

Curriculum Vitae

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Personal data

<i>Name, first name</i>	Temperli, Christian
<i>Titel</i>	Dr.
<i>Date / place of birth</i>	21.4.1981 / Scherzingen TG
<i>Nationality</i>	CH
<i>Adress (office)</i>	Eidg. Forschungsanstalt für Wald, Schnee and Landschaft WSL Zürcherstrasse 111 8903 Birmensdorf
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Professional and Research Interests

Climate-smart forestry

Forest ecosystem service provision

Climate change impacts on forest disturbance regimes and forest development

Dynamic forest development modelling

Forest inventory

Education (start with professional training)

3.2009-12.2012	Ph.D. Thesis at the Professorship Forest Ecology, Department of Environmental Systems Science, ETH Zurich. Title of thesis: " <i>Climate change, large-scale disturbances and adaptive forest management</i> ". Supervision: Prof. H. Bugmann (ETH Zurich) and Dr. C. Elkin (ETH Zurich).
6.2007-12.2007	Diploma thesis (M.Sc.) with the Disturbance Ecology group at WSL. Supervision: Prof. H. Bugmann (ETH Zurich) and Dr. T. Wohlgemuth (WSL).
10.2002– 12.2007	Studies in environmental sciences at the Department of Environmental Systems Science at ETH Zurich with focus on terrestrial systems and biology.

Work Experience (academic and implementation)

Since 9.2018	Scientific staff member, Scientific Service NFI at WSL, Birmensdorf. Research on forest ecosystem services, NFI-reporting on timber harvesting and management planning.
9.2016–9.2018	Scientific staff member, Resource Analysis at WSL, Birmensdorf. Modelling and projecting ecosystem services based on forest inventory data; co-supervision of PhD-thesis.
9.2014–9.2016	Postdoc with the Resource Analysis group at WSL, Birmensdorf. Empirical modelling of harvesting scenarios. NFP66 Project MOBSTRAT
4.2013–4.2014	Postdoc at the Department of Geography, University of Colorado at Boulder funded through SNF fellowship (Grant number 145714).

	Dynamic modeling of forest disturbance and ecosystem services under climate change, Field study on logging-bark beetle interactions, student mentoring.
1.2013	Postdoc at the Professorship Forest Ecology, ETH Zürich (one month). Publication of PhD research.
3.2009-11.2012	Scientific assistant at the Professorship Forest Ecology, ETH Zurich. PhD research and maintenance of group website.
2005–2009	Practical trainings at the Professorship Forest Ecology, ETH Zürich (12.2008-2.2009), with the Stand Dynamics and Silviculture group at WSL, Birmensdorf (1.2008-8.2008) and with Parks Victoria in the Dandenong Ranges National Park, Australia (11.2005–3.2006).

Awards

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Grants obtained (list of projects) (PI and non-PI)

<u>Amount</u>	<u>Funding Agency</u>	<u>Titel</u>
CHF 44'300	SNSF fellowship for prospective researchers	Temperli, C. (PI). 2012. Spruce beetle and fire interactions under climate change and adaptive forest management in subalpine forests of northern Colorado, USA.
US\$ 340'000	U.S. National Science Foundation	Veblen, T. (PI), D. Kulakowski (Co-PI), S. Hart and C. Temperli . 2013. Collaborative Research: Spruce beetle and wildfire interactions under varying climate in the Rockies. U.S. National Science Foundation, Geography and Spatial Sciences Program. C. Temperli contributed to work package 5 out of 5.
CHF 372'000	POL-LFI	Temperli, C. (PI), C. Blattert (Co-PI, PhD-Student), R. Lemm, U-B. Brändli und E. Thürig. 2015. Anwendung von Indikatoren zur Prognose der Ökosystemleistungen des Schweizer Waldes mit LFI-Daten
CHF 649'434	SNSF NRP 73 Sustainable Economy	Thürig, E. (corresponding applicant, PI), M. Huber (further applicant), G. Stadelmann, B. Rohner, J. Zell, C. Temperli , O. Thees, H. Bugmann (project partners). SessFor – Sustainable development of ecosystem services in Swiss Forests. 2017. Fully awarded in August 2017. C. Temperli conceived work package 5, contributed to the design of work packages 4 and 8 and edited the full proposal prior to submission.
CHF 50 976	WSL internal project	Temperli, C. (PI), A. Bottero, M. Ferretti, U-B. Brändli (Co-PIs). 2019. Climate-smart forestry directions based on national Forest Inventory data (ClimFin)

Publication record (h-index, number of citations/publications)

[Please state max. the 10 most important productions]

h-index: 10, number of citations: 481, number of publications: 19 (retrieved from citation report of Clarivate Web of Science on 31 July 2020)

Blattert, C., R. Lemm, E. Thürig, G. Stadelmann, U.-B. Brändli, and **C. Temperli**. 2020. Long-term impacts of increased timber harvests on ecosystem services and biodiversity: A scenario study based on national forest inventory data. *Ecosystem Services* 45:101150.

Temperli, C., C. Blattert, G. Stadelmann, U.-B. Brändli, and E. Thürig. 2020. Trade-offs between ecosystem service provision and the predisposition to disturbances: a NFI-based scenario analysis. *Forest Ecosystems* 7:27.

Temperli, C., G. Stadelmann, E. Thürig, and P. Brang. 2017. Silvicultural strategies for increased timber harvesting in a Central European mountain landscape. *European Journal of Forest Research* 136:493–509. doi: 10.1007/s10342-017-1048-1

Temperli C., S. Hart, T. Veblen, D. Kulakowski and A. Tepley. 2015. Interactions among spruce beetle disturbance, climate change and forest dynamics captured by a forest landscape model. *Ecosphere* 6:article no. 231. doi: 10.1890/ES15-00394.1

Temperli, C., H. Bugmann, and C. Elkin. 2013. Cross-scale interactions among bark beetles, climate change, and wind disturbances: a landscape modeling approach. *Ecological Monographs* 83:383–402. doi: 10.1890/12-1503.1

Elkin, C., A. Gutierrez, S. Leuzinger, C. Manusch, **C. Temperli**, L. Rasche and H. Bugmann. 2013. A 2 °C warmer world is not safe for ecosystem services in the European Alps. *Global Change Biology* 19:1827–1840. doi: 10.1111/gcb.12156

Temperli, C., H. Bugmann, and C. Elkin. 2012. Adaptive management for competing forest goods and services under climate change. *Ecological Applications* 22: 2065–2077. doi: 10.1890/12-0210.1

Teaching (PhD, Master, Bachelor etc.)

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Supervision of theses (academic main lead)

Since 4.2018	Co-referee and direct thesis supervisor of PhD-student (Reinhard Mey) in NRP73 project SessFor (Main referee: Prof. H. Bugmann, ETH; Project PI: Dr. E. Thürig)
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Selected professional activities (academic and implementation)

10.2019	Host of CLIMO Cost Action working group meeting at WSL for 19 participants
Since 2018	Reporting NFI data and consulting for the Swiss Federal Statistical Office
12.2017	Organization of stakeholder meeting as part of the NFI-project on ecosystem services indicators
Since 2016	Management committee member substitute of Cost Action CLIMO
2014–2016	Development of timber mobilization scenarios with cantonal forestry officers in NRP66-project MOBSTRAT
Since 2012	Reviews for <i>Atmosphere</i> , <i>Canadian Journal of Forest Research</i> , <i>Ecological Applications</i> , <i>Ecological modelling</i> , <i>Ecological Monographs</i> , <i>Ecosphere</i> , <i>Environmental Modelling and Software</i> , <i>Forest Ecology and Management</i> , <i>Forestry</i> , <i>Forests</i> , <i>Frontiers in Forests and Global Change</i> , <i>Global Change Biology</i> , <i>Journal of Environmental Management</i> , <i>Journal of Vegetation Science</i> , <i>Landscape Ecology</i> , <i>Mountain research and development</i> , <i>PeerJ</i> , <i>Plant and Soil</i> , <i>PlosOne</i> , <i>Restoration ecology</i> , <i>Scientific Reports</i> , <i>Sustainability</i>

Selected other activities

Hobbies	Cycling, gardening, hiking, DIY furniture and audio equipment, guitar
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Publications

ISI

- Blattert, C., R. Lemm, E. Thürig, G. Stadelmann, U.-B. Brändli, and **C. Temperli**. 2020. Long-term impacts of increased timber harvests on ecosystem services and biodiversity: A scenario study based on national forest inventory data. *Ecosystem Services* 45:101150. doi: 10.1016/j.ecoser.2020.101150
- Santopuoli, G., **C. Temperli**, I. Alberdi, I. Barbeito, M. Bosela, A. Bottero, M. Klopčič, J. Lesinski, P. Panzacchi, and R. Tognetti. 2020. Pan-European Sustainable Forest Management indicators for assessing Climate-Smart Forestry in Europe. *Canadian Journal of Forest Research*. doi: 10.1139/cjfr-2020-0166
- Bowditch, E., G. Santopuoli, F. Binder, M. del Río, N. La Porta, T. Kluvankova, J. Lesinski, R. Motta, M. Pach, P. Panzacchi, H. Pretzsch, **C. Temperli**, G. Tonon, M. Smith, V. Velikova, A. Weatherall, and R. Tognetti. 2020. What is Climate-Smart Forestry? A definition from a multinational collaborative process focused on mountain regions of Europe. *Ecosystem Services* 43:101113. doi: 10.1016/j.ecoser.2020.101113
- Temperli, C.**, C. Blattert, G. Stadelmann, U.-B. Brändli, and E. Thürig. 2020. Trade-offs between ecosystem service provision and the predisposition to disturbances: a NFI-based scenario analysis. *Forest Ecosystems* 7:27. doi: 10.1186/s40663-020-00236-1
- Stadelmann, G., **C. Temperli**, B. Rohner, M. Didion, A. Herold, E. Rösler, E. Thürig. 2019. Presenting MASSIMO: A Management Scenario Simulation Model to Project Growth, Harvests and Carbon Dynamics of Swiss Forests. *Forests* 10. doi: 10.3390/f10020094.
- Schelhaas, M.-J., J. Fridman, G. Hengeveld, H. Henttonen, A. Lehtonen, U. Kies, N. Krajnc, B. Lerink, A. Dhubháin, H. Polley, T. Pugh, J. Redmond, B. Rohner, **C. Temperli**, J. Vayreda, G.-J. Nabuurs. 2018. Actual European forest management by region, tree species and owner based on 714,000 re-measured trees in national forest inventories. *PLOS ONE* 13: e0207151. doi.org/10.1371/journal.pone.0207151.
- Temperli, C.**, G. Stadelmann, E. Thürig, and P. Brang. 2017. Timber mobilization and habitat tree retention in low-elevation mixed forests in Switzerland: an inventory-based scenario analysis of opportunities and constraints. *European Journal of Forest Research* 136:711–725. doi: 10.1007/s10342-017-1067-y
- Temperli, C.**, G. Stadelmann, E. Thürig, and P. Brang. 2017. Silvicultural strategies for increased timber harvesting in a Central European mountain landscape. *European Journal of Forest Research* 136:493–509. doi: 10.1007/s10342-017-1048-1
- Reyer, C. P. O., S. Bathgate, K. Blennow, J. G. Borges, H. Bugmann, Sylvain Delzon, S. P. Faias, J. Garcia-Gonzalo, B. Gardiner, J. R. Gonzalez-Olabarria, Carlos Gracia, J. G. Hernández, S. Kellomäki, K. Kramer, M. J. Lexer, M. Lindner, E. van der Maaten, M. Maroschek, B. Muys, B. Nicoll, M. Palahi, J. H. Palma, J. A. Paulo, Heli Peltola, T. Pukkala, W. Rammer, D. Ray, S. Sabaté, M.-J. Schelhaas, R. Seidl, **C. Temperli**, M. Tomé, R. Yousefpour, N. E. Zimmermann, and M. Hanewinkel. 2017. Are forest disturbances amplifying or canceling out climate change-induced productivity changes in European forests? *Environmental Research Letters* 12:034027. doi: 10.1088/1748-9326/aa5ef1

- Yousefpour, R., **C. Temperli**, J. B. Jacobsen, B. J. Thorsen, H. Meilby, M. Lexer, M. Lindner, H. Bugmann, J. Borges, J. Palma, D. Ray, N. Zimmermann, S. Delzon, A. Kremer, K. Kramer, C. Reyer, P. Lasch-Born, J. Garcia-Gonzalo, and M. Hanewinkel. 2017. A framework for modeling adaptive forest management and decision making under climate change. *Ecology and Society* 22. doi: 10.1007/s10113-014-0717-6
- Schwörer, C., D. M. Fisher, D. G. Gavin, **C. Temperli**, and P. J. Bartlein. 2016. Modeling postglacial vegetation dynamics of temperate forests on the Olympic Peninsula (WA, USA) with special regard to snowpack. *Climatic Change*:1–16. doi: 10.1007/s10584-016-1696-z
- Bouriaud, L., O. Bouriaud, C. Elkin, **C. Temperli**, C. Reyer, G. Duduman and 4 more. 2015. Age-class disequilibrium as an opportunity for adaptive forest management in the Carpathian Mountains, Romania. *Regional Environmental Change* 15:1557–1568. doi: 10.1007/s10113-014-0717-6
- Bouriaud, L., M. Marzano, M. J. Lexer, L. Nichiforel, C. Reyer, **C. Temperli** and 24 more. 2015. Institutional factors and opportunities for adapting European forest management to climate change. *Regional Environmental Change* 15:1595–1609. doi: 10.1007/s10113-015-0852-8
- Temperli C.**, S. Hart, T. Veblen, D. Kulakowski and A. Tepley. 2015. Interactions among spruce beetle disturbance, climate change and forest dynamics captured by a forest landscape model. *Ecosphere* 6:article no. 231. doi: 10.1890/ES15-00394.1
- Temperli C.**, S.J. Hart, T.T. Veblen, D. Kulakowski, J.J. Hicks and R. Andrus. 2014. Are density reduction treatments effective at managing for resistance or resilience to spruce beetle disturbance in the southern Rocky Mountains? *Forest Ecology and Management* 334:53–63. doi: 10.1016/j.foreco.2014.08.028
- Temperli, C.**, J. Zell, H. Bugmann, and C. Elkin. 2013. Sensitivity of ecosystem goods and services projections of a forest landscape model to initialization data. *Landscape Ecology* 28:1337–1352. doi: 10.1007/s10980-013-9882-0
- Temperli, C.**, H. Bugmann, and C. Elkin. 2013. Cross-scale interactions among bark beetles, climate change, and wind disturbances: a landscape modeling approach. *Ecological Monographs* 83:383–402. doi: 10.1890/12-1503.1
- Yousefpour, R., **C. Temperli**, H. Bugmann, C. Elkin, M. Hanewinkel, H. Meilby, J.B. Jacobsen, and B.J. Thorsen. 2013. Updating beliefs and combining evidence in adaptive forest management under climate change: A case study of Norway spruce (*Picea abies* L. Karst) in the Black Forest, Germany. *Journal of Environmental Management* 122:56–64. doi: 10.1016/j.jenvman.2013.03.004
- Elkin, C., A. Gutierrez, S. Leuzinger, C. Manusch, **C. Temperli**, L. Rasche and H. Bugmann. 2013. A 2 °C warmer world is not safe for ecosystem services in the European Alps. *Global Change Biology* 19:1827–1840. doi: 10.1111/gcb.12156
- Temperli, C.**, H. Bugmann, and C. Elkin. 2012. Adaptive management for competing forest goods and services under climate change. *Ecological Applications* 22: 2065–2077. doi: 10.1890/12-0210.1
- Moser, B., **C. Temperli**, G. Schneiter, and T. Wohlgemuth. 2010. Potential shift in tree species composition after interaction of fire and drought in the Central Alps. *European Journal of Forest Research* 129:625–633. doi: 10.1007/s10342-010-0363-6

Peer-reviewed non-ISI / Book chapters

Fischer, C., B. Rohner, A. Herold, B. Allgaier Leuch, **C. Temperli**, F. Frutig, L. Bont, E. Thürig, and E. Rösler. 2020. Holzproduktion. Pages 147–187 in U. B. Brändli, M. Abegg, and B. Allgaier Leuch, editors. Schweizerisches Landesforstinventar. Ergebnisse der vierten Erhebung 2009-2017. Eidgenössische Forschungsanstalt für Wald, Schnee und Landschaft WSL; Bundesamt für Umwelt BAFU, Birmensdorf, Bern.

Temperli, C., and H. Bugmann. 2020. Borkenkäferdynamik im Klimawandel: die Bedeutung der Landschaftsebene. *Schweiz Z Forstwes* 171:142–150. doi: 10.3188/szf.2020.0142

Stadelmann, G., **C. Temperli**, B. Rohner, M. Didion, A. Herold, E. Rösler, and E. Thürig. 2019. Forest Development Model MASSIMO. Pages 265–279 in C. Fischer and B. Traub, editors. *Swiss National Forest Inventory – Methods and Models of the Fourth Assessment*. Springer International Publishing, Cham. doi: 10.1007/978-3-030-19293-8_17

Stadelmann, G., **C. Temperli**, M. Conedera, A. Gómez und P. Brang. 2015. Möglichkeiten zur Holzmobilisierung im Tessiner Kastaniengürtel. *Schweizerische Zeitschrift für Forstwesen* 166:291–298. doi: 10.3188/szf.2015.0291

Books / Monographs

Temperli, C. 2012. Climate change, large-scale disturbances and adaptive forest management. Dissertation. ETH Zürich. Supervision: Prof. H. Bugmann, Co-supervision: Dr. Ché Elkin.

Other publications (e.g. implementation)

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Selected presentations at international conferences

Temperli, C., C. Blattert, G. Stadelmann, R. Lemm, U-B. Brändli and E. Thürig. 2019. Trade-offs and synergies between disturbance predisposition and ecosystem services in Swiss forests. A century of NFI - informing past, present and future decisions, Sundvolden, Norway. Lightning talk

Temperli, C., G. Stadelmann, E. Thürig, P. Brang. 2017. Balancing timber mobilization and habitat tree retention in mixed broadleaf-conifer forests: an inventory-based scenario analysis. IUFRO 125th Anniversary Congress 2017. Freiburg im Breisgau. Talk

Temperli, C., G. Stadelmann, E. Thürig, P. Brang. 2016. Waldbauliche Strategien für eine erhöhte Holznutzung im Gebirge. Forstwissenschaftliche Tagung FOWITA 2016, Freiburg im Breisgau. Talk.

Temperli, C., T. T. Veblen, S. J. Hart, D Kulakowski and A. Tepley. 2014. Interactions among spruce beetle disturbance, climate change and forest dynamics. 14 IUFRO World Congress, Salt Lake City, USA. Talk.

- Temperli, C.,** C. Elkin, and H. Bugmann. 2012. Sensitivity of forest ecosystem projections to data on current forest state. International conference: Tackling climate change: the contribution of forest scientific knowledge, Tours, France. Poster.
- Temperli, C.,** C. Elkin, and H. Bugmann. 2012. Bark beetle disturbance under climate change. Swiss Global Change Day 2012, Bern, Switzerland. Poster.
- Temperli, C.,** C. Elkin, A. Trasobares, and H. Bugmann. 2011. Landscape scale modeling of adaptive forest management for multiple ecosystem goods and services under climate change. 12th EEF Congress, Avila, Spain. Invited talk.
- Temperli, C.,** C. Elkin, and H. Bugmann. 2011. Modeling adaptive forest management under climate change. Swiss Global Change Day 2011, Bern, Switzerland. Poster.
- Temperli, C.,** C. Elkin, A. Trasobares, and H. Bugmann. 2010. Assessing trade-offs in adaptive forest management for multiple ecosystem goods and services under climate change using landscape scale modeling. UIFRO Landscape ecology conference, Braganca, Portugal. Talk.