Forest Policy: objectives and measures 2021–2024

For the sustainable management of forests in Switzerland

Schweizerische Eidgenossenschaft
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Forest Policy: objectives and measures 2021–2024

For the sustainable management of forests in Switzerland

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Abstracts

With this Forest Policy, the Swiss Confederation formulates provisions for the optimal coordination of the ecological, economic and social demands on the forest. It aims to ensure sustainable management of the forest and a sustainable wood supply and create favourable conditions for an efficient and innovative forestry and wood industry. DETEC decided in 2017 that the previous Forest Policy 2020 had essentially proved successful and should be continued. This means that the eleven objectives and strategic directions will be maintained for the Forest Policy from 2021. The Action Plan has been updated for the period between 2021 and 2024. This publication defines the new federal measures and describes the role of the cantons and of other actors the Confederation considers necessary in order to successfully achieve the objectives.

Keywords:
forest, policy, sustainability, wood harvesting, climate change, protective forests, biodiversity, economic efficiency, forest area, soil, harmful organisms, wildlife, leisure, education, research, measures

Mit der vorliegenden Waldpolitik stimmt der Bund die ökologischen, ökonomischen und gesellschaftlichen Ansprüche an den Wald optimal aufeinander ab. Sie soll eine nachhaltige Bewirtschaftung des Waldes und eine nachhaltige Holzversorgung sicherstellen und günstige Rahmenbedingungen für eine effiziente und innovative Wald- und Holzwirtschaft schaffen. Das Departement UVEK hat 2017 entschieden, dass sich die bisherige Waldpolitik 2020 im Grundsatz bewährt hat und weitergeführt werden soll. Damit werden die elf Ziele und strategischen Stossrichtungen für die Waldpolitik ab 2021 weiterhin beibehalten. Die vorliegende Publikation legt dabei die neuen Massnahmen fest, die aus Sicht des Bundes für eine erfolgreiche Zielerreichung notwendig sind.

Stichwörter:
Wald, Politik, Nachhaltigkeit, Holznutzung, Klimawandel, Schutzwald, Biodiversität, Wirtschaftlichkeit, Waldfläche, Boden, Schadorganismen, Wild, Freizeit, Bildung, Forschung, Massnahmen

La présente politique forestière de la Confédération concilie de façon optimale les exigences écologiques, économiques et sociales posées à la forêt. Elle vise à garantir une gestion forestière et un approvisionnement en bois durables et à créer les conditions-cadres favorables à une économie forestière et une industrie du bois efficaces et novatrices. En 2017, le DETEC a décidé que l'actuelle Politique forestière 2020 avait porté ses fruits et qu'elle devait être poursuivie. Les onze objectifs et les lignes stratégiques de la politique forestière seront conservés aussi après 2021. Le plan de mesures a été actualisé pour la période comprise entre 2021 et 2024. La présente publication définit les nouvelles mesures de la Confédération et décrit les rôles des cantons et des autres acteurs que la Confédération estime nécessaires à la réalisation des objectifs.

Mots-clés :
forêt, politique, gestion durable, exploitation du bois, changements climatiques, forêts protectrices, biodiversité, capacité de production, surface forestière, sols, organismes nuisibles, gibier, loisirs, formation, recherche, mesures

Con la presente Politica forestale la Confederazione armonizza in maniera ottimale le esigenze di ordine ecologico, economico e sociale nei confronti del bosco. L'obiettivo è assicurare una gestione del bosco e un approvvigionamento di legno sostenibili e creare condizioni quadro favorevoli per un'economia forestale e del legno efficiente e innovativa. Nel 2017 il DATEC ha confermato la validità dell'attuale Politica forestale 2020 e ha deciso di portarla avanti. Gli undici obiettivi e gli orientamenti strategici verranno quindi mantenuti per la politica forestale a partire dal 2021, mentre il piano di misure per il periodo che va dal 2021 al 2024 è stato aggiornato. La presente pubblicazione definisce le nuove misure della Confederazione e descrive il ruolo dei Cantoni e degli altri attori che, secondo la Confederazione, sono necessari per il raggiungimento degli obiettivi.

Parole chiave:
bosco, politica, gestione sostenibile, utilizzazione del legno, cambiamenti climatici, bosco di protezione, biodiversità, capacità produttiva, superficie forestale, suolo, organismi nocivi, selvaggina, tempo libero, formazione, ricerca, misure

Foreword

Climate change and biodiversity loss are the most pressing environmental issues of our time. Solutions can be found in the forests: they absorb CO_2 and are habitat for numerous animal and plant species. But the forest is so much more: it is a place where people can find peace and quiet. I personally like to relax in the forest. In addition, the forest protects us from rockfalls and avalanches; it provides wood, drinking water, fresh air, fungi and berries.

This shows that the demands on the forest are high and the requirements are diverse. This makes it all the more important to care for the forests. It is important to think and plan long term, because trees shape a forest for generations. This is why the Federal Council is looking ahead in its Forest Policy and developing it further.

For example, it has revised the Action Plan with a view to Vision 2030, in consultation with the cantons, associations and economic and nature conservation organisations. In the process, it took particular account of the challenges that our forests are facing in relation to climate change. This publication summarises the updated Forest Policy.

I would like to thank all those who are committed to making our forests healthy and diverse.

Federal Councillor Simonetta Sommaruga
Head of the Federal Department of the Environment,
Transport, Energy and Communications (DETEC)

Summary

Main objective

The Swiss Confederation's Forest Policy ensures the optimal coordination of the ecological, economic and social demands on the forest. It guarantees that forest management is sustainable and creates favourable conditions for an efficient and innovative forestry and timber sector in Switzerland. The Forest Policy takes sufficient account of both social demands on the forest and the needs of the slow-growing forest ecosystem.

Vision for 2030

By adopting the time horizon of 2030 for the Forest Policy, the Federal Council presented its vision for a sustainably managed forest that fulfils all of its functions equally well (multifunctionality) and is conserved in its area and distribution. Sustainable forests and wood harvesting help to mitigate climate change, and their impacts on the forest are to remain as minimal as possible. The natural raw material wood will be harvested and valued, and it will be possible to provide and finance the public services associated with the forest. Because Switzerland's forest policy is a joint task, the vision for 2030 will involve effective dialogue with all actors and interest groups, together with joint commitment.

Objectives

The Swiss Confederation's Forest Policy defines a total of eleven objectives. For five of these objectives, the Confederation sets one *focus* for their implementation:

1. Exploit sustainable wood utilisation potential
2. Mitigate and adapt to climate change
3. Ensure the protective function of forests
4. Conserve and improve biodiversity in a targeted manner
5. Maintain the forest area.

The *other* six objectives are:

6. Improve the economic viability of the forestry sector
7. Protect forest soil, drinking water and the vitality of trees
8. Protect the forest against harmful organisms
9. Preserve a balance between forest and wildlife
10. Ensure the respectful use of the forest for leisure and recreation
11. Promote education, research and knowledge transfer.

Updating of measures

Forest Policy 2020[1] was adopted by the Federal Council in 2011 and implemented in an Action Plan[2] by the Department of the Environment, Transport, Energy and Communications (DETEC). Based on an interim report on achievement of the objectives and the implementation status of the measures,[3] DETEC decided to retain the objectives and strategic directions of Forest Policy 2020 and only to update the measures. The Federal Office for the Environment (FOEN) then developed the new measures for the 2021 to 2024 period, in consultation with the cantons, forest owners, other forestry and wood industry representatives and other actors. The resulting forest policy – with the updated Action Plan – is presented in this publication entitled 'Forest Policy: objectives and measures 2021-2024. For the sustainable management of forests in Switzerland.'

1 BBl. 2011, p. 8731 ff.

2 Federal Office for the Environment FOEN (ed.) 2013: Forest Policy 2020. Visions, objectives and measures for sustainable management of forests in Switzerland. Federal Office for the Environment, Bern: 61 pp.

3 Wilkes-Allemann J., Steinmann K., Zabel A., Lieberherr E. 2017: Interim Report 2016 on Forest Policy 2020. Project report on behalf of the Federal Office for the Environment. Zurich: ETH.

1 Background

The Federal Council declared its forest policy intentions in Forest Policy 2020. This report entitled "Forest Policy: objectives and measures 2021–2024" sets out more detailed, updated measures for the post-2020 period based on the strategic directions.

Legal mandate

The Confederation ensures that the forest can fulfil its protective, social and economic functions. The Confederation establishes principles for the protection of the forest and supports the implementation of measures for the conservation of the forest. This is stated in Article 77 of the Federal Constitution.[4] The Confederation's tasks are set out in detail in the Federal Act on Forest (ForA)[5] and in the Forest Ordinance (ForO).[6]

Political context

The Forest Policy takes into consideration the relevant strategies in other policy areas such as spatial planning and use, agriculture, energy and other environmental concerns (climate, biodiversity/landscape, soil, water, natural hazards, air pollution control, chemicals, waste, resources/raw materials, etc.). At DETEC level, the principles of environmental policy and the DETEC strategy are included. The Forest Policy is particularly relevant to the implementation of Agenda 2030 in Switzerland; Targets 15.2 and 15.b relate directly to the forest and other Sustainable Development Goals (SDGs; 6, 7, 8, 12 and 13) are closely associated. The different policy areas continue to be given equal consideration in respect of coordinated implementation of the Forest Policy.

Political statement of intent by the Federal Council

In 2011 the Federal Council adopted the Swiss Confederation's Forest Policy 2020.[7] It formulated objectives and implementation measures based on existing legislation. It also put forward Vision 2030, indicating how the forest and its use should look in the future and what further developments to the existing legal provisions this would require. The legal basis for many of these developments was created by Parliament when the Forest Act was revised in 2016.[8]

Forest Policy as a joint responsibility

The Forest Policy is a joint federal and cantonal responsibility. The Forest Act defines the framework for this joint responsibility between the Confederation and the cantons in Articles 49 and 50. The legal responsibilities of the Confederation mainly concern the FOEN, which is the leading authority for implementation of the Forest Policy, although other federal offices and agencies may also be involved. In its report on motion 13.3363 of the National Council Finance Committee on the division of responsibilities between Confederation and cantons, the Federal Council states that the Forest Policy is and will remain a joint responsibility.[9]

The updated Action Plan in this publication was drafted in close consultation with the cantons and with the assistance of the central actors. The cantons, forest owners, educational and research institutions and societies, associations, umbrella organisations and interest groups have an important function and role in the implementation of many measures. All the actors are therefore required to contribute to a successful forest policy.

4 Federal Constitution of the Swiss Confederation of 18 April 1999 (Bundesverfassung der Swissischen Eidgenossenschaft vom 18. April 1999. SR 101

5 Federal Act of 4 October 1991 on Forest (Forest Act, FoA). SR 921.0.

6 Federal Ordinance of 30 November 1992 on Forest (Forest Ordinance, FoO). SR 921.01

7 BBl. 2011, p. 8731 ff.

8 AS 2016 3207

9 Swiss Federal Council 2018: Division of Responsibilities between Confederation and Cantons. Federal Council report in fulfilment of motion 13.3363, National Council Finance Committee, 12 April 2013. Bern: Swiss Federal Council: 111 pp.

Implementation of first Action Plan by 2020

An Action Plan was drawn up for implementation of Forest Policy 2020.[10] Implementation was divided into two stages and ended in 2019. After the first stage, an interim report was issued on the implementation status of the measures and achievement of the objectives.[11] Among the FOEN's conclusions were that most of the strategic directions were effective and their implementation was on course. More needed to be done to achieve the objectives, in particular in relation to exploitation of the wood use potential (objective 1), improving the economic efficiency of the forestry industry (objective 6) and ensuring respectful leisure and recreational use (objective 10). Achievement of many of the objectives was impossible to measure using the defined indicators and it was therefore decided to revise and further develop them. Implementation of the various measures was on schedule for 60% and delayed for about 40%.

Objectives and strategic directions of Forest Policy 2020 still applicable

Based on the interim report and in consultation with the central actors, DETEC decided to maintain Forest Policy 2020 in accordance with the 2011 Federal Council resolution. Accordingly, Vision 2030, the main objective and the eleven objectives, the strategic directions and the challenges remain applicable. Editorial adjustments have been made where necessary, to reflect the 2020 implementation status and the current context. The intended impacts of Forest Policy 2020 have been restated by the 2020 version to reflect the legal and financial changes. The Action Plan has been updated according to the DETEC mandate.

Updating the Action Plan for the post-2020 period

Following the drafting of Forest Policy 2020, the development process was evaluated in the forest stakeholder analysis.[12] This element complements the interim report mentioned above. The following recommendations emerged from this process and provided a basis for this Forest Policy:

- Better coordination of implementation between the Confederation, the cantons and other actors;
- Closer integration of the cantons and other actors in implementation;
- Greater flexibility in the implementation of measures by the cantons and other actors;
- More concrete definition of the roles of the cantons and other actors;
- Increased professional exchanges between the FOEN and cantons.

Due to the obvious backlog in implementing Forest Policy 2020, updating the measures for objectives 1 and 6 proved the biggest challenge when the new Action Plan for the post-2020 Forest Policy was drafted. In developing the measures, special attention was also given to the various roles of the actors and their mutual coordination (working with impact models).

The Forest Policy objectives can only be achieved if the cantons and other actors support its implementation. As part of the preparatory work, the FOEN formulated and implemented a participation concept for involvement by the actors mentioned above.

10 Federal Office for the Environment FOEN (ed.) 2013: Forest Policy 2020. Visions, objectives and measures for sustainable management of forests in Switzerland. Federal Office for the Environment, Bern: 61 pp.

11 Wilkes-Allemann J., Steinmann K., Zabel A., Lieberherr E. 2017: Interim Report 2016 on Forest Policy 2020. Project report on behalf of the Federal Office for the Environment. Zurich: ETH.

12 Zabel A, Lieberherr E, Rappo A, 2015: Further Development of Forest Policy 2020: Analysis of the concerns of the forest actors. Project report on behalf of the FOEN. Zollikofen: School of Agricultural, Forest and Food Sciences HAFL, and Zurich: Federal Institute of Technology.

The FOEN formulated an updated Action Plan for the post-2020 period and invited the main actors to comment on the draft in a written consultation (see list of actors in Annex 2.1). The feedback and conclusions were discussed at a workshop with representatives of the main forest policy actors (see list of actors represented in Annex 2.2). The new Action Plan was then finalised and adopted by the DETEC in May 2021; it forms the core element of this publication.

Given the rapidly changing environmental conditions for the forest and the situation on protection and use interests in recent years, the DETEC decided to reduce the term of the Action Plan. With this departure from previous practice, any changes required once the impact of the measures adopted has been reviewed can be implemented directly.

Further development of the Forest Policy

During the process to update the measures in Forest Policy 2020, it became clear that the cantons and forest owners also wanted a debate and further development of the objectives and strategic directions. They considered that the main actors should have even greater involvement in such a radical further development of forest policy. The FOEN and DETEC will give consideration, as far as possible, to these concerns for greater inclusion in implementation (e. g. in the programme agreements) and in drawing up the principles of future forest policy.

List of publications on the preceding Forest Policy 2020

In the years 2011 to 2020, the following forest policy documents were published at national level:

- Forest Policy 2020 adopted by the Federal Council in 2011 was published in the Swiss Federal Gazette.[13]
- In 2013 the FOEN published 'Forest Policy 2020. Visions, objectives and measures for the sustainable management of forests in Switzerland'.[14] The content adopted by the Federal Council was incorporated and measures were added.[15]
- Vision 2030, the main objective, the eleven objectives and the strategic directions from the 2011 Federal Council document have been retained in this publication. The Action Plan has been updated according to the DETEC mandate.

13 BBl. 2011, p. 8731 ff.

14 Federal Office for the Environment FOEN (ed.) 2013: Forest Policy 2020. Visions, objectives and measures for sustainable management of forests in Switzerland. Federal Office for the Environment, Bern: 61 pp.

15 Main objective, Vision 2030, challenges, objectives, strategic directions, impacts.

2 Main objective and vision

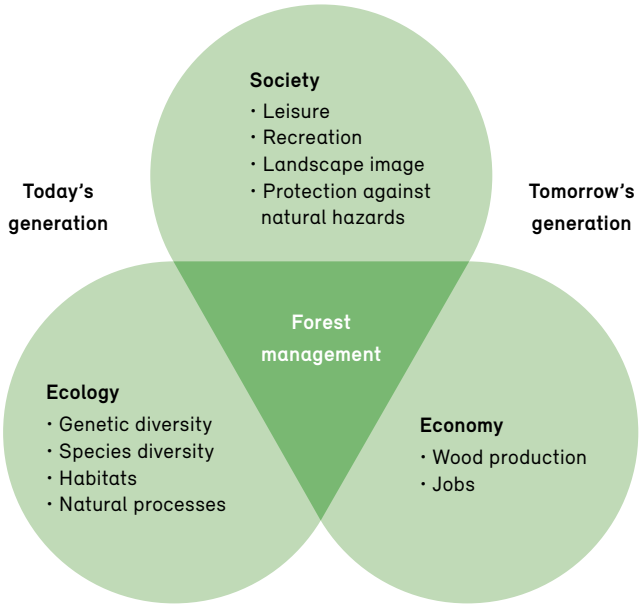
With the Forest Policy the Federal Council pursues the main objective of sustainable forest management and an efficient and innovative forestry and timber sector. This is based on a vision with a time horizon of 2030.

Sustainable forest management

The main objective of the Forest Policy is to guarantee sustainable forest management and create favourable conditions for an efficient and innovative forestry and timber sector. Forest management may also include the decision not to manage forests.

With its Vision 2030, concrete objectives and associated strategic directions, the Forest Policy aims to optimise the three dimensions of sustainability. Successful elements of existing Swiss forest policy are to be continued, others improved and new ones added.

Figure 1:
The three dimensions of sustainability



In this way, the changes in the forestry and timber sector, the climate, societal requirements, and the slow-growing forest ecosystem are taken into account.

Vision 2030

The Swiss forest, which covers 32% of the country's territory, is indispensable as a habitat for flora and fauna and as a source of the renewable resource wood. It is part of our landscape and of central importance for the regulation of the climate, the supply of drinking water, the minimisation of the risks posed by natural hazards and for biodiversity. The forest contributes to our well-being and safety, and to the creation of economic wealth.

Swiss forest policy is committed to sustainability in accordance with the international conventions and hence provides economic, social and ecological added value (see Article 77 of the Federal Constitution and Article 1 of the Forest Act).

The Federal Council pursues the following vision:

I. The Swiss forest is managed in such a way that it can fulfil its functions and provide its services sustainably and equally for all diverse objectives.[16] These are: the design and management of the landscape, the protection of natural resources, wood and other forest products, the conservation of species diversity and habitats, protection against natural hazards, and provision of space for leisure and recreation.
II. The forest is largely conserved in its current area and distribution pattern and optimally interconnected within the landscape.
III. Forest and wood use contributes to the mitigation of climate change. The impacts of climate change on forest services remain as minimal as possible.
IV. Wood is a formative component of Swiss building and living culture and contributes to improving the quality of life. The forestry and timber sector make an important contribution to the Confederation's energy, climate and resource policy objectives. The value-added chain from the tree to the end product is competitive at international level and environmentally friendly in its design.

16 This may involve deliberate omissions.

V. The public services demanded by the public are provided to a sufficient degree and financed. Additional expenses and reductions in yields suffered by the forestry sector (for example as a result of refraining from wood production) are compensated on the basis of a transparent and effective financing model.

VI. Forest policy is a joint task of the Confederation and cantons. Their objectives are attained together with the forest owners and in dialogue with interest groups and with highly qualified experts in the field of forestry and timber. Close cooperation is maintained with other policy and economic sectors. International problems are approached through Switzerland's active involvement at international level.

3 Objectives, strategic directions and measures

The Forest Policy formulates a total of eleven objectives to be pursued in the context of several strategic directions. Concrete implementation measures are presented for each strategic direction.

The Federal Council defined the eleven objectives of Forest Policy 2020 based on the vision formulated (cf. Chapter 2) and the current and possible future challenges identified.[17] It was decided to retain these objectives, therefore they continue to be applicable (cf. Chapter 1). In this chapter, two to six strategic directions and various measures are allocated to each objective.

The objectives with their strategic directions and the measures described below can be implemented within the existing legal framework and with the proven responsibilities (division of responsibilities between Confederation, cantons and forest owners).

Joint specification and implementation of measures

This document specifies the binding measures to be carried out by the Confederation.[18] At the same time, attention is drawn to the important role of the cantons and central actors. What is involved here are not requirements as such but an expectation of the contribution that the Confederation believes the cantons and central actors must make so that the objectives of the Forest Policy can be fulfilled.

The roles of the cantons and actors are formulated in more concrete terms than in the previous Action Plan (2013–2020). This should create a common understanding of the Confederation's measures and make it clear to the cantons and the actors involved what they are expected to contribute. The table of measures is to be read in such a way that *all* the actors named for a measure are equally required to give it form and implement it; the necessary work is done *jointly*. The roles listed in the table help to sharpen the focus of the individual actors and to define the main responsibilities.

3.1 The sustainable wood use potential is exploited

This Forest Policy objective is to be continued in the Wood Resource Policy throughout the forestry and wood value chain.[19]

Challenges

The use of the renewable resource wood improves Switzerland's CO_2 balance (through the sequestration of carbon in wood used in construction, and the substitution of fossil energy sources and non-renewable materials), helps to create jobs in peripheral regions and contributes to the protection of the environment in regional economic circles. It can also generate synergies with biodiversity promotion policy and make an important contribution to the circular economy and bio-based economic development (bioeconomy). However, this potential[20] is not being fully exploited and, for decades now, the amount of sustainably harvested wood is less than increment (particularly in private and mountain forests). Hence, Switzerland has one of the highest standing volumes in Europe.

17 BBl. 2011, p. 8731 ff.

18 Unless otherwise stated, the FOEN as a competent department of the Confederation is meant by 'the Confederation'.

19 FOEN et. al. 2021: Wood Resource Policy 2030. Strategy, Objectives and Wood Action Plan 2021–2026. Environmental Info no. 2103. 70 pp.

20 FOEN 2011: Wood use potential in the Swiss forest – Estimates based on models and scenarios and with particular consideration of biodiversity and protective forest management (FOEN onion skin model).

Current status 2020 and outlook

Switzerland's forest and wood value chain is holding its own in international competition. Strengths and gaps both developed in the past. The Confederation responded with a series of amendments to improve the framework conditions (cf. also Articles 34*a* and 34*b* Forest Act, CO_2 compensation projects). In the report in fulfilment of postulate 13.3924 Jans 'Optimisation of Forest Use', the Confederation also indicated measures by which more wood could be used and processed in Switzerland. The timber industry reacted by investing and starting to expand processing capacity. Nevertheless, considerable gaps remain in domestic manufacturing capacity for semi-finished products from Swiss wood (particularly for some glulam (glue-laminated) products and new hardwood and heavy timber products). Wood supplies from the forest will also change due to drought, hot summers and widespread beetle infestations. This calls for optimal coordination of the forest and wood processing and anticipatory research and development. Issues such as improving the integration of the forest and wood value chain, the use of existing synergies and innovation potential to exploit the potential for wood use, investment in further processing and development of new products (e. g. from beetle-infested wood) are essential tasks. Forest owners are encouraged to work together so that forest enterprises and operations can become more professional in supplying wood.

Objective 1

Taking local conditions into account, the sustainable wood use potential of the Swiss forest is exploited.

Strategic directions and measures

Strategic direction 1.1: Expert decision support

Forest managers are provided with expert decision support for optimal forest management.[21]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation calculates and publicises the possible sustainable wood use potential in the forest. The potential is shown by resource, source, assortment, grade and location. Targeted measures to achieve exploitation of the potential may be supported.	Within the scope of their mandates, the cantons create the conditions for market-driven production of timber[22] (e. g. advice, incentives, full use of the possibilities for logging permits). The cantons define objectives, regularly check their achievement and the effectiveness of the measures adopted and report the results.	The associations inform forest owners of the opportunities and possibilities for exploitation of the potential for use. The Swiss Foresters Association informs foresters of the advantages and positive effects of increased wood use.
b.	The Confederation promotes increased and sustainable wood harvesting in terms of climate change adaptation by removing regulatory barriers (e. g. in strategies, framework conditions, standards).	The cantons promote demand-driven and sustainable wood harvesting.	The associations signpost factors which inhibit demand-driven and sustainable wood harvesting. They take action to remove these barriers.

21 Strategic direction revised; original wording: *"Forest managers shall be provided with expert decision support for optimal management (maximum utilisation of growth)."*

22 Interface 2011: Wood resource policy of the cantons. Report for the Federal Office for the Environment FOEN. 56 pp.

Strategic direction 1.2: Promotion of hardwood

New processing and marketing options, in particular for hardwood, are sought.[23]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation strengthens cooperation in the forest and wood value chain by promoting coordinated local, regional and national initiatives.	The cantons and communities support efforts to strengthen cooperation in the forest and wood value chain.	The forest and timber industry associations raise awareness and support their enterprises in strengthening the wood value chain and seeking innovative new products. The sector (forestry and timber industry associations and enterprises) participates in forward-looking and coordinated initiatives to strengthen cooperation. The forestry and timber industry associations support their regional working groups and clusters and ensure coordination of the activities.
b.	The Confederation promotes knowledge and know-how transfer by supporting innovative projects along the forest and wood value chain. Topics for such projects are current and future challenges, opportunities for modern forms of cooperation, added value potential, structuring the exchange of knowledge and experience and education and training.	In the forest sector in particular, the cantons ensure transfer of knowledge and know-how (education and advice) to promote the economic aspects of sustainability in the forest (market behaviour, business strategies etc.).	The sector (forestry and timber industry associations and enterprises) ensures efficient transfer of knowledge and know-how.
c.	The Confederation supports measures to strengthen the adaptability (agility) and flexibility of the actors throughout the forest and wood value chain, e. g. regarding dealing with a short-term high demand on the end customer market or a surplus of wood from Swiss forests (particularly storm-damaged or beetle-infested wood). The digital transformation will also be used to network the wood chain. The Confederation also examines new forms of sales promotion for wood from the forests of Switzerland.	The cantons support the formulation of strategic bases for measures to increase the adaptability (agility) and flexibility of the actors in the wood chain.	The sector (forestry and timber industry associations and enterprises) formulates strategies and implementation measures to increase the adaptability (agility) and flexibility of the actors. It is committed to ensuring that there can be coordination with other relevant strategies and formulates a strategic position and action plans. The educational institutions support the sector towards digital transformation (particularly Industry 4.0, Building Information Modelling BIM).
d.	The Confederation supports research and development projects for new products, processes and techniques tailored to assortments available now and in future (e. g. market surveys, feasibility studies, innovation promotion, digitalisation, further development of [large volume] timber construction systems, knowledge transfer, creation of processing and bioproduct facilities).	The cantons support research and development projects for new products, processes and techniques. Cantons with statutory bases on timber harvesting use the options given to them. Cantons without explicit statutory bases on timber harvesting examine options for supporting the processing and use of wood in their jurisdictions.	The wood processing enterprises initiate research and development projects, share their costs as defined by law and pass the knowledge they gain on to the sector (forestry and timber industry associations and enterprises). The timber industry associations support their members by organising research and development projects and knowledge transfer.
e.	The Confederation removes regulatory barriers from strategies, framework conditions and standards (transport/logistics of a renewable resource, LCA etc.), to achieve increased use of timber in buildings and installations.	The cantons promote increased wood processing and use.	The timber industry associations indicate factors inhibiting increased wood use. They take action to remove these barriers.

23 Strategic direction revised, original wording: *"New processing and marketing options for hardwood shall be sought."*

Strategic direction 1.3: Increasing the demand for wood

The demand for Swiss wood is increased inter alia through the dissemination of information and raising of awareness among the population and institutional end users (see Wood Resource Policy).[24]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation supports further development of energy-efficient, large-volume timber construction systems and construction in existing buildings in research and development, innovation support and knowledge transfer (see Wood Resource Policy and Wood Action Plan for actual measures).	The cantons survey the potential demand for wood for buildings and installations (including different products) and publicise the results.	The sector (forestry and timber industry associations and enterprises) finds new forms of cooperation to increase supply and demand – including with partners outside the sector.
b.	The Confederation commits to increasing the use of Swiss wood in its own buildings and installations (design, construction and operation) where suitable (project submissions, ecological building portfolio, lighthouse projects) and considers the usable assortments in the Swiss forests. Cooperation with federal partners is increased (e. g. DDPS, BBL, FOH, FOC, ARE, SFOE).	On public buildings and installations, the cantons take into account the principles of the Coordinating Conference of the Construction and Real Estate Institutions of Public Builders (KBOB) (recommendation: 'Sustainable building with wood' etc.).	The sector (forestry and timber industry associations and enterprises) advises and informs public clients (e. g. communes) as appropriate on the ecological advantages and positive sustainability impacts of wood from the Swiss forests. The sector (forestry and timber industry associations and enterprises) initiates cooperation with actors outside the forestry and timber industry (e. g. events held jointly with the Swiss Public Real Estate Forum (SPREF)).
c.	The Confederation raises awareness among end users for wood from Swiss forests and supports marketing campaigns for promotion of sales. Thanks to the Ordinance on the Declaration of Wood and Wood Products, end users are informed of the type and origin of wood of any provenance and can make responsible purchasing decisions. The Consumer Affairs Bureau monitors compliance with the duty of declaration. The population, institutional and private end users (particularly pension funds, insurance companies, banks and real estate and investment fund managers) and planners and architects are made aware of the comparable ecological, technical and economic advantages of wood from Swiss forests.	The cantons raise public awareness of wood products and sales promotion campaigns. The cantons mutually agree their strategies and campaigns for this and coordinate on an intercantonal basis (where appropriate).	The sector (forestry and timber industry associations and enterprises) ensures the necessary resources for marketing campaigns. Swiss Wood Marketing (SWM) commits to the increased sale of Swiss wood. SWM promotes the use of Swiss wood through WOODVETIA. The sector (forestry and timber industry associations and enterprises) raises the awareness of the population, decision-makers in the construction industry and planners and architects. The sector (forestry and timber industry associations and enterprises) commits to building with wood as part of the education and training of architects, planners and real estate managers.

24 Strategic direction revised, original wording: *"The demand for wood shall be increased inter alia through the dissemination of information and raising of awareness among the population and institutional end users (see Wood Resource Policy)."*

3.2 Climate change: the forest and use of wood contribute to mitigation and the impacts on forest services remain minimal

Challenges

The mandate formulated in Article 77 of the Federal Constitution requires the Confederation to conserve the protective, harvesting and welfare functions of the forest in Switzerland. This mandate is assuming a new significance in the context of changing climate conditions. In addition to the challenges concerning current and medium-term forest management, the Confederation must deal with the question of how the existence of a forest ecosystem and its services can be guaranteed 100 years from now. For the forest, its products and services are increasingly affected by climate change. Through its carbon sink effect, the forest contributes to the mitigation of climate change. Fossil energy is substituted through the use of renewable wood in construction and the carbon remains sequestered. On the other hand, the changes in the climate can have a strong impact on forest ecosystems (storms, drought, forest fires, biotic calamities). The changes threaten to unfold at a speed that outpaces the natural adaptation processes.

Current status 2020 and outlook

The damage to the forest caused by drought and hot summers has become conspicuous in recent years. The initial research results and practical experience show that drought damage can have both short- and long-term negative impacts on forest growth. Beech and fir, the two commonest tree species in Switzerland, are very badly affected in south-facing locations and on shallow soil. The treeline is expected to rise by some 500 to 700 metres by the end of the 21st century. Forest owners concerned with regeneration will then need to find tree species adapted to a future climate. This will only be possible with the support of well-educated forestry professionals, reliable and up-to-date information on the species adapted to climate change and sound knowledge of the forest locations. If natural regeneration cannot provide the tree species required, selective planting will be necessary. For sustainable building, wood makes an important contribution – particularly as protection from summer heatwaves – to meeting Switzerland's climate and energy policy targets and to a pleasant environment in which to live and work. The use of wood as an energy and heat source is also steadily increasing. Wood energy currently covers around 10% of the heat requirement, meaning the forest is responsible for a significant share of energy value creation. According to a study on the potential of wood energy, up to two million cubic metres of fuel wood are still available, and under the Energy Strategy 2050 the amount is set to increase further.[25]

Objective 2

In order to mitigate climate change, forest management and wood use (substitution) contributes to attaining the maximum possible reduction in CO_2 emissions (reduction). The Swiss forest is conserved as a resilient ecosystem that is capable of adaptation and continues to provide the services required by society under altered climate conditions (adaptation).

25 FOEN 2011: Wood use potential in the Swiss forests: Analysis of use scenarios up to 2036 and forest growth development up to 2106 – Estimates based on models and scenarios and with particular consideration of biodiversity and protective forest management (FOEN onion skin model). FOEN Environmental Info UW-1116, 80 pp.

Strategic directions and measures

Strategic direction 2.1: Clarification of the impacts

The impacts of climate change (storms, drought etc.) on the forest is studied and the suitability of the silviculture methods used examined.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation supports further research on the subject of forest adaptations to climate change and a compilation of research results from Switzerland and its near neighbours. It also supports transferring knowledge into practice as part of general forest-related education and training (Articles 29 and 39 Forest Act).	The cantons bring their cantonal forest planning into line with the knowledge gained from the research on forest and climate change and integrate the results in the cantonal silviculture concepts. Regionally differentiated adaptation strategies and measures for all the functions and impacts of the forest are developed and mutually agreed.	Educational institutions (e. g. ETH, HAFL, forestry training centres) further develop their education and training activities on forest and climate change. Research institutions (e. g. WSL, ETH, HAFL, universities) fill remaining knowledge gaps on forest and climate change. Knowledge transfers are made, with integration of environmental organisations and forestry associations.
b.	The Confederation formulates measures to conserve the genetic variability of the indigenous tree species so that their resilience and adaptability to climate change are maintained.	The cantons interpret the national bases in the regional context and take action as required to maintain the genetic variability of the native forest tree species.	Educational institutions (e. g. ETH, HAFL, forestry training centres) further develop their education and training activities on genetic variability and climate change. Research institutions (e. g. WSL, ETH, HAFL, universities) fill remaining knowledge gaps on genetic variability and climate change. Environmental organisations and forestry associations participate in the formulation and implementation of the Confederation's measures.

Strategic direction 2.2: Increasing adaptability

The adaptability of the forest with plantings of stable and indigenous young forest stands is improved by sufficient regeneration and appropriate care of young trees. Targeted measures are carried out to adapt forest stands with insufficient or unsuitable regeneration and unstable stands, and stands in climate-sensitive locations.[26]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation implements the forest-related measures in the strategy and action plan 'Adaptation to Climate Change' and reworks the measures in future revisions. In close collaboration with the cantons, the Confederation develops a subject-specific 'Overall Strategy for Adaptation of the Forest to Climate Change' in fulfilment of motion 19.4177 and postulate 20.3750.	The cantons bring their cantonal forest planning into line with the knowledge gained from the forest and climate change research and integrate the results in the cantonal silviculture concepts. Regionally differentiated adaptation strategies by which all the functions and impacts of the forest can be guaranteed are developed and mutually agreed.	Forestry associations raise the awareness of forest owners on the challenges of climate change and offer assistance. Educational institutions (ETH, HAFL, forestry training centres) further develop their education and training offerings on the subject of forest and climate change.
b.	The Confederation enters into multiannual programme agreements with the cantons under the New Financial Equalisation (NFE) on forest management. The Confederation updates the funding system in accordance with the latest results of the forest and climate change research and reviews the framework conditions for the programme agreements with the cantons.	The cantons plan, subsidise and monitor measures to improve the adaptability of the forest. They hold training sessions and promote exchange of experience.	The research and education institutions participate in training sessions and the exchange of experience on the forest and climate change and arrange their own activities.

26 Strategic direction revised; original wording: *"The resilience of the forest shall be improved through adapted young forest maintenance with stable young stands suited to their locations. Targeted measures shall be carried out to adapt forest stands with insufficient or unsuitable regeneration and unstable stands, and stands in climate-sensitive locations."*

Strategic direction 2.3: Measures in the case of disruption and damage

Measures for prevention, removal and reforestation following events involving disturbance or damage are supported.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation implements the concept 'Dealing with biotic hazards for the forest' (see objective 8).	The cantons produce cantonal concepts on dealing with biotic hazards for the forest, implement appropriate measures and institute a control procedure.	See objective 8, Crisis management measure (8.1a).
b.	The Confederation formulates suitable measures with the cantons for the prevention and removal of abiotic forest damage (including combination effects) and reviews the framework conditions for the programme agreements in connection with reforestation.	The cantons collaborate in formulating the measures and implement them.	The sector representatives from the forestry and timber industry collaborate in formulating the measures and implement them. Research institutions and third parties (timber trade) supply the data required for the task. Research institutions and the forestry training centres study how to deal with combination effects and develop climate-adaptive reforestation methods.
c.	The Confederation provides the cantons with basic principles and information on forest fire risk.	The cantons use the principles and information on forest fire risk drawn up by the Confederation when defining the measures.	–
d.	The Confederation warns the population of forest fires under the Alarm and Safety Radio Ordinance (VWAS) and includes the cantons. It operates an online platform for this purpose.	The cantons supply the necessary information (including mandated measures) for updating of the Confederation's online platform.	The communes heed the warnings from the Confederation and cantons and implement measures to prevent forest fires.

Strategic direction 2.4: Boosting wood use

The use of wood is boosted as a contribution to clean technologies (cleantech).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation analyses the economic consequences of the adaptation strategy in the forest in terms of wood use and supply and issues recommendations which focus on cascading use. The Confederation analyses the potential and role of wood in meeting the 2030 and 2050 climate targets and the 2050 energy strategy.	The cantons raise the awareness of the communes etc. for greater wood use and a sustainable wood supply.	The sector (forestry and timber industry associations and enterprises) jointly raises awareness for greater wood use and a sustainable wood supply. Federal and cantonal actors and also other actors are integrated in the measures depending upon their main thrust.
b.	The Confederation further develops and implements the Wood Resource Policy (e. g. Wood Action Plan, WHFF-CH).	The cantons are involved in the Wood Resource Policy of the Confederation. The cantons formulate wood resource policies of their own which are compatible with the Confederation's objectives, and actively implement them.	The sector (forestry and timber industry associations and enterprises) formulates its own compatible strategy which takes account of the Confederation's objectives.
c.	The Confederation sets public procurement objectives for implementation of Article 34*b* Forest Act (public buildings and installations).	The cantons increase the use of wood from the Swiss forests in their territories.	The sector (forestry and timber industry associations and enterprises) keeps the decision bases for the KBOB Recommendation 'Sustainable Building with Wood' up to date.
d.	The Confederation commits to framework conditions which maintain the climate, forest and wood policy objectives, but allow the implementation of private sector CO_2 compensation projects as a sectoral solution.	The cantons consider and assess the development of these activities.	The sector (forestry and timber industry associations and enterprises) jointly prepares relevant CO_2 projects and manages them efficiently.
e.	The Confederation provides principles for a Life Cycle Assessment (LCA) of wood and timber products.	The cantons use the results of the LCA to raise awareness and as the basis for decision-making processes.	The sector (forestry and timber industry associations and enterprises) uses the results of the LCA to raise awareness and as the basis for decision-making processes.
f.	The Confederation formulates principles for the integration of forest and wood in the concept of the bioeconomy and biobased development.	The cantons support implementation, e. g. by assistance with investment projects (building land etc.).	Support for planned projects, e. g. by the provision of basic information on the wood supply.
g.	The Confederation improves knowledge transfer on forest management and wood use, e. g. by communicating the advantages tailored to the individual target groups or supporting such communication.	Where possible the cantons consider using more wood from the Swiss forests for their own buildings and installations.	Where possible, forest owners, particularly public owners, consider using more wood from the Swiss forests for their own buildings and activities.
h.	The Confederation formulates, and includes the cantons and the sector in, an implementation strategy which positions wood as an ecological raw material of the future and promotes sustainable domestic production, processing and use.[27]	The cantons collaborate with the Confederation on an implementation strategy which positions wood as an ecological raw material of the future and promotes sustainable domestic production, processing and use.	The sector (forestry and timber industry associations and enterprises) participates actively in the formulation of an implementation strategy and assumes responsibility for its implementation in each field.

27 See the Federal Council report on postulate 13.3924 'Optimisation of forest use' and interpellation 19.4176 'Future of the indigenous wood supply, processing and use'.

3.3 The protective forest service is ensured

Challenges

Protective forest protects not only the roads, railway tracks and buildings located directly below it, it also has an impact beyond its local environment on entire regions and, sometimes, the entire country of Switzerland (e. g. when transport routes are interrupted). It is far cheaper to maintain protective forest than to construct hazard protection structures. For various reasons, the protective effect of the forests is under threat (maintenance deficits, lack of regeneration etc.). The protection of the population is a public service provided by the forestry sector in the national interest and requires a particular effort on the part of the Confederation in cooperation with the cantons.

Current status 2020 and outlook

Most of the cantons have a protective forest designation or have updated the designation according to SilvaProtect harmonised criteria. Analysis of the services currently provided in the 2nd NFE period (2011–2015) under the protective forests programme agreement shows that the annual area treated increased continuously between 2012 and 2015. In addition, qualitative analysis of the spot checks by the FOEN shows that the cantons have generally implemented the protective forest programme agreement in the quality required and the locations checked have met the environmental requirements in the programme agreement guide. Based on monitoring projects, it will be possible in the next few years to arrange target achievement monitoring of the maintenance of sustainable protective forests at national level.

Objective 3

The services provided by the forest for the protection of human life and infrastructure (settlements, railways, roads etc.) against gravitational natural hazards are guaranteed sustainably on a comparable level throughout Switzerland.[28]

28 Objective expanded, original wording: *"The services provided by the forest for the protection of human life and infrastructure (settlements, railways, roads etc.) shall be guaranteed sustainably on a comparable level throughout Switzerland".*

Strategic directions and measures

Strategic direction 3.1: Designation of protective forest areas

Protective forest areas are designated in spatial planning terms in accordance with a national strategy developed jointly by the Confederation and the cantons (SilvaProtect-CH).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation advises the cantons as required on updating the protective forest designation (at the request of the cantons).	The cantons designate the protective forests as part of their forest plans, taking into consideration the claims on use, and publicise the plans as appropriate. They revise the plans periodically.	The population and interest groups may be involved in the forest plans as appropriate, in particular in defining and weighting forest functions (external planning level).
b.	The Confederation interprets the data and knowledge gained from monitoring and research projects (e. g. NFI, TBN) so that it can carry out a target achievement and impact monitoring on sustainable protective forest maintenance at national level.	The cantons set the priorities for protective forest maintenance taking into account the national target achievement monitoring.	Research institutions collect data, analyse it and supply it to the Confederation for interpretation (e. g. the WSL analyses the NFI data in relation to the requirement profiles under NaiS).

Strategic direction 3.2: Programme agreements for protective forest

The Confederation concludes multiannual programme agreements with the cantons in the area of protective forest in accordance with the New Financial Equalisation (NFE).[29]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation concludes multiannual programme agreements with the cantons in the area of protective forests in accordance with the New Financial Equalisation (NFE) (the measure corresponds to the strategic direction).	The cantons plan, subsidise and monitor the treatment of protective forest and the construction and maintenance of the infrastructure. They advise forest owners, communes and other actors in connection with combatting natural hazards by means of integral risk management.	Forest owners, forestry operations and forest enterprises take action in the protective forest in accordance with the requirements of the cantons. Other cantonal and communal agencies implement measures for protective forest maintenance and to safeguard the necessary infrastructure in their jurisdictions.

29 Strategic direction revised; original wording: *"The Confederation shall conclude multiannual programme agreements with the cantons in the area of protective forests in accordance with the New Financial Equalisation NFE."*

3.4 Biodiversity is conserved and selectively improved

Challenges

Thanks to it's climate and geological variations, Switzerland's forests are highly diverse with over one hundred natural forest communities. They are particularly important for the conservation of species diversity – around 60% of the over 50,000 plants, animals, fungi and bacteria present in Switzerland are reliant on the forest ecosystem in one way or another. The ecological quality of forests has improved in recent decades and is generally good in comparison with that of other ecosystems. Several indicators for the habitat quality of Swiss forests point to a slightly positive trend: the structural variety is growing, forest regeneration is predominantly, and increasingly, natural and the proportion of dead wood available has increased.

Despite its generally good state, overall the forest lacks the habitat diversity necessary for the long-term conservation of flora and fauna. For instance, the dead wood supply and quality objectives are not yet achieved in all the forest stands (mainly Central Plateau and Jura) and the distribution is unsatisfactory. Many forests are still very overstocked and dense, so that less suitable space is available to light- and heat-loving species.

Current status 2020 and outlook

The existing strategy to promote biodiversity in the Swiss forests continues to be effective.[30] Near-natural silviculture forms the basis for biodiversity conservation. Building on near-natural silviculture, specific measures are needed to support forest biodiversity. It remains essential to safeguard areas with the primary function of preserving biodiversity. These promote natural development (natural forest reserves) and very valuable habitats (forest reserves with selective management). The structuring of the forest margins also has a positive impact on species and promotes connectivity with adjacent open land. Rare tree species are encouraged at suitable locations, where possible in synergy with the timber industry (e. g. oak). Rare or endangered forest communities need improving. These are mainly forests open to light or with moist conditions. Finally, more measures are needed to create and revive moist forest biotopes, including in the context of climate change and water balance. There must be more measures to encourage species diversity in forest areas, particularly of specific forest species. The objectives and measures must continue to be compatible with Switzerland's biodiversity strategy, on Ecological Infrastructure (EI) for example.

Objective 4

The species living in the forest and the forest as a near-natural ecosystem is conserved. Aspects of biodiversity in which deficits exist are improved.

30 Imesch N., Stadler B., Bolliger M., Schneider O. 2015: Biodiversity in the forest: Objectives and measures. Implementation guides for the conservation and improvement of biodiversity in the Swiss forests. Federal Office for the Environment, Bern. Environmental Compliance No 1503: 186 pp.

Strategic directions and measures

Strategic direction 4.1: Near-natural management

Management of all forest areas is carried out in accordance with the principles of near-natural silviculture.[31]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation sets out the framework conditions for near-natural silviculture in the programme agreements.	The cantons analyse the near- natural silviculture situation in the regional context. They define requirements for forest planning and management, inform and advise the forest owners and monitor implementation.	Forest owners and managers comply at least with the minimum requirements for near-natural silviculture according to the Programme Agreements Guide. Environmental organisations and forestry associations participate as appropriate in formulating the concepts. Educational institutions teach the minimum requirements for near-natural silviculture on the basis of national and cantonal principles.
b.	The Confederation issues practical principles (e. g. for old and dead wood management and species promotion) and promotes exchange of experience among the actors.	The cantons interpret the principles in the regional context and pass on the relevant information. This takes into account the interests and synergies between management and biodiversity. The cantons advise forest owners and promote training and exchange of experience among the actors.	Forest owners and managers apply the existing principles.

31 Strategic direction revised; original wording: *"Management of all forest area shall be carried out in accordance with the legal requirements for near-natural silviculture."*

Strategic direction 4.2: Protected areas and upgrading of priority habitats

The Confederation shall conclude agreements with the cantons for the designation of protected areas (10% forest reserves by 2030 in accordance with agreement with the cantons) and upgrading of priority habitats (also known as priority areas; forest margins, wooded pastures etc.).[32]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation concludes multiannual programme agreements on forest biodiversity with the cantons under the New Financial Equalisation (NFE).	The cantons plan, subsidise, implement and monitor measures to promote biodiversity. They advise forest owners, communes and other actors on promoting biodiversity.	Forest owners, operations and enterprises take action to promote biodiversity. Communal agencies implement measures on biodiversity according to their responsibilities.
b.	The Confederation formulates an impact monitoring concept jointly with the cantons. It implements these where it is responsible and maintains statistics on the designated forest reserves (GIS dataset).	The cantons implement impact monitoring projects under the NFE agreements. They supply data for the impact monitoring and national forest reserve statistics. They supply information on the impact monitoring experience and activities.	The scientific community advises the Confederation and cantons and carries out evaluation studies.
c.	The Confederation provides principles for designation of forest reserves and other biodiversity promotion areas meeting the national priorities. It takes into account the concept of ecological infrastructure in the Biodiversity Strategy of Switzerland. The Confederation produces a periodic review of the implementation status of the Principles of Forest Reserve Policy 2001.	The cantons provide principles and their experience and participate in the exchange of experience.	Forest Switzerland and NGOs participate in the exchange of experience.
d.	The Confederation monitors achievement of the regional biodiversity objectives in accordance with the Biodiversity in the Forest implementation guides under the programme agreements.[33]	The cantons set the implementation priorities in accordance with regional biodiversity objectives.	Scientists and experts contribute their expertise and know-how.

Strategic direction 4.3: Regional biodiversity objectives and finance system

Regional biodiversity objectives are defined and a finance system developed to compensate for the services provided by forest managers in the fulfilment of the objectives.

The measures for strategic direction 4.3 are now included in strategic direction 4.2.

32 Strategic direction revised; original wording: *"Programme agreements shall be concluded with the cantons for the designation of protected areas (10% forest reserves by 2030 in accordance with agreement with the cantons) and upgrading of priority habitats (also known as priority areas; forest margins, wooded pastures etc.)."*

33 FOEN 2015: Biodiversity in the forest: Ziele und Massnahmen. (Objectives and measures). Implementation guides for the conservation and improvement of biodiversity in the Swiss forests. Federal Office for the Environment, Bern. Environmental Compliance No 1503: 186 pp.

3.5 Forest area is conserved

Challenges

Forest area in intensively used areas (in particular the Central Plateau and Alpine centres) is under severe pressure from settlements and infrastructure. Today, situations arise in which settlement area borders directly on forests, and a further increase in settlement area would require the use of forest area. In contrast, in mountain regions, the forest is expanding, in particular due to the discontinuation of agricultural management. This can lead to the loss of ecologically valuable cultural landscapes on the one hand, while on the other there is an increase in protection against natural hazards. These countervailing developments give rise to wide-ranging conflicts (biodiversity, use of space, agriculture etc.).

Current status 2020 and outlook

The pressure on the forest areas in intensively used regions remains high. On average over the last ten years, around 160 hectares of forest have been cleared annually. The amendment to the Forest Act adopted in 2012 also established a more flexible enforcement approach to compensation for deforestation. It is now exceptionally possible, in regions with an expanding forest area or to protect valuable agricultural regions or cultural heritage, to gain exemption from the principle of compensation in kind (afforestation) in the same region. The expansion in forest area has slowed down, but continues to rise in the medium and higher altitudes of the Alps while remaining largely static on the Central Plateau and in the Jura. The forest conservation precept has been the subject of repeated political debate in recent years against a background of significant competition for land use. In this context, inward settlement growth represents a further challenge which requires cooperation between the actors affected. The challenges for the future are thus to supply and communicate good information, to keep optimising the enforcement principles and instruments and to continue to enhance coordination between forest and spatial planning and the different federal, cantonal and communal levels.

Objective 5

The forest is fundamentally conserved in its spatial distribution and does not decrease in area. Forest increment is coordinated with landscape diversity (including connectivity) and targeted spatial development (including agricultural priority areas).

Strategic directions and measures

Strategic direction 5.1: Prohibition on deforestation

The prohibition on deforestation with the possibility of granting of exceptional permits is upheld, and the discretion on granting exceptional deforestation permits is utilised.

	Federal measures	Role of the cantons	Role of other actors
a.	Based on the current legal bases, the Confederation provides implementation guides and in this way ensures the provision of legal support and advice to the cantons on questions of forest law.	The cantons implement the national and cantonal regulations on forest conservation. They provide the applicants with the necessary documentation and advise them.	Authorities and communes involved know the requirements and processes associated with forest conservation and comply with them. Forest owners know the basic regulations and comply with them.
b.	The Confederation ensures consultation in the case of deforestation processes and assumes oversight (federal control procedures and cantonal procedures).	The cantons ensure correct and timely deforestation processes and monitor their implementation.	Authorities and communes involved know the requirements and processes associated with deforestation and comply with them. Applicants submit correct and complete applications and implement the decisions of the authorities.
c.	The Confederation compiles deforestation statistics for monitoring purposes.	The cantons take note of the data from the deforestation statistics and use it for information and training purposes.	–
d.	Based on case law, the Confederation compiles an overview of exceptional deforestation permits, thereby demonstrating the possible legal discretion in this area, and interprets the results with the involvement of the cantons.	The cantons interpret the results of the overview of exceptional deforestation permits in the cantonal context and set the legal discretion. Changes are notified to the authorities involved (e. g. communes).	Applicants know the legal discretion on deforestation and utilise it as required.
e.	The Confederation examines the importance and contribution of the forest to land use (e. g. for regional development planning or landscape planning) in the form of studies and (pilot) projects.	The cantons participate in these projects and contribute their know-how.	Actors specifically affected such as communes, NGOs and associations participate in these projects and contribute their know-how.
f.	The Confederation formulates information bases on the forest area (background, developments, challenges and communication) with the involvement of the cantons and relevant actors (development planning, agriculture etc.).	The cantons collaborate in the formulation of information bases on the forest area (reporting of possible arguments and actual case studies, together with expert advice).	Forest Switzerland, NGOs and other organisations collaborate where possible in formulating information bases on the forest area (reporting of possible arguments and actual case studies, together with expert advice).

Strategic direction 5.2: Compensation in kind

In certain cases (e. g. to protect agricultural priority areas, particularly crop rotation areas, and for the rehabilitation of watercourses) it is possible to waive compensation in kind or compensation for deforestation. This became possible with the revision of Article 7 Forest Act and implementation of this revision will now be monitored.[34]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation provides implementation guides based on the current legal regulations, reviews the impact of the greater flexibility in compensation for deforestation and further develops the technical regulations (e. g. approaches to ensure compensation for deforestation in areas with high claims on land use, particularly on compensation in kind and other measures with added ecological value). The other federal offices with an interest are involved.	The cantons participate in the formulation of technical regulations. They apply the regulations and inform and advise authorities and applicants.	Authorities and applicants know the regulations on compensation for deforestation and apply them correctly. Associations and NGOs participate in the formulation of technical regulations.

Strategic direction 5.3: Static forest boundaries

Static forest boundaries can be designated in relation to the open land on the basis of overall planning (in particular structural planning).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation examines the impact of the static forest boundaries on the basis of the current legal bases. The other federal offices with an interest are involved.	The cantons participate in the formulation of technical regulations on static forest boundaries. They apply revised regulations and inform and advise authorities and applicants. The cantons designate static forest boundaries as required.	Authorities and applicants involved know the regulations on static forest boundaries and apply them correctly.

34 Strategic directions revised; original wording: *"In certain cases (e. g. to protect agricultural priority areas and for the rehabilitation of watercourses), it shall be possible to dispense with compensation in kind or compensation for deforestation."*

3.6 The economic efficiency and performance of the forestry sector improves

Challenges

The price pressure arising from increasingly scarce funding and the problem of volatile wood prices render significant organisational adaptations and efficiency increases necessary. The forestry sector with its very small-scale ownership and management structures has sometimes reacted hesitantly to this changing environment up to now. On the one hand, the upholding of traditions and the lack of entrepreneurial thinking and action have made it more difficult to make the necessary changes. Efficient forestry operations and forestry managers, however, are a precondition for the provision of numerous forest services desired by the economy (e. g. wood production) and society (e. g. protective forest services, biodiversity, recreation) and for success on timber markets.

Current status 2020 and outlook

The function of a forestry operation is management of the forest and market-driven provision of forest services. This requires resources and appropriate funding. Funding – including the investment in the operation and forest necessary for the future – can only be secured long term by positive operating results (profits). Some forestry operations and forest owners have already responded to the current challenges and improved their strategies, costs and revenues to enable them to secure the funding by management of their forests (no losses/deficits). But others are still failing to make good use of the potential for improvement, meaning that the economic dimension of sustainability in the forest is not fully guaranteed. Entrepreneurial thinking and action thus still need to be developed. Since timber prices cannot be directly influenced, cost reductions still offer great potential. New methods of valorising forest services that are currently in demand and of differentiating non-timber markets also need to be developed. Strategic targets give forest owners a clearer perception of their role.

Objective 6

The efficiency and performance of the Swiss forestry sector and, therefore, the structure of forestry operations and cooperation beyond ownership structures improves. The additional expenses incurred by managers for the provision of the desired forest services, or corresponding losses in income, are compensated.

Strategic directions and measures

Strategic direction 6.1: Programme agreements

Programme agreements are concluded with the cantons for the optimisation of management units and improvement of wood logistics.

	Federal measures	Role of the cantons	Role of other actors
a.	Under the New Financial Equalisation NFE, the Confederation concludes multiannual programme agreements with the cantons on structural and process improvement and optimisation of existing infrastructure in the forest. The programme agreements are evaluated and amended on the basis of their efficiency improvement effects.	The cantons plan, subsidise and monitor measures for structural and process improvement in the forest. They advise forest owners, communes and other actors on further optimisation of structures and processes.	Forest owners, forestry operations and foresters further optimise their structures and processes. The forest owners, forestry workers and foresters associations actively support this.
b.	The Confederation increases support for the monitoring of forest economics at operational level and for the use of absolute performance indicators and profile statements. The Confederation (FOEN, FSO), in collaboration with the HAFL, the WSL and Forest Switzerland, continues the forest economics monitoring and optimises it (particularly TBN, ForstBAR, forest statistics, full surveying, NFI sample surveying).	The cantons participate in optimisation of forest economics monitoring. They analyse the results and interpret them in the regional context. They use them for targeted measures.	Forest Switzerland continues to run the forest test network (TBN) on behalf of the Confederation and shows managers and public forest owners the advantages of the ForstBAR tool for operational and strategic management and control.
c.	The Confederation expands the information, awareness raising and advice for economic understanding and action. It supports role clarification and raises awareness of the importance of the economic dimension of sustainability in the forest for forest owners, cantonal forest services, managers and the public. The Confederation supports awareness raising measures by other actors.	The cantons direct their enforcement activity accordingly and support advice, awareness raising for economically sustainable action in the forest and role clarification among forest owners, managers and foresters.	The forest owners associations raise awareness for economically sustainable action in the forest and support role clarification at all levels. Forest owners know their role, exercise it and define strategic targets for the managers. Managers take economic criteria into account when making their decisions (e. g. on wood harvesting methods, tree species selection, silviculture methods, wood marketing, use of new technologies, digitalisation).
d.	The Confederation supports other actors in the development and expansion of economic skills, know-how exchange and knowledge transfer.	The cantons support the development and expansion of skills, know-how exchange and knowledge transfer.	Educational institutions intensify education and training and know-how exchange and knowledge transfer in economics.
e.	The Confederation examines proposed changes to the regulation and support of forest management and evaluates the impact of the legal instruments employed. It also examines the removal of regulatory barriers to improve the economic efficiency of the forestry industry, as required.	The cantons support the examination of proposed changes to the regulation and funding at national level. They evaluate the impact of the legal instruments at cantonal level. They examine the removal of regulatory barriers as required.	Forest Switzerland collaborates on the evaluation of the legal instruments employed and examines proposed changes to regulations and funding. The associations show and communicate the space available for sustainable forest management.
f.	The Confederation supports the increase in processing capacity for wood, including hardwood and glulam, by expanding the dialogue platform, supplying basic data for business decisions and reviewing and improving the framework conditions for investment.	The cantons support projects to increase processing capacity, including for hardwood and glulam.	LIGNUM – Timber Industry of Switzerland formulates a strategy to increase the production of wood products in demand on the market using wood from the Swiss forests and supports investment projects.

Strategic direction 6.2: Valorisation of forest services

Information bases are developed and framework conditions established so that forest services provided by the forest owners can be valorised (e.g. for recreation, drinking water, CO_2 sink services).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation proposes a concept for valorisation of the forest ecosystem services. This concept is based on pilot projects aimed at compensating for current services provided by the forest owners, and proposes ways of raising awareness among forest owners.	The cantons review their legal and planning information bases in relation to support for the valorisation of forest services. The cantons raise the awareness of the relevant cantonal and municipal authorities and third parties.	Forest owners and managers examine the options for generation of income by providing services for the benefit of the relevant users or originators. Forest associations raise the awareness of forest owners accordingly.
b.	The Confederation supports monetary valuation of the forest ecosystem services and also of the urban tree stands if required. It examines whether it is expedient to extend the existing macroeconomic monitoring of the forestry industry (Forestry Economic Accounts [FEA]) to include social, economic, ecosystem and ecological factors in the accounts.	The cantons support the valorisation of forest services by distributing the monetary value results of those services to their own interest groups.	The forest associations and owners support the valorisation of forest services by distributing the monetary value results of those services to their own interest groups.
c.	The Confederation commits to consideration of forest services as part of the valuation and valorisation of the ecosystem services.	The cantons support forest owners with the valorisation of forest services.	Forest associations provide basic information and guides which are periodically revised and advise forest owners on valorisation.

3.7 No threat to forest soil, drinking water and tree vitality

Challenges

The forest filters pollutants from the air and this impairs the vitality of trees and causes acidification of the soil. This makes the forest vulnerable to stress and threatens, for example, the quality of the water that filters through the forest soil and contributes to meeting around 40% of Switzerland's drinking-water requirement. One difficulty is that meeting this objective relies on other sectors (e. g. nitrogen pollution from agriculture and transport). Substance inputs are subject to national and international regulations. Soil protection is therefore predominantly a national task.

Current status 2020 and outlook

The postulate report "Options for Compensation for Acidification of Forest Soil and Improvement of the Nutrient Situation of Forests – Presentation and Valuation"[35] is to provide the basis on which to conserve and improve the nutrient situation in the forest. The Confederation, cantons and other actors are ready to implement the measures outlined in the report.

Objective 7

Forest soil, drinking water and tree vitality is not endangered by substance inputs, inappropriate management and corresponding physical impacts.

35 Postulate 13.4201: *www.parlament.ch/de/ratsbetrieb/suche-curia-vista/geschaeft?AffairId=20134201.*

Strategic directions and measures

Strategic direction 7.1: Intersectoral approaches

Intersectoral approaches (e. g. reduction of nitrogen pollution from transport, agriculture and industry) are adopted.[36]

	Federal measures	Role of the cantons	Role of other actors
a.	The FOEN commits to forest protection in other sectoral policies (namely transport and agricultural policy).	The cantonal forestry offices commit to forest protection in other sectoral policies.	Forest owners and their associations assume an interface function on agriculture for forest protection. Forest associations and environmental organisations commit to forest protection in other sectoral policies.
b.	The Confederation supports international efforts on definition and/or scientific corroboration of the emissions limits (e. g. participation in committees on the UNECE Air Convention to reduce air pollution).	–	The research institutions participate in setting emission limits and publicise their results.

Strategic direction 7.2: Driving on forest soil

Management methods which protect the soil maintain and improve the fertility of the forest floor.[37]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation updates the recommendations on physical soil protection as required and contributes to the relevant transfer of knowledge into practice.	The cantons implement physical soil protection in the management regulations.	Educational institutions intensify education and training on management methods which protect the soil. Forest associations raise the awareness of forest owners so that these methods are given greater consideration.

Strategic direction 7.3: Nutrient balance

The nutrient balance is conserved or improved through the examination of the consequences of substance withdrawals from the forest (e. g. full tree harvesting) or measures for the compensation of nutrient losses.[38]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation further clarifies the extent of the threatened forest stands and locations particularly at risk from nitrogen inputs (inventory).	The cantons interpret the stand inventories in the regional context. They define objectives and implement measures.	The research institutions further develop methods. Forest Switzerland informs forest owners about conservation and improvement of the nutrient balance and possible measures to prevent nutrient losses.
b.	With the participation of the actors, the Confederation develops concepts for the improvement of the nutrient balance in the forest and ensures they are included in the programme agreements. It formulates relevant recommendations for silvicultural and technical measures (e. g. for tree species selection and harvesting or soil rehabilitation methods).	The cantons collaborate on the development of recommendations and implement them in compliance with their remit (e. g. advice to forest owners).	The research institutions provide the information base for the development of recommendations. Forest associations inform their members of recommendations on harvesting measures.

36 Strategic direction revised; original wording: *"Intersectoral approaches (e. g. reduction of nitrogen pollution from transport and agriculture) shall be adopted."*

37 Strategic direction revised; original wording: *"Conditions for driving on forest soils shall be codified in the legal requirements for near-natural silviculture (see also section 3.4)."*

38 Strategic direction revised; original wording: *"The nutrient balance shall be conserved or improved through the examination of the consequences of substance withdrawals from the forest (e. g. full tree harvesting) or measures for the compensation of nutrient losses (e. g. through the spreading of wood ash)."*

3.8 The forest is protected against harmful organisms

Challenges

Biotic hazards are on the increase. The causes of this development include the rise in global trade and mobility and climate change. These developments will become even more pronounced in the future and the forest will not evade the consequences. Hence, the damage caused to forests by harmful organisms may result in a threat to forest services.

Current status 2020 and outlook

The Forest Act was revised effective from 1 January 2017 for better protection against biotic hazards. This revision also enables control measures outside protective forest to be supported by the Confederation and measures against particularly hazardous harmful organisms to be given a better legal basis. The FOEN has had an official ordinance for emergency measures since 2018 and has produced a forest protection implementation guide with the cantons. The import checks for packing wood have been risk-based since 2012 and control strategies exist for priority harmful organisms. The Confederation promotes an understanding of forest protection outside the forest by means of courses, curriculum reviews and information campaigns. Authorities and research organisations examine improved early detection methods, the treatment of established harmful organisms and alternatives to the use of plant protection products in the forests. They also participate in improving preparedness for national forest damage events, as these are likely to become more frequent due to climate change.

Objective 8

The forest is protected against the introduction of particularly hazardous harmful organisms. The infestation and spread of organisms does not exceed an acceptable level from the perspective of forest services.

Strategic directions and measures

Strategic direction 8.1: Prevention, control and crisis management

Gaps in the prevention and control of biotic hazards are identified and filled. Effective crisis management is developed.[39]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation optimises the existing crisis management jointly with all the partners (cantons, WSL, management organisation, FOAG) and implements it with the partners. The main emphasis is on preparedness.	The cantons supply sufficient resources (people, funding, knowledge, structures) for prevention and event management and participate in the formulation of emergency plans against quarantine organisms. In case of infestation, they produce and implement an action plan under the emergency plan.	The FOAG and WSL cooperate in the optimisation of crisis management, promote it and ensure the necessary resources for an infestation.
b.	The Confederation manages and coordinates the efforts for protection of the forest against biotic hazards and defines control strategies for specific organisms. The FOEN ensures that federal legislation is further developed to reflect the changing challenges of global trade flows and implements the relevant preventive measures.	The cantons collaborate as required in further developing the control strategies and federal legislation and implement new prevention and control provisions.	The relevant actors such as trade associations collaborate in the further development of federal legislation and implement new provisions.
c.	The Confederation promotes the inclusion of skills in the detection and handling of biotic hazards in the forest in the education of foresters, gardeners and other relevant professionals.	The cantons support the efforts to promote skills in the detection and handling of biotic hazards in the forest.	The relevant educational institutions (in forestry, agriculture, green sector) close skills gaps in the detection and handling of biotic hazards in the forest by further developing their curricula.
d.	The Confederation raises awareness of forest protection among communities outside the forest. It exploits synergies with professional bodies and trade associations.	The cantons raise the awareness of the relevant cantonal and communal authorities and third parties.	Trade associations such as Jardin Suisse and the Swiss Municipal Gardeners Association and parks departments raise member awareness on handling biotic hazards.
e.	The Confederation examines jointly with the cantons and researchers how early detection of harmful organisms and handling of established harmful organisms (including invasive neophytes) can be improved. It seeks to minimise the use of plant protection products in the forest.	The cantons support and monitor the deliberations on the subjects mentioned. If required, they make test sites available and contribute their know-how.	Research institutions develop new approaches and methods for further development on the subjects mentioned.

Strategic direction 8.2: Infestation outside the protective forest

In the event of disturbance or damage, preventive, remedial and reforestation measures are also strengthened outside the protective forest.

The measures in strategic direction 8.2 have now been included in strategic direction 8.1.

39 Strategic direction revised; original wording: *"Gaps in the prevention and control of biotic hazards shall be identified and filled. Effective crisis management, including the necessary infrastructure (e.g. laboratory), shall be developed."*

3.9 Forest and wildlife are in balance

Challenges

To guarantee natural forest regeneration, a forest-wildlife balance needs to be sought. This entails ensuring hunting which is appropriate for game biology, wildlife-friendly forest management and respectful management of the open land near the forest. Wildlife stocks are also specifically affected by leisure activities in their habitats (ski touring, hiking, cycling, walking with or without dogs etc.) and the presence of predators.

Current status 2020 and outlook

Regulation of wildlife stocks is to be designed so that sustainable management of the forests and their natural regeneration with indigenous tree species is possible. The presence of large predators will be taken into consideration. Forests and wildlife are to be managed under a focused and coordinated forest and hunting plan to be implemented by hunters and forest owners.

Objective 9

The forest provides sufficient living space and quiet for wild animals. Game stocks are adapted to their habitats and have a natural age and gender distribution. The natural regeneration of forests with tree species suited to their locations is not hindered by wild ungulates.

Strategic directions and measures

Strategic direction 9.1: Forest-wildlife strategies

In the context of programme agreements on the protective forests and forest management,[40] the cantons are given financial support for the production and implementation of forest-wildlife strategies.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation provides financial support for the production and implementation of forest-wildlife strategies based on the protective forests and forest management programme agreements in accordance with the 'Wald und Wild' (Forest and wildlife enforcement aid).	The cantons agree to the forest and hunting plan among the offices responsible. They consider the impact of the large predators present and as required produce forest-wildlife concepts in accordance with the forest and wildlife enforcement aids, implement the measures defined and monitor them appropriately.	Forest managers, hunters and other actors participate in drafting the forest-wildlife concepts and implement the measures defined.

Strategic direction 9.2: Ensuring forest regeneration

To ensure natural forest regeneration, the cantons receive substantive guidelines and specialist information.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation updates the technical information bases for forest and wildlife management and the principles for periodic assessment of the forest regeneration (implementation guides, basic reports etc.). It considers new research findings and the experience of the cantons.	The cantons analyse the situation in the regional context. They define measures on the basis of the Confederation's implementation guides and implement them in collaboration with other actors. They regularly monitor the success of implementation and take account of the experience of the other actors.	Actors affected such as WaldSchweiz (forest owners) and JagdSchweiz (hunters) and agriculture and leisure/tourism representatives work with the cantons to implement the measures.

Strategic direction 9.3: Wildlife rest areas

To protect ecologically sensitive regions, visitor management is put in place in forests under high recreational pressures. If necessary, 'wildlife rest areas' are designated within and outside those forests.[41]

The measures in strategic direction 9.3 have now been included in strategic direction 10.4.

40 From the period 2020–2024 Forest Programme Agreement.

41 Strategic direction revised, original wording: *"Rest areas for wild animals (wildlife rest areas) shall be designated insofar as required."*

3.10 The use of the forest for leisure and recreation is respectful

Challenges

The recreational use of forests has increased continuously in recent years. The current National Forest Inventory (NFI4) allocates ten percent of forest area to the function of recreation.[42] However, leisure and recreation use is only respectful in part and sometimes conflicts with other uses of the forest (wood harvesting, biodiversity etc.). In addition, in extreme cases it can pose a threat to forest conservation. Certain information deficits exist in relation to the state and development of leisure and recreational use of the forest.

Due to the free accessibility of the forest, additional measures for biodiversity, in particular the generation of more dead and old wood, can lead to issues regarding liability risks for forest owners.

Current status 2020 and outlook

Implementation of the leisure and recreation strategy in the forest[43] is becoming the primary challenge in this area and concerns three priorities: 1) Promotion of the health of the population, 2) Conservation of the natural forest ecosystem and 3) Economic valorisation of the recreational service of the forest. The strategy is being implemented in two stages. Six measures are to be implemented by 2021 and the rest after 2021.

There are great pressures on the forest in the large conurbations and the tourist regions due to local recreational activities. These challenges are to be considered jointly by the actors affected from forestry, agriculture and spatial planning.

Objective 10

Leisure and recreation activities in the Swiss forest are respectful. Forest visitors are satisfied with the services provided.

42 Based on the survey of local forestry services and existing planning documents.

43 FOEN 2018: 'Leisure and recreation in the forest' strategy.

Strategic directions and measures

Strategic direction 10.1: Communication

The public is informed and made aware of the correlations and interconnections in the forest ecosystem.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation prepares information bases associated with leisure and recreation use in the forest which are in the interests of all the actors. The Confederation contributes to training in this area (e. g. with the support of the organisers of courses or symposia, based on Articles 29 and 39 Forest Act).	The cantons ensure respectful leisure and recreational use and restrict access to specific parts of the forest where its conservation and functions require (based on Article 14 Forest Act). The cantons, jointly with forest owners and leisure organisations, implement measures for awareness-raising and guidance.	Forest owners represent their interests to the Forest Service and third parties. Leisure organisations participate in planned and current implementation measures. Leisure and recreational use stakeholders commit to respectful use of the forests and to ensuring the rights and obligations of all users.
b.	The Confederation provides technical and/or financial support as required to the organisations which raise awareness of urban forestry[44] and respectful recreational use (based on Article 32 Forest Act).	The cantons support and coordinate as required the organisations which contribute to urban forestry and the promotion of respectful use for recreation.	Leisure organisations and those with a connection to urban forestry contribute to the promotion of respectful use for recreation in the forest.

Strategic direction 10.2: Valorisation of forest services

Information bases are developed and conditions created for the valorisation of forest services provided by forest owners.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation creates the information bases and supplies examples of plans, management techniques and valorisation of recreational forests and urban forestry.	The cantons interpret the national information bases in the regional context, determine measures as required and implement and monitor them. If required, the cantons help forest owners and third parties create a framework for negotiations on the valorisation of forest services.	Forest owners develop the necessary capabilities (information, skills etc.) to negotiate with stakeholders on the valorisation of forest services. The stakeholders participate in the various negotiations.

Strategic direction 10.3: Recreational forest strategy

A recreational forest strategy demonstrating the advantages of recreational forest use for all three dimensions of sustainability is developed.[45]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation implements the 'Leisure and recreation in the forest' strategy with the involvement of the actors affected (spatial planning, agriculture, tourism etc.) to reduce forest use conflicts.	The cantons interpret the national strategy in the regional context and determine and monitor measures as required.	Forest owners, cities, communes and other stakeholders interpret the information bases in their own context and determine, implement and monitor measures as required.

44 See definition in the glossary.

45 Strategic direction revised, original wording: *"A 'Triple Win Strategie Erholungswald' ('Triple-win recreational forest strategy') is being developed. It will demonstrate the advantages of recreational forest use for all dimensions of sustainability."*

Strategic direction 10.4: Wildlife rest areas

To protect ecologically sensitive regions, visitor management is implemented in forests under high recreational pressure. If necessary, 'wildlife rest areas' are designated within and outside those forests.[46]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation advises the cantons on visitor management in forests under high recreational pressure.	The cantons implement visitor management measures in forests under high recreational pressure (e. g. separation of uses by designating attractive areas for recreational use and rest areas for wildlife). They monitor the effectiveness of the measures.	Forest owners and managers participate in the formulation of measures to manage forest visitors. Forest visitors comply with the management measures.
b.	The Confederation supports the cantons in the public announcement of the 'Rest areas for wildlife' (internet, skiing area maps).	The cantons introduce rest areas for wildlife and review recognition and acceptance of these in due course.	Tourism organisations draw attention to wildlife rest areas in the course of their work. Forest visitors and businesses offering services in this field respect the wildlife rest areas.

Strategic direction 10.5: Legal certainty

Forest owners are given greater legal certainty through the clarification of legal issues (in particular liability).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation examines the liability associated with leisure and recreation in the forest. It compiles a list of court cases involving liability for accidents during leisure or recreational activity in the forest (e. g. involving dead wood left to encourage biodiversity).	The cantons examine the liability associated with leisure and recreation in the forest at regional level. They support the compilation – at regional level – of a list of court cases involving liability for accidents during leisure or recreational activity in the forest.	Experts make their expertise available to working groups. Forest owners and managers know their rights and obligations.
b.	The Confederation ensures legal certainty as required on matters of the forest and wood as a resource. It arranges for coordination with other areas.	The cantons interpret the reports in the regional context.	Experts from different organisations make their expertise available to working groups.

46 Strategic direction revised, original wording: *"Rest areas for wild animals (wildlife rest areas) shall be designated, insofar as necessary."*

3.11 Education, research and knowledge transfer are guaranteed

Challenges

The educational system must be adapted constantly to the new challenges in forestry and ensure that there are sufficient numbers of competent experts on all levels.

Current status 2020 and outlook

By networking and promoting exchanges (including training) among actors from practice, education and research, foresters are equipped for future challenges and can bring the latest know-how to their work. This includes health protection measures for forestry workers. Moreover, children and young people can learn about the needs of the forests and their sustainable management in lessons at school.

Knowledge transfer between actors from different fields plays an important role in the educational system. It also helps to formulate the research requirement, so that applied research can fill existing gaps.

Here, the meanings of the terms education and training are as given in education legislation. The term 'education' refers to formal educational courses, namely vocational and professional education and training (VPET) and university education. The term 'training' refers to non-formal educational opportunities, e. g. courses or learning programmes.

Objective 11

The forest education system ensures high-quality expert and management skills of those working in and for the forest at all times. Research develops scientific information bases and effective methods for the resolution of problems.

Strategic directions and measures

Strategic direction 11.1: University and vocational/professional education

The actors involved in forestry education and training, research and practice are brought together to ensure high quality education and training at university and in VPET in the long term.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation supports and participates in activities and networks to promote exchanges among actors in forestry education and other relevant disciplines.	The cantons network to promote exchanges among actors in forestry education and other relevant disciplines.	The educational institutions align their activities with developments in the forest and in other areas with forest relevance. Forestry practitioners articulate their education and training needs to the educational and research institutions, the Confederation and the cantons.
b.	The Confederation supports and participates in activities and networks to promote exchanges among actors in research with forest relevance.	The cantons articulate their basic information and applied research needs. The cantons participate substantively in research projects.	Forestry practitioners articulate their basic and applied research needs.

Strategic direction 11.2: Training

The training of experts in the forest sector is ensured.[47]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation promotes theoretical and practical training for forestry professionals with higher education.	The cantons promote theoretical and practical training for forestry professionals.	Educational institutions develop opportunities for training and draw the attention of forestry professionals to them.
b.	The Confederation informs forestry professionals of the importance of training, involving relevant actors.	The cantons inform forestry professionals, the trade associations and the educational institutions of the importance of the training.	The trade associations inform forestry professionals of the importance of training.

Strategic direction 11.3: Knowledge transfer

The transfer and exchange of knowledge between education, research and practice is improved.[48]

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation promotes knowledge transfer between education, practice and research.	The cantons transfer information from research to forestry practice.	Actors from education, research and practice participate in the exchange of information and interpretation of material.
b.	The Confederation identifies relevant subjects to be included in education and research and formulates appropriate recommendations, integrating all educational levels.	The cantons identify relevant subjects to be included in education and research and report them to the Confederation.	Actors from education, research and practice participate in the exchanges to identify relevant subjects.

47 Strategic direction revised; original wording: "*The continuing education and training of experts in the forest sector shall be ensured.*"

48 Strategic direction revised; original wording: "*The transfer and exchange of knowledge between research and practice shall be improved.*"

Strategic direction 11.4: Occupational health and safety

The occupational health and safety of forestry workers and awareness-raising of these requirements are promoted.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation promotes safety-at-work courses for people without forestry education and ensures the quality of the courses, in collaboration with the associations and cantons.	The cantons, together with the associations, offer safety-at-work courses for people without forestry education and ensure the quality of the courses.	The professional organisations run safety-at-work courses for people without forestry education.
b.	The Confederation promotes health protection for forestry apprentices.	The cantons encourage the implementation of health protection measures for forestry apprentices.	The educational institutions and sponsors in forestry integrate the subject of health protection of forestry apprentices in the curriculum at all three places of learning.

Strategic direction 11.5: Awareness of sustainable forest management

Awareness of the forest and its sustainable development is promoted.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation promotes the integration of subjects with forest relevance in the general school curriculum.	The cantons promote the integration of subjects with forest relevance in the general school curriculum.	The cantonal departments responsible for school education include subjects with forest relevance in the curriculum.
b.	The Confederation supports educational activities in forest-related teaching and environmental education with expertise and funding.	The cantons support educational activities in forest-related teaching and environmental education.	Actors in the forest or environment fields offer environmental education opportunities in collaboration with forest owners.

Strategic direction 11.6: Research requirement

The research requirement is recognised and communicated to the responsible research actors.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation defines its own research requirement, accepts notifications of research needs from the cantons and other actors and prioritises them with the involvement of the cantons and other actors. The Confederation issues the corresponding mandates to research institutions and commits to long-term research.	The cantons articulate research needs and report them to the Confederation. The cantons formulate specific questions to the research institutions, commit to funding long-term research and jointly coordinate research support.	Associations and organisations articulate research needs and report them to the Confederation. Researchers accept research needs.
b.	The Confederation observes the current developments in the forest and develops long-term perspectives so as to be able to extrapolate future research requirements from them.	–	–

3.12 Other strategic directions

Some strategic directions serve the fulfilment of the objectives defined for several areas and cannot be clearly assigned to a particular objective. Hence, they are presented in this chapter and are based on the general objective that the Swiss forest be managed in a way that enables it to fulfil its functions and services sustainably and equally.

Strategic directions and measures

Strategic direction 12.1: Environmental and other monitoring

Regular forest monitoring (National Forest Inventory NFI etc.) and the monitoring of the forestry sector (forestry statistics, test operations networks etc.) are a central component of environmental monitoring.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation ensures the implementation of an up-to-date and meaningful forest inventory (National Forest Inventory NFI). It interprets the results and determines any necessary measures. These activities are carried out in collaboration with the WSL (cf. Article 37*a* para. 1 FoO).	The cantons interpret the results of the NFI and determine any necessary measures. The cantons carry out their own additional surveys if required.	Associations and organisations interpret the results of the NFI and cantonal surveys and determine any necessary measures.
b.	The Confederation ensures the implementation of up-to-date and meaningful forest economic monitoring (forestry statistics, test operations network (Forstliche Betriebsabrechnung ForstBAR [forest operational accounting]). It interprets the results and determines any necessary measures.	The cantons supply the necessary data, interpret the national results and determine any necessary measures.	The forestry operations supply the necessary data. Associations and organisations and forest owners and forestry enterprises interpret the national results and determine any necessary measures. The research institutions use the monitoring data.
c.	The Confederation carries out periodic surveys on the attitudes of the population to the forest (Waldmonitoring soziokulturell WaMos [socio-cultural forest monitoring]). It interprets the results and determines any necessary measures.	The cantons interpret the national results and determine any necessary measures.	Associations and organisations interpret the national results and determine any necessary measures.
d.	The Confederation ensures that long-term studies are carried out on the health and vitality of the Swiss forest. It interprets the results and determines any necessary measures. Those studies are carried out by the WSL (cf. Article 37*a* para. 3 FoA).	The cantons participate where possible in the funding of long-term studies on the health and vitality of the Swiss forest. They interpret the results and determine any necessary measures.	Associations and organisations interpret national results and determine any necessary measures.
e.	The Confederation provides periodic reporting on the state of the Swiss forest (e. g. Forest Report), including a sustainability assessment. It interprets the results and determines any necessary measures.	The cantons interpret the national results, issue their own sustainability reports and determine any necessary measures.	Associations and organisations interpret the national results and determine any necessary measures.

	Federal measures	Role of the cantons	Role of other actors
f.	The Confederation further develops the strategic bases for forest monitoring in accordance with current challenges (forest resources: NFI; economics: forest statistics, test operations network, Forstliche Betriebsabrechnung ForstBAR [forest operational accounting; ecology: NFI; Biodiversity Monitoring Switzerland; society: WaMos). The Confederation also considers new options such as methods for analysis of satellite data, OpenData and OpenSource, data platforms for apps, visualisation of results.	The cantons formulate requirements for forest monitoring.	Associations and organisations formulate requirements for forest monitoring. The research institutions participate in further development of the conceptual bases for forest monitoring.

Strategic direction 12.2: Supra-operational forest planning

Supra-operational forest planning is promoted in the context of the programme agreements with the cantons. This allows comparison of interests between the various demands for forest services (e. g. protective forest versus forest reserves), in conflict resolution and in ensuring sustainability.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation concludes multiannual programme agreements on supra-operational forest planning (managed at cantonal level).	The cantons ensure supra-operational forest planning. They advise forest owners, communes and other actors in connection with supra-operational forest planning.	Forest owners, communal authorities and representatives of interest groups (hunting, nature conservation, recreation etc.) participate in and promote supra-operational forest planning.
b.	The Confederation, together with the cantons, provides supra-operational sustainability criteria and indicators and further develops the system as required.	The cantons participate in formulation of the criteria and apply them (carrying out monitoring, using the results in forest planning).	The research institutions and other actors participate in the further development of supra-operational sustainability criteria and indicators.
c.	The Confederation monitors knowledge transfer and ensures there is technical knowledge on forest planning and provides support information as required.	The cantons ensure good quality forest planning.	The research and educational institutions and other actors ensure knowledge transfer to teaching and practice (e. g. through the Forest Planning working group of the Swiss Forestry Association (WaPlaMa)).

Strategic direction 12.3: Partnerships and synergies

Inter-sectoral partnerships are strengthened and synergies with other (national and international) policy and economic sectors established.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation ensures the involvement of the relevant sectors in the forest policy and forest legislation processes.	The cantons ensure the involvement of the relevant sectors in the cantonal forest policy and forest legislation processes.	Associations and organisations involved with forest and wood highlight any gaps in the forest policy.
b.	The Confederation contributes actively to all forest-relevant policy and legislation processes (agriculture, energy/climate, biodiversity etc.).	The cantons cooperate actively in forest-relevant policy and legislation processes at cantonal and national level (agriculture, energy/climate, biodiversity etc.).	The associations and organisations are invited to contribute their expertise.

	Federal measures	Role of the cantons	Role of other actors
c.	The Confederation establishes synergies with other sectors through the development of joint objectives (strategic partnerships).	The cantons are involved in constructive and open cooperation.	Associations and organisations are involved in constructive and open cooperation.
d.	The Confederation participates in inter-sectoral networks (e. g. Netzwerk ländlicher Raum [rural development network]).	The cantons participate in inter-sectoral networks (e. g. Netzwerk ländlicher Raum).	Associations and organisations participate in inter-sectoral networks (e. g. Netzwerk ländlicher Raum).

Strategic direction 12.4: International affairs

There is international exchange and participation in international processes (e. g. climate negotiations, negotiations on a European forest convention).

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation contributes the relevant forest management experience of Switzerland to international processes and benefits at the same time from the experience of other countries and organisations.	The cantons participate in the International Committee on Forestry led by Switzerland (formerly the Interdepartmental Sustainable Development Committee ISDC Forest).	Interested actors from science, teaching, sectors, NGOs participate in the International Committee on Forestry led by Switzerland (formerly the Interdepartmental Sustainable Development Committee ISDC forest).
b.	The Confederation safeguards the interests of Switzerland in the context of forest-relevant international processes. The internal federal interests of different sectors and federal offices are included (DEZA, SECO, FAOG, FSVO etc.).	see a)	see a)
c.	The Confederation supports and advocates sustainable forest management as an instrument for the coordination and comprehensive guaranteeing of all forest services (forest-relevant conventions and processes at European and global levels).	see a)	see a)
d.	The Confederation and cantons implement international agreements at national level.	The cantons implement international agreements at cantonal level.	see a)

Strategic direction 12.5: Information and dialogue

Trust and understanding are fostered within the forestry and timber sectors and with the population through information and dialogue.

	Federal measures	Role of the cantons	Role of other actors
a.	The Confederation implements various communication and information measures (internet presence, newsletter, issue management etc.).	The cantons implement various communication and information measures (internet presence, newsletter, issue management etc.).	The associations and organisations implement various communication and information measures (internet presence, newsletter, issue management etc.).
b.	The Confederation participates in the Forum Wald (Forest Forum) and the Forum Holz (Wood Forum) and, if necessary, assumes a leadership role. The recommendations of the forums are taken into account by the Confederation as appropriate.	The cantons ensure an open exchange of information and the necessary advice.	Associations and organisations participate in an open exchange of information and advise the Confederation on matters concerning forest and wood.

4 Impacts

The financial and legal impacts of Forest Policy 2020 were listed individually in Chapter 3 of the original publication for each of the eleven objectives. No new financial or legal impacts are expected for this update of Forest Policy 2020. The measures do not change the existing responsibilities or their division between Confederation, cantons and the other actors. All the measures described can be implemented at federal level within the existing budget and under the legal regulations applicable on the date of approval.

On the basis of Forest Policy 2020 and the resultant amendment of the Forest Act (entry into force 1 January 2017), important additional stimuli and more federal funds for joint implementation with the cantons and other actors in the forest and wood sector have been introduced. The purpose of the newly introduced regulations is to give the forests better protection from harmful organisms in the future, to prepare them for the challenges of climate change and to increase wood use and safety at work in wood harvesting.

Processes operating separately (e. g. programme agreements between Confederation and cantons, political initiatives) could lead to legal or financial changes; however, these will be submitted to Parliament in separate motions or bills and will not emerge directly from the Forest Policy with the action plan 2021–2024.

Annex 1 Indicators and target values

Objective		ID	Indicator	Target value
1	Sustainable wood use potential is exploited (Chapter 3.1)	1	Total volume of wood harvested (m^3/year) in the Swiss forest for material and energy purposes S: Forest statistics (projected)	8.2 million m^3/year (harvested wood volumes, i. e. sales volume according to forest statistics plus volume not recorded statistically, e. g. oversize, bark, small quantities in private forests) (In the long term, it is hoped to come close to the sustainable wood use potential) (Target value according to the 'Projekt Holznutzungspotenzial' ['Wood Harvest Potential project']; under development [including distinction between softwood and hardwood])
		2	Demand for material wood products (corresponds to Wood Resource Policy) S: FOEN, FSO (see Wood Resource Policy)	20% increase in per-capita consumption of sawn wood and wood products by 2030 (compared with 2008)
2.i	Climate change: Mitigation (Chapter 3.2)	3	CO_2 balance of forests S: FOEN (greenhouse gas inventory)	Long-term level CO_2 balance between the forest sink, wood use and wood substitution effects
		4	Substitution effect of all wood use S: internal FOEN calculation (2009)[49]	Increasing of substitution effect by 1.2 million tonnes CO_2/year as compared with 1990
2.ii	Climate change: Adaptation (Chapter 3.2)	5	Forest areas with climate-sensitive species composition and structure S: National Forest Inventory (NFI)	25% reduction in climate-sensitive stand area (according to NFI3 total 50,000 ha) Reduction in stands with 90% and more coniferous trees at lower altitudes Results from the 'Wald und Klimawandel ('Forest Climate Change') research programme to be taken into account 25% reduction in the area of critical protective forests by 2040 (protective forests with critical stability and critical regeneration: 68,000 ha according to NFI 3)
		6	Mixed forest areas S: National Forest Inventory (NFI)	10% increase in the proportion of mixed forest area (based on NFI3).
3	The protective forest service is ensured (Chapter 3.3)	7	Protective forests percentage with compliant requirement profiles under NaiS (sustainability in protective forests) S: National Forest Inventory (NFI) (protective forests module)	Indicator and target value to be defined after analysis of the results of the NaiS-NFI project
		8	Proportion of communes/regions/cantons with maintenance strategies for protective measures (forest planning for protective forests) S: National Forest Inventory NFI (survey about forest planning)	100%
		9	Hectares of treated and influenced protective forests area S: NFE controlling (annual reports)	3% of total protective forests area annually (protective forest designation in accordance with harmonised criteria)
		10	Compliance with minimum requirements within the NFE protective forests programme (NaiS method) S: NFE controlling (sample controls)	Compliance in 100% of samples

49 Planned update of study on CO_2 effects on the forestry and timber industry.

Objective		ID	Indicator	Target value
4	Biodiversity is conserved and is selectively improved (Chapter 3.4)	11	Species diversity of plants, animals and fungi in the forest S: Biodiversity Monitoring Switzerland, National Forest Inventory (NFI)	No decrease compared with 2007. Increase in species that have become rare
		12	Protected areas (long-term, i. e. minimum of 50 years, guaranteed forest reserves and permanent islands of old growth) S: Forest reserve GIS-database; NFE controlling (annual reports)	Minimum 10% by 2030 At least 15 large forest reserves (> 500 ha)
		13	Priority areas (e. g. forest margin, species promotion, chestnut groves, wooded pastures etc.) outside of protected areas S: NFE controlling (annual reports)	10,000 ha
		14	Near-naturally managed forest area in accordance with legal requirements S: National Forest Inventory (NFI), cantonal survey	On 100% of managed area (with interventions)
		15	Standing and lying dead wood volume (in accordance with NFI3, survey DBH threshold: 12 cm diameter) S: National Forest Inventory (NFI)	Jura, Central Plateau, Southern Alps: 20 m^3/ha; Pre-Alps, Alps: 25 m^3/ha
5	Forest area is conserved (Chapter 3.5)	16	Change in forest area in ha (National Forest Inventory) S: National Forest Inventory (NFI) FSO land use statistics	Minimum: area according to NFI3
		17	Wooded pasture, chestnut/walnut groves, grazing forest area S: National Forest Inventory (NFI), FSO land use statistics	No decline (according to NFI3)
		18	The development of forest area and interconnectivity in the landscape correspond with the defined spatial development objectives (in accordance with structural planning, spatial and landscape development strategies, other spatially-relevant plans). S: FSO land use statistics, separate cantonal survey	100% correspondence

Objective		ID	Indicator	Target value
6	The economic efficiency and performance of the forestry sector improves (Chapter 3.6)	19	Overall financial result per forestry operation. S: Forest statistics, test operations network (TBN)	90% of operations report profits
		20	Wood harvesting costs per m^3 S: Test operations network (TBN)	Positive contribution margin
		21	Forest services outside wood production (e. g. including CO_2 certificates) S: ad hoc survey	Positive contribution margin
		22	Forest services outside wood production (e. g. including CO_2 certificates) S: Test operations network (TBN)	Positive contribution margin for all activities (including recreation)
		23	Forestry industry productivity S: Forestry Economic Accounts (FEA): FSO	Productivity increase of 0.5% per year
7	No threat to forest soil, drinking water and tree vitality (Chapter 3.7)	24	Nitrogen input S: Nitrogen input and deposition in accordance with the National Air Pollution Monitoring Network (NABEL); Long-term Forest Ecosystem Research (LWF) sites, Institute for Applied Plant Biology (IAP) reports	Max. 20 kg N/ha per year
		25	Soil acidification: (critical parameters for BC/Al[50], pH and base saturation). S: Long-term Forest Ecosystem Research (LWF) sites, Institute for Applied Plant Biology (IAP) reports	According to regional evaluations, 20% of areas with contraventions of critical values in the main root area present an improvement compared with 2000. Significant improvement in LWF and cantonal permanent monitoring areas
		26	Exceeding of critical levels for ozone. S: National Air Pollution Monitoring Network (NABEL)	Minus 20% compared with 2000
		27	Traffic lanes apart from forest tracks/machine tracks S: National Forest Inventory (NFI)	Proportion of lanes apart from forest/machine tracks less than 20% (NFI 3: 24%)
8	The forest is protected against harmful organisms (Section 3.8)	28	Import controls on wood packaging (ISPM 15) S: FOEN, FOAG by external contract	80% of risk products from third countries shall be checked annually and if pests are found, no spread of infestation
		29	Phytosanitary controls S: FOEN, FOAG by external contract	100% of tree nurseries subject to a plant passport shall be checked annually and if pests are found, no spread of infestation
		30	Forest damage from beetles S: WSL Forest protection survey in cantons	Prevent large-scale disasters

50 BC/Al: Ratio of basic cations (calcium, magnesium, potassium) to aluminium in the soil solution.

Objective		ID	Indicator	Target value
9	Forest and wildlife are in balance (Chapter 3.9)	31	Forest area with sufficient regeneration of main tree species S: National Forest Inventory (NFI)	75% of forest area in each canton
		32	Structural diversity of the forests S: National Forest Inventory (NFI)	Increase
		33	Existing forest-wildlife strategies in the cantons S: Implementation guide	Number of wildlife plans in the canton as detailed in the implementation guide
10	The use of the forest for leisure and recreation is respectful (Chapter 3.10)	34	Satisfaction of forest visitors with services (quantity and quality. S: Sociocultural forest monitoring (WaMos and WaMos special analyses)	Forest visits remain constant. Increase in satisfaction
		35	Quantity and quality with recreational/natural facilities. S: National Forest Inventory (NFI), sociocultural forest monitoring (WaMos), periodic evaluation of quality within the framework of the strategy Leisure and Recreation in the Forest	Quantity of recreational facilities remains constant; quality of natural features is improved
		36	Area of recreational forests: · Designated forest with leisure and recreation as priority service S: Forest development plans (FDP), National Forest Inventory (NFI)	Consideration in accordance with regional planning
		37	Area of recreational forests: · Designated forest with leisure and recreation as priority service S: Forest development plans, FDP National Forest Inventory (NFI)	Consideration in accordance with regional planning
11	Education, research and knowledge transfer (Chapter 3.11)	38	Quality of formal forestry education programmes S: Separate surveying (feedback from cantons and professional and trade associations)	General satisfaction with the options and graduate skills
		39	Number of formal forestry education graduates over the last 10–15 years S: Forest and Wood Yearbook, separate surveying (by education centres, Codoc)	No downward trend in the number of graduates
		40	Number of participants and quality of further education courses S: Separate surveying	No downward trend in number of participants General satisfaction with the options
		41	Relevant issues to be taken up and handled by researchers S: Separate surveying (qualitative by expert interviews regarding coverage of the priority research topics according to the FOEN research concept for the environment)	100%
		42	Regular institutional dialogue between research, teaching and practice S: Separate surveying	Held regularly to the satisfaction of everyone involved

Annex 2 Participation process

Annex 2.1 List of organisations involved

Invited to the consultation on the draft Action Plan
Federal offices affected (ARE, FOBL, FAOG, SECO, SERI, SFOE); cantons (Conference of Cantonal Forest Directors KOK, Conference of Hunting and Fishing Managers JFK, Forest, Wildlife and Landscape Conference KWL, Conference of Nature and Landscape Conservation Commissioners KBNL, all cantonal head foresters, cantonal representatives in the JFK commission); organisations in the forest and wood sector (Forest Switzerland, Swiss Foresters Association VSF, LIGNUM Timber Industry of Switzerland, Wood Industry Switzerland, Wood Energy Switzerland, Forest Entrepreneurs Switzerland FUS, NRP 66 Resource Wood, Swiss Forestry Association SFV); nature and landscape conservation organisations (Pro Natura, WWF, BirdLife Switzerland); other interest groups (Association of Swiss Communes ASC, Citizens and Corporations Association SVBK, Swiss Working Group for Mountain Regions SAB, JagdSchweiz); educational and research institutions (Federal Institute for Forest, Snow and Landscape Research WSL; Federal Institute of Technology Zurich; School of Agricultural, Forest and Food Sciences HAFL; Forestry Education Centre Lyss; Forestry Education Centre Maienfeld).

List of organisations that took part in the consultation on the revised Action Plan in summer 2019.

Participating organisations which gave feedback
- Federal Office for Agriculture (FOAG)
- Federal Office for Buildings and Logistics (FOBL)
- Forest Wildlife and Landscape Conference (KWL)
- Conference of Nature and Landscape Conservation Commissioners (KBNL)
- 11 cantonal forest planning offices
- WaldSchweiz
- Wood Industry Switzerland (HIS)
- Pro Natura
- BirdLife Switzerland
- Swiss Working Group for Mountain Regions (SAB)
- Federal Institute for Forest, Snow and Landscape Research (WSL)
- Forestry Education Centre Lyss
- Swiss Forestry Association (SFV)
- National Research Programme NRP 66 (Resource Wood)
- Bernese Forest Owners Association (BWB)

Annex 2.2 Workshop participants

On 25 September 2019, the FOEN organised a workshop on the results of the consultation on the revised action plan and the conclusions drawn from it. Below is the list of organisations that participated in the meeting. The organisations came mainly from the Forest Forum, the Wood Forum and the Conference of Cantonal Forest Directors Committee. All the main areas – cantons, industry, nature conservation, research, education and other interest groups – were thus represented.

Participating organisations and their representatives
- Forest Wildlife and Landscape Conference: Mirjam Ballmer and Thomas Abt
- Cantonal Forest Directors Conference: Konrad Nötzli, Daniel Böhi, Rolf Manser and Patrick Fouvy
- LIGNUM Timber Industry of Switzerland (apologies)
- WaldSchweiz: Markus Brunner and Urban Brütsch
- Swiss Foresters Association: Peter Piller
- Wood Industry Switzerland: Urs Luginbühl
- Wood Energy Switzerland: Christoph Rutschmann
- Pro Natura: Elena Strozzi
- Federal Institute for Forest, Snow and Landscape: Christoph Hegg
- Swiss Forestry Association: Larissa Peter
- Forestry Education Centre Maienfeld: Stefan Brüllhart-Caprez

Glossary

Abiotic
Describes processes and factors that do not involve living organisms. Abiotic site factors are environmental factors and factors that are not caused or influenced by living organisms, for example, precipitation or bedrock.

Area statistics
Since the 1980s, the Federal Statistical Office has supplied area statistics with data on land use condition and changes in Switzerland. These are an indispensable instrument of long-term spatial monitoring. With their results it is possible to evaluate the extent to which the development of land use in Switzerland is compatible with the spatial development objectives and careful handling of the land resource. See: *Area statistics briefing*.

Biodiversity
Synonymous with biological diversity. Diversity of habitats and ecosystems. Diversity of species and genetic diversity, and that of crops and livestock.

Biotic
Biotic processes and factors involving living organisms. Biotic site factors are environmental factors and conditions caused or influenced by living organisms, for example, competition, harmful organisms or browsing.

Carbon sink
Reservoir that absorbs and stores carbon. Forests take up carbon during their growth and through the increase in carbon stored in the organic layer, in the soil and in dead wood. Forests release carbon into the atmosphere when wood is used or decays. If the uptake of carbon is higher than its loss, the result is a carbon sink; if the loss is greater, the forest becomes a carbon source. This definition applies to the forest without taking into consideration the storage capacity of wood used for construction.

Critical level
Concentrations of air pollutants in the atmosphere above which directly harmful effects can be expected on receptors such as humans, plants, ecosystems or materials, according to state.

Ecosystem
Dynamic, functional unit consisting of all living organisms together with their habitat. The organisms interact with their surroundings (soil, water, air, competitors, harmful organisms and so on) and exchange energy, material and information.

Ecosystem service
Function of an ecosystem that contributes to human well-being, for example, biomass production or carbon storage.

Education
Formal education course, for example VPET, professional education and universities.

Forest and wood value chain
Process chain consisting of the various production steps from wood harvesting to end use.

Forest boundary, static
Fixed forest border recorded in the zoning plan. Stocks growing beyond this border are not classified legally as forest, and therefore can be cut down without a permit.

Forest enterprise
Organisational unit, which, as a public or private legal entity or natural person, manages forests strategically and operatively. It can consist of one or more forest owners. In Switzerland, it is usually supported by a public authority, for example, by a political commune or citizens' commune or a corporation.

Forest functions
Tasks performed solely or partly by the forest, or which could or should be performed by the forest. Important forest functions in Switzerland include: protection against natural hazards, timber production, biodiversity, recreation, protection of drinking water, and filtering of air, etc.

Forestry Economic Accounting (FEA)
Forestry Economic Accounting (FEA) is an economic statistical summary system, the main purpose of which is to analyse the production process and the primary income of the forestry industry achieved within it. The FEA forms a coherent accounting framework which is adapted to the specific economic conditions in the forestry industry. See: *FEA briefing*.

Forest target species
Target species occurring in the forest.

Greenhouse gases
Greenhouse gases (GHG) are gases in the atmosphere that absorb and emit radiation, contribute to the greenhouse effect and can be both natural and anthropogenic in origin.

Increment
Increase in diameter, height, circumference, basal area, volume or value of a stand or individual tree within a defined time interval.

Indicator
A simple, measurable parameter for complex issues, systems or processes.

Industry 4.0
Industrial production is interlinked with modern information and communication technology. It helps to make production as self-organised as possible: Men, machines, installations, logistics and products communicate and cooperate directly with one another in Industry 4.0. By networking, it is possible to optimise not just one production step but an entire value chain. The data also integrates all the phases of the product's lifecycle – from product concept through development, manufacture, use and maintenance to recycling.

National Forest Inventory NFI
Sampling inventory of roughly 6,500 sample plots. It periodically records the condition of the Swiss forests and any changes that have taken place. On the basis of these data, statistically reliable conclusions can be drawn for the whole of Switzerland and for the larger cantons and regions. The first inventory (NFI1) was made in 1983–1985, the second (NFI2) in 1993–1995 and the third (NFI3) in 2004–2006. Since 2009, the data have been continuously collected, and one ninth of the sample plots throughout the country are surveyed each year. The primary sources of data are aerial images, data collected in forests and surveys of the forest service.

Natural forest
Forest developed from natural regeneration without human intervention for a long time. Also: a forest that is no longer actively managed with near-natural tree stands.

Natural regeneration
Naturally occurring by seed germination or vegetative propagation regeneration.

Near-natural silviculture
Management of the forest oriented towards its natural development. Unlike natural forest, near-natural forests are used, but care is taken to avoid having too much impact. The aim is to have mixed stands of tree species adapted to the site. It is based as a rule on natural regeneration, and creates stands that are richly structured, both horizontally and vertically.

Neophyte
Non-native plant intentionally or unintentionally introduced from a foreign region after the year 1492.

Plant community
Combination of plant species that depends on the environment and the competition.

Planting
Planting of young trees in a forest to regenerate it, for example, after storm damage (regeneration).

Regeneration
Establishment and growth of young trees. Regeneration that takes place without human involvement is called natural regeneration. Regeneration can be promoted via silvicultural measures (e. g. secondary felling) (natural regeneration) or occur as the result of intentional human actions (planting). Also: collective of young trees.

Resource policy
The FOEN uses resource policy as a synonym for environmental policy. In the FOEN's interpretation, a resource policy governs access to the natural resources and therefore to their use.

Risk management
Regular systematic monitoring and assessment of risks, as well as planning and implementing measures in order to be able to respond to any risks detected.

Risk management, integrated
Risk management that takes into consideration all kinds of natural hazards and measures, and works towards ecological, economic and social sustainability, and in which all those responsible for planning and implementation are involved.

SilvaProtect
SilvaProtect is a project used for modelling of gravitational natural hazard processes in the forest. Avalanches, landslides, rockfalls and channel processes are considered. With allowance for the damage potential, the database created with SilvaProtect is used by the cantons for designation of their protective forests under harmonised criteria. The Confederation uses the data as the key to distribution of the protective forests compensation.

Site
Entirety of all the environmental factors that affect plant communities (abiotic, biotic, including anthropogenic factors).

Site factors
Environmental factors influencing plants, either biotic (e. g. vegetation competition and harmful organisms) or abiotic (e. g. geology and weathering). These factors taken together define the site.

Stocking
Collective of trees or shrubs in a forest or non-forest area.

Sustainability
The term sustainability was coined in forestry. Originally, it meant "harvesting as much as will grow back". In the Brundtland Report of 1987, sustainability was defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. To achieve this, the three dimensions of sustainable development – environmental responsibility, social solidarity and economic performance – must be considered in an equal, integrated and balanced manner.

Target species
National priority species whose survival depends on specific measures.

Training
Informally structured educational opportunities, e. g. courses, learning software.

Urban forestry
Urban forestry is a collective and umbrella term for different activities in research and practice on and around trees, forest and green space in cities. Urban forestry is closely associated with the specialist fields of forest planning and silviculture.

Wood harvesting/use
Trees which are felled, including all wood which is removed from the forest and supplied for use or processing.

Wood use potential
Wood quantity that can theoretically be harvested per year in the Swiss forests on the basis of different forest management scenarios, when various factors such as social requirements and forest services (e. g. nature reserves, recreation, protective forest) and economic factors (e. g. wood prices, harvesting costs) are taken into account.

WOODVETIA
Campaign for Swiss wood run by Swiss Wood Marketing, a forestry and timber industry organisation.

Index of abbreviations

ARE
Federal Office for Spatial Development

AS
Official Compilation (of Swiss federal law)

BBl
Federal Gazette

BIM
Building Information Modelling

Codoc
Forest Education Coordination and Documentation

DETEC
Federal Department of the Environment, Transport, Energy and Communications

DDPS
Federal Department of Defence, Civil Protection and Sport

EI
Ecological Infrastructure

ETH
Federal Institute of Technology Zurich

FDP
Forest Development Plan

FEA
Forestry Economic Accounts

FoA
Forest Act

FOAG
Federal Office for Agriculture

FOBL
Federal Office for Buildings and Logistics

FOC
Federal Office of Culture

FOEN
Federal Office for the Environment

FOH
Federal Office for Housing

FoO
Forest Ordinance

ForstBAR
Standard software for forestry accounting

FSO
Federal Statistical Office

FSVO
Federal Food Safety and Veterinary Office

FUS
Forest Entrepreneurs Switzerland

GIS
Geographical Information System

HAFL
School of Agricultural, Forest and Food Sciences

HIS
Wood Industry Switzerland

IAP
Institute for Applied Plant Biology

ISDC
Interdepartmental Sustainable Development Committee

ISPM
International Standard for Phytosanitary Measures

JFK
Fishery Managers Conference

JagdSchweiz
Swiss hunters umbrella association

KBNL
Conference of Nature and Landscape Conservation Commissioners

KBOB
Coordinating Conference of the Construction and Real Estate Institutions of Public Builders

KOK
Conference of Cantonal Forest Directors

KWL
Forest, Wildlife and Landscape Conference

LCA
Life Cycle Assessment

LIGNUM
Timber Industry of Switzerland

LWF
Long-term Forest Ecosystem Research

MSH
Swiss Wood Marketing

NABEL
National Air Pollution Monitoring Network

NaiS
Sustainability and success monitoring in protective forests

NFE
Reform of the Financial Equalisation system and division of responsibilities

NFI
National Forest Inventory

NGOs
Non-Governmental Organisations

NRP
National Research Programme

Pro Natura
Nature conservation organisation Pro Natura

S
Source

SAB
Swiss Working Group for Mountain Regions

SDC
Swiss Agency for Development and Cooperation

SDGs
Sustainable Development Goals

SECO
State Secretariat for Economic Affairs

SERI
State Secretariat for Education, Research and Innovation

SFOE
Swiss Federal Office of Energy

SFV
Swiss Forestry Association

SilvaProtect
Project under which the protective forests of Switzerland are recorded by standardised methods.

SPREF
Public Real Estate Forum

TBN
Forest test enterprise network

UNECE
United Nations Economic Commission for Europe

WaldSchweiz
Swiss forest owners umbrella association

WaMos
Forest monitoring socio-cultural

WaPlaMa
Working group Forest Planning and Management

VPET
Vocational Education and Training

WHFF-CH
Fund for Forest and Wood Research in Switzerland

WSL
Federal Institute for Forest, Snow and Landscape Research

WWF
World Wide Fund for Nature