



# Victor Resco

## Associate professor

### Personal Information



**Position:** Associate professor

**Area of expertise:** Plant production

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### University degrees

- BS Forestry Engineering, University of Lleida, 2000
- MS Forestry Engineering, University of Lleida, 2003
- PhD, University of Wyoming, 2008

### Previous activities

- 2019-Currently. Associate Professor. UdL
- 2014 –2019 Ramón y Cajal Fellow, UdL
- 2011-2014 – Lecturer, Western Sydney University
- 2011 – Associate Professor, University of Castilla-la Mancha
- 2009-2011 – Research Scientist, Fire Research Institute
- 2008-2009 – Postdoctoral fellow, University of Castilla-la Mancha
- 2004-2008 – Research Assistant, University of Wyoming

### Research



- Biosphere-atmosphere interactions
- C i r c a d i a n b i o l o g y
- Forest fires

## Teaching

- CANVI GLOBAL Doble Grau en Enginyeria Forestal - Conservació de la Natura
- INCENDIS I SANITAT FORESTAL Grau en Enginyeria Forestal
- TRENDS OF FORESTRY IN A GLOBAL CHANGE CONTEXT Màster Universitari Erasmus Mundus Forestal E
- PRINCIPLES OF WILDLAND FIRE SCIENCE AND MANAGEMENT Màster Universitari Erasmus Mundus Forestal E
- ST IN DISTURBANCE ECOLOGY AND FOREST HEALTH Màster Universitari Erasmus Mundus Spatial and Modelling in European Forestry

## Recent Publications

- Nolan, RH, Hedo J, Arteaga C, Sugai T, Resco de Dios V. 2018. Physiological drought responses improve predictions of live fuel moisture dynamics in a Mediterranean forest. *Agricultural and Forest Meteorology* 263: 417-427, doi: 10.1016/j.agrformet.2019.09.011.
- Renchon AA, Griebel A, Metzen D, Williams CA, Medlyn B, Duursma RA, Barton CVM, Maier C, Boer MM, Isaac P, Tissue D, Resco de Dios V, Pendall E. 2018. Upside-down fluxes Down Under: CO<sub>2</sub> net sink in winter and net source in summer in a temperate evergreen broadleaf forest. *Biogeosciences* 15: 3703-3716, doi: 10.5194/bg-15-3703-2018.
- Resco de Dios V, Arteaga C, Hedo J, Gil-Pelegrín E, Voltas J. 2018. A trade-off between embolism resistance and bark thickness in conifers: Are drought and fire adaptations antagonistic? *Plant Ecology & Diversity*, doi: 10.1080/17550874.2018.1504238
- Dannenmann M, Díaz-Pinés E, Kitzler B, Karhu K., Tejedor J, Ambus P, Parra A, Sánchez L, Resco V, Ramírez D, Povoas-Guimaraes L, Zechmeister-Boltenstern S, Kraus D, Castaldi S, Vallejo A, Rubio A, Moreno JM, Butterbach-Bahl K. 2018. Post-fire nitrogen balance of Mediterranean shrublands: direct combustion losses versus gaseous and leaching losses from the post-fire soil mineral nitrogen flush. *Global Change Biology* 24: 4505-4520, doi: 10.1111/gcb.14388



- Resco de Dios V, Loik M, Smith R, Tissue, D. 2018. Effects of a heat wave on nocturnal stomatal conductance in *Eucalyptus camaldulensis*. *Forests* 9: 319, doi: 10.3390/f9060319
- Aspinwall MJ, Blackman CJ, Resco de Dios V, Busch FA, Rymer PD, Loik ME, Drake JE, Pfautsch S, Smith RA, Tjoeker MG, Tissue DT 2018. Photosynthesis and carbon allocation are both important predictors of genotype productivity responses to elevated CO<sub>2</sub> in *Eucalyptus camaldulensis*. *Tree Physiology* 38: 1286-1301, doi:10.1093/treephys/tpy045.
- Anderegg WRL, Wolf A, Arango-Velez A, Choat B, Chmura DJ, Jansen S, Kolb T, Li S, Meinzer F, Pita P, Resco de Dios V, Sperry JS, Wolfe BT, Pacala S. 2018. Woody plants optimise stomatal behaviour relative to hydraulic risk. *Ecology Letters* 21: 968-977, doi:10.1111/ele.12962.
- Collins L, Boer MM, Resco de Dios V, Power S, Bendall ER, Hasegawa S, Ochoa Hueso R, Piñeiro Nevado J, Bradstock R. 2018. Effects of competition and herbivory over woody seedling growth in a temperate woodland trump the effects of elevated CO<sub>2</sub>. *Oecologia* 187: 811-823, doi: 10.1007/s00442-018-4143-1.
- Alday JG, Shestakova TA, Resco de Dios V, Voltas. 2018. DendroSync: An R package to unravel synchrony patterns in tree-ring networks. *Dendrochronologia* 47: 17-22, doi: 10.1016/j.dendro.2017.12.003.
- Collins L, Bradstock R, Resco de Dios V, Duursma R, Velasco S, Boer M. 2018. Understorey productivity in temperate grassy woodland responds to soil water availability but not to elevated CO<sub>2</sub>. *Global Change Biology* 24: 2366–2376, doi: 10.1111/gcb.14038.
- Karavani A, Boer MM, Baudena M, Colinas C, Díaz-Sierra R, Pemán J, de Luis M, Enríquez- de-Salamanca A, Resco de Dios V. 2018. Fire-induced deforestation in drought-prone Mediterranean forests: drivers and unknowns from leaves to communities. *Ecological Monographs* 88: 141-169, doi: 10.1002/ecm.1285.
- Resco de Dios V, Gessler, A. 2018. Circadian regulation of photosynthesis and transpiration from genes to ecosystems. *Environmental and Experimental Botany* 152: 37-48, doi: 10.1016/j.envexpbot.2017.09.010.
- Boer MM, Nolan RH, Resco de Dios V, Clarke H, Price OF, and Bradstock RA. 2017 Changing weather extremes call for early warning of potential for catastrophic fire. *Earth's Future* 5: 1196-1202, doi: 10.1002/2017EF000657.
- Resco de Dios V, Molina-Terrén D. 2017. Fires: degree courses for fire professionals. *Nature* 551: 300, doi: 10.1038/d41586-017-06022-4.
- Anderegg WRL, Wolf A, Arango-Velez A, Choat B, Chmura DJ, Jansen S, Kolb T, Li S, Meinzer F, Pita P, Resco de Dios V, Sperry JS, Wolfe BT, Pacala S. 2017. Plant water potential improves prediction of empirical stomatal models. *PLoS one* 12, e0185481, doi: 10.1371/journal.pone.0185481.
- Loik ME, Resco de Dios V, Smith R, Tissue DT. 2017. Relationships between climate of origin and photosynthetic responses to an episodic heatwave depend on growth CO<sub>2</sub> concentration for *Eucalyptus camaldulensis* var. *camaldulensis*. *Functional Plant Biology* 44: 1053-1062, doi: 10.1071/FP17077
- Resco de Dios V. 2017. Circadian regulation and diurnal variation in gas exchange. *Plant Physiology* 175: 3-4, doi: 10.1104/pp.17.00984
- Soler Martin M, Bonet JA, Martínez de Aragón J, Voltas J, Coll L, Resco de Dios V. 2017. Crown bulk density and fuel moisture dynamics in *Pinus pinaster* stands are neither modified by thinning nor captured by the Forest Fire Weather Index. *Annals of Forest Science* 74: 51, doi: 10.1007/s13595-017-0650-1



García-Plazaola JI, Fernández-Marín B, Ferrio JP, Alday JG, Hoch G, Landais D, Milcu A, Tissue DT, Voltas J, Gessler A, Roy J, Resco de Dios V. 2017. Endogenous circadian rhythms in pigment composition induce changes in photochemical efficiency in plant canopies. *Plant, Cell and Environment* 40: 1153-1162, doi: 10.1111/pce.12909

Gessler A, Roy J, Kayler Z, Ferrio JP, Alday JG, Bahn M, del Castillo J, Devidal S, García- Muñoz S, Landais D, Martín-Gómez P, Milcu A, Piel C, Pirhofer-Walzl K, Galiano L, Schaub M, Haeni M, Ravel O, Salekin S, Tissue DT, Tjoelker MG, Voltas J, Hoch G, Resco de Dios V. 2017. Night and day – Circadian regulation of night-time dark respiration and light-enhanced dark respiration in plant leaves and canopies. *Environmental and Experimental Botany* 137, 14-25, doi: 10.1016/j.envexpbot.2017.01.014.

Díaz-Sierra R, Verwijmeren M, Rietkerk M, Resco de Dios V, Baudena M. 2017. A new family of standardized and symmetric indices for measuring the intensity and importance of plant neighbour effects. *Methods in Ecology & Evolution* 8, 580-591, doi: 10.1111/2041- 210X.12706.

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Shestakova TA, Gutierrez E, Kirilyanov AV, Camarero JJ, Génova M, Knorre A, Linares JC, Resco de Dios V, Sánchez-Salguero R, Voltas J. 2016. Forests synchronize their growth in contrasting Eurasian regions in response to climate warming. *Proceedings of the National Academy of Sciences (PNAS)* 113, 662-667, doi: 10.1073/pnas.1514717113.

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Boer MM, Bowman DMJS, Murphy BP, Cary GJ, Cochrane MA, Fensham RJ, Krawchuk MA, Price OF, Resco de Dios V, Williams RJ, Bradstock RA. 2016. Future changes in climatic water balance determine potential for transformational shifts in Australian fire regimes. *Environmental Research Letters* 11, 065002, doi: 10.1088/1748-9326/11/6/065002.

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Beringer J, Hutley LB, McHugh I, Arndt SK, Campbell D, Cleugh HA, Cleverly J, Resco de Dios V, et al. 2016. An introduction to the Australian and New Zealand flux tower network – OzFlux. *Biogeosciences* 13, 5895-5916, doi: 10.5194/bg-2016-152

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Fardusi MF, Ferrio JP, Comas C, Voltas J, Resco de Dios V, Serrano L. 2016. Intra-specific association between carbon isotope composition and productivity in woody plants: a meta- analysis. *Plant Science* 251, 110-118, doi: 10.1016/j.plantsci.2016.04.005



Resco de Dios V, Mereed T, Ferrio JP, Tissue DT, Voltas V. 2016. Intra-specific variation in juvenile tree growth under elevated CO<sub>2</sub> alone and with O<sub>3</sub> – A meta-analysis. *Tree Physiology* 36, 682-693, doi: 10.1093/treephys/tpw026.

Nagy L, Resco de Dios V. 2016. Announcing the Grubb reviews. *Plant Ecology & Diversity* 9, 1, doi: 10.1080/17550874.2016.1175210. - Editorial

Resco de Dios V. 2016. When fire acts like an irrigation: competition release after burning enhances growth. *Trees - Structure and Function*, 30, 579-580, doi: 10.1007/s00468-016-1382-9. - Editor's highlight.

Blackman CJ, Aspinwall MJ, Resco de Dios V, Smith R, Tissue DT. 2016. Leaf photosynthetic, economics and hydraulic traits are decoupled among genotypes of a widespread species of eucalypt grown under ambient and elevated CO<sub>2</sub>. *Functional Ecology* 30, 1491-1500, doi: 10.1111/1365-2435.12661

Nolan RH, Resco de Dios V, Boer MM, Caccamo G, Goulden ML, Bradstock RA. 2016. Predicting dead fine fuel moisture at regional scales using vapour pressure deficit from MODIS and gridded weather data. *Remote Sensing of Environment* 174, 100-108, doi: 10.1016/j.rse.2015.12.010

Resco de Dios V, Loik ME, Smith RA, Aspinwall MJ, Tissue DT. 2016. Genetic variation in circadian regulation of nocturnal stomatal conductance enhances carbon assimilation and growth. *Plant Cell and Environment* 39, 3-11, doi: 10.1111/pce.12598

Resco de Dios V, Roy J, Ferrio JP, Alday JG, Landais D, Milcu A, Gessler A. 2015. Processes driving nocturnal transpiration and implications for estimating land evapotranspiration. *Scientific Reports* 5, 10975, doi: 10.1038/srep10975.

Lin Y-S, Medlyn BE, Duursma RA, Prentice IC, Wang H, Baig S, Eamus D, Resco de Dios V, et al. 2015. Optimal stomatal behaviour around the world. *Nature Climate Change* 5, 459-464, doi: 10.1038/NCLIMATE2550.

Resco de Dios V, Fellows AW, Nolan RH, Boer MM, Bradstock RA, Domingo F, Goulden ML. 2015. A semi-mechanistic model for predicting the moisture content of fine litter *Agricultural and Forest Meteorology* 203, 64-73, doi: 10.1016/j.agrformet.2015.01.002.

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Aspinwall MJ, Loik ME, Resco de Dios V, Tjoelker MG, Payton PR, Tissue DT. 2015 Utilizing intraspecific variation in phenotypic plasticity to bolster agricultural and forest productivity under climate change. *Plant Cell and Environment* 38, 1752-1764, doi: 10.1111/pce.12424.

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*<http://webgrec.udl.cat/cgi-bin/DADREC/crgen.cgi?FONT=3&IDI=CAT&PID=367567&IDNC=201210161350170> ])*

