

Curriculum vitae – Paal Krokene

PERSONAL INFORMATION

Family name, First name: **Krokene, Paal**

Date of birth: **08.04.1965**

Sex: **Male**

Nationality: **Norwegian**

Researcher unique identifiers: ORCID: 0000-0002-7205-0715, ResearcherID: A-1835-2008

URL for personal web site: www.nibio.no/ansatte/paal_krokene?l=en



EDUCATION

- 1996 PhD: **Disputation date: 30.05.1996.**
Biological Institute, University of Oslo (UiO), Norway
- 1991 Master of Science
Biological Institute, University of Oslo, Norway

CURRENT AND PREVIOUS POSITIONS

- 2001- Research Professor
Division of Biotechnology and Plant Health, Norwegian Institute of Bioeconomy Research (NIBIO)¹, Norway
- 2004- Professor (adjunct, 20% position)
Faculty of Environmental Sciences and Natural Resource Management (MINA), Norwegian University of Life Sciences (NMBU), Norway
- 1996-2001 Research Scientist
Forest Entomology Group, Norwegian Forest Research Institute (Skogforsk), Norway
- 1992-1996 Doctoral Fellow
Research Council of Norway & Skogforsk, Norway

FELLOWSHIPS AND AWARDS

- 2005 Annual research prize at Skogforsk, Norway

MOBILITY (*research and other stays abroad lasting >3 months*)

- 2014 Michael Smith Laboratories, University of British Columbia, Canada
Travel grant (4 months) from FRIMEDBIO project 221479/F20
- 2003 Forestry and Agricultural Biotechnology Institute, Univ. of Pretoria, South Africa
Travel grant (5 months) from Strategic Institute Program, Skogforsk
- 1995 Department of Entomology, University of Wisconsin-Madison, USA
Travel grant (3 months) from the Research Council of Norway
- 1999, 2000 Visiting Scholar, Makerere University, Kampala, Uganda (3 months in total)
- 1992 Acting resident representative for NORAGRIC (Department of International Environment and Development Studies), Dar es Salaam, Tanzania (3 months)
- 1989 Field assistant at UiO's grasshopper project in Mali, sponsored by The Royal Norwegian Ministry of Development Cooperation (3 months)

¹ NIBIO was formed in 2015 by a merger of Norwegian Forest and Landscape Institute (Skog og landskap) and two other research institutes. Skog og landskap was formed in 2006 through a merger between the Norwegian Forest Research Institute (Skogforsk) and another institute.

SUPERVISION OF GRADUATE STUDENTS AND RESEARCH FELLOWS²

- 2008-2016 2 PhD Students
Swedish University of Agricultural Sciences – Alnarp, Sweden
MINA, NMBU, Norway
- 2008- 10 Master students (+ 2 ongoing)
MINA, NMBU, Norway
- 2008-2014 External examiner of 3 PhD theses at University of Pretoria, South Africa

TEACHING AND OUTREACH ACTIVITIES

- 2004- Professor II (20% position) – Forest Entomology, NMBU, Norway (responsible for one course, contributing to several others).
- 2006- Published 43 popular science articles on bark beetle ecology, conifer defense and climate change in newspapers, forestry journals and blog posts (mostly in Norwegian).
- 2006- Interviewed >19 times by national or international media on my fields of expertise (national radio and tv, national newspapers, New Scientist, Thomson Reuters, etc.)

ORGANISATION OF SCIENTIFIC MEETINGS

- 2011 Co-organizer of plenary session (“Thirty-plus years of research on tree defense mechanisms: now what?”) at the North American Forest Insect Work Conference / 270 participants / Oregon, USA
- 2006 Co-organized an international workshop (“The Ophiostomatoid fungi: Expanding frontiers”) / 40 participants / North Stradbroke Island, Australia.

INSTITUTIONAL RESPONSIBILITIES

- 1994- Project leader for research projects with a total budget exceeding 65 mill. NOK
NIBIO, Norway
- 2013-2015 Head of Department
Dept. of Forest Health, NIBIO, Norway
- 2008-2011 Employee representative, Governing Board
Skog og landskap, Norway
- 2004-2010 Deputy leader, Norwegian Association of Researchers
Skog og landskap, Norway

COMMISSIONS OF TRUST

- 2019- Deputy Coordinator of IUFRO (International Union of Forest Research Organizations) Working Party (WP) 7.03.11 – *Resistance to insects and pathogens*
- 2018-2022 Member of VKM – Norwegian Scientific Committee for Food and Environment, Plant Health Panel
- 2017-2022 Member of the External Advisory Board for EXTEMIT-K, a 9 million Euro project on mitigation of bark beetle damage at the Czech university of Life Sciences, Prague, Czech Republic
- 2008-2017 Editorial Review Board
Tree Physiology (Oxford Journals), UK
- 2002- Reviewer of manuscripts
On 116 occasions for 50 journals including *Ecology Letters*, *New Phytologist*, *Molecular Ecology*, *Plant, Cell & Environment*, *Plant Journal*, *Plant Physiology*, *Tree Physiology*, *Trends in Plant Science* (more details at <https://publons.com/a/780249>)
- 2000- Reviewer of research proposals

² In my position as a researcher in a non-academic research institute there are limited opportunities for supervision of students. Most of my supervision work has therefore been through my adjunct professorship at NMBU.

On 25 occasions for 10 international research bodies, including *Austrian Science Fund* (Austria), *Estonian Science Foundation* (Estonia), *NSERC* (Canada), *NRF* (South Africa), *NSF* (USA), *FORMAS* (Sweden)

2009-2014 Scientific Evaluation Committee member for 4 promotions to Research Professor Skog og landskap and Norwegian Institute for Agricultural and Environmental Research, Norway

2002-2006 Editorial Board
Forestry (Oxford Journals), UK

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2018- ESA (Entomological Society of America)

1995- Norsk Biologforening (member of the European Communities Biologist Association)

MAJOR COLLABORATIONS

Jurriaan Ton, Department of Animal and Plant Sciences, University of Sheffield, UK. Project partner in ongoing FRIMEDBIO TOPPFORSK project no. 221479, 2016-2021.

Jörg Bohlmann, Michael Smith Laboratories, University of British Columbia, Canada. Project partner in FRIMEDBIO project no. 249958, 2013-2016.

Michael J. Wingfield, Forestry and Agricultural Biotechnology Institute, Univ. of Pretoria, South Africa. Project partner in FRIMEDBIO project no. 249958, 2013-2016 and South Africa – Norway Programme project (NFR), 2002-2005.

Track record

1. Published a total of 62 papers in peer-reviewed scientific journals + 9 book chapters

- 2 130 citations in total in Web of Science (h-index 24)

- 3 592 citations in Google Scholar (h-index 32) (last 5 years: 1 589 citations, h-index 22)

1. Wilkinson SW, Magerøy MH, Sánchez AL, Smith LM, Cotton TEA, **Krokene P**, Ton J. 2019. *Surviving in a hostile world: plant strategies to resist pests and diseases*. Annual Review of Phytopathology 57: in press.
2. Biedermann PHW, Grégoire JC, Gruppe A, Hagge J, Hammerbacher A, Hofstetter R, Kandasamy D, Kolarik M, Kostovcik M, **Krokene P**, Müller J, Sallé A, Six D, Turrini T, Vanderpool D, Wingfield MJ, Bässler C. 2019. *Bark beetle population dynamics in the Anthropocene: challenges and solutions*. Trends in Ecology and Evolution 34: in press.
3. Zhao T, Schiebe C, Ganji S, Bohman B, **Krokene P**, Weinstein P, Borg-Karlson A-K, Unelius CR. 2019. *Convergent production of semiochemicals across kingdoms: bark beetles and their fungal symbionts*. The ISME Journal 13: 1535-1545. Citations: 0/0³
4. Zhao T, Kandasamy D, **Krokene P**, Chen J, Gershenson J, Hammerbacher A. 2019. *Fungal associates of the tree-killing bark beetle, Ips typographus, vary in virulence, ability to degrade conifer phenolics and influence bark beetle tunneling behavior*. Fungal Ecology 38: 71-79. Citations: 10/5
5. **Krokene P**. 2015. *Conifer defense and resistance to bark beetles*. In: Bark beetles: biology and ecology of native and invasive species. Edited by FE Vega, Hofstetter RW. Elsevier Academic Press, San Diego, USA, pp. 177-207. Citations: 51/-
6. Schiebe C, Hammerbacher A, Birgersson G, Witzell J, Brodelius P, Gershenson J, Hansson B, **Krokene P**, Schlyter F. 2012. *Inducibility of chemical defences in Norway spruce bark*

³ Number of citations in Google Scholar / Web of Science. Since neither database provides the number of self-citations for individual papers the citation numbers given are gross citations. However, overall my self-citation rate is 10%, according to Web of Science.

is correlated with unsuccessful mass attacks by the spruce bark beetle. Oecologia 170: 183-198. Citations: 81/53

7. Zhao T, **Krokene P**, Hu J, Christiansen E, Långström B, Björklund N, Solheim H, Borg Karlson A-K. 2011. *Induced terpene accumulation in Norway spruce inhibits bark beetle colonization in a dose-dependent manner.* PloS ONE 6(10): e26w649. Citations: 54/35
8. **Krokene P**, Nagy NE, Solheim H. 2008. *Methyl jasmonate and oxalic acid treatment of Norway spruce: anatomically based defence responses and increased resistance against fungal infection.* Tree Physiology 28: 29-35. Citations: 93/60
9. Erbilgin N, **Krokene P**, Christiansen E, Zeneli G, Gershenson J. 2006. *Exogenous application of methyl jasmonate elicits defenses in Norway spruce (Picea abies) and reduces host colonization by the bark beetle Ips typographus.* Oecologia 148: 426-436. Citations: 147/94
10. Zeneli G, **Krokene P**, Christiansen E, Krekling T, Gershenson J. 2006. *Methyl jasmonate treatment of large Norway spruce (Picea abies) trees increases the accumulation of terpenoid resin components and protects against infection by Ceratocystis polonica, a bark beetle-associated fungus.* Tree Physiology 26: 977-988. Citations: 146/94
11. Franceschi VR, **Krokene P**, Christiansen E, Krekling T. 2005. *Anatomical and chemical defences of conifer bark against bark beetles and other pests.* New Phytologist 167: 353-376. Citations: 721/490

2. Invited presentations to peer-reviewed, internationally established conferences:

1. *ESA, ESC and ESBC Joint Annual Meeting.* 11-14 Nov. 2018. Vancouver, Canada.
2. *XXV International Congress of Entomology.* 25-30 Sep. 2016. Orlando, USA.
3. *XXIV IUFRO World Congress.* Oct. 2014, Salt Lake City, USA.
4. *North American Forest Insect Work Conference.* 9-12 May 2011. Portland, USA.
5. *XXIII IUFRO World Congress.* 23-28 Aug. 2010. Seoul, South Korea.
6. *XXIII International Congress of Entomology.* 6-12 Jul. 2008. Durban, South Africa
7. *VIII European Congress of Entomology.* 17-22 Sep. 2006. Kusadasi, Turkey
8. *XXII International Congress of Entomology.* 15-21 Aug. 2004. Brisbane, Australia.

3. Major contributions to the early careers of excellent researchers:

1. *Melissa Magerøy, Researcher, NIBIO, Ås, Norway:* assisted Magerøy in writing a successful grant proposal to the Young Research Talents program of the Research Council of Norway (RCN). Magerøy is currently a researcher in my group. 2015 –
2. *Tao Zhao, former Postdoctoral Fellow at the KTH Royal Institute of Technology, Stockholm, Sweden:* mentored Zhao during her PhD period, assisted her in writing several manuscripts and a grant proposal that was funded. Co-authored 4 papers, one of which was included in her thesis. 2010 –
3. *Roman Gebauer, Associate Professor, Mendel University in Brno, Czech Republic:* assisted Gebauer in writing a successful grant application to the EEA Norway-Czech Research program. Co-authored 6 papers. 2008 –
4. *Christian Schiebe, former Postdoctoral Fellow, Mid Sweden University, Sundsvall, Sweden:* co-supervised Schiebe during his PhD, mentored him on manuscript and proposal writing, collaborated during his postdoc project. Co-authored 1 paper. 2008 – 2015.
5. *Eleanor Lahr, Postdoctoral Fellow, North Carolina State University, North Carolina, USA:* mentored Lahr from her PhD period and onwards, hosted her for 3 months in Norway and performed joint experiments. Co-authored 2 papers, one of which was included in her thesis. 2010 – 2013.
6. *Brett Hurley, Senior Lecturer, University of Pretoria, South Africa:* assisted Hurley in securing a mobility grant to Norway (Yggdrasil program, RCN) and hosted him during a 3-month stay in Norway. 2012 – 2016.