

Regenerative practices breathe new life into forests

By **David Suzuki**

Forests function through interconnections between trees, plants, mosses, wildlife, fish, fungi and soil. Suzanne Simard's new book *When the Forest Breathes: Renewal and Resilience in the Natural World* digs deep, literally, to unearth science documenting how industrial logging disrupts and frays these connections.

She was well-placed to write it as, she notes, "My training in soil ecology had given me night vision into the underground world, and I'd learned from decades of study that the complexity of underground biological communities reflects the diversity aboveground."

Forest degradation has been defined by shifts in tree composition (from a diversity of species and ages to limited, even-aged species), logging road impacts (fragmentation of habitat and disruption of predator-prey dynamics) and loss of old growth due to management practices under which trees are logged at ages that provide maximum profit and old-growth habitats are not replaced.

Simard's book details the impacts that astoundingly massive industrial logging equipment has on soil and the carbon stored within it, revealing that, "Carbon pools that take thousands of years to build are immediately reduced by 61% with the simple act of logging with heavy machinery."

This machinery not only removes trees, it also crushes understory vegetation, such as mosses and lichens, which store one-third of the world's terrestrial carbon. It gouges and compacts soil, releasing carbon, limiting the ground's ability to store water and frustrating regeneration processes.

Of healthy forests, Simard explains, "With greater tree species richness, age ranges, or even genetic variability within a single species, there are fewer fires, floods, and infestations that will compromise long-term carbon pools." The converse is also true. In our current era of near-constant summer wildfires, Simard details how forest degradation can lead to increased fire events "from abolishing controlled burns by First Nations to leaving tinder in slash piles to planting less-resilient, crowded second-growth stands. She describes how, around her, "The mountains and plateaus had become a sea of coniferous plantations, akin to a carpet of matchsticks rolled out for the flames to race across."

Logged slopes increase flooding and landslide risks, which in turn fill streams and waterways with sediment, harming aquatic life.

Sadly, in light of the destruction industrial logging causes, Simard notes, "Only about a quarter of logged forest ends up in forest products."

Clearly a systemic shift in forest management is needed, something the David Suzuki Foundation has long advanced.

Throughout Canada, as old-growth forests have declined, intact forests should be left to "live to old age and reach their ecological potential." Areas battered by logging should be restored, contributing to Canada's fulfilment of its commitment to restore 30 per cent of lands and waters by 2030 "a promise that has seen far too little progress.

In collaboration with Indigenous partners, Simard's Mother Tree Project is at the forefront of new models of "regenerative forestry" practices. Not surprisingly, a key component of this approach is maintaining significant patches of mother trees within logged areas, to protect forest integrity and foster new life, as "older trees circulate some of the water to seedlings in shallower soils via their mycorrhizal root systems."

As Simard points out, regenerative forestry practices are already underway, led by First Nations.

For example, the Kwiakah First Nation has repurchased forestry licences on its land and is working to protect, restore and log forests

using regenerative forestry and traditional knowledge systems.

Under regenerative forestry regimes, logging practices are developed regionally and consider the properties of the local soils, the intrinsic requirements of the plant communities, and the fundamental needs of the area's wildlife. Less is taken from the forest and heavy mechanization is reduced.

This approach, Simard notes, could create jobs: Partial retention logging, where certain trees are carefully selected to leave behind while others are cut, depending on the goals, would require more logging personnel, not fewer, and this would create livelihoods for people working in the forest.

Canada's forests have been deeply diminished by industrial logging, and much work is needed to halt and reverse forest biodiversity loss. Fortunately, Simard writes, Even after the most destructive logging practices, forests strive to heal.

Nature pulls in the direction of repair. We must mobilize to buck status quo forest management practices and move in accordance with its regenerative force.

David Suzuki is a scientist, broadcaster, author and co-founder of the David Suzuki Foundation. Written with David Suzuki Foundation Boreal Project Manager Rachel Plotkin. Learn more at davidsuzuki.org.