

Long-term thinking, resilience and doing forestry differently

Adam Forbes

In forestry, today's decisions shape the future issues we will face and our ability to address them. Given our uncertain future, now is the time to challenge the status quo in Aotearoa New Zealand's forestry. What future will we choose, and which legacies will we leave?

In this August edition, the benefits of long-term forestry trials are seen in Aotearoa and the Solomon Islands. Garrett et al. report on the Puruki forestry experiment established in response to the United Nations Hydrological Decade (1965–1974). This is an exemplary paired catchment trial looking into water yield and productivity, nutrition and carbon sequestration. A productive trial, over its 50-year duration, 67 articles have been published. This work shows the enormous value of long-term investment in forestry research.

Today we are at the outset of the important UN Decade on Ecosystem Restoration (2021–2030), where the focus is on halting ecosystem degradation and restoring ecosystems to achieve global goals to benefit people and nature. Through work on global Sustainable Development Goals, scientists have identified that this decade is our last chance to prevent catastrophic climate change. We need to assess how our forestry models perform in terms of ecosystem degradation and restoration and adapt to achieve a sustainable future.

Papers in this issue demonstrate the value of longitudinal forestry studies. Forestry is key to restoring Aotearoa species and ecosystems. Diverse and resilient forests are central to addressing our biodiversity and climate crises. However, we need to understand growth and community dynamics in planted and naturally established native stands and in mixed stands of exotic and native species. Unless we invest in native forest research, as we have with exotic species, this direction will not eventuate.

Clinton et al. highlight the rarity of long-term trials in the context of the sustainability of biomass (forestry crop and/or residues) removal in forestry. Their work highlights the need for site-specific management strategies to inform the use of residues. One important application is in the context of bioenergy to reduce reliance on fossil fuels and the need to keep biomass removal research going over future rotations. They observe the preferred use of site resources, such as those contained in the forest floor, over the use of supplementary mineral fertilisers.

From Northland, Satchell presents an economic analysis of environmental outcomes and economic returns from converting steep erodible farmland to

forestry. Comparing the performance of rotational radiata pine with permanent tōtara forest, he presents an alternative to rotational radiata pine where continuous cover tōtara forest, grown under a nurse crop of mānuka, provides an early income from honey harvest while the tōtara matures for a sustainable harvest. Furthermore, the forest would provide a passive income through the Emissions Trading Scheme. This approach to forestry would deliver multiple outcomes, resilience and is consistent with the direction of the current UN Decade.

In their contribution on the importance of psychosocial factors in forestry health and safety, Cawood et al. state that resilience can come from embracing the variability in human attitudes. They note that forestry and logging have the highest fatality rate across all of Aotearoa's occupational groups. Their work explores the effects of psychosocial factors on workplace behaviours in the context of unsafe actions. They suggest that variability in human attitudes and performance can be valued positively and adds resilience to safety, as opposed to seeing human variability as a liability that should be prevented as far as possible.

Lastly, from the Solomon Islands, where the Government is looking strategically at the forestry sector and where forestry makes up a large proportion of the economy, Cornelio reports on the growth performance of four commonly planted exotic timber species. Importantly, the work highlights alternatives to the status quo. He identifies options for interplanting native fast-growing hardwoods into teak stands to provide an early income after only several years, and using native rather than exotic species, polycultures rather than monocultures, plantations to facilitate natural understorey regeneration, and boosting compositional and structural diversity in plantations to enhance wildlife habitats.

Interestingly, Cornelio notes that in the Solomons native trees are seen as a risky option in forestry due to limited knowledge about species performance – a situation similar in Aotearoa. The direction given to the Government by the recent Climate Change Commission's recommendations suggest native forestry must become more prominent, but due to our focus on exotic forestry we are in a position where we lack knowledge of native forestry. We can change this if we choose to, and we must.

We need to regard forests broader than purely in an economic sense. Productivity measurements must include human and environmental wellbeing. Forest research and practice must achieve a balance between economic and environmental outcomes.



Need professional forestry advice? Use a Registered Forestry Consultant

Registered Forestry Consultants

- Are all professionally qualified and experienced
- Abide by the NZIF Code of Ethics
- Comply with NZIF standards
- Are Registered Members of the NZIF
- Hold a current Annual Practising Certificate
- Are subject to regular peer review
- Engage in continuing professional development
- Are subject to a complaints and disciplinary process

For more information go to www.nzif.org.nz
Or contact
The NZIF Administrator on admin@nzif.org.nz
Phone 04 974 8421



New Zealand Institute of Forestry
– Te Pūwhiri Ngarāherehere a Aotearoa Incorporated –