

Profile

Steve Strauss

What inspired your interest in plant science?

I grew up in Brooklyn, New York, a part of New York City. There were not many plants in my neighbourhood, and most of the trees were in poor health. This motivated me to become interested in trees and how they worked, an interest that grew as a teenager through hiking and backpacking in the Adirondack Mountains of upper New York State with friends. During those forays, I noticed that many trees out in the forest were suffering too, including from acid rain, ozone pollution, invasive pests, and other maladies. Therefore, I became determined to ‘save the world’ through ecological science – which over time – due to my wandering mind, broad interests, and opportunism – transformed into tree genetics and recombinant biotechnology.

Why did you decide to pursue a career in research?

I had no experience with the world of science or academia; though both my parents were very education-centric Jews, neither had a college degree. I just followed my passion, and one thing led to another as I realized that to effect change in ecosystems you really had to know a lot of stuff; there were no shortcuts. Thus, I got on the PhD to Professor train and have not gotten off since. Science, and scholarship in general, are just too interesting, and you interact with all kinds of smart and great folks, like university students, and of course the Editors, Advisors, and staff at *New Phytologist*.

What motivates you on a day-to-day basis?

I like to be active and engaged in new things and with all kinds of people, especially students and colleagues. I have refereed soccer (football as they say in the UK) for 30+ yr and look forward to every assignment at every age level. I play beginning jazz guitar and love the challenge of the many and varied chords and styles. I have run for > 50 yr, most of that in the University forest here in Oregon, and love the combination of nature and exertion. It refreshes, though as I age my back increasingly complains loudly.

Is there anyone that you consider to be a role model?

My major Professors and mentors during my PhD at the University of California at Berkeley, especially the tree biologist/geneticists Tom Ledig, Bill Libby, and Bill Critchfield, were amazing role

Box 1



Dr Steven H. Strauss is a University Distinguished Professor of Forest Biotechnology in the Department of Forest Ecosystems and Society at Oregon State University (OSU). He is Director of the [GREAT TREES research cooperative](#) at OSU. Strauss also directed the OSU Program for Outreach in Resource Biotechnology from 2004 to 2013.

Strauss received the Barrington-Moore Memorial Award from the [Society of American Foresters](#) in 2001, which recognizes outstanding achievement in biological research leading to the advancement of forestry. In 2005 he was recognized as a Leopold Leadership Fellow, taking part in a program aimed at training eminent environmental scientists to be more effective at influencing public policy and presenting science to news media. He was recognized as: a [Fellow of the American Association for the Advancement of Science](#) in 2009; the [Forest Biotechnology Partners Forest Biotechnologist of the Year in 2009](#); and received the [OSU Industry Partnering Award](#) in 2014 for exceptional engagement in collaborative research with industry.

Strauss has earned degrees in biological sciences from Cornell (BS), Yale (MFS), and the University of California at Berkeley (PhD). He has served on panels at the United States National Research Council, National Science Foundation, and Department of Agriculture. Dr Strauss' current research focuses on innovations in methods for genetic transformation and gene editing, using poplar and eucalypt trees, and hops, as study organisms.

Strauss served as a *New Phytologist* Editor from 2003 to 2012, returning as a Guest Co-Editor of the [Eucalyptus genome Feature](#) in 2015 (Strauss & Myburg, 2015). He rejoined the board permanently as an Editor in 2023 as part of the recently launched Transformative Plant Biotechnology Section of the journal (see [Halpin et al., 2022](#) for more details).

For more information on Strauss' research programme, see <https://directory.forestry.oregonstate.edu/people/strauss-steven> or contact him at steve.strauss@oregonstate.edu.

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models and were as diverse as can be (Tom was an egocentric but also a generous polymath, Bill was a leader and great generator of ideas, and Bill was a true scholar and deep thinker). They all made enormous impacts on the fields of conifer ecogenetics, breeding, and systematics.

What are your favourite *New Phytologist* papers of recent years, and why?

Sorry, but I must list a paper that my group just published, the culmination of 7 yr of work developing and/or adapting advanced phenomic (machine vision, hyperspectral) and genetic analysis methods (multiple-locus GWAS). It has given numerous fresh insights into the genes and physiology that cause the extensive genetic variation in amenability to genetic transformation and regeneration that is the bane of many biotechnologists. A brilliant PhD student, Michael Nagle, led a team of about two-dozen staff and scientists, and it was amazing to watch him grow during that time (Nagle *et al.*, 2024).

I was struck by a paper by Blonder *et al.* (2023) dealing with one of my favourite plants, quaking aspen, that dissected the roles of ploidy, genotype, and environment on the determination of crown phenology in the Rocky Mountains. Amazingly, the large effect of the environment had a multi-year lag, due to complex interactions between tree biology and the aerial and root environments.

I was pleased to see this example of sophisticated modification of lignin (yes again in poplar) by fibre-specific downregulation, reported by Gui *et al.* (2020). Their strategy avoided the growth penalty that is common when generic downregulation of lignin biosynthesis is used, and could be used to increase the efficiency of biofuel and pulp production.

What is your favourite plant, and why?

Once more, it would have to be poplars (genus *Populus*), all of the taxa, but especially aspens and cottonwoods. I have spent most of my career hiking and running through them and studied them extensively with respect to their genomics and biotechnology. They look beautiful and grow in beautiful places, grow fast, and are very amendable to every biotech method in the book. We also discovered a new variety of aspen local to the Willamette Valley a couple of years ago, which made me very proud (Bagley *et al.*, 2020) (Fig. 1).



Fig. 1 A grove of Willamette Valley aspens planted in front of the new Peavy Forest Sciences Center at Oregon State University. They were collected, genotyped, and their phylogenetic relationships were identified by the Strauss laboratory (Bagley *et al.*, 2020).

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