

DAVID SHAW VITAE (2023)

David Carl Shaw
Professor (July 1, 2018)
Forestry and Natural Resources Extension, Forest Health Specialist
Director, Swiss Needle Cast Cooperative (2005 – 2023)
Department of Forest Engineering, Resources and Management
Oregon State University

Fields of Specialization

Forest Health. Forest Pathology, Forest Entomology, Forest Ecology, Mistletoes, Insects/Diseases interaction with Fire, Silviculture and Management, Disturbance Ecology.

Education

1991. Ph.D. Forest Pathology, Protection and Silviculture. College of Forest Resources, University of Washington, Seattle.

1982. MS. Biology, Plant Ecology. Biology Department, Western Washington University, Bellingham.

1977. BS. Biology, extended major in Applied Plant Science. Biology Department, Northern Arizona University, Flagstaff, Arizona.

Employment

2005-Present. Oregon State University. Corvallis, Oregon, Professor (July 1, 2018), Forestry and Natural Resources Extension Forest Health Specialist, Director, Swiss Needle Cast Cooperative (2005 – 2023). Department of Forest Science (2005-2008), Dept. of Forest Engineering, Resources and Management (2008 – Present)

1994-2005. Wind River Experimental Forest, Wind River Canopy Crane Research Facility, University of Washington. Carson, Washington

1991-1994: Olympic Natural Resource Center, College of Forest Resources, University of Washington. Forks, Washington

1987-1990. Graduate Research Assistantships, University of Washington, Seattle.

1983-1989. Term Ecologist, Seasonal Field Botanist. US Forest Service, Area Ecology Program. Colville, Olympic, and Mt. Baker-Snoqualmie National Forests, Washington.

1983-1986. Soil Resource Specialist. Seasonal, spring and fall. Multnomah County Educational Service District, Outdoor School, Environmental Education, Portland, Oregon. Portland, Oregon.

Forestry and Natural Resources Extension

Forest Health Specialist. Outreach, Engagement, Collaboration

Teaching

FOR599-Forest Health and Disturbance, 3 credits. Fall 2020, Fall 2021. 5 field trips and once/week meetings for readings and discussion.

FES 412/FES512-Forest Entomology, 3 credits, Spring Quarter 2020, 2023. Forest Insects with a focus on major forest pests, beneficial insects, invasives, their biology, life cycle, importance and management.

FOR599- Field Forest Health, 3 credit, Fall Quarter, 6.5 field days, based in Corvallis. Pre-quarter field class designed to review forest types across Oregon, their major forest health issues, as well as defining and managing for forest health.

Non Credit Courses and Workshops (Extension). These programs focus on public presentations, field trips and workshops, tree school, continuing education conference organization, trainings, and workshops, and volunteer training for master woodland managers, master gardeners, and pest scene investigators.

Tree School. A FNR Extension one-day banquet of many different workshops, field tours and indoor classes.

Extension Conference Organization. Target Audience: professional foresters, forestry and other students, small industrial private landowners, agencies, forest management companies, members of research cooperatives, scientists, tribal foresters.

Trainings and Workshops for Continuing Professional Development. Target Audience: professional foresters, forestry and other students, small industrial private landowners, agencies, forest management companies, members of research cooperatives, scientists, and tribal foresters.

Volunteer Training. Two programs for volunteers to work with County FNR Extension Foresters: Master Woodland Manager, and Pest Scene Investigators. Sometimes assist with Master Gardeners with OSU Extension.

Graduate Students:

2023. Daram Choi. MS. FERM.

2022. Saliha Voyvot. MS. FERM.

2020. Stephen Calkins MS. FERM

2020. Adam Bouche, MS. FES. Co-advisor, major is K. Puettmann.

2019. Andrew Russo MF. FERM

2018. Sky (Yung-Hsiang) Lan, Ph.D. FES
 2016. Randi Shaw, MS. FES. Co-advised with Paul Anderson (USFS/FES).
 2016. Sean Prive, MS. FES.
 2016. Nicholas Willhelmi, MS. FERM
 2015. Kyle Pritchard, MS. FES, Co-advised with Joan Hagar, USGS, FES
 2014. Dorian Alexanderson, MF. FERM
 2014. Ari DeMarco, MS, FERM
 2013. Michelle Agne, MS. FERM
 2011. Leif Mortensen, MS. FS
 2008. Danny Norlander, MS, FS

Master of Natural Resources

2022 – present: Andrew Vautrin
 2021- present: Lindsay Negherbon

Faculty Research Assistants, 2023:

Adam Carson, Swiss Needle Cast Cooperative (moving to LeBoldus)
 Maureen Duane, Permanent Sample Plot System (moving to D. Bell)

Programs

Swiss Needle Cast Cooperative (Jared LeBoldus will be the new Director in January 2024)

Swiss needle cast is foliage disease that is specific to Douglas-fir caused by the Ascomycete fungus *Nothophaeocryptopus gaeumannii*. The disease is causing an epidemic in coastal forest plantations; however, it was first described in Europe, but the fungus is native to western North America. The cooperative is a collaboration of industry, agencies, extension and academia which is focused on research, monitoring and outreach concerning impacts, epidemiology, spread and intensification of this disease.

Pacific Northwest Permanent Sample Plot System (Matt Powers is the new Co-PI with David Bell)

Collaborating PNW Research Station, H.J. Andrews Experimental Forest, Long-term research network (LTER), and regional partners. We manage a permanent plot network to measure vegetation and tree dynamics across 145 installations in western Washington and NW Oregon, visited every 5-6 years. Some plots have been measured for over 100 years, and include USFS early plot installations. 45 installations occur on the HJA. Provides data for assessing long term forest health and mortality.

Publications

Refereed Journal Publications

- 81) Choi, Daram, Thomas C Harrington, David C Shaw, Jane E Stewart, Duncan R Kroese, Ned B Klopfenstein, Mee-Sook Kim. IN PRESS. Phylogenetic analyses allow species-level recognition of *Leptographium wagneri* varieties that cause black stain root disease of conifers in western North America. *Frontiers in Plant Science*.
- 80) Warren, Dana R., Harper M. Loeb, Peter Betjemann, Isabel A. Munck, William S. Keeton, David C. Shaw, and Eleanor J. Harvey. 2023. "An Interdisciplinary Framework for Evaluating 19th Century Landscape Paintings for Ecological Research." *Ecosphere* e4649. <https://doi.org/10.1002/ecs2.4649>
- 79) Bennett, M., D.C. Shaw, L. Lowrey. 2023. Recent Douglas-fir mortality in the Klamath Mountains ecoregion of Oregon: Evidence for a decline spiral. *Journal of Forestry* 2023. <https://doi.org/10.1093/jofore/fvad007>
- 78) Mainwaring, D.B., G. Ritokova, D.C. Shaw, R.K. Brooks, and D.W. Omdal. 2023. Site-level estimates of Douglas-fir foliage retention from climate, soil, and topographic variables. *Forest Ecology and Management* 537 (2023). <https://doi.org/10.1016/j.foreco.2023.120930>
- 77) Still, C.J., A. Sibley, D. DePinte, P.E. Busby, C.A. Harrington, M. Schulze, D.C. Shaw, D. Woodruff, D.E. Rupp, C. Daly, W.M. Hammond, and G.F.M. Page. 2023. Causes of widespread foliar damage from the June 2021 Pacific Northwest Heat Dome: More heat than drought. *Tree Physiology* tpac143, <https://doi.org/10.1093/treephys/tpac143>
- 76) Shaw, D.C., P.A. Beedlow, E.H. Lee, D.R. Woodruff, G.W. Meigs, S.J. Calkins, M.J. Reilly, A.G. Merschel, S.P. Cline, R.L. Comeleo. 2022. Tamm Review: The complexity of biological disturbance agents, fuels heterogeneity, and fire in coniferous forests of the western United States. *Forest Ecology and Management*. Vol. 525. <https://doi.org/10.1016/j.foreco.2022.120572>
- 75) LaManna, J., F. Jones, D. Bell, R. Pabst, and D. Shaw. 2022. Tree species diversity with conspecific negative density dependence across an elevation gradient. *Ecology Letters* <http://doi.org/10.1111/ele.13996>
- 74) Lan, Y.-H., D.C. Shaw, E.H. Lee, P. Beedlow. 2022. Distribution of a foliage disease fungus within canopies of mature Douglas-fir in western Oregon. *Frontiers In Forests And Global Change*. <https://doi.org/10.3389/ffgc.2022.743039>
- 73) Kim, M-S, J. Hantula, J. Kaitera, P.J. Zambino, S. Woodward, D.A. Richardson, J.E. Stewart, P. Spaine, D.C. Shaw, Y. Takeuchi, and N.B. Klopfenstein. 2022. Recovery plan for Scots pine blister rust caused by *Cronartium pini*. *Plant Health Progress*: <https://doi.org/10.1094/PHP-06-21-0099-RP>.
- 72) Hennon, P.E., S.J. Frankel, A.J. Woods, J.J. Worrall, T.D. Ramsfield, P.J. Zambino, D. C. Shaw, G. Ritokova, M.V. Warwell, D. Norlander, R.L. Mulvey, and C.G. Shaw III. 2021. Applications of a conceptual framework to assess climate

controls of forest tree diseases. *Forest Pathology*: DOI: 10.1111/efp.12719

- 71) Merschel, A.G., P.A. Beedlow, D.C. Shaw, D.R. Woodruff, E. H. Lee, S.P. Cline, R. L. Comeleo, R.K. Hagmann, M.J. Reilly. 2021. An ecological perspective on living with fire in ponderosa pine forests of Oregon and Washington: Resistance, gone but not forgotten. *Trees, Forests, and People*. <https://doi.org/10.1016/j.tfp.2021.100074>
- 70) Shaw, D.C., G. Ritóková, Y.-H. Lan, D.B. Mainwaring, A. Russo, R. Comeleo, S. Navarro, D. Norlander, and B. Smith. 2021. Persistence of the Swiss Needle Cast Outbreak in Oregon Coastal Douglas-fir, and New Insights from Research and Monitoring. *Journal of Forestry*. doi:10.1093/jofore/fvab011
- 69) Calkins, S.J., D.C. Shaw, and Y-H Lan. 2021. Transformation of western hemlock (*Tsuga heterophylla*) tree crowns by dwarf mistletoe (*Arceuthobium tsugense*, Viscaceae). *Forest Pathology* DOI: 10.1111/efp.12664.
- 68) Ritóková, G., D.B. Mainwaring, D.C. Shaw, and Y.-H. Lan. 2021. Douglas-fir foliage retention dynamics across a gradient of Swiss needle cast in Oregon and Washington. *Canadian Journal of Forest Research*: Just in: Oct 12, 2020. <https://doi.org/10.1139/cjfr-2020-0318>
- 67) Shaw, D.C., and C.A. Lee. 2020. Expansion of the invasive European mistletoe in California, USA. *Botany* 98: 517-524. dx.doi.org/10.1139/cjb-2019-0215
- 66) Bell, D.M., R.J. Pabst, D.C. Shaw. 2019. Tree growth declines and mortality associated with a parasitic plant increase during warm and dry climatic conditions in a temperate coniferous forest ecosystem. *Global Change Biology*: <https://doi.org/10.1111/gcb.14834>.
- 65) Bladon, K. D., S. Bywater-Reyes, J M. LeBoldus, S. Keriö, C. Segura, G. Ritóková and D. C. Shaw. 2019. Increased streamflow in catchments affected by a forest disease epidemic. *Science of the Total Environment* 691: 112-123. <https://doi.org/10.1016/j.scitotenv.2019.07.127>.
- 64) Lan, Y-H, D.C. Shaw, G. Ritokova and J.A. Hatten. 2019. Associations between Swiss needle cast severity and foliar nutrients in young-growth Douglas-fir in coastal western Oregon and southwestern Washington, USA. *Forest Science* doi: 10.1093/forsci/fxz022
- 63) Lan, Y-H, D.C. Shaw, P.A. Beedlow, E.H. Lee, R.S. Waschmann. 2019. Severity of Swiss needle cast in young and mature Douglas-fir forests in western Oregon, USA. *Forest Ecology and Management* 442: 79-95. <https://doi.org/10.1016/j.foreco.2019.03.063>

- 62) Woolley, T. D.C. Shaw, L.T. Hollingsworth, M.C. Agne, S. Fitzgerald, A. Eglitis, and L. Kurth. 2019. Beyond red crowns: complex changes in surface and crown fuels and their interactions 32 years following mountain pine beetle epidemics in south-central Oregon, USA. *Fire Ecology* 15:4 <https://doi.org/10.1186/s42408-018-0010-z>
- 61) Mildrexler, D.J., D.C. Shaw, and W.B. Cohen. 2019. Short-term climate trends and the Swiss needle cast epidemic in Oregon's public and private coastal forestlands. *Forest Ecology and Management* 432:501-513.
- 60) Watson, D.M., and David Shaw. 2018. Veiled polypore (*Cryptoporus volvatus*) as a foraging substrate for the white-headed woodpecker (*Picoides albolarvatus*). *Northwestern Naturalist* 99: 58-62.
- 59) Agne, M.C., P.A. Beedlow, D.C. Shaw, D.R. Woodruff, E.H. Lee, S.P. Cline, and R.L. Comeleo. 2018. Interactions of predominant insects and diseases with climate change in Douglas-fir forests of western Oregon and Washington. *Forest Ecology and Management* 409: 371-332.
- 58) Wilhelmi, N., D.C. Shaw, C.A. Harrington, J.B. St. Clair, and L. Ganio. 2017. Climate of seed-source affects susceptibility of coastal Douglas-fir to foliage diseases. *Ecosphere* 8(12):e02011. [10.1002/ecs2.2011](https://doi.org/10.1002/ecs2.2011)
- 57) Shaw, D.C. and M.C. Agne. 2017. Fire and Dwarf Mistletoe (Viscaceae: *Arceuthobium* species) in Western North America: Contrasting *Arceuthobium tsugense* and *Arceuthobium americanum*. *Botany* 95(3): 231-246, [10.1139/cjb-2016-0245](https://doi.org/10.1139/cjb-2016-0245).
- 56) Pritchard, K.R., J.C. Hagar, and D.C. Shaw. 2017. Avian Abundance and Diversity are Associated with Oak Mistletoe (*Phoradendron villousm*) in Willamette Valley *Quercus* Woodlands. *Botany* 95(3): 283-294, [10.1139/cjb-2016-0249](https://doi.org/10.1139/cjb-2016-0249).
- 55) Shaw, D.C., T. Woolley, R.G. Kelsey, B.A. McPherson, D. Westlind, D.L. Wood, and E.K. Peterson. 2017. Surface fuels in recent *Phytophthora ramorum* created gaps and adjacent intact *Quercus agrifolia* forests, East Bay Regional Parks, California, USA. *Forest Ecology and Management*. 384: 331-338.
- 54) Hrinkevich KH, Progar RA, Shaw DC (2016) Climate Risk Modelling of Balsam Woolly Adelgid Damage Severity in Subalpine Fir Stands of Western North America. *PLoS ONE* 11(10): e0165094. [doi:10.1371/journal.pone.0165094](https://doi.org/10.1371/journal.pone.0165094).

- 53) Ritokova, G., D.C. Shaw, G. Filip, A. Kanaskie, J. Browning, and D. Norlander. 2016. Swiss needle cast in Western Oregon Douglas-fir plantations: 20-year monitoring results. *Forests* 7, 155; doi:10.3390/f7080155.
- 52) Hrinkevich, K., R. Progar, and D.C. Shaw. 2016. A severity rating system for evaluating stand-level balsam woolly adelgid (Hemiptera: Adelgidae) damage in two *Abies* species in western North America. *Forest Science* 62: 181-189.
- 51) Meigs, G.W., J.L. Campbell, H.S.J. Zald, J.D. Bailey, D.C. Shaw, and R.E. Kennedy. 2015. Does wildfire likelihood increase following insect outbreaks in conifer forests. *Ecosphere* 6(7):118. <http://dx.doi.org/10.1890/ES15-00037.1>.
- 50) Mortenson, L.A., A.N. Gray, and D.C. Shaw. 2015. A forest health inventory assessment of red fir (*Abies magnifica*) in upper montane California. *Ecoscience* <http://dx.doi.org/10.1080/11956860.2015.1047142>.
- 49) Miller-Pierce, M., D.C. Shaw, A. DeMarco, and P.T. Oester. 2015. Introduced and native parasitoid wasps associated with larch casebearer (Lepidoptera: Coleophoridae) in western larch. *Environmental Entomology*. 44: 27-33; DOI: 10.1093/ee/nvu016. (Erratum (map problem) published: Vol. 44: 919, June 2015).
- 48) Agne, M. C., D.C. Shaw, T.J. Woolley, and M. E. Queijeiro-Bolaños. 2014. Effects of dwarf mistletoe on stand structure of lodgepole pine forests 21-28 years post-mountain pine beetle mortality in central Oregon. *PLoS ONE* 9: e107532. Doi: 10.1371/journal.pone.0107532.
- 47) Ganio, L.M., T. Woolley, D. Shaw, and S. Fitzgerald. 2014. The discriminatory ability of postfire tree mortality logistic regression models. *Forest Science* 60: doi.10.5849/forsci. 13-146.
- 46) Marias, D., F. Meinzer, D.R. Woodruff, D.C. Shaw, S. Voelker, R.J. Brooks, J. McKay, and K. Falk. 2014. Impacts of dwarf mistletoe on the physiology of host *Tsuga heterophylla* trees as recorded in tree ring C and O stable isotopes. *Tree Physiology* doi:10.1093/treephys/tpu046.
- 45) Saffell, B.J., F.C. Meinzer, D.R. Woodruff, D.C. Shaw, S.L. Voelker, B. Lachenbruch, K. Falk. 2014. Seasonal carbohydrate dynamics and growth in Douglas-fir trees experiencing chronic fungal-mediated reduction in functional leaf area. *Tree Physiology*. doi:10.1093/treephys/tpu002.

- 44) Shaw, D.C., T. Woolley, and A. Kanaskie. 2014. Vertical foliage retention in Douglas-fir across environmental gradients of the western Oregon Coast Range influenced by Swiss needle cast. *Northwest Science* 88: 23-32.
- 43) Saffell, B.J., F.C. Meinzer, S.L. Voelker, D.C. Shaw, J.R. Brooks, B. Lachenbruch, J. McKay. 2014. Tree-ring stable isotopes record the impact of a foliar fungal pathogen on CO₂ assimilation and growth in Douglas-fir. *Plant, Cell and Environment*: doi: 10.1111/pce.12256 (accepted online Dec 2013).
- 42) Lee, E.H., P.A. Beedlow, R.S. Waschmann, C.A. Burdick, D.C. Shaw. 2013. Tree-ring analysis of the fungal disease Swiss needle cast in Western Oregon coastal forests. *Canadian Journal of Forest Research*.43: 677-690.
- 41) Kelsey, R.G., M. Beh, D.C. Shaw, and D.K. Manter. 2013. Ethanol attracts scolytid beetles to *Phytophthora ramoum* cankers on coast live oak. *Journal of Chemical Ecology*. 39: 494-506. Online ISSN 0098-0331, DOI 10.1007/s10886-013-0271-6.
- 40) Mulvey, R.L., D.C. Shaw, and D.A. Maguire. 2013. Fertilization impacts on Swiss needle cast disease severity in Douglas-fir. *Forest Ecology and Management* 287: 147-158.
- 39) Woolley, T., D.C. Shaw, L.M. Ganio, and S. Fitzgerald. 2012. A review of logistic regression models used to predict post-fire tree mortality of western North American conifers. *International Journal of Wildland Fire* 21:1-35. <http://dx.doi.org/10.1071/WF09039>.
- 38) Chumura, D.J., P.D. Anderson, G.T. Howe, C.A. Harrington, J.E. Halofsky, D.L. Peterson, D.C. Shaw, and B. St. Clair. 2011. Forest Responses to climate change in the northwestern United States: ecophysiological foundations for adaptive management. *Forest Ecology and Management*. 261: 1121-1142.
- 37) Shaw, D.C., GM. Filip, A. Kanaskie, D.A. Maguire, and W. Littke. 2011. Managing an epidemic of Swiss needle cast in the Douglas-fir region of Oregon: The Swiss Needle Cast Cooperative. *Journal of Forestry* 109: 109-119.
- 36) Black, B.A., D.C. Shaw, and J.K. Stone. 2010. Impacts of Swiss needle cast on overstory Douglas-fir forests of western Oregon Coast Range. *Forest Ecology and Management* 259: 1673-1680.
- 35) Butnor, J., M. Pruyn, D.C. Shaw, M. Harmon, A. Mucciardi, and M. Ryan. 2009. Detecting Defects in Conifers with Ground Penetrating Radar:

Applications and Challenges. *Forest Pathology*. 39:309-322. DOI: 10.1111/j.1439-0329.2009.00590.x

- 34) Mathiasen, R.L., D.L. Nickrent, D.C. Shaw, and D.M. Watson. 2008. Mistletoes: Systematics, Pathology, Ecology, and Management. *Plant Disease*. 92: 988-1006. This paper was chosen by the editor as #5, in the top eight papers of 2008 for the journal. [Invited review]
- 33) Shaw, D.C., M. Huso, H. Bruner. 2008. Basal area growth impacts of dwarf mistletoe on western hemlock in an old-growth forest. *Canadian Journal of Forest Research* 38: 576-583.
- 32) Swanson, M.E., D.C. Shaw, and T.K. Marosi. 2006. Distribution of western hemlock dwarf mistletoe (*Arceuthobium tsugense* [Rosendahl] G.N. Jones subsp. *Tsugense*) in mature and old-growth Douglas-fir (*Pseudotsuga menziesii* [Mirb.] Franco) forests. *Northwest Science* 80: 207-217.
- 31) Shaw, D.C., K. Ernest, B. Rinker, M. Lowman. 2006. Stand level herbivory in an old-growth forest canopy. *Western North American Naturalist* 66: 473-481.
- 30) Meinzer, F.C., J.R. Brooks, J.-C. Domec, B.L. Gartner, J.M. Warren, D.R. Woodruff, K. Bible, and D.C. Shaw. 2006. Dynamics of water transport and storage in conifers studied with deuterium and heat tracing techniques. *Plant, Cell and Environment* 29: 105-114.
- 29) Shaw, D.C., J. Chen, E. Freeman, and D. Braun. 2005. Spatial and population characteristics of dwarf mistletoe infected trees in an old-growth Douglas-fir/western hemlock forest. *Canadian Journal of Forest Research* 35: 990-1001.
- 28) Shaw, D.C., D.M. Watson, and R.L. Mathiasen. 2004. Comparison of dwarf mistletoes (*Arceuthobium* spp., Viscaceae) in western North America with mistletoes (*Amyema* spp., Loranthaceae) in Australia – ecological analogs and reciprocal models for ecosystem management. *Australian Journal of Botany* 52: 481-498.
- 27) Chen, J., Song, B., Rudnicki, M., Moeur, M., Bible, K., North, M., Shaw, D.C., Franklin, J.F., and Braun, D.M. 2004. Spatial relationship of biomass and species distribution in an old-growth *Pseudotsuga-Tsuga* forest. *For. Sci.* 50(3): 364-375.
- 26) Meinzer, F.C. D.R. Woodruff, and D.C. Shaw. 2004. Integrated responses of hydraulic architecture, water and carbon relations of western hemlock to dwarf mistletoe infection. *Plant, Cell and Environment* 27: 937-946.

- 25) Shaw, D.C., J.F. Franklin, K. Bible, J. Klopatek, E. Freeman, S. Greene, and G.G. Parker. 2004. Ecological setting of the Wind River old-growth forest. *Ecosystems* 7: 427-439.
- 24) Harmon, M.E., K. Bible, M.G. Ryan, D. Shaw, H. Chen, J. Klopatek, and X. Li. 2004. Production, respiration, and overall carbon balance in an old-growth *Pseudotsuga/Tsuga* forest ecosystem. *Ecosystems* 7: 498-512.
- 23) Parker, G.G., M.E. Harmon, M.A. Lefsky, J. Chen, R. Van Pelt, S.B. Weiss, S.C. Thomas, W.E. Winner, D.C. Shaw, and J.F. Franklin. 2004. Three dimensional structure of an old-growth *Pseudotsuga-Tsuga* canopy and its implications for radiation balance, microclimate, and atmospheric gas exchange. *Ecosystems* 7:440-453.
- 22) Shaw, D.C., and S.A. Acker. 2002. Canopy macrolichens from four forest stands in the southern Sierra mixed conifer forests of Sequoia/Kings Canyon National Park. *Madrono* 49:70-77.
- 21) Shaw, D.C., E. Freeman, and C. Flick. 2002. The vertical occurrence of small birds in an old-growth Douglas-fir/western hemlock forest stand. *Northwest Science* 76: 322-334.
- 20) Shaw, D.C. and C.J. Flick. 2002. Seasonal variation in vertical distribution of the Douglas' squirrel, *Tamiasciurus douglasii*, in an old-growth Douglas-fir/western hemlock forest in the morning. *Northwestern Naturalist* 83: 123-125.
- 19) Braun, D.M., B. Runcheng, D.C. Shaw, and M. Van Scoy. 2002. Herbivory of vine maple in an old-growth Douglas-fir/western hemlock forest. *Northwest Science* 76: 315-321
- 18) Franklin, J.F., T.A. Spies, R. Van Pelt, A.B. Carey, D.A. Thornburgh, D.R. Berg, D.B. Lindenmayer, M.E. Harmon, W.S. Keeton, D.C. Shaw, K. Bible, and J. Chen. 2002. Disturbances and structural development of natural forest ecosystems with silvicultural implications, using Douglas-fir forests as an example. *Forest Ecology and Management* 155: 399-423.
- 17) Clement, J.P., M. Moffett, D.C. Shaw, A. Lara, D. Alarcon, and O. Larrain. 2001. Crown architecture and biodiversity in *Fitzroya cupressoides*, the giant conifers of Alerce National Park, Chile. *Selbyana* 22:76-88
- 16) Shaw, D.C. and S. B. Weiss. 2000. Canopy light and the distribution of hemlock dwarf mistletoe (*Arceuthobium tsugense* (Rosendahl) G.N. Jones ssp. *Tsugense*) aerial shoots in an old-growth Douglas-fir/western hemlock forest. *Northwest Science* 74: 306-315.

- 15) McCune, B., R. Rosentreter, J.M. Ponzetti, and D.C. Shaw. 2000. Epiphyte habitats in an old conifer forest in western Washington, U.S.A. *The Bryologist* 103: 417-427.
- 14) Shaw, D.C., E. Freeman, and R.L. Mathiasen. 2000. Evaluating the accuracy of ground based dwarf mistletoe rating: a test case using the Wind River Canopy Crane. *Western Journal of Applied Forestry* 15: 8-14.
- 13) Shaw, D.C. and C. Flick. 1999. Are resident songbirds stratified within the canopy of a coniferous old-growth forest? *Selbyana* 20: 324-331.
- 12) Clement, J.P. and D.C. Shaw. 1999. Crown structure and the distribution of epiphyte functional group biomass in old growth *Pseudotsuga menziesii* trees. *EcoScience* 6: 243-254.
- 11) Ishii, H., J.P. Clement, and D.C. Shaw. 2000. Branch growth and crown form in old coastal Douglas-fir. *Forest Ecology and Management* 131: 81-91. [played a key role in data]
- 10) Ishii, H., J. H. Reynolds, E.D. Ford, and D.C. Shaw. 2000. Height growth and vertical development of an old-growth *Pseudotsuga-Tsuga* forest in southwestern Washington State, USA. *Canadian Journal of Forest Research* 30: 17-24.
- 9) Mathiasen, R.L. and D.C. Shaw. 1998. Adult sex ratio of western hemlock dwarf mistletoe at the Wind River Canopy Crane Research Facility, Washington. *Madrono* 45: 210-214.
- 8) Shaw, D.C. 1998. Distribution of larval colonies of *Lophocampa argentata* Packard, the silver spotted tiger moth (Lepidoptera: Arctiidae), in an old growth Douglas-fir, *Pseudotsuga menziesii*/ Western Hemlock, *Tsuga heterophylla*, forest canopy, Cascade Mountains, Washington State. *The Canadian Field Naturalist* 112: 250-253
- 7) McCune, B. et al. 1997. Vertical profile of epiphytes in a Pacific Northwest old-growth forest. *Northwest Science* 71: 145-152
- 6) Shaw, D.C. and K. Bible. 1996. An overview of forest canopy ecosystem functions with reference to urban and riparian systems. *Northwest Science* 70, Special Issue: 1-6.
- 5) Parks, C.G. and D.C. Shaw. 1996. Death and decay: A vital part of living canopies. *Northwest Science* 70, Special Issue: 46-53.
- 4) Shaw, D.C., R.L. Edmonds, W.R. Littke, J.E. Browning and K.W. Russell. 1995. Incidence of wetwood and decay in precommercially thinned

western hemlock stands. *Canadian Journal of Forest Research* 25:1269-1277.

- 3) Shaw, D.C., J. Greenleaf, and D. Berg. 1993. Monitoring new forestry. *Environmental Monitoring and Assessment* 26: 187-193.
- 2) Shaw, D.C. and R.J. Taylor. 1986. Pollination ecology of an alpine fell-field community in the North Cascades. *Northwest Science* 60: 21-31.
- 1) Taylor, R.J. and D.C. Shaw. 1983. Allelopathic effects of Engelmann spruce bark stilbenes and tannin-stilbene combinations on seed germination and seedling growth of selected conifers. *Canadian Journal of Botany* 61: 279-289.

Invited Book Reviews, Journals

- 2) Shaw, D.C. 2016. Future in flux; ectotherms might like it. *Ecology* 97(6): 1627-1628. Invited Book Review of; Christer Björkman and Pekka Niemelä, editors. 2015. *Climate change and insect pests*. CABI, Boston, Massachusetts.
- 1) Shaw, D.C. 2012. Forest Health for Ecologists. *Ecology*: 93(2) 436-437. Invited Book Review of, “Forest Health, An Integrated Perspective.” Edited by J.D. Castello and S.A. Teale.

Introduction to Special Issues

- 3) Teixeira-Costa, L. D.C. Shaw, and S.F. Shamoun. 2020. Introduction to, “Complex interactions of mistletoe, ecosystems, and people. *Botany* 98: pv-vi. DOI: 10.1139/cjb-2020-0081.
- 2) Shaw, D.C. and S.F. Shamoun. 2017. Introduction to “Mistletoes: Pathogens, Keystone Resource, and Medicinal Wonder”. *Botany* 95(3): v-vi, 10.1139/cjb-2017-0011
- 1) Shaw, D.C. 1996. Preface. Special Issue on “Forest Canopies”. *Northwest Science*.

Journal of Extension

- 1) Strong, N.A., P.T. Oester, and D.C. Shaw. 2012. Pest Scene Investigators: A Peer- Learning Effort to Improve Forest Health in Oregon. *Journal of Extension* 50 (2). Article Number 2IAW2.

Guest Editor, Journal

2) D.C. Shaw and S. Shamoun. Guest editors, 2017 Issue of Botany, special section on mistletoes from the IUFRO 7.02.11 Meeting in Ashland, Oregon.

1) Shaw, D.C., C. Rose, S. Sillett, and A. Carey. Guest Editors. 1996. Northwest Forest Canopies: Biology, Ecology and Silviculture. Northwest Science 70, Special Issue: 1-108.

Book Chapters

7) Shaw, D., R. Mathiasen, and J. Oliva. 2018. Parasitic Plants, including sections on Mistletoes (Dwarf Mistletoes, Leafy Mistletoes) and Other Parasitic Plants. In: Compendium of Conifer Diseases (2nd edition). Edited by E.M. Hansen, K.J. Lewis, and G.A. Chastagner. APS Press, St. Paul, Minnesota, USA. Invited Chapter Contribution.

6) Shaw, D.C. and R.L. Mathiasen. 2013. Management of Higher Parasitic Plants – Mistletoes. Chapter 5. In: Infectious Forest Diseases. Edited by G. Nicolotti, and P. Gonthier. CABI Press. Invited Chapter Contribution.

5) Shaw, D.C. 2004. Vertical Organization of Canopy Biota. Chapter 4, In: M. Lowman and B. Rinker. Forest Canopies 2nd Edition. Elsevier/Academic Press.

4) Shaw, D.C., F. Meinzer, K. Bible, and G. Parker. 2003. Wind River Canopy Crane. Chapter 4.2.6. In: Bassett, Y., V. Horlyck, and J. Wright. Studying the Forest Canopy from Above: The International Canopy Crane Network. United Nations Environment Program and Smithsonian Tropical Research Institute.

3) Shaw, D.C. Wind River Canopy Crane, USA. Pg 60-65. In: Mitchell, A.W., K. Secoy, and T. Jackson. 2002. The Global Canopy Handbook. Techniques of Access and Study in the Forest Roof. Global Canopy Programme, Global Canopy Foundation, Halifax House, Oxford, UK.

2) Shaw, D.C. Sampling birds in the forest canopy using a canopy crane. Pg 156-159. In: Mitchell, A.W., K. Secoy, and T. Jackson. 2002. The Global Canopy Handbook. Techniques of Access and Study in the Forest Roof. Global Canopy Programme, Global Canopy Foundation, Halifax House, Oxford, UK.

1) Kitching, R.L. and D.C. Shaw. Volunteers: Their use and management. Pg 219-224. In: Mitchell, A.W., K. Secoy, and T. Jackson. 2002. The Global Canopy Handbook. Techniques of Access and Study in the Forest Roof. Global Canopy Programme, Global Canopy Foundation, Halifax House, Oxford, UK.

Proceedings

4) Shaw, D.C. 2014. Interacting threats to forest plantations in the Douglas-fir region, USA. In: Parrotta et al. (editors). XXIV IUFRO World Congress

(Salt Lake City, USA) Sustaining Forests, Sustaining People: The Role of research. *The International Forestry Review* 16: 334.

- 3) Latta, G., D. Adams, and D.C. Shaw. 2011. Using a needle retention model and a log market model to estimate the economic impacts of Swiss needle cast in western Oregon. Pages 21-22. In: Proceedings of the 58th Annual Western International Forest Disease Work Conference. M.L. Fairweather and P. Palacios compilers.
- 2) Woolley, T., Ganio, L.M., Shaw, D.C., and S. Fitzgerald. 2008. A Framework to evaluate post-fire tree mortality logistic models. In; R.E. Masters, K.E.M. Galley, and D.G. Despain (eds.). *The '88 Fires: Yellowstone and Beyond*. Tall Timbers Miscellaneous Publications No. 16. Tall Timbers Research Station, Tallahassee, Florida, USA.
- 1) Shaw, D., R. Edmonds, W. Littke, J. Browning, K. Russell, and C. Driver. 1993. Influence of forest management on Annosus root disease in coastal western hemlock, Washington state, USA. In: Proceedings of the Eighth Meeting, IUFRO Working Party, S2.06.01, Root and Butt Rots, August 9-16, 1993, Sweden and Finland.

USFS General Technical Reports

- 3) Spies, T.A., P.F. Hessburg, C. Skinner, K. Puettmann, M. Reilly, R.J. Davis, J. Kertis, J. Long, and D. Shaw. IN PRESS. Chapter 3. Old growth, disturbance, forest succession, and management in the area of the Northwest Forest Plan. In: Northwest Forest Plan Science Synthesis, T. Spies et al. General Technical Report, USDA Forest Service, PNW Research Station. [invited to write section on biotic disturbances]
- 5) Jayawickrama, K.J.S., D. Shaw, and T.Z. Ye. 2012. Genetic Selection in Coastal Douglas-fir for tolerance to Swiss Needle Cast Disease. In: Sniezko, Richard A.; Yanchuk, Alvin D.; Kliejunas, John T.; Palmieri, Katharine M.; Alexander, Janice M.; Frankel, Susan J., tech. coords. 2012. Proceedings of the fourth international workshop on the genetics of host-parasite interactions in forestry: Disease and insect resistance in forest trees. Gen. Tech. Rep. PSW-GTR-240. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. 372 p.
- 1) Edmonds, R.L., D.C. Shaw, T. Hsiang and C.H. Driver. 1989. Impact of precommercial thinning on the development of *Heterobasidion annosum* in western hemlock. In: Orosina, W.J., and R.F. Scharpf, technical coordinators. Proceedings of the Symposium on Research and Management of Annosus Root Disease in Western North America, April 18-21, 1989. Gen. Tech. Rept. PSW-116. USFS For. Serv., Pacific Southwest Forest and Range Experiment Station, Berkeley, CA.

USFS, Forest Insect and Disease Leaflets (FIDL)

- 1) Wilhelmi, N., P.I. Bennett, D.C. Shaw, and J.K. Stone. 2021. Rhabdocline Needle Cast of Douglas-fir. Forest Insect and Disease Leaflet (FIDL) 190. USDA Forest Service, FS-1176. Washington D.C.
- 2) Mulvey, R.L., D.C. Shaw, G.M. Filip, and G.A. Chastagner. 2013. Swiss Needle Cast of Douglas-fir. Forest Insect and Disease Leaflet (FIDL) 181. USDA Forest Service, Washington DC.

USFS Plant Association Field Guides

- 2) Henderson, J.H., R.D. Leshner, D.H. Peter and D.C. Shaw. 1992. Field Guide to the Forested Plant Associations of the Mt. Baker-Snoqualmie National Forest. U.S. Dept. of Agriculture, Forest Service Technical Paper R6-ECOL-TP-028-91, Pacific Northwest Region, Portland, Oregon.
- 1) Henderson, J.H., D.H. Peter, R.D. Leshner and D.C. Shaw. 1989. Forested Plant Associations of the Olympic National Forest. U.S. Dept. of Agriculture, Forest Service Technical Paper R6-ECOL-TP-001-88. Pacific Northwest Region, Portland, Oregon.

Non-Refereed Scientific Society Bulletin Reports

- 1) Shaw, D.C., and S. Greene. 2003. Wind River Canopy Crane Research Facility and Wind River Experimental Forest. "Focus on Field Stations". Bulletin of the Ecological Society of America 83 (No.3): 115-121.

OSU Extension Publications (reviewed): Book

- 1) EM 8980. Managing Insects and Diseases of Oregon Conifers. January 2019. 132 pages. Authors: Paul T. Oester, David C. Shaw, Greg M. Filip.

OSU Extension Publications (reviewed): Extension Circulars, and Extension Manuals

- 13) EM9396. Alternatives to Ash in Western Oregon. EM 9396, March 2023. Kral, G., and D.C. Shaw. Oregon State University Extension Service.
- 12) EM9380. Oregon Ash: Insects, Pathogens, and Tree Health. January 2023. David Shaw, Jay Pscheidt, and Alex Gorman. Oregon State University Extension Service.
- 11) EM 9352. Silvicultural Decision Guide for Swiss Needle Cast in Coastal Oregon and Washington. May 2022. Gabriela Ritóková David C. Shaw Doug Mainwaring. Oregon State University Extension Service Publication.

- 10) EM 9330. January 2022. Preventing Phytophthora Infestations in Restoration Nurseries: a key to protecting wildland plant communities. N. Kline, M. Elliott, J. Parke, D. Stark, D. Shaw, and A. Christiansen. Oregon State University Extension Service Publication.
- 9) EM 9216. October 2018. Sudden Oak Death: Prevention, Recognition, Restoration. N. Kline, S. Navarro, and D. Shaw. Oregon State University Extension Service Publication.
- 8) EM 9161. March 2017. Pest Scene Investigator: A Training Curriculum. Strong, N., P.T. Oester, D.C. Shaw, B. Saffell, T. Fegel, and C. Berger. Oregon State University Extension Service Publication.
- 7) EM 9137. March 2016. The Hidden Threat in Firewood: Invasive Forest Pests. Shaw, D., A Grotta, W. Williams, R. Rippey, and S. Bowers. Oregon State University Extension Service Publication. 6 pg.
- 6) EM 9015. Common Insects and Diseases of Sitka Spruce on the Oregon Coast. January 2015. 23 pages. Authors: Jim Reeb and David Shaw. Oregon State University Extension Publication.
- 5) EM 9008. Common Insects and Diseases of Shore Pine on the Oregon Coast. September 2010. 14 pages. Authors: Jim Reeb and David Shaw. Oregon State University Extension Publication.
- 4) EC 1916-E, Diseases and Insects Pests of Pacific Madrone. May 2008. 5 pages. Authors : Max Bennett, David Shaw. Oregon State University Extension Service Publication.<http://extension.oregonstate.edu/catalog/pdf/ec/ec1619-e.pdf>
- 3) EC 1615-E, Swiss Needle Cast of Douglas-fir in Oregon. January 2008. 4 pages. Author: David Shaw. Oregon State University Extension Service Publication.<http://extension.oregonstate.edu/catalog/pdf/ec/ec1615-e.pdf>
- 2) EC 1608-E, Stop the spread of Sudden Oak Death, new June 2007, 2 pages, no charge. Authors: Ellen M. Goheen, David Shaw. Oregon State University Extension Service Publication.<http://extension.oregonstate.edu/catalog/pdf/ec/ec1608-e.pdf>
- 1) EC 1607-E, Sudden Oak Death, new June 2007, 2 pages, no charge. Author: David Shaw. Oregon State University Extension Service Publication. <http://extension.oregonstate.edu/catalog/pdf/ec/ec1607-e.pdf>

Professional Organization Membership

American Phytopathological Society

Ecological Society of America

International Union of Forest Research Organizations

7.02.11 Parasitic flowering plants in forests. Coordinator (2014-2022)

7.02.02 Foliage, stem and shoot diseases

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