

Finnish Forestry as a Nature-Based Solution

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In this commentary, we discuss whether Finnish forestry innovations can be considered a nature-based solution (NBS). Our perspective is based on personal experiences, and the commentary is not intended to be comprehensive, but rather to provide examples and considerations. This text focuses on approaches in practical forestry. This excludes the broader meaning of forestry, such as forest industry and wood processing. The idea of NBS may be easier to apply in this broader context due to the potential substitution of fossil resources. However, because the greatest impact on forest ecosystems comes from timber harvesting, it is important to consider the origin of the wood raw material being utilized.

Since the late 1980s, Finnish forestry has adopted sustainability rhetoric that emphasizes the goal of producing multiple benefits for both humans and nature. This shift can be seen as a call for NBS, and several initiatives have emerged to harmonize forestry with ecological and societal needs. Examples include METSO-programme, Monimetsä-project, strong sustainability forest planning services, and continuous cover forestry.

To determine whether Finnish forestry can be considered an NBS, it is necessary to evaluate the different approaches used in forest management. In doing so, we have compared some approaches used in Finnish forestry and some ongoing research projects to the defining characteristics of NBS in the following table. You can read short descriptions of the approaches and projects below before the table.

Forest Biodiversity Programme for Southern Finland (METSO): Voluntary forest protection by landowners is particularly important in Southern Finland. Voluntary forest protection is promoted by the State through the Forest Biodiversity Programme for Southern Finland 2014–2025, called METSO. The METSO Programme aims to halt the ongoing decline in the biodiversity of forest habitats and species, and to establish at least stable or preferably favourable trends in Southern Finland's forest ecosystems. The METSO Programme offers various tools for the forest owners: they can offer their forests either for permanent protection or make temporary protection agreements. In addition, active nature management supported by the Programme is one way to increase biodiversity in managed stands. You can read more: [Forest Biodiversity Programme for Southern Finland \(METSO\) - Maa- ja metsätalousministeriö](#)

Monimetsä - Project: In the Monimetsä – project, the focus was on promoting nature management in commercial forests. The project aimed to increase forest owners’ awareness and strengthen the expertise of forestry professionals to ensure that nature management methods are always part of everyday forestry. In the project training was provided for forestry sector actors and implementers, and the development needs of services related to nature management were investigated. You can read more (Only in Finnish): Monimetsä | Metsäkeskus

Towards strong sustainability forest services (VaKe): In the project a better balance is sought between considering nature and forestry through solutions tailored to each forest owner. In forest planning, a forestry professional and the forest owner jointly plan the use of forests with the aim of making forest use more considerate of nature. The project investigates how a forest planning process based on the concept of strong sustainability could work from the perspectives of different stakeholders, and both current and new stakeholders are listened to in the development process. The functionality of the process is also tested in practice when forest planners from different organizations implement the planning process with forest owners. You can read more: Towards strong sustainability forest services (VaKe) - UEFConnect

Continuous cover forestry aims to minimize disturbances by maintaining a forest canopy throughout the management cycle. This approach relies on natural regeneration and reduces the ecological impact of clear-cutting. While it offers many ecological and aesthetic benefits, continuous cover forestry faces challenges because its use still remains marginal and cannot, on its own, address all of the challenges of forest biodiversity: Continuous cover forestry methods | Metsähallitus

Definitions of NBS (from eNabls 2024)	METSO program for voluntary forest protection	Monimetsä-hanke	A new forest planning process (VaKe)	Continuous cover forestry?
NBS must incorporate or improve ecosystems and biodiversity.	Yes. Positive effects on ecosystems and biodiversity are evident.	In a way yes. The facilitated measures (like buffer strips) are positive to nature in comparison to no measures at all, but the scale of effects on biodiversity loss can be questioned.	Depends on whether forest owners are willing to take voluntary measures that really has effect on BD loss, when they are pushed towards that.	Depends on how it is implemented. Can be intensive without no ecological benefits or low-intensive management with ecological benefits. But there is ecological potential.
NBS must be deliberate, with defined goals and well-structured management systems.	In a way yes. The goal to get forests protected voluntarily is deliberate and	Only partially. There are defined goals, but they are general and have to do with providing	In a way yes. The goal to get forest owners to make decisions better to nature is clear.	Only partially. The primary goal is still to produce timber, but this has been motivated with both

	clear. However, there have been some problems in implementation: the lack of money, limitations in information spreading.	information for forest owners and forest professionals to make current methods more acceptable.	There is an idea to establish the new process into the service portfolio of established service providers, but this is only a plan yet.	economic and environmental side-benefits. There is also a lot of discussion about the details of management practices.
In NBS, challenges are identified before actions (no post-implementation goals).	Yes. The challenge: we need more forest protection.	Yes. The challenge is that nature needs to be taken into account better in commercial forests.	Yes. The challenge: forest owners need a new kind of forest planning to make decisions that are better for nature.	Yes. The main challenge has been that we need an alternative to even-aged (clearcutting) forestry.
NBS should offer additional benefits beyond what has been done earlier.	Yes. There was no similar instrument for voluntary forest protection before METSO.	Partially. It is about supporting current methods with information. Additional benefits are probably limited.	Yes. There is no similar planning service in use in Finland.	Yes. Continuous-cover forestry with selective cuttings were forbidden before 2014.
NBS must offer simultaneous benefits to the environment and society.	In a way yes. Protected areas can also be used for recreation and probably produce other ecosystem services for humans.	Benefits for society appear as somewhat limited, although it increases the acceptability of currently used methods in society.	There is an aim at a more diverse forest landscape, which benefits wider society. However, the results will be seen.	Yes, especially in its unintensified form. Continuous forest cover is generally valued beyond clearcutting scenery.
NBS must be designed through transparent processes involving all stakeholders to address specific issues.	We have no knowledge on this.	We have no knowledge on this.	There is an aim to take different voices from society into account when creating new services. However, a forest owner and a planner are probably listened to most finally, as they are directly involved in the process.	Not applicable? It develops through everyday practices.
NBS must be based on adaptive management, allowing for flexibility and adjustment based on evolving knowledge and conditions	No. Administrative processes and the selection criteria are not at all flexible).	No. The idea is more to set the minimum standards for the forest sector.	Yes. The core idea is that there are no pre-set ways or levels for taking nature into account, but these	Yes. Continuous-cover forestry is probably more adaptive and open to changes than even-aged forestry. As a

			are set owner-by-owner.	"new" management tradition, is also probably evolving all the time based on accumulating experiences and knowledge.
NBS should be cost-effective, ensuring that financial expenses are appropriate to the benefits gained	Probably yes. At least the money has been targeted to the most valuable sites when using strict criteria.	Yes. The idea to take nature into account as cost-effectively as possible is in the very core of the project.	This depends on the benefit for nature that the new process can produce. This is not known yet.	Probably yes. The cost-effectiveness of continuous-cover forestry in comparison with even-aged forestry is debated a lot. However, the cost-effectiveness is high if we also think ecological benefits in addition to wood harvesting.
Effective NBS should involve coordinated efforts that consider cumulative impacts and engage multiple stakeholders to achieve significant city/village/community-wide, or regional benefits.	No. The process is always between a forest owner and the state. Protection in an area can feed more protection, but this is not coordinated. There is no spatially targeted marketing of METSO.	Partially. There are no significant goals to consider cumulative impacts. Events might have regional emphases or themes.	No. There are no any regional goals.	No coordinated efforts to cumulative impacts or regional goals. Forest owners buy and service providers sell services.

A bit unclear relationship with sustainability frameworks makes NBS a somewhat difficult concept. At some points, the idea of NBS seems to follow the concept of strong sustainability, for example, highlighting the ecological boundaries. At other points, the idea of NBS seems to follow the traditional view of sustainability, which considers the ecological, social, and cultural dimensions as equally important.

Stakeholder participation was another challenging issue when assessing forestry innovations as NBSs. All NBS candidates had a clear predefined challenge to which they aimed to respond. If we take a strong sustainability view for NBS and emphasize ecological outcomes, the METSO program seems to be the only easily defined NBS in Table 1. The other NBS candidates in the table share the same challenge but approach it at different levels.

A fundamental challenge in forestry, in relation to NBS, is that forestry itself fosters harmful impacts on forest ecosystems. Overall, it is difficult to interpret forestry as an NBS as a whole, particularly because current practices are not considered sustainable. However, it is possible to make comparisons by evaluating practices against alternatives that could increase forest diversity compared to the current situation. Clear examples of practices that fit the NBS framework would be restoration efforts followed by forest protection. Another possibility would be reforestation - the planting of trees in areas where forests have disappeared. However, its ecological value depends on whether it creates diverse, natural-like forests rather than monoculture plantations. Although practices like nature management, continuous cover forestry, and natural disturbance emulation can be seen as steps toward a better integration of humans and nature, their broader adoption and impact on societal perceptions of forests remain limited.

In conclusion, to fully meet the idea of NBS, forestry innovations should move beyond incremental improvements and challenge conventional approaches at both practical and conceptual levels. NBS provides a high-level framework to assess practices, but determining whether forestry qualifies as NBS remains difficult and context-dependent.