/general university entrance qualification/specialised university entrance qualification or intended school leaving certificate of community school pupils: University of applied sciences entrance qualification/general university entrance qualification/specialised university entrance qualification. 42

34 Obviously, the way the question is formulated also plays a role. The Environmental Awareness Study is formulated closer to everyday experience, while the Nature Awareness Study is more closely aligned with the Planetary Boundaries literature. This becomes particularly clear based on the example of drinking water, which comes much higher up the list of perceived threats in the Environmental Awareness Study than in the Nature Awareness Study. It could be that the wording “access to drinking water” makes people think more of water problems in developing countries, while the wording “shortage of fresh water reserves” also brings to mind the falling groundwater levels in large parts of Germany. 47

35 It should be noted that in 2021, this question was only asked of those who had previously said that they believed a comprehensive change in lifestyles and economic activities in Germany was necessary (“yes”, “yes, somewhat” or “neither agree nor disagree”) – in 2021, this was 86 percent of the adult respondents and 88 percent of the teenager respondents. In the current survey, all participants in the study were asked this question. If you calculate the current data in the same way as in 2021, the results for the question “Are you prepared to contribute actively to this change through a sustainable and environmentally friendly lifestyle?” change for 2023 as follows: Adults: “Yes”: 36 percent, “yes, somewhat”: 41 percent; Teenagers: “Yes”: 36 percent, “yes, somewhat”: 42 percent. This change was made because the results then relate to the overall sample and are therefore easier to understand and interpret. 49

36 However, this increase must be seen in the context of the still low proportion in relation to overall reporting: Climate change accounts for around 1.8 percent of all broadcast minutes on the main television channels, while the figure for the loss of biodiversity is just 0.2 percent. Nevertheless, according to a study by Neverla and Hoppe (2023), 41 percent of viewers have the impression that the topic of climate change is widely covered on television, while the figure for the loss of biodiversity is still just 18 percent. Forty-five percent would like increased coverage of climate change in main programming , while the figure for biodiversity is as high as 47 percent. Television is still the most important source of information for both topics. 51

37 People between the ages of 14 and 29 were surveyed in this study. 51

38 https://www.kompetenzzentrum-nk.de, retrieved on 16.10.2024. 54

39 The AfD has gained support in recent years, particularly in the middle milieus (see Barth 2023, Roose 2023). It remains the task of other studies to examine in more detail the impact of populist attitudes on individual and collective self-efficacy – preferably separately for different policy areas. 60

40 The EU defines invasive species as animal and plant species that can affect habitats, species, or ecosystems through their spread and thus harm biodiversity. 73

41 It should be noted that the priority of a topic area says nothing about the respondents' attitude towards this topic area. This is particularly clear in terms of the policy area of immigration, migration, and xenophobia: Here you can tick the box if you think that there are too many migrants in Germany and that immigration should be radically limited, but also if you do not share this perception of the problem and instead think that xenophobia in Germany is a major problem. 94

42 Explanation in the adult survey: “We would now like to ask you some general questions about new procedures in genetic engineering. In the press, these procedures are also referred to as genome editing, CRISPR/Cas, or gene scissors. They make it possible, for example, to switch genes in the genetic material on and off or rewrite them.” Explanation in the youth survey: “What living organisms look like and how they function is determined by the interplay between genes, environment, and lifestyle. Hereditary information is saved in the genes. You too have genes that determine characteristics such as your hair colour. Animals and plants also have genes. Genes can be artificially deleted, inserted, or recombined using genetic engineering. This can cause changes in the properties of animals and plants. With new genetic engineering methods, these interventions may be faster and farther reaching.” 103

43 The stronger the connection between a factor (for example “problem awareness”) and the nature-protecting behavioural intentions, the greater the weighting for this factor. The development, operationalisation, and exact calculation of the new societal indicator can be found in Bamberg et al. (2023). 107

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