

Dr Marco Mina



Université du Québec à Montréal
Centre for Forest Research



mina.marco@courrier.uqam.ca
marcomina@email.com



<https://mrcmina.github.io/>



141, av. du Président-Kennedy
H2X 3Y7, Montréal
QC, Canada



0000-0002-7489-7688

CURRENT POSITION

Postdoctoral Research Fellow at the Université du Québec à Montréal (UQAM), Canada

- Evaluation of management strategies to enhance forest resilience under scenarios of global changes in fragmented forest landscapes of Eastern North America
- Forest stand and landscape dynamic modelling, landscape ecology

EDUCATION

Apr 2012 - Dec 2015 **Ph.D. Forest Ecology, Department of Environmental Systems Science**, ETH Zürich, Switzerland - Advisor Prof. H. Bugmann | Date obtained: 18 Dec 2015

Feb 2010 **M.Sc. Forestry and Environmental Sciences**, University of Padua, Italy

Feb 2007 B.Sc. in Forestry and Environmental Technology. University of Padua, Italy

PROFESSIONAL EMPLOYMENT

Apr 2018 - present Postdoctoral Research Fellow at the Université du Québec à Montréal Centre for Forest Research CEF, Montreal, Canada

Apr 2016 - Dec 2017 Postdoc at the Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Forest Resources and Management, Birmensdorf, Switzerland

Mar 2011 - Apr 2012 Research Intern and Assistant at the Paul Scherrer Institute PSI Laboratory for Energy systems Analysis, Villigen, Switzerland

Feb 2007 - Feb 2009 Technical Assistant at Paulownia Italia s.r.l., Venice, Italy

GRANTS AND FELLOWSHIPS

2020–22 **Marie Skłodowska-Curie Individual Fellowship**, granted by ERC H2020-MSCA-IF-2019, 24 months, scheduled starting date: April 2021. Grant number 891671

2018–19 **Early Postdoc.Mobility Fellowship**, granted by the Swiss National Science Foundation 18 months, 94 500 CAD. Grant number 75101

2012–15 PhD studentship funded through European Union 7th Framework Programme for Research and Technological Development (FP7) for project ARANGE

PUBLICATIONS

Peer-Reviewed Articles

- Mina M**, Duveneck M, Messier C, Fortin MJ, Aquilué N. 2020. Network analysis can guide resilience-based management in forest landscapes under global change. *Ecological Applications* – accepted.
- Messier C, Bauhus J, Doyon F, Maure F, Sousa-Silva R, Nolet P, **Mina M**, Aquilué N, Puettmann K. 2019. The functional complex network approach to foster forest resilience to global changes. *Forest Ecosystems*. 6:21.
- Mina M**, Del Rio M, Huber MO, Thürig E, Rohner B. 2018. The symmetry of competitive interactions in mixed Norway spruce, silver fir and European beech forests. *Journal of Vegetation Science*. 29:775–787.
- Houpert L, Rohner B, Forrester DI, **Mina M**, Huber MO. 2018. Mixing Effects in Norway Spruce—European Beech Stands Are Modulated by Site Quality, Stand Age and Moisture Availability. *Forests*. 9(2), 83.
- Mina M**, Huber MO, Forrester DI, Thürig E, Rohner B. 2018. Multiple factors modulate tree growth complementarity in central European mixed forests. *Journal of Ecology*. 106:1106–1119.
- Klopčič M, **Mina M**, Bugmann H, Bončina A. 2017. The prospects of silver fir (*Abies alba* Mill.) and Norway spruce (*Picea abies* (L.) Karst) in mixed mountain forests under various management strategies, climate change and high browsing pressure. *European Journal of Forest Research* 136:1071–1090.
- Mina M**, Bugmann H, Klopčič M, Pardos M, Irauschek F, Cordonnier T, Cailleret M. 2017. Future ecosystem services from European mountain forests under climate change. *Journal of Applied Ecology*. 54:389-401.
- Mina M**, Bugmann H, Klopčič M, Cailleret M. 2017. Accurate modeling of harvesting is key for projecting future forest dynamics: a case study in the Slovenian mountains. *Regional Environmental Change*: 17:49-64.
- Mina M**, Martin-Benito D, Bugmann H, Cailleret M. 2016. Forward modeling of tree-ring width improves simulation of forest growth responses to drought. *Agricultural and Forest Meteorology* 221:13-33.
- Meyer N.K., **Mina M**. 2012. Wood energy fuel cycle optimization for beech and spruce forests. *Environmental Research Letters*, 2012, 7, 014001.

Other publications

- Mina M**, Cailleret M, Motta R, Bugmann H. 2019. Fruizione futura dei servizi ecosistemici. Prospettive in funzione dei cambiamenti climatici e della gestione nelle foreste montane. *Sherwood - Foreste ed Alberi Oggi*. 239:23-27.
- Mina M**. 2016. Forest dynamics, management and ecosystem services: the future of European mountain forests in an era of climate change. Ph.D. thesis. ETH Zürich.
- Mina M**, Bugmann H. 2013. Improved and tested forest models for case study regions. Component of ARANGE Deliverable D2.1, FP7-289437-ARANGE / D2.1, 44 pp, Institute of Terrestrial Ecosystems, ETH Zurich, Switzerland. http://www.arange-project.eu/wp-content/uploads/ARANGE-D2.1_FModels.pdf
- Mina M**, Meyer N. 2011. Wood energy fuel cycle optimization. Technology Assessment, Paul Scherrer Institute. Villigen, Switzerland. Internship report.
- Mina M**. 2010. Policies, Institutions and Markets in the P.R.C. forestry sector. M.Sc. thesis. Available online in Italian. University of Padua, Italy. Supervised by Prof. D. Pettenella.
- Mina M**. 2007. Evolution of ecto-mycorrhization in artificially inoculated *Quercus robur* seedlings. B.Sc. thesis. University of Padua, Italy. Supervised by Prof. L. Montecchio.

Submitted - Under review

- Aquilué N, Messier C, Martins K, Dumais-Lalonde V, **Mina M**. Managing tree composition based on functional diversity and connectivity to enhance the resilience of forests to global threats.

Irauschek F, Barka I, Bugmann H, Courbaud B, Elkin C, Hlasny T, Klopčič M, **Mina M**, Rammer W, Lexer MJ. Evaluating five forest models using multi-decadal inventory data from mountain forests.

In preparation

Mina M, Aquilué N, Duveneck M, Fortin MJ, Messier C. Climate change vs global change adapted forestry to enhance resilience in fragmented landscapes.

CONFERENCES

- 2020 **Mina M**, Aquilué N, Duveneck M, Fortin MJ, Messier C. Coupling simulation modelling with network theory to evaluate resilience to global change in fragmented forest landscapes. IALE-NA, Toronto [remotely].
- Mina M**, Aquilué N, Duveneck M, Fortin MJ, Messier C. Future trajectories in fragmented forest landscapes: linking simulation modelling with the functional complex network approach. Conference: Governing and managing forests for multiple ecosystem services across the globe. Bonn, Germany.
- Mina M**, Aquilué N, Duveneck M, Fortin MJ, Messier C. Seeing forest landscapes as functional complex networks: a way to enhance resilience to climate change and disturbances. Conference: Managing forests in the 21st century. Potsdam, Germany.
- 2019 **Mina M**, Duveneck M, Aquilué N, Fortin MJ, Messier C. Managing forest landscapes as functional complex networks to increase resilience: a simulation study. IALE World Congress, Milan, Italy
- Rohner B, **Mina M**, Thürig E. Predicting tree growth from a wide range of variables including climate and species mixture effects. A Century of National Forest Inventories Conference, Sundvolden, Norway <poster>
- 2018 **Mina M**, Aquilué N, Fortin MJ, Messier C. Coupling tree-community and landscape models with functional diversity and network theories for resilience-based forest management. ESA Annual Meeting, New Orleans, USA
- 2017 **Mina M**, Huber MO, Thürig E, Rohner B. Representation of species mixing in growth functions for forest development models. Cost PROFOUND Final Conference, Potsdam, Germany
- Mina M**, Huber MO, Thürig E, Rohner B. Disentangling species mixture effects on individual-tree growth using Swiss national forest inventory data. IUFRO 125th Anniversary Congress, Freiburg, Germany <poster>
- 2016 **Mina M**, Huber MO, Thürig E, Rohner B. Integrating effects of species mixture into individual-tree growth models based on national forest inventory data. EUMIXFOR Final Conference, Prague, Czech Republic <poster>
- 2015 **Mina M**, Cailleret M, Bugmann H. Can adapted forest management sustain the provision of multiple ecosystem services in different European mountain regions? Mountains of Our Future Earth, Perth, UK
- Mina M**, Martin-Benito D, Bugmann H, Cailleret M. Tree-ring forward modelling improves growth response to drought for simulating long-term forest dynamics. EuroDendro 2015, Antalya, Turkey <poster>
- Mina M**, Cailleret M, Bugmann H. Adaptive forest management is necessary to maintain ecosystem services in different European mountain regions. ARANGE Final Conference, High Tatra Mts., Slovakia
- Irauschek F, Rammer W, **Mina M**, Bugmann H, Hlasny T, Barka I, Courbaud B, Klopčič M, Lexer MJ. Testing five forest models against long term observational data from mountain forests in South-Central Europe. ARANGE Final Conference, High Tatra Mts., Slovakia <poster> (Best Poster Award)
- 2014 **Mina M**, Bugmann H, Klopčič M, Cailleret M. Which management under climate change? An assessment of the provisioning of ecosystem services in mountain forests. IUFRO Congress, Salt Lake City, USA <poster>

Mina M, Bugmann H, Klopčič M, Cailleret M. Does management of Slovenian Silver fir-European beech mountain forests need to be adapted to climate change? GfÖ Annual Meeting, Hildesheim, Germany

Mina M, Cailleret M, Bugmann H. A modeling approach for evaluating the sustainability of Business-As-Usual management in uneven-aged Dinaric mountain forests. 9th IUFRO Conference on Uneven-aged Silviculture, Birmensdorf, Switzerland <poster>

2013 **Mina M**, Cailleret M, Bugmann H. Testing the applicability of a forest succession model in Mediterranean mountains. ClimTree Conference Zurich, Switzerland <poster>

2012 Meyer NK, **Mina M**. Wood energy fuel cycle optimization. Smart Energy Strategies conference, Zurich, Switzerland <poster>

INVITED TALKS

Feb 2020 "Forest landscapes as functional complex networks: a new approach to increase multi-scale resilience to global change", WSL Birmensdorf, Switzerland

Dec 2019 "Forest Planning 2.0: Foreseeing forest futures to aid management decisions", Harvard Forest, MA, USA

Oct 2019 "European forests: status, management, challenges and ecosystem services", University of Toronto, Canada

Sep 2019 "Forest dynamics, management and ecosystem services in European forests", Université du Québec à Montréal, Canada

Dec 2018 "Modelling forest dynamics: from stand to landscape", University of Lleida, Spain

Jun 2017 "The Swiss-SpeMixMod project: studying mixing effects using forest inventory data", WSL Birmensdorf, Switzerland

Jan 2017 "Individual tree growth complementarity in Swiss forests varies with mixture types, climate and stand conditions", INIA Madrid, Spain

Jan 2016 "Forward modeling of tree-ring width improves simulation of forest growth responses to drought", WSL Birmensdorf, Switzerland

Nov 2014 "A simulation study for evaluating adaptive management in Slovenian Silver fir-European beech mountain forests under climate change", University of Bolzano/Bozen, Italy

Oct 2014 "Mountain forests, climate change and management: a modeling approach", UC Berkeley, USA

SKILLS AND COMPETENCES

Programming R, C#, SQL, Pascal

Software ArcGIS, Git and Github, Microsoft Office (certified ECDL), Reference Management (EndNote, Mendeley), Adobe Acrobat, Photoshop, Illustrator, InkScape, Cofecha (tree-rings analysis), SimaPro and Ecoeditor (Life Cycle Assessment & Inventory), Web editing (HTML, Wordpress)

Languages Italian native speaker
English full proficiency
German intermediate (B1)
French intermediate (B1)

Scientific methods Use and development of process-based forest simulation models (ForClim, VS-Lite, LANDIS-II). Analysis of large environmental datasets (e.g., forest inventories, permanent sampling plots, mapping products). Statistical modeling (linear and nonlinear mixed-effect models). Forest sampling for growth modeling, diversity, and structure. Tree sampling for dendroecology and analysis of tree-ring data. Scientific writing, blogging and science communication.

PROFESSIONAL ACTIVITIES AND MEMBERSHIPS

Projects	<i>ARANJE</i> (EU FP7): Active member of the project consortium, preparation of project deliverables, data contributor, task co-responsible (http://www.arange-project.eu/) <i>Swiss-SpeMixMod</i> (Swiss Secretariat for Research and Innovation under the COST Action EuMIXFOR): Co-lead, co-author of annual reports (http://bit.do/Swiss-SpeMixMod)
Reviewing	<i>Peer-review for journals</i> (total: 21) <i>Journal of Ecology</i> , <i>Forest Ecology and Management</i> , <i>Global and Environmental Change</i> , <i>Agricultural and Forest Meteorology</i> , <i>Journal of Applied Ecology</i> , <i>PLOS ONE</i> , <i>Ecosystems</i> , <i>Ecosphere</i> , <i>European Journal of Forest Research</i> , <i>Journal of Biogeography</i> , <i>Annals of Forest Science</i> , <i>Forests</i> , <i>Forest Systems</i> , <i>Forest Ecosystems</i> . Publons profile: H-6047-2019 <i>Grant proposals</i> : BiodivERsA ERA-NET COFUND H2020
Public outreach	Contributing author for scientific blogs <ul style="list-style-type: none">• <i>Forest Monitor</i> (http://www.forest-monitor.com/en/)• <i>EFI Resilience blog</i> (https://resilience-blog.com/)
Teaching	University of Lleida, MSc European forestry. Invited guest lecturer during the course “Multi-scale forest Dynamic Models” (2018, 2019) UQAM, MSc Sustainable Management of Forest Ecosystems. Invited seminar (2018)
Consultancy	Paulownia Italia s.r.l.: technical assistant in a forestry consultancy company
Events	Mixed Forests Workshop - WSL Birmensdorf 15/11/2017 Workshop convener/co-organiser <i>ARANJE</i> WP2-4 – ETH Zurich 17-18/09/2012 Co-organization Forlener Fair 2007 Paulownia Italia s.r.l.– Italy 27-30/09/2007
Memberships	2018 – Ecological Society of America 2018 – Centre for Forest Research CEF-CFR 2015 – Mountain Research Initiative 2013 – Italian Society of Silviculture and Forest Ecology SISEF

CONTINUING EDUCATION AND TRAINING

2018	Complex Network Winter Workshop, University of Vermont, Quebec, Canada Landscape Ecology, ETH Zurich (edX verified certificate), Switzerland
2016	Nonlinear Regression, ETH Zurich Advanced Studies in Applied Statistics, Switzerland SORTIE-ND Workshop, Cary Institute of Ecosystem Studies, Millbrook NY, USA
2012 – 2015	Vocational courses and qualifying exams for doctoral studies: Applied Statistical Regression, Robust Statistics, R programming, R graphics, ArcGIS, Landscape Ecology, Dendroecology, Project Management for research, Scientific Writing, German language. ETH Zurich, Switzerland
2010	Course of Dendrochronology. University of Padua & WSL Institute, S. Vito di Cadore, Italy
2009	Visiting student at the Chinese Academy of Forestry, Beijing, China (2 months)
2006	Practice with tree seedlings related to B.Sc. thesis. Plant Biodiversity Centre Veneto, Italy

DATASETS AND CODES

Mina M (2020) LANDIS-II and PnET-Succession input files supporting the paper Mina et al. 2020 *Ecological Applications*. Zenodo. <https://doi.org/10.5281/zenodo.3823195>

Mina M, Huber MO, Forrester DI, Thürig E, Rohner B (2017) Datasets accompanying Mina et al. (2018) *Journal of Ecology*. Dryad Data Repository. <http://dx.doi.org/10.5061/dryad.r8591>

Mina M, Bugmann H, et al. (2016) Datasets accompanying Mina et al. (2017) *Journal of Applied Ecology*. Dryad Data Repository. <http://dx.doi.org/10.5061/dryad.21sj8>

Mina M, Martin-Benito D, et al. (2016). Modified VS-Lite model. Code accompanying Mina et al. (2016) *Agricultural and Forest Meteorology*. PANGAEA. <https://doi.pangaea.de/10.1594/PANGAEA.857289>