



Title: *“The clearances”*

Description: Clear felling pine forest

Photographer: Henrik Moller

Where, when: Weber, northern Wairarapa, March 2021.

Sustainability? You can find many scenes of clear felling like this in the back blocks of New Zealand’s hill country. At first sight it’s a shock – the scale of the disturbance is an eye-opener and the piles of debris are distressing. However, I urge you to see the bigger picture in this photograph – those intact forests in the back ground. The disturbance is the end of a 30 to 40-year growth cycle during which the hill slopes are stabilised and carbon has been sequestered, and new crops of trees will soon be planted in the gap. Binding carbon is an urgent priority to reduce climate change. The pine forests are also good habitat for insectivorous birds and a vast array of native insects – even that slash piled in the foreground of this photograph is a rich source of food and shelter for native invertebrates.

An ecologist sees cycles of knock-down and renewal, the wheel of life. It just so happens that commercial forestry operates over a reasonably long cycle, and the knock-down, when it comes, is severe.

Environmental and conservation management is informed by “disturbance ecology” – the understanding of natural and human-induced perturbations and regeneration. Disturbance can be triggered by habitat destruction or new land uses, introduced species, predation, climate change, etc ... all the perturbations and fluxes of nature. Most often we become concerned about the consequences of increased disturbance e.g. will the increased storms brought by climate change destabilise the slopes in this photograph and wash the debris down the streams and along our coastlines? But sometimes reduction of natural disturbance brings its own unwanted changes e.g. hydro dams flatten out river flows and prevent floods from loosening up the gravels in South Island’s “braided riverbeds”. This allows woody weeds to establish along waterways to further bind the shingles, which in turn removes breeding habitat for birds. Also, when stream edges are stabilised, the sides of the water channels get steeper and there is reduced surface area from which the birds can hunt for insects.

What are the bigger ecological lessons here? 1. Everything is connected, 2. ecological disturbance is a key to renewal cycles and sustainability, and 3. Human disturbance of land and nature is inevitable and, in some situations, even beneficial for maintaining ecosystems. This is sometimes summed up in what ecologists call the “Intermediate Disturbance Hypothesis” – it holds that biodiversity reaches a maximum at middle levels of disturbance – too much disturbance disrupts to the point where fewer species can maintain a presence (often weeds take the space) – too little disturbance invites a few specialists to take over and monopolise the space.

Isn't ecology fascinating and don't photographs help us to go figure?!

Photo notes: This panorama is a stitch of 19 exposures, each for 1/160s at 83 mm focal length, f/14 aperture and ISO-100.

Related commentary can be found with the "*Logjam*" photo in this gallery.

Digital specs: 37,688 x 6,609 pixels (249 MP).

Key words: Forestry, Pine forest, disturbance, biodiversity, environmental and conservation management; Henrik Moller, Aotearoa, New Zealand, Sustainability.

Price: \$200 (incl. GST) for use of the digital image.

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We recommend that the donation goes to *50 Shades of Green* because of their advocacy of multifunctional agriculture and the 'right tree in the right place'. <https://www.50shadesofgreen.co.nz/>. They are not against forestry – they just advocate for a diverse landscape that integrates farming, forestry and biodiversity care.

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