Silviculture Innovation Program

Bulkley Valley
Research Centre

SIPtionary

A Brief, Work-In-Progress Dictionary for Silviculture Related Terminology

from the Silviculture Innovation Program (SIP)

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Adaptive forestry

There has been increasing recognition that changing environmental conditions and social perspectives requires a new paradigm in forestry – one that moves away from commodity production to one that is adaptive to changing realities and the complexity of forested ecosystems. **Adaptive forestry** embraces new principles and approaches to forest stewardship, with a focus on resilience, biodiversity, and ecosystem health. Adaptive forestry embraces spatial and temporal diversity and considers how forests can be managed for multiple values by tailoring methods and practices.

Community of Practice

A **community of practice** refers to a group of people who share a common interest, profession, or passion and engage in collective learning and knowledge-sharing. Members of a community of practice come together to interact, collaborate, and deepen their understanding of a particular area of interest, which might include sharing of skills, techniques, insights, and new approaches.

Communities of practice can exist in various settings, including workplaces, professional associations, online forums, or informal gatherings. They play a crucial role in facilitating collaborative learning, problem-solving, and the exchange of knowledge gained through experience and practice.

Data sovereignty

Data sovereignty is the right of Indigenous peoples to control, access, own, and manage data that pertains to their land, culture, and communities. Indigenous peoples have the ability to determine how cultural data is gathered, stored, shared, and used, while ensuring their ethical, cultural, and legal rights are respected.

Extension

Extension is a practice of building trust, relationships, and capacity to enable collaboration. Extension supports active engagement with diverse stakeholders and governments (Indigenous and non-Indigenous) to identify opportunities, information needs, and synergies, and through cooperation eliminate redundancies within a shared community of practice. A foundational principle of extension is centering reciprocity, where two-way knowledge mobilization increases understanding of a system and informs decisions, practices and implementation.

Extension activities include convening workshops, hosting joint training sessions, creating course curriculum, supporting land-based learning, and creating communication tools and resources.

Forest practitioners

Forest practitioners are professionals, researchers, Guardians and stewards involved in the management, conservation, and sustainable use of forest ecosystems. These individuals come from diverse backgrounds and knowledge systems, holding expertise in various aspects of forestry, from forest management, operations, ecology, wildlife and fire management to policy and community engagement. Forest practitioners work to ensure that forests are managed in a way that balances ecological health, economic needs, and cultural and social values, while addressing challenges like climate change, biodiversity loss, and disturbances such as wildfire.

Indigenous-led

Indigenous-led initiatives involve meaningful engagement and decision-making by Indigenous governments and/or communities, ensuring their voices, perspectives, and priorities guide the direction of the project or program. Indigenous-led means Indigenous peoples are not just passive participants or beneficiaries; rather, they take an active and leading role throughout the entire process of a program or project. This leadership role extends to project design, implementation, monitoring, and evaluation. This approach recognizes the principles of self-determination, cultural autonomy, and the importance of respecting Indigenous rights. The goal is to create partnerships that are equitable, respectful, and contribute to positive outcomes for Indigenous peoples.

Information curation

Information curation is the process of discovering, screening, gathering (or collating), organizing and hosting information often on a particular topic or area of interest. Content that is curated will also have information about the information (this is called *metadata*) that is used to describe and support maintenance of the information when it is housed in an archive or database. Metadata can give context, visibility and define various attributes of the resources being curated to help users find information.

Innovative silviculture

May also be referred to as alternative silviculture

Innovative silviculture systems include systems for the harvesting, growing, and tending of forests where the primary objective is to achieve holistic stewardship of the land base, including maintaining ecosystem health, water quality, and quantity. Innovative silviculture systems are driven by an appreciation of ecological, social, cultural, and economic values of forests, where stewardship is focused on maintaining the continuity of dynamic ecosystem processes and functions.

Intensive silviculture

Intensive silviculture is a forest management approach that involves the application of various silviculture practices, at discrete time interval(s), to improve the growth and yield of trees in a forest stand. Intensive silviculture will generally maintain specific tree species or forest cover types, which may result in an increase to volume. Intensive silviculture can also be used to accelerate forest growth to achieve a broader range of forest values including hydrologic and visual recovery.

There are numerous activities that can be considered under intensive silviculture, such as strategic spacing and thinning, which manipulates the arrangement and density of trees; fertilization to enhance soil fertility and provide essential nutrients to the trees, promoting faster and healthier growth; and pruning which removes lower branches to produce

higher quality, knot-free wood.

In the context of innovative silviculture, intensive silviculture reflects a suite of interventions that, when applied at ecologically appropriate times (and time intervals), can be used to actively manage forests for multiple objectives, and maintain ecological integrity and biodiversity within managed forest ecosystems. For example, thinning may be done to reduce within-stand tree competition enhancing the productivity of the remaining stand. In an innovative silviculture application, the objective of thinning may be to reduce wildfire risk and/or the risks of tree mortality from insect infestation, disease and droughts, or to stimulate plant growth in the understory due to greater light availability.

Multiple values

Conventional forestry approaches have historically emphasized commodity production of timber. Innovative silviculture creates the framework for considering **multiple values** at the stand and landscape scale, ranging from the physical to the spiritual. Managing multiple values, such as water, wildfire resilience, wildlife habitat, food sovereignty, and forest health requires a holistic ecologically centered approach.

Place-based forestry

Place-based forestry emphasizes experiential learning and the transfer of knowledge specifically tailored to the biodiversity, climate, and cultural significance of a region. This approach makes forestry knowledge more accessible, relevant, and meaningful for practitioners. For instance, in innovative silviculture, a place-based approach might consider the region's specific forestry practices, climate and fuel conditions, as well as its values and resources, rather than relying on a one-size-fits-all solution.

Stewardship

Forest stewardship is the responsible use of forest resources based on the application of social, cultural, and ecological understanding at the stand, forest, and landscape level. Stewardship maintains and protects ecosystem function, integrity, and resilience, and requires an ethical responsibility to the land and the people for current and future generations.

Indigenous fire stewardship (one aspect of which is cultural burning) refers to the traditional and contemporary practices used by Indigenous peoples to manage and care for the land with fire. These practices have evolved over millennia and are deeply intertwined with cultural, spiritual, and ecological knowledge, supporting the intergenerational teaching of fire-related beliefs and practices.

Indigenous fire stewardship involves the intentional use of fire with low-moderate- and high-severity effects and can also include managing lightning-ignited wildfire to promote landscape-level fire objectives and reduce the impacts of unwanted fire.

Silvicultural system

A **silvicultural system** is a planned program of silvicultural treatments designed to achieve specific stand structure characteristics to meet site objectives during the whole life of a stand.

This program of treatments integrates specific harvesting, regeneration, and stand tending methods to achieve a predictable yield of benefits from the stand over time. Although silvicultural systems on most sites have been designed to maximize the production of timber, focus has shifted in recent years to manage for non-timber objectives and values.

Pyrosilviculture

May also be referred to as fire and silviculture

Pyrosilviculture refers to a land management practice that integrates prescribed and/or cultural burning (one component of Indigenous fire stewardship) with silviculture practices to achieve a set of objectives. This approach combines the principles of fire management (including modified wildfire response) and forest management to achieve specific ecological, cultural, and economic silvicultural objectives.

Pyrosilviculture considers the role of fire actively within the silviculture toolkit, a practice that was much more common in B.C.'s past forest management. The use of fire, through prescribed and/or cultural burning techniques are intentionally set under specific conditions to manage for multiple values and create more open and fire resilient forests. Fire, in this context, is being used as a tool to achieve forest

management objectives such as: reducing fuel loads (accumulated dead vegetation), promoting the growth of fire-adapted plant species (including food and medicinal plants), controlling invasive species, and enhancing overall ecosystem health. This approach is often used in fire-prone regions to manage landscapes, improve forest resilience, and enhance biodiversity.

In the context of innovative silviculture, the inclusion of pyrosilviculture is integral to expanding available tools, and steering ecosystems away from over a century of fire deficits. Fire can increase forest heterogeneity, select for tree and understory species adapted to fire, and maintain or even enhance forest resilience by proactively managing fuel levels.

Ultimately, implementing pyrosilviculture can help our managed forests reach maturity and rotation.

Variable retention

May also be referred to as partial harvest

Variable retention refers to a forest management practice in which only a portion of the trees within a forest stand are harvested, leaving the remaining trees standing. This approach contrasts with clear-cutting, where all, or nearly all, of the trees in an area are removed during harvest. Variable retention is a flexible and adaptive approach that allows foresters to meet multiple objectives, including ecological conservation, economic viability, and recreational values within a managed forest.

Variable retention is also designed to maintain some level of forest cover and ecosystem structure through time. There are different methods of variable retention, and they can be tailored to meet various objectives. Variable retention may favour uneven-aged

management through single tree selection, the emulation of natural disturbances such as creation of gaps through group selection or retention of trees to emulate mixed-severity fire, or facilitate the creation of even-aged structures (that change through time) through a shelterwood system.

In the context of innovative silviculture, the inclusion of variable retention (or partial harvesting) is a key method to promote continuity (in forest structure, function, and processes through time), and complexity (the need to create and maintain structural and compositional and diversity).

Both the concepts of continuity and complexity with variable retention compel us to think about spatial heterogeneity at multiple scales.

-Notes-

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