



NDG James Memorial Lecture

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Abstract

Since NDG James published his book *The Forester's Companion* in 1955, forestry has undergone diverse and rapid changes. Plantation forestry had taken hold in many parts of the world by 1955 but did not yet represent the major source of industrial wood that it has become today. Other transformative forces include globalization of trade, climate change, the dispersal of pests and pathogens, and public pressures to manage forests more sustainably and for the good of all. The spread of diseases like ash dieback has become common knowledge but the development of management solutions comes with many challenges.

This lecture will attempt to shine a light on solutions to forestry problems that are developing from breakthroughs in science and technology. Rapid progress in areas of science such as genomics brings powerful new methods to the study trees and forests. This lecture will chart the emergence of forest genomics looking back to the 1950s to understand its current day relevance.

Specific examples relating to disease and insect resistance will serve to illustrate how genomics is contributing to improve our understanding of tree biology. Looking forward, new methods known as 'genomic selection' hold much promise to meet long held aspirations of faster and more accurate tree breeding. Ultimately, understanding adaptability in forest trees and thus helping to establish climate smart forestry may be the most significant contribution of genomics.