

Kea in plantation forests – an emerging conservation opportunity

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Figure 1: Kea observed within OneFortyOne’s forest estate in the Tasman region

Abstract

New Zealand’s plantation forests present unique opportunities for the conservation of kea (*Nestor notabilis*), an endangered montane parrot endemic to this country. This paper examines the relationship between kea and plantation forests, particularly in the Nelson–Tasman region. It explores how plantation forestry can contribute to kea conservation while maintaining productive operations in the presence of this intelligent and often curious bird.

Why kea need help

The kea population has experienced a significant decline over recent decades. Current estimates suggest

only 3,000 to 7,000 birds remain in the wild, with notable populations in the top of the South Island, particularly the Nelson–Tasman region (Department of Conservation, 2020). Kea populations have been under pressure from habitat loss, predation, human–wildlife interactions and historic persecution via the kea bounty scheme (~150,000 kea between 1860–1970) (Kemp et al., 2018).

Recent surveys indicate concerning population trends, although precise numbers for specific regions are challenging to obtain due to the species’ mobile nature and rugged terrain. Understanding these threats and challenges has been crucial in developing appropriate management responses in plantation forests.

The forestry opportunity

OneFortyOne New Zealand owns and manages 80,000 ha of plantation forests in Te Tauihu | Nelson Marlborough. Research funded by OneFortyOne New Zealand through the Kea Conservation Trust has revealed that OneFortyOne’s Nelson–Tasman pine forests offer unexpected potential for kea habitat (Aitken, 2023) (Figure 1). The study found that kea actively utilise these areas for foraging and nesting (Aitken, 2023). The research partnership between industry and a conservation organisation represents a significant step forward in understanding kea habitat use in plantation forests.

Key findings include:

- Kea regularly visit plantation forests
- Plantation pine forests provide both food resources and nesting opportunities
- The edge habitat between plantation blocks creates diverse feeding zones
- Forestry operations can be modified to protect and enhance kea habitat while maintaining productive forestry.

This research has helped build valuable knowledge about how forestry operations can work alongside kea habitat while maintaining productive forestry. The findings highlight how kea use plantation forests as part of their wider habitat mosaic, moving between native forest and plantation areas throughout their range. This understanding helps forestry companies make informed decisions about their operations and contributes to the growing body of knowledge about kea behaviour.

Kea ecology and behaviour in plantation forests

Very little is known about kea occupancy, behavioural ecology or habitat use of plantation forests (OneFortyOne, 2024). Further findings from Aitken’s (2023) preliminary study provided valuable insights into how kea utilise these environments (Figure 2).

The Nelson–Tasman kea demonstrated different behaviour patterns during the study. These birds showed a preference for remaining in the forest canopy, spending more time in trees, and were not observed on the ground as often as kea in other locations. This arboreal behaviour pattern closely resembles that observed in kea populations from Okarito on the West Coast (Aitken, 2023; OneFortyOne, 2024).

Diet analysis revealed that kea might utilise plantation sites to forage for seeds and insects and even seek out plantation sites at particular phases of forestry activities (e.g. immediately post-harvest) to find specific food items.



Figure 2: Jodanne Aitken conducting kea detection within OneFortyOne’s Nelson Tasman estate

The study used GPS-VHF units to track the movements of three kea through the forestry blocks, complemented by direct feeding observations. While the exact number of kea utilising the plantation forests remains unknown, Aitken (2023) observed group sizes of up to six birds at a time. These kea proved exceptionally elusive, requiring almost four months to lure them in for study purposes, marking them as among the most challenging kea populations to study in New Zealand.

The role of the Kea Conservation Trust

The Kea Conservation Trust plays a vital role in bridging the gap between forestry operations and kea conservation. Rather than each forestry company

developing independent expertise, the Trust serves as a central knowledge hub providing:

- Scientific expertise in kea ecology and behaviour
- Development of best practice guidelines
- Training and support for forestry staff
- Monitoring and research coordination
- A platform for sharing knowledge across the industry.

This collaborative model enables the development of shared knowledge and consistent practices across the industry. The Trust’s expertise ensures that conservation efforts are scientifically sound and effectively implemented. Also, their industry-wide

perspective helps avoid the duplication of effort and ensures lessons learned by one forestry company can benefit all operators.

Industry guidelines for kea protection

The forestry industry has taken proactive steps to protect kea through the development and implementation of comprehensive operational guidelines. These guidelines, developed by the Kea Conservation Trust with funding from OneFortyOne, provide a framework for forestry operations in kea habitat and are now used throughout the industry (Kea Conservation Trust, 2023).

The guidelines recognise that kea visiting forestry operations are typically young birds that ‘mob up’ at different times of the year. These juvenile birds, identifiable by their yellow colouring around eyes, nostrils and mandible, are naturally curious and prone to exploring new objects with their beaks.

Key operational protocols include:

- A strict ‘no feeding’ policy to prevent kea becoming dependent on human food
- Practical measures such as securing food waste
- Specific protections for nesting sites, including 200 m setbacks from active nests
- Requirements for reporting kea sightings and monitoring breeding behaviour
- Clear procedures for managing kea interactions with machinery and equipment, including the requirement to maintain a ‘kea-kit’ with covers and tarpaulins to protect machinery and equipment from damage.

Mitigating kea – machinery interactions

While kea presence in plantation forests presents conservation opportunities, their natural curiosity and intelligence can sometimes lead to challenges with forestry operations. In the 2023/24 kea season, a Kea Conservation Trust field worker developed and tested an experimental deterrent device specifically designed to protect equipment while maintaining kea welfare.

The device combined solar-powered strobe lights and deterrent sounds to create an uncomfortable environment that discourages kea from approaching machinery. Initial trials at a skid site near Inwoods Lookout showed promising results in deterring kea from machinery on-site.

An industry approach

OneFortyOne is significantly committed to kea conservation through its collaboration with the Kea Conservation Trust, contributing \$100,000 over the past five years.



Figure 3: A kea being fitted with identification bands. Photo courtesy of Chris Dyer

This funding has enabled crucial research and project work, including:

- Implementation of kea-safe operational protocols during harvesting
- Staff training in kea identification and protection
- Regular monitoring of kea populations in their estate
- Support for research into kea behaviour and habitat use in plantation forests
- Ongoing development of predator control programmes specifically designed to protect kea.

Forest management companies across the South Island are increasingly incorporating kea protection measures into their operational plans and reporting kea sightings (Figure 3). Tasman Pine Forests has implemented kea monitoring programmes and adapted their operations to protect known kea habitat, including building a predator-proof fence and installing traps when a kea nesting site was discovered (Tasman Pine Forests Ltd, 2023).

The collective effort is an example of the forestry sector’s growing commitment to biodiversity conservation.

Forests helping to save our native parrots

Plantation forests are proving to be more than just timber production sites; they are emerging as valuable conservation areas for kea and other native species. Our understanding of plantation forests’ ecological value continues to grow as research reveals their significant contribution to biodiversity. These forests can provide:

- Supplementary feeding areas for kea populations
- Safe nesting sites away from some predators. Kea nests can be safe from predators when appropriate protection measures are in place. While forestry areas still face threats from mammalian predators, their accessible nature can make predator control programmes more logistically feasible than in remote conservation areas
- Corridor connections between natural forest patches
- Opportunities for integrated pest management
- The potential for plantation forestry sites (with good pest control) to be buffer zones for natural habitat.

The future of kea conservation could greatly benefit from this synergy between plantation forestry and conservation efforts.

Conclusion

The relationship between kea and plantation forests represents an unexpected conservation opportunity. Through continued collaboration between forestry companies, conservation organisations and researchers, plantation forests can play a vital role in kea conservation while maintaining their primary economic function.

The significant financial commitment from companies like OneFortyOne, combined with their operational adaptations to protect kea, demonstrates how commercial forestry can contribute meaningfully to conservation outcomes. This model of integrated land use could serve as an example for conservation efforts for other endangered species.

References

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