

# CURRICULUM VITAE

## Carlos A. González Benecke

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### Professional Experience

**2015 - Assistant Professor of Forest Regeneration**, Department of Forest Engineering, Resources and Management, Oregon State University, Corvallis, Oregon, USA.  
**Director, Vegetation Management Research Cooperative (VMRC)**, Oregon State University, Corvallis, Oregon, USA.

**2014 Adjunct Lecturer – Department of Biology at the University of Florida**  
Course: Plant Ecophysiological Measurement Techniques (BOT-6935)

**2011 - 2015 Research Associate in Forest Resources and Conservation.**  
Physiological process-based modeling for *P. taeda* and *P. elliotii* stands.  
Research on ecophysiology and carbon balance of southern pine forests.  
Research on ecophysiology of southern *Populus* hybrids.  
Carbon balance modeling for *Pinus taeda*, *P. elliotii* and *P. palustris* plantations.  
Growth and yield modeling for *P. palustris* plantations.  
Developing models for ecological forestry and carbon management in *P. palustris* forests.

**2009 - 2010 Post-Doctoral Research Associate. Carbon Resources Science Center, University of Florida**, Gainesville, Florida, USA.

- **Program Coordinator.** Research on developing optimum forest management regimes for sequestering carbon in the southeastern United States. Assist with daily operation of multidisciplinary research center.  
Leaf area, needlefall and forest floor dynamics in southern pines. Nutrient dynamics of southern pine forests.  
Carbon balance modeling for southern pine forests.

**2005 - 2008 University of Florida**, Gainesville, Florida, USA.

- Research Assistant, forest physiology, School of Forest Resources and Conservation.
- Gas exchange and water relations (photosynthesis rate, stomatal conductance, carbon isotope discrimination, xylem water potential, hydraulic conductivity, resistance to cavitation, hydraulic architecture and sapflow) of *P. taeda*, *P. elliotii* and *P. palustris*.
- Hydraulic architecture of *P. elliotii* and *P. palustris*.
- Interactions between irrigation and genetic families on wood properties of *P. taeda*.
- Clonal variation in hydraulic conductivity of *P. taeda*.

- Genetic architecture of hydraulic traits in *Populus* hybrids.

**1996 - 2004**                    **Bioforest S. A.**, Concepción, Chile.

Bioforest is the research unit of Forestal Arauco, the largest forest company in Latin America, with some 2 million hectares of forest land under sustainable management in Chile, Argentina, Brazil and Uruguay.

- **Ecophysiology Project Leader** (Oct 2001- Dec 2004). Research in forest ecophysiology. Coordination and execution of projects investigating biological foundations of plantation growth. Examples of research areas:

- **Silvicultural and Nutritional Management Project Leader** (Sep 1996 - Sep 2001). Research in site productivity and silvicultural management. Development of intensive silvicultural treatment through stand development for Forestal Arauco plantations for selected genetic material (from half-sib families to varieties).

**1994 – 1996**                    **Forestal Celco S. A.**, Constitución, Chile.

Forestal Celco is a forest company part of Forestal Arauco’s holding company.

- **Site Productivity Field Manager** (May 1994 - Ago 1996). Establishment, maintenance and measurement of site productivity studies.

## **Education/Training**

**2009**                    **PhD**, School of Forest Resources and Conservation, University of Florida, Gainesville, Florida, USA. Dissertation title: “Interactions between xylem structure and water relations of southern pines”. Advisor: Tim A. Martin

**1997**                    **Industrial Engineer Diploma**, Universidad de Concepción, Concepción, Chile.

**1993**                    **Forest Engineer (B.S. Forestry)**, Universidad de Chile, Santiago, Chile.

## **Honors**

2019    SAF (Oregon) Research Award

2016    High Impact Research Publication, Journal of Forestry Research

2011    High Impact Research Publication, Institute of Food and Agricultural Sciences, University Of Florida.

2009    Outstanding Dissertation in the School of Forest Resources and Conservation.

2007    Honorary Society of Forestry (Xi Sigma Pi)

2006    Honorary Society of Agronomy (Gamma Sigma Delta)

## **Peer-reviewed publications**

M.G. Wightman, C.A. Gonzalez-Benecke and E.J. Dinger. 2019. Interactive effects of stock type and forest vegetation management treatments on Douglas-fir seedling growth and survival - ten years results. *Forests* 10, 1002; doi:10.3390/f10111002.

H.N. Flamenco, C.A. Gonzalez-Benecke and M.G. Wightman. 2019. Long-term effects of vegetation management on biomass stock of four coniferous species in the Pacific Northwest United States. *Forest Ecology and Management* 432:276-285.

M.G. Wightman, C.A. Gonzalez-Benecke and E.J. Dinger. 2018. The influence of containerized stock type on the growth and survival of Douglas-fir seedlings. *Tree Planter Notes* 61:134-141.

R.G. Wagner, D.F. Jacobs, C.A. Gonzalez-Benecke and A.S. Nelson. 2018. Forest regeneration in changing environments. *New Forests* 49:699-703.

C.A. Gonzalez-Benecke, H.N. Flamenco and M.G. Wightman. 2018. Effect of vegetation management and site conditions on volume, biomass and leaf area allometry of four coniferous species in the Pacific Northwest United States. *Forests*. 9, 581; doi:10.3390/f9090581.

F. Vargas, C.A. Gonzalez-Benecke, R.A. Rubilar and M. Sanchez-Olate. 2018. Modelling the effect of weed competition on long-term volume yield of *Eucalyptus globulus* plantations across an environmental gradient. *Forests* 9, 480; doi:10.3390/f9080480.

C.A. Gonzalez-Benecke and E.J. Dinger. 2018. Use of water stress integral to evaluate relationships between soil moisture, plant water stress and stand productivity in young Douglas-fir trees. *New Forests* 49:775-789.

C.A. Gonzalez-Benecke, D. Zhao, L.J. Samuelson, T.A. Martin, D.J. Leduc and S.B. Jack. 2018. Local and general above-ground biomass functions for *Pinus palustris* trees. *Forests* 9:310; doi:10.3390/f9060310.

J. Aernouts, C.A. Gonzalez-Benecke and L.R. Schimleck. 2018. Effects of vegetation management on wood properties and plant water relations of four conifer species in the Pacific Northwest of the USA. *Forests* 9:323; doi:10.3390/f9060323.

P.H. Anderson, K.H. Johnsen, J.R. Butnor, C.A. Gonzalez-Benecke and L.J. Samuelson. 2018. Predicting longleaf pine tap root decomposition across the southeastern US. *Forest Ecology and Management* 425:1-8.

R. Bracho, J.G., Vogel, E.J., Jokela, S.A., Gezan, J. Cucinella,, A. Noormets, C.A. Gonzalez-Benecke, L.J. Samuelson, D. Markewitz, R.O. Teskey, J. Yang, R.E. Will, C. Meek, M.A. Lavinier, J. Seiler, B. Strahm, K. McElligot and T.A. Martin. 2018. Carbon sequestration in loblolly pine plantations is increased by fertilization across a moisture availability gradient. *Forest Ecology and Management* 424:39-52.

- F. Vargas, R.A. Rubilar, C.A. Gonzalez-Benecke, M. Sanchez-Olate and P. Aracena. 2018. Long-term response to area of competition control in *Eucalyptus globulus* plantations. *New Forests* 49:383-398.
- R.Q. Thomas, E. Brooks, A. Jersild, E. Ward, R. Wynne, T.J. Albaugh, H. Dinon Aldridge, H.E. Burkhart, J-C. Domec, T.R. Fox, C.A. Gonzalez-Benecke, A. Noormets, D.A. Sampson and R.O. Teskey. 2017. Leveraging 35 years of forest research in the southeastern U.S. to constrain carbon cycle predictions: regional data assimilation using ecosystem experiments. *Biogeosciences* 14:3525-3547.
- C. A. Silva, A.T. Hudak, C. Klauberg, L.A. Vierling, C. A. Gonzalez-Benecke, S.de P. Chaves Carvalho and L.C. Estraviz Rodriguez. 2017. Combined effect of pulse density and grid cell size on predicting and mapping aboveground carbon in fast-growing Eucalyptus forest plantation using airborne LiDAR data. *Carbon Balance and Management* 12:13.
- A. Susaeta, D.C. Adams and C.A. Gonzalez-Benecke. 2017. Economic vulnerability of southern US slash pine forests to climate change. *Journal of Forest Economics* 28:18-32
- C.A. Gonzalez-Benecke, R.O. Teskey, H. Dinon-Aldridge and T.A. Martin. 2017. *Pinus taeda* growth predictions in the 21<sup>st</sup> century varies with site mean annual temperature and site quality. *Global Change Biology* 23:4689-4705
- A. Susaeta, D.C. Adams, C.A. Gonzalez-Benecke and J. Soto. 2017. Economic feasibility of managing loblolly pine forests for water production under climate change in the Southeastern United States. *Forests* 8, 83.
- J.R. Butnor, L.J. Samuelson, K.H. Johnsen, P.H. Anderson, C.A. González-Benecke, C. Boot, F. Cotrufo, K.A. Heckman, J.A. Jackson, T.A. Stokes and S. Zarnoch,. 2017. Vertical distribution and persistence of soil organic carbon in fire-adapted longleaf pine forests. *Forest Ecology and Management* 390:15-26.
- L.J. Samuelson, T.A. Stokes, J. R. Butnor, K.H. Johnsen, C.A. Gonzalez-Benecke, T. A. Martin, W. P. Cropper, Jr. P. Anderson, M. Ramirez and J. Lewis. 2017. Ecosystem carbon density and allocation across a chronosequence of longleaf pine forests. *Ecological Applications* 27:244-259.
- M. Wightman, T.A. Martin, C.A. Gonzalez-Benecke, E.J. Jokela, W.P. Cropper Jr. and E.J. Ward. 2016. Response of loblolly pine to throughfall reduction and fertilizer application. *Forests* 7, 214.
- T.J. Dreaden, A.S. Campbell, C.A. Gonzalez-Benecke, R.C. Ploetz and J.A. Smith. 2016. Response of swamp bay, *Persea palustris*, and redbay, *P. borbonia*, to *Raffaelea* spp. isolated from *Xyleborus glabratus*. *Forest Pathology*. 47: e12288.
- A. Susaeta, D.C. Adams, D.R. Carter, C.A. Gonzalez-Benecke and P. Dwivedi. 2016. Technical, allocative, and total profit efficiency of loblolly pine forests under changing climatic conditions. *Forest Policy and Economics* 72:106-114.

C. A. Silva, A.T. Hudak, L.A. Vierling, E.L. Loudermilk, J.J. O'Brien, J.K. Hiers, S.B. Jack, C.A. Gonzalez-Benecke, H. Lee, M.J. Falkowski and A. Khosravipour. 2016. Imputation of individual longleaf pine (*Pinus palustris* Mill.) tree attributes from field and LiDAR data. *Canadian Journal of Remote Sensing* 42:554-573.

J.R. Butnor, L.J. Samuelson, T.A. Stokes, K.H. Johnsen, P.H. Anderson and C.A. González-Benecke. 2016. Surface-based GPR underestimates below-stump root biomass. *Plant and Soil*. 402:47-62.

C.A. Gonzalez-Benecke, R.O. Teskey, T.A. Martin, E.J. Jokela, T.R. Fox, M.B. Kane and A. Noormets. 2016. Regional validation and improved parameterization of the 3-PG model for *Pinus taeda* stands, *Forest Ecology and Management* 361:237-256.

R.E. Will, T. Fox, M. Akers, J-C Domec, C.A. González-Benecke, E. Jokela, M. Kane, M.A. Laviner, G. Lokuta, D. Markewitz, M.A. McGuire, C. Meek, A. Noormets, L. Samuelson, J. Seiler, B. Strahm, R.O. Teskey, J. Vogel, E. Ward, J. West, D. Wilson and T.A. Martin. 2015. A range-wide experiment to investigate nutrient and soil moisture interactions in loblolly pine plantations, *Forests* 6:2014-2028.

C.A. Gonzalez-Benecke, L.J. Samuelson, T.A. Martin, W.P. Cropper, Jr., T.A. Stokes, J. R. Butnor, K.H. Johnsen and P.H. Anderson. 2015. Modeling the effects of forest management on *in situ* and *ex situ* longleaf pine forest carbon stocks, *Forest Ecology and Management* 355:24-36.

C.A. Gonzalez-Benecke, L.J. Samuelson, Jr., T.A. Stokes, T.A. Martin, W.P. Cropper, Jr. and K.H. Johnsen. 2015. Understory plant biomass dynamics of prescribed burned *Pinus palustris* stands, *Forest Ecology and Management* 344:84-94.

C.A. Gonzalez-Benecke, A.J. Riveros-Walker, T.A. Martin and G.F. Peter. 2015. Automated quantification of intra-annual density fluctuations using microdensity profiles of mature *Pinus taeda* in a replicated irrigation experiment, *Trees Structure and Function* 29:185-197.

C.A. Gonzalez-Benecke, S.A. Gezan, T.J. Albaugh, H.L. Allen, H.E. Burkhart, T.R. Fox, E.J. Jokela, C.A. Maier, T.A. Martin, R.A. Rubilar and L.J. Samuelson. 2014. Local and general above-stump biomass functions for loblolly and slash pine trees, *Forest Ecology and Management* 334:254-276.

C.A. Gonzalez-Benecke, E.J. Jokela, W.P. Cropper Jr., R. Bracho and D.J. Leduc. 2014. Parameterization of model 3-PG for *Pinus elliottii* stands using alternative methods to estimate fertility rating, biomass partitioning and canopy closure, *Forest Ecology and Management* 327:55-75.

C.A. Gonzalez-Benecke, S.A. Gezan, L.J. Samuelson, W.P. Cropper Jr., D.J. Leduc and T.A. Martin. 2014. Estimating *Pinus palustris* tree diameter and stem volume from tree height, crown area and stand-level parameters, *Journal of Forestry Research* 25: 43-52.

Samuelson, L.J., T.A. Stokes, J.R. Butnor, K. Johnsen, C.A. Gonzalez-Benecke, P. Anderson, J. Jackson, L. Ferrari, T.A. Martin and W.P. Cropper Jr. 2014. Ecosystem carbon stocks in *Pinus palustris* Mill. Forests, *Canadian Journal of Forest Research* 44:476-486.

C.A. Gonzalez-Benecke, S.A. Gezan, T.A. Martin, W.P. Cropper Jr., L.J. Samuelson and D.J. Leduc. 2014. Individual tree diameter, height, and volume functions for longleaf pine, *Forest Science* 60:43-56.

C.A. Gonzalez-Benecke, A.I. Susaeta, T.A. Martin, E.J. Jokela and D. Carter. 2014. Balancing revenue and nutrient removals in *Pinus elliottii* Engelm. stands managed for pine straw and wood production, *Forest Science* 60:109-118.

C.A. Gonzalez-Benecke, E.J. Jokela and T.A. Martin. 2012. Modeling the effects of stand development, site quality, and silviculture on leaf area index, litterfall, and forest floor accumulation in loblolly and slash pine plantations, *Forests Science* 58:457-471.

A.I. Susaeta, C.A. Gonzalez-Benecke, E.J. Jokela, T.A. Martin and D. Carter. 2012. Economical sustainability of pine straw raking in slash pine stands in the Southeastern U.S., *Ecological Economics* 80:89-100.

C.A. Gonzalez-Benecke, S.A. Gezan, D.J. Leduc, T.A. Martin, W.P. Cropper Jr. and L.J. Samuelson. 2012. Modeling survival, yield, volume partitioning and their response to thinning for longleaf pine (*Pinus palustris* Mill.) plantations, *Forests* 3:1104-1132.

C.A. Gonzalez-Benecke, T.A. Martin and W.P. Cropper, Jr. 2011. Whole-tree water relations of co-occurring mature *Pinus palustris* and *Pinus elliottii*, *Canadian Journal of Forest Research* 41:509-523.

C.A. Gonzalez-Benecke, T.A. Martin and E.J. Jokela. 2011. A flexible hybrid model of life cycle carbon balance of loblolly pine (*Pinus taeda* L.) management systems, *Forests* 2:749-776.

C.A. Gonzalez-Benecke and T.A. Martin. 2010. Water availability and genetic effects on water relations of loblolly pine (*Pinus taeda*) stands, *Tree Physiology* 30:376-392.

C.A. Gonzalez-Benecke, T.A. Martin and G.F. Peter. 2010. Hydraulic architecture and tracheid allometry in mature *Pinus palustris* and *Pinus elliottii* trees, *Tree Physiology* 30:361-375.

C.A. Gonzalez-Benecke, T.A. Martin, W.P. Cropper Jr. and R. Bracho. 2010. Forest management effects on *in situ* and *ex situ* slash pine forest carbon balance, *Forest Ecology and Management* 260:795-805.

C.A. Gonzalez-Benecke, G.F. Peter, A. Clark III and T.A. Martin. 2010. Water availability and genetic effects on wood properties of loblolly pine (*Pinus taeda* L.), *Canadian Journal of Forest Research* 40:2265-2277.

### **In review and in preparation**

P. Dwivedi, Carlos Gonzalez-Benecke, A. Alam, G.F. Peter, R.O. Teskey, T.A. Martin. 2020. Assessing the Impact of Climate Change on In-situ and Ex-situ Carbon Sequestered by Loblolly Pine in the Southern United States. *Scientific Reports*. In review.

C.L. Ribeiro, D. Conde, C. Dervinis, K.M. Balmant, M.G. Johnson, P. Szewczyk, A.P. McGrath, F. Unda, B. Miles, D.R. Drost, E. Novaes, C.A. Gonzalez-Benecke, G. Peter, J.G. Burleigh, T.A. Martin, S. Mansfield, G. Chang, N. J. Wickett, M. Kirst. 2020. The uncharacterized gene EVE determines vessel element dimensions in *Populus*. *PNAS*. In review.

D.A. Fox, M.G. Andreu and C.A. Gonzalez-Benecke. 2020. Refining estimates of *Sabal palmetto* biomass in Florida forests. *Forests*. In review.

A. Semerci, C. Guevara and C.A. Gonzalez-Benecke. 2020. Water availability effects on growth and phenology of 11 poplar cultivars growing in semiarid areas in Turkey. *New Forests*. In review.

R. Sheridan, A. Davis and C.A. Gonzalez-Benecke. 2020. Root hydraulic function and leaf physiology of Douglas-fir seedlings facing water limitation from drying soil. *Forest Ecology and Management*. In preparation.

## **Book Chapters**

T.A. Martin, D.C. Adams, M.J. Cohen, R.M. Crandall, C.A. Gonzalez-Benecke, J.A. Smith, and J.G. Vogel. 2017. Managing Florida's plantation forests in a changing climate. In: E.P. Chassignet, J.M. Jones, V. Misra, and J. Obeysekera, Eds. *Florida's Climate: Changes, Variations, and Impacts*. Florida Climate Institute, Gainesville, Florida. pp 269-295.

K.H. Johnsen, T. Keyser, J.R. Butnor, C.A. Gonzalez-Benecke, D.J. Kaczmarek, C.A. Maier, H.R. McCarthy and G. Sun. 2014. Forest productivity and carbon sequestration of forests in the southern United States. In: *Climate Change Adaptation and Mitigation Management Options: A Guide for Natural Resource Managers in Southern Forest Ecosystems*, Edited by J.M. Vose and K.D. Klepzig. CRC Press, pp 193-247.

## **Other Publications**

Vegetation Management Research Cooperative. 2019. Annual Report, Oregon State University, Corvallis, OR. 85 pp.

Vegetation Management Research Cooperative. 2018. Annual Report, Oregon State University, Corvallis, OR. 73 pp.

Vegetation Management Research Cooperative. 2017. Annual Report, Oregon State University, Corvallis, OR. 78 pp.

Wagner, R.G., C.A. Gonzalez-Benecke, D.F. Jacobs, and A.S. Nelson. 2017. Proceedings for Forest Regeneration in Changing Environments, July 11-13th, 2017, Corvallis, OR, USA. Meetings of IUFRO Unit 1.01.04 - Forest Establishment & Early Growth Dynamics and IUFRO 2.01.15 –

Whole Plant Physiology. Unpubl. Proc. Oregon State University's College of Forestry, Purdue University's Department of Forestry and Natural Resources, and the University of Idaho's Department of Forest, Rangeland and Fire Sciences. 18 p.

Vegetation Management Research Cooperative. 2016. Annual Report, Oregon State University, Corvallis, OR. 90 pp.

M.G. Wightman, T.A. Martin, E.J. Jokela, C.A. Gonzalez-Benecke. 2015. Impacts of water and nutrient availability on loblolly pine function. In Proceedings of the 17th biennial southern silvicultural research conference. e-Gen. Tech. Rep. SRS-203. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 1 p.

C.A. Gonzalez-Benecke, S.A. Gezan, D.J. Leduc, T.A. Martin, W.P. Cropper Jr. and L.J. Samuelson. 2012. Individual-tree and whole-stand modeling for planted longleaf pine. Forest Biology Research Cooperative. University of Florida. 16<sup>th</sup> annual report. 75:77-83.

C.A. Gonzalez-Benecke., T.A. Martin, E.J. Jokela, W. Cropper Jr. and R. De La Torre. 2011. Flexible Hybrid Models of Life Cycle Carbon Balance for Southern Pine Plantations. Forest Biology Research Cooperative. University of Florida. 15<sup>th</sup> annual report. 71:34-38.

T.A. Martin, L. Samuelson, K. Johnsen, C.A. Gonzalez-Benecke, W. Cropper Jr. and J. Burtnor. 2010. A Multi-State Longleaf Carbon Modeling Project. Abstracts of the Carbon Sequestration in Longleaf Pine Ecosystems: Current State of Knowledge and Information Needs Meeting, Auburn, AL, p 34.

C.A. Gonzalez-Benecke, E.J. Jokela and T.A. Martin. 2010. A flexible model to estimate litterfall and forest floor in loblolly and slash pine plantation. Forest Biology Research Cooperative. University of Florida. 14<sup>th</sup> annual report. 65:24-32.

C.A. Gonzalez-Benecke., T.A. Martin, W. Cropper Jr. and R. Bracho. 2009. Forest Management Effects on *In Situ* and *Ex Situ* Slash Pine Forest Carbon Balance. Forest Biology Research Cooperative. University of Florida. 13<sup>th</sup> annual report. 61:58-69.

C.A. Gonzalez-Benecke and T.A. Martin. 2008. Water Availability and Provenance Effects on Water Relations of 10-year-old Loblolly Pine (*Pinus taeda*) Plantation. Forest Biology Research Cooperative. University of Florida. 12<sup>th</sup> annual report. 60:59-64.

C.A. Gonzalez-Benecke, T.A., Martin, G.F Peter and A. Clark III, 2006. Family and Irrigation Effects on Wood Quality and Water Relations. Forest Biology Research Cooperative. University of Florida. 10<sup>th</sup> annual report. 43:49-52.

J. Toro, R. Rubilar and C.A. Gonzalez. 1998. Métodos para aumentar la productividad de plantaciones de *Pinus radiata* y *Eucalyptus globulus* entre las regiones VII y VIII, Chile. In: Manejo Sustentable de los Recursos Forestales. Desafío del Siglo XXI. Primer Congreso Latinoamericano - IUFRO. Valdivia, Chile. 22 - 28 Noviembre. 10 pp.



During my work at Bioforest S.A., I wrote more than 20 executive reports to the company board and gave oral presentations to the land managers in order to extend research results and knowledge to the operative division of Forestal Arauco S.A. Examples of those reports are:

- Calcium demands in *Eucalyptus globulus* plantations. Bioforest S.A. Report N° 10/2001.
- Above ground biomass in 1, 3 and 5 year-old *Eucalyptus globulus* and *E. nitens* plantations. Bioforest S.A. Report N° 10/2001.
- Above ground biomass in 1, 3 and 5 year-old *Pinus radiata* plantations. Bioforest S.A. Report N° 13/2001.
- Thinning and fertilization effects on *Pinus radiata* plantations. Bioforest S.A. Report N° 24/2001.

## **Presentations**

T. Peterka, C.A. Gonzalez-Benecke and M.G. Wightman. 2019. Seasonal dynamics of leaf area index (LAI) for four conifers in the Pacific Northwest, U.S. SAF Annual Convention, Oct 30 - Nov 3, Louisville, KY. Poster. Volunteered.

C.A. Guevara, C.A. Gonzalez-Benecke and M.G. Wightman. 2019. Modeling the effects of competing vegetation on soil moisture dynamics and planted conifer seedling water stress, growth and mortality in the U.S. Pacific Northwest. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

C.A. Gonzalez-Benecke, M.P. Fernandez, H.E. Bown and O. Mardones. 2019. Determining Leaf Area Index threshold for obtaining an expected water yield for *Pinus radiata* plantations. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

C.A. Gonzalez-Benecke, M.G. Wightman and H.N. Flamenco. 2019. Whole ecosystem NPP and growth efficiency of four coniferous species growing under contrasting vegetation management treatments in the PNW United States. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

C. Cannon, C.A. Gonzalez-Benecke and M.G. Wightman. 2019. Long-term effects of vegetation management on whole ecosystem nutrient allocation in four different conifer species in the Pacific Northwest United States. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

A. Semerci, C.A. Guevara and C.A. Gonzalez-Benecke. 2019. Water availability effects on growth and phenology of 11 poplar cultivars growing in semiarid areas in Turkey. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

M.G. Wightman, C.A. Gonzalez-Benecke and E. Dinger. 2019. Interactive effects of seedling stock size and vegetation management treatments on Douglas-fir plantation productivity after 10 growing seasons. 25th IUFRO World Congress, September 29 - October 5, Curitiba, Brazil. Volunteered.

C.A. Gonzalez-Benecke and M.G. Wightman. 2019. Vegetation Management Research Cooperative (VMRC) Overview - a stakeholder driven reforestation research Cooperative. Washington State Commission on Pesticide Registration, September 13, Snoqualmie Pass, WA. Invited.

H. Haas, L. Kalin, P. Sirvastava and C.A. Gonzalez-Benecke. 2019. Modeling *Pinus taeda* dynamics at field-scale with swat. 2019 SWAT conference, July 15-19, Vienna, Austria. Volunteered.

C.A. Gonzalez-Benecke. 2019. Advances in Precision Silviculture. 2019. Oregon Society of American Foresters Annual Meeting: Forest Management: Emerging Challenges, New Solutions, and Telling Our Story, April 18, Lebanon, OR. Invited.

M.G. Wightman and C.A. Gonzalez-Benecke. 2019. Competition and site interactions experiment: understanding vegetation management treatment responses. 2019 Inland Empire Reforestation Council Meeting, March 5, Coeur d'Alene, Idaho. Invited.

H.E. Bown, M.P. Fernandez and C.A. Gonzalez-Benecke. 2019. Water exchange at the leaf, stand and landscape level: Should water-yield be explicitly considered in forest management planning? 18th Symposium on Systems Analysis in Forest Resources (SSAFR), March 3 - 7, 2019, Puerto Varas, Chile. Volunteered.

M.G. Wightman and C.A. Gonzalez-Benecke. 2018. Ecophysiology and vegetation management: understanding treatment responses. PNW Forest Vegetation Management Conference, December 4-5, Wilsonville, Oregon. Invited.

C.A. Gonzalez-Benecke, H.N. Flamenco and M.G. Wightman. 2018. Long-term effects of vegetation management on net primary productivity of four coniferous species in the PNW. PNW Forest Vegetation Management Conference, December 4-5, Wilsonville, Oregon. Invited.

C.A. Gonzalez-Benecke. 2018. Conectando ecofisiología y monitoreo para evaluar la productividad de bosques. Center for Ecosystem Modelling and Monitoring (CEM) at the Universidad Mayor, November 9, Santiago, Chile. Invited.

C.A. Gonzalez-Benecke, H.E. Bown, M.P. Fernandez and O. Mardones. 2018. Using leaf area index as a decision variable for optimizing water yield on *Pinus radiata* plantations in Chile. Joint Conference on Forests and Water, November 5-9, Valdivia, Chile. Volunteered.

C.A. Guevara, M.G. Wightman and C.A. Gonzalez-Benecke. 2018. Competing vegetation effects on soil water dynamics and conifer seedling growth in PNW forest plantations. Poster. SAF Annual Convention, October 3-7, Portland, Oregon. Volunteered.

M.G. Wightman and C.A. Gonzalez-Benecke. 2018. Interactive effects of stock size and vegetation management treatments on Douglas-fir plantation productivity. SAF Annual Convention, October 3-7, Portland, Oregon. Volunteered.

C.A. Gonzalez-Benecke, H.N. Flamenco and M.G. Wightman. 2018. Long-term effects of vegetation management on biomass stock of four coniferous species in the Pacific North West. SAF Annual Convention, October 3-7, Portland, Oregon. Volunteered.

C.A. Gonzalez-Benecke, M.P. Fernandez, H.E. Bown and O. Mardones. 2018. Leaf area index threshold for obtaining an expected water yield from plantations: a new silvicultural decision

variable? IUFRO Conference, New Frontiers in Forecasting Forest, September 25-29, Stellenbosch, South Africa. Volunteered.

C.A. Gonzalez-Benecke, M.G. Wightman and H.N. Flamenco. 2018. Long-term effects of vegetation management on biomass stock of four coniferous species in the Pacific North West. ESA Annual Convention, August 5-9, New Orleans, Louisiana. Volunteered.

J. Aernouts, L.R. Schimleck and C.A. Gonzalez-Benecke. 2018. Effects of vegetation management on wood properties and plant water relations of four conifer species in the Pacific Northwest of the USA. Wood Quality Consortium Annual Meeting, August 20, Athens, Georgia. Volunteered.

C.A. Gonzalez-Benecke. 2017. Vegetation management effects on soil/plant water relations, survival, growth and long-term productivity. 2019 Oregon Society of American Foresters: Fire, Water, and Forest Health Workshop, October 3, Albany, OR. Invited.

H. E. Bown and C.A. Gonzalez-Benecke. 2017. Agua y Plantaciones Forestales: Reflexiones a Nivel de Hojas, Rodales y Cuenca. Seminario de Plantaciones Forestales en el Nuevo Ciclo de Desarrollo Forestal, August 30-31, Concepción, Chile. Volunteered.

C.A. Gonzalez-Benecke, and E.J. Dinger. 2017. Use of Water Stress Integral as a tool to analyze competing vegetation effects on Plant Water Stress and Seedling Productivity. IUFRO Conference; Forest Regeneration in Changing Environments, July 11-13, Corvallis, Oregon. Volunteered.

M.G. Wightman and C.A. Gonzalez-Benecke. 2017. Integrated analysis on the effects of chemical vegetation management treatments on understory vegetation community dynamics in the Pacific Northwest, USA. IUFRO Conference; Forest Regeneration in Changing Environments, July 11-13, Corvallis, Oregon. Volunteered.

B. Imal, A. Semerci and C.A. Gonzalez-Benecke. 2017. Comparing p-v curve and polyethylene glycol tests in anatolian black pine (*Pinus nigra* arnold. Subsp. Pallasiana) in different provenance of Turkey. IUFRO Conference; Forest Regeneration in Changing Environments, July 11-13, Corvallis, Oregon. Volunteered.

H. Flamenco, M. Wightman, and C.A. Gonzalez-Benecke. 2017. Long-term Effects of Vegetation Management in the PNW: Assessment of Biomass Stock and Net Primary Productivity Responses of Four Coniferous Species. Poster. IUFRO Conference; Forest Regeneration in Changing Environments, July 11-13, Corvallis, Oregon.

C. Hubbard, M.G. Wightman, and C.A. Gonzalez-Benecke. 2017. CoSInE: Competition and Site Interactions Experiment. Poster. IUFRO Conference; Forest Regeneration in Changing Environments, July 11-13, Corvallis, Oregon.

J.G. Vogel, R.G. Bracho., E.J. Jokela, T. Fox, H. Burkhart, M.A. Laviner, C.W. Ross, S. Grunwald, A.R. Bacon, M. Kane, D. Markewitz, C. Meek, R. Will, D. Wilson, and C.A. Gonzalez-Benecke. 2017. Response of carbon accumulation in managed pine stands to different management strategies. Poster. European Geosciences Union General Assembly, April 23-28, Vienna, Austria. Volunteered.

C.A. Gonzalez-Benecke, R.O. Teskey, Dinon-Aldridge, H. and T.A. Martin. 2017. Climate Change Predicted to Increase, Decrease, or Not Change Growth and Water Yield Depending on Mean Annual Temperature of Loblolly Pine Forests in Southeastern U.S. 6th World Sustainability Forum, January 26-27, Cape Town, South Africa. Volunteered.

J.G. Vogel, A.R. Bacon, R.G. Bracho, C.A. Gonzalez-Benecke, T.D. Fox, M.A. Laviner, M. Kane, H. Burkhart, T.A. Martin, R. Will, C.W. Ross, S. Grunwald, E.J. Jokela, and C. Meek. 2016. The response of ecosystem carbon pools to management approaches in loblolly pine (*Pinus taeda* L.) plantations. Poster. 49th Annual Meeting American Geophysical Union, December 12-16, San Francisco, California. Volunteered.

R.G. Bracho, J.G. Vogel, E.J. Jokela, J. Cucinella, A. Noormets, M.A. Laviner, C.A. Gonzalez-Benecke, L.J. Samuelson, D. Markewitz, R. Will, C. Meek, J. Seiler, B.D. Straham, K. McElligott, and T.A. Martin. 2016. Throughfall reduction and nutrient availability effects on carbon balance in loblolly pine plantations in the southeastern United States. Poster. 49th Annual Meeting American Geophysical Union, December 12-16, San Francisco, California. Volunteered.

C.A. Gonzalez-Benecke, J. Nowak, and T.A. Martin. 2016. Southern Pines Growth, Yield, and Carbon Balance Integrated Model. SAF Annual Convention, November 2-6, Madison, WI. Volunteered.

L.J. Samuelson, T. Stokes, J. Butnor, K. Johnsen, C.A. Gonzalez-Benecke, T.A. Martin and W.P. Cropper Jr. 2016. Carbon Stocks in Longleaf Pine Forests across a 100 Year Chronosequence. Poster. SAF Annual Convention, November 2-6, Madison, WI.

M.G. Wightman and C.A. Gonzalez-Benecke. 2016. Effects of Chemical Vegetation Control on Understory Community Dynamics in Douglas-fir Plantations. SAF Annual Convention, November 2-6, Madison, WI. Volunteered.

J. Nowak and C.A. Gonzalez-Benecke. 2016. Practical Applications of Southern Pines Growth, Yield, and Carbon Balance Model. SAF Annual Convention, November 2-6, Madison, WI. Volunteered.

C.A. Gonzalez-Benecke. 2016. The Vegetation Management Research Cooperative: Present and Future. Stand Management Cooperative (SMC) Annual Meeting, September 22, Seattle, WA.

C.A. Gonzalez-Benecke. 2016. The Vegetation Management Research Cooperative: Present and Future. Center for Intensive Planted-forest Silviculture (CIPS) Annual Meeting, June 15, Corvallis, OR.

C.A. Gonzalez-Benecke. 2016. Vulnerabilities to climate change of forest plantation species and their bi-continental competing vegetation. Chile Initiative Symposium. CoF/OSU, May 27, Corvallis, OR.

C.A. Gonzalez-Benecke, M.P. Fernandez and A.G. Perez. 2015. Interacciones entre suelo, clima y vegetación competidora en la disponibilidad hídrica y su efecto en la productividad y supervivencia de plantaciones clonales de *Pinus radiata*. Bioforest S.A. December 13, Concepcion, Chile.

C.A. Gonzalez-Benecke, T.A. Martin, and R.O. Teskey. 2015. Parameterization of 3-PG model for loblolly pine trees: A (improved) tool for assessing climate change effects on stand dynamics and productivity. Pontificia Universidad Católica de Chile. December 11, Santiago, Chile.

C.A. Gonzalez-Benecke. 2015. The Vegetation Management Research Cooperative: Present and Future. Bureau of Land Management (BLM) joint Forestry and Silviculture Meeting, December 9, Portland, OR.

C.A. Gonzalez-Benecke, T.A. Martin, E.J. Jokela, W.P. Cropper, K.H. Johnsen and L.J. Samuelson. 2015. Integrated Carbon Balance Modeling for Southern Pines. Forest InSight Conference, October 27-29, Valdosta, GA. Invited

C.A. Gonzalez-Benecke, T.A. Martin, and R.O. Teskey. 2015. Alternative parameterization method of 3-PG model for loblolly pine: A tool for assessing climate change effects on stand dynamics and productivity. IUFRO Symposium; Silviculture and Management of Dryland Forests, March 16-19, Stellenbosch, South Africa. Volunteered.

C.A. Gonzalez-Benecke, R.O. Teskey, T.A. Martin, E.J. Jokela and J. Yang. 2015. Alternative Parameterization and Regional Validation of the 3-PG Model for Loblolly Pine Stands. Poster. 48th Annual Meeting American Geophysical Union, December 14-18, San Francisco, California. Volunteered.

J. Butnor, L.J. Samuelson, P. Anderson, C.A. Gonzalez-Benecke, C. Boot, M.F. Cotrufo, K. Heckman, J. Jackson, K. Johnsen, T. Stokes and C. Swanston. 2015. Characterizing Soil Organic Carbon Recalcitrance in Longleaf Pine (*Pinus palustris* Mill) Stands. Poster. 48th Annual Meeting American Geophysical Union, December 14-18, San Francisco, California. Volunteered.

R. Bracho, T. Martin, C.A. Gonzalez-Benecke and J. Sharp. 2015. Long term carbon fluxes in south eastern U.S. pine ecosystems. Poster. 48th Annual Meeting American Geophysical Union, December 14-18, San Francisco, California. Volunteered.

R.Q. Thomas, A. Jersild, E. Brooks, R. Wynne, D. Sampson, C.A. Gonzalez-Benecke, R. Teskey and E. Ward. 2015. Predicting future productivity of Southeastern U.S. pine ecosystems in a changing climate using data assimilation with diverse data sources. 48th Annual Meeting American Geophysical Union, December 14-18, San Francisco, California. Volunteered.

C. Ross, S. Grunwald, J. Vogel, E. Jokela, S. Gerber, S. Del Grosso, A. Bacon, J. Cucinella, K. Akers, A. Maggard, M. Laviner, C.A. Gonzalez-Benecke, T. Martin, R. Bracho, D. Markewitz, T. Fox, H. Burkhart, M. Kane, G. Peter and J. Davis. 2015. Region-Wide Soil Carbon Assessment Across "the Land of Pines". Poster. 48th Annual Meeting American Geophysical Union, December 14-18, San Francisco, California. Volunteered.

C.A. Silva, A. T. Hudak, L. A. Vierling, E. L. Loudermilk, J. J. O'Brien, M. J. Falkowski, C. A. Gonzalez-Benecke, S. B. Jack and H. Lee. 2015 Individual tree detection from LiDAR-derived canopy height models (CHM) in longleaf pine forest. 36th Canadian Symposium on Remote Sensing (CSRS), June 8-11, St. John's, Newfoundland and Labrador, Canada. Volunteered.

C.A. Gonzalez-Benecke. 2014. Parameterization of 3-PG model for slash pine trees: Assessing climate change effects on stand dynamics and productivity. 24<sup>th</sup> IUFRO World Congress, October 5-11, Salt Lake City, Utah.

C.A. Gonzalez-Benecke, S.A. Gezan, T.J. Albaugh, H.L. Allen, H.E. Burkhart, T.R. Fox, E.J. Jokela, C.A. Maier, T.A. Martin, R.A. Rubilar, and L.J. Samuelson. 2014. Local and general biomass functions for loblolly and slash pine trees. Poster. 24<sup>th</sup> IUFRO World Congress, October 5-11, Salt Lake City, Utah.

C.A. Gonzalez-Benecke L.J. Samuelson, T.A. Martin, W.P. Cropper, Jr., T.A. Stokes, J. R. Butnor, K.H. Johnsen, P. Anderson, and J. Jackson. 2014. A flexible hybrid model of fluxes and stock of Carbon for planted longleaf pine forests. Poster. SAF/CIF convention, October 8-11, Salt Lake City, Utah.

J.G. Vogel, D. Markewitz, H. Burkhart, R. Amateis, M. Laviner, E. Jokela, S. Grunwald, G. Sun, A. Noormets, M. Akers, B. Strahm, A. Bacon, T. Fox, C.A. Gonzalez-Benecke, M. Kane, J. West, R. Will, D. Wilson, and L. Samuelson. 2014. Carbon Measurement Protocol of the Pine Integrated Network: Education, Mitigation, and Adaptation Project (PINEMAP). Poster. SAF/CIF convention, October 8-11, Salt Lake City, Utah.

P.H. Anderson, K.H. Johnsen, C.A. Gonzalez-Benecke, and L.J. Samuelson. 2014. Predicting taproot decomposition of longleaf pine across the southeastern U.S. Poster. 99<sup>th</sup> ESA Annual Convention, August 10-15, Sacramento, California.

C.A., Gonzalez-Benecke. 2014. Predicting climate change impacts on southern pines productivity in SE United States using physiological process based model 3-PG. 3<sup>rd</sup> International Conference on Earth Science & Climate Change, July 28-30, San Francisco, California.

C.A., Gonzalez-Benecke, S.A., Gezan, T.A., Martin, L.J., Samuelson, W.P. Cropper Jr., and D. Leduc. 2014. Growth and Yield Model for Longleaf Pine in the Gulf Coastal Region. America's Longleaf Pine Restoration Initiative. February 13, Fargo, Georgia.

J.C., Domec, S. Palmroth, E.J. Ward, D.M. Johnson, K.A. McCulloh, C.A. Gonzalez-Benecke, J.M. Warren, and R. Oren. 2013. Long-term effects of CO<sub>2</sub> enrichment (DUKE FACE) on the hydraulic properties (conductivity and embolism) of roots, trunks and branches of loblolly pine trees: impacts on whole-plant hydraulic performance. Poster. 46<sup>th</sup> Annual Meeting American Geophysical Union, December 9-13, San Francisco, California.

C.A., Gonzalez-Benecke. 2013. Physiological processes predicting growth for slash pine. 17<sup>th</sup> annual meeting Forest Biology Research Cooperative, September 17-18, Perry, Florida.

C.A., Gonzalez-Benecke, S.A. Gezan, T.A. Martin, L.J. Samuelson, W. Cropper Jr., and E.J. Jokela. 2013. Effect of thinning and prescribed burning on Carbon sequestration of *Pinus palustris*. International Conference on Ecology, Ecosystems and Climate Change, July 15-18, Athens, Greece.

C.A., Gonzalez-Benecke, T.A. Martin, and E.J. Jokela. 2013. Carbon balance modeling for southern pines in the SE United States. Faculty of Forestry, Istanbul University. July 9, Istanbul, Turkey.

C.A., Gonzalez-Benecke, S.A. Gezan, T.A., Martin, L.J., Samuelson, W.P. Cropper Jr., and D. Leduc. 2013. Growth and yield model for longleaf pine plantations. Longleaf Partnership Council, April 26, Mobile, Alabama.

M. Wightman, T.A., Martin, E.J., Jokela, C.A., Gonzalez-Benecke, and W.P. Cropper Jr. 2013. The impact of fertilization and throughfall exclusion on loblolly pine growth and water use. Poster. PINEMAP Annual Meeting, April 24-25, Athens, Georgia.

C.A., Gonzalez-Benecke, T.A. Martin, E.J. Jokela, and D.R. Carter. 2012. Flexible hybrid models of life cycle carbon balance for U.S. southern pine plantations. International Conference on Sustainable Forest Management – The 2<sup>nd</sup> Forest Science Forum, October 14-16, Beijing, China.

C.A., Gonzalez-Benecke, S.A., Gezan, T.A., Martin, L.J., Samuelson, W.P. Cropper Jr., and D. Leduc. 2012. Growth and yield model for longleaf pine plantations. 16<sup>th</sup> Annual Meeting Forest Biology Research Cooperative, September 26-27, Gainesville, Florida.

C.A., Gonzalez-Benecke, S.A., Gezan, C., Maier, T. Albaugh, and R. Teskey. 2012. New allometric functions for slash pine and loblolly pine. 16<sup>th</sup> Annual Meeting Forest Biology Research Cooperative, September 26-27, Gainesville, Florida.

C.A., Gonzalez-Benecke, T.A. Martin, E.J. Jokela, and W.P. Cropper Jr. 2012. Modelos híbridos de balance de Carbono para plantaciones de pino. School of Agricultural Engineering, Universidad de Valladolid. July 17, Palencia, Spain.

C.A., Gonzalez-Benecke, G.F. Peter, and T.A. Martin. 2012. Water Availability and Genetic Effects on Wood Properties of Loblolly Pine (*Pinus taeda* L.). Poster. IUFRO Conference 2012 - Forest Products, July 8-13, Estoril, Portugal.

C.A., Gonzalez-Benecke, T.A., Martin, and G.F., Peter. 2012. Hydraulic architecture and tracheid allometry in mature *Pinus palustris* and *Pinus elliottii* trees. Poster. IUFRO Conference 2012 - Forest Products, July 8-13, Estoril, Portugal.

C.A., Gonzalez-Benecke, T.A. Martin, E.J. Jokela, W.P. Cropper Jr., and Rafael De La Torre 2011. Modelos híbridos flexibles de ciclo de vida y balance de Carbono para plantaciones de pino en el sureste de Estados Unidos. Ecoclima 2011: Bosques, Sociedad y Cambio Climático August 31-September 2, Valdivia, Chile.

C.A., Gonzalez-Benecke, A. Riveros-Walker, T.A. Martin, and G.F. Peter. 2011. Un nuevo método que utiliza perfiles de microdensidad de madera demuestra que el estrés hídrico induce la formación de anillos falsos en *P. taeda*. Ecoclima 2011: Bosques, Sociedad y Cambio Climático, August 31-September 2, Valdivia, Chile.

C.A., Gonzalez-Benecke, T.A. Martin and E.J. Jokela 2011. A flexible hybrid model of life cycle carbon balance of loblolly pine plantation management systems. Sixteenth Biennial Southern Silvicultural Research Conference, February 14-17, Charleston, South Carolina.

C.A., Gonzalez-Benecke, E.J. Jokela, and T.A. Martin. 2010. A flexible model to estimate litterfall and forest floor in loblolly and slash pine plantation. 14<sup>th</sup> annual meeting Forest Biology Research Cooperative, September 14, Gainesville, Florida.

T.A. Martin, L.J. Samuelson, K.H. Johnsen, C.A. Gonzalez-Benecke, W.P. Cropper Jr., and J. Butnor. 2010. A multi-state longleaf Carbon modeling project. Carbon sequestration in longleaf pine ecosystems: current state of knowledge and information needs, February 16-17, Auburn, Alabama.

C.A., Gonzalez-Benecke, T.A. Martin, and W.P. Cropper Jr. 2010. A flexible hybrid model of life cycle carbon balance of southern pine plantation management systems. Poster. Carbon sequestration in longleaf pine ecosystems: current state of knowledge and information needs, February 16-17, Auburn, Alabama.

C.A., Gonzalez-Benecke, T.A. Martin, W.P. Cropper Jr., and R. Bracho. 2009. Forest management effects on *in situ* and *ex situ* slash pine forest carbon balance. 13<sup>th</sup> annual meeting Forest Biology Research Cooperative, September 10, Gainesville, Florida.

C.A., Gonzalez-Benecke, and T.A. Martin. 2008. Water availability and provenance effects on water relations of a 10-year-old loblolly pine (*Pinus taeda* L.) plantation. Poster. Fifteenth Biennial Southern Silvicultural Research Conference, November 18-19, Hot Springs, Arkansas (awarded as best graduate student poster).

C.A., Gonzalez-Benecke, and T.A. Martin. 2008. Water availability and provenance effects on water relations of a 10-year-old loblolly pine (*Pinus taeda* L.) plantation. Poster. Seventh International Conference on Sap Flow, October 21-24, Seville, Spain.

C.A., Gonzalez-Benecke, and T.A. Martin. 2008. Water availability and provenance effects on water relations of 10-year-old loblolly pine (*Pinus taeda*) plantation. 12<sup>th</sup> annual meeting Forest Biology Research Cooperative, September 11, Gainesville, Florida.

C.A., Gonzalez-Benecke, T.A., Martin, G.F Peter, and A. Clark III. 2006. Family and irrigation effects on wood quality and water relations. 10<sup>th</sup> annual meeting Forest Biology Research Cooperative, September 14, Gainesville, Florida.

## **Research Support**

Strategic Environmental Research and Development Program (SERDP): “Developing Tools for Ecological Forestry and Carbon Management in Longleaf Pine”. Project Number: RC-2115. Date: 03/2011 - 02/2016. Funding: US\$ 2,434,000. Samuelson, L.J. (PI).

AFRI Climate Change, Mitigation and Adaptation in Agriculture: “Integrating research, education and extension for enhancing southern pine climate change mitigation and adaptation”. Date: 01/2011 - 12/2015. Funding: US\$ 20,000,000. Martin, T.A. (PI).

U.S. Forest Service: “Growth and Yield Model for Even-aged Naturally Regenerated Longleaf Pine Forests”. Date: 07/2011 – 07/2014. Funding: US\$ 35,000. Gonzalez-Benecke, C.A. (PI).



Florida Dept. of Ag. and Consumer Service: “Southern Pines Growth, Yield and Carbon Balance Integrated Model”. Date: 09/2015 – 12/2015. Funding: US\$ 25,000. Gonzalez-Benecke, C.A. (PI).

University of Florida: Removing a key barrier to the use of a critical climate change mitigation tool: Economic modeling of longleaf pine market, value and ecosystem services. Date: 01/2016 – 07/2017. Funding: US\$ 145,660. Adams, D.C. (PI).

Oregon State University / College of Forestry - Chile Initiative Collaborative Research: Vulnerabilities to climate change of forest plantation species and their bi-continental competing vegetation: Research planning phase. Date: 07/2015 – 07/2016. Funding: US\$ 12,000. Gonzalez-Benecke, C.A. (PI).

100k Strong in the Americas Innovation Fund: “Mountains to the sea: conservation and management of water and forest resources in Chile”. Date 01/2016 – 09/2017. Funding: US\$ 24,925. Justice, M. (PI).

USDA- McIntire-Stennis: “Assessing Interactions between site conditions and vegetation control treatments for PNW Douglas-fir plantations”. Date 07/2016 - 06/2020. Funding: \$200,000. Gonzalez-Benecke, C.A. (PI).

University of Florida: “Integrating research, education and extension for enhancing southern pine climate change mitigation and adaptation”. Date: 07/2016 – 07/2017. Funding: US\$ 15,381. Gonzalez-Benecke, C.A. (PI).

Starker Forests and Cascade Timber Consulting: “Estimating litterfall and net primary productivity on PNW conifer stands growing under contrasting competing vegetation management treatments”. Date: 03/2016 – 03/2020. Funding: US\$ 15,500. Gonzalez-Benecke, C.A. (PI).

Starker Forests: “Effects of stocktype, cold hardening regime and sulfometuron-methyl herbicide/metsulfuron-methyl pre-planting application on Douglas-fir seedlings root development and root hydraulic conductivity”. Date: 08/2018 – 10/2019. Funding: US\$ 28,666. Gonzalez-Benecke, C.A. (PI).

Cascade Timber Consulting, Giustina Land and Timber, Greenwood Forest Resources, Hancock Forest Management, Lone Rock Timber Management, Roseburg Forest Products, Starker Forests: “Comparing performance of Douglas-fir and western hemlock seedlings produced in Ellepot and Styroblock containers”. Date: 03/2019 – 10/2020. Funding: US\$ 72,207. Gonzalez-Benecke, C.A. (PI).

Washington State Commission on Pesticide Registration: Quantifying the effects of herbicide applications on conifer seedling performance: understanding competition dynamics. Date 01/2020 - 01/2021. Funding: \$20,298. Gonzalez-Benecke, C.A. (PI).

Vegetation Management Research Cooperative (VMRC): Date: 07/2015 – Funding: US\$ 168,000 (yearly). Gonzalez-Benecke, C.A. (PI).

## **Graduate student advisory committee service**

### Major Advisor:

Joyce Aernouts; Degree: Master of Science; Major: Bioscience Engineering: Forest and Nature Management (Ghent University, Belgium). Co-advisor: Dr. Joris Van Acker. Topic: Effects of Vegetation Management on Wood Properties and Plant Water Relations of Four Conifer Species in the Pacific North West of the U.S.A. Graduated fall 2017.

Herman Flamenco; Degree: Master of Science; Major: Sustainable Forest Management. Topic: Assessments of Net Primary Productivity Responses of Four Coniferous Species on Long-term Vegetation Management Studies in the PNW. Graduated winter 2018.

Claudio Guevara; Degree: Master of Science; Major: Sustainable Forest Management. Topic: Interactions between Competing Vegetation Dynamics, Soil Water Availability and Seedling Growth and Survival during First Two Growing Seasons.

Patricio Alzugaray; Degree: Doctor of Philosophy; Major: Sustainable Forest Management. Topic: Nursery and Stand Establishment Management Effects on Douglas-fir seedlings root development and root hydraulic conductivity.

Reed Cowden; Degree: Master of Science; Major: Sustainable Forest Management. Topic: Determining soil water use of *Senecio vulgaris*.

Callan Cannon; Degree: Master of Science; Major: Sustainable Forest Management. Topic: Whole ecosystem nutrient allocation in four different conifer species growing under contrasting vegetation management in the Pacific Northwest United States.

Tyler Peterka; Degree: Master of Forestry; Major: Sustainable Forest Management. Topic: Leaf area index of four different conifer species in the Pacific Northwest United States.

### Committee member:

Binod Chapagain; Degree: Master of Science; Major: Forest Resources and Conservation (University of Florida). Advisor: Dr. Doug Carter; Topic: Life cycle impact of loblolly pine (*Pinus taeda*) management on carbon sequestration in the southeastern U.S. Graduated summer 2012.

Jianxing Zhang; Degree: Doctor of Philosophy; Major: Forest Resources and Conservation (University of Florida). Advisor: Dr. Gary Peter; Topic: Integrating climate and genetic effects of loblolly pine by universal response functions. Graduated spring 2015.

Kaitlin Gerber; Degree: Master of Science; Major: Sustainable Forest Management. Advisor: Dr. Anthony Davis. Topic: Simulated environmental stressors influence Fabaceae seedling development. Graduated winter 2018.

Felipe Vargas; Degree: Doctor of Philosophy; Major: Forest Sciences (Universidad de Concepcion, Chile). Advisor: Dr. Rafael Rubilar. Topic: Respuesta de largo plazo al control

de vegetación competidora al establecimiento en plantaciones de *Eucalyptus globulus*. Graduated summer 2018.

Rebecca Sheridan; Degree: Doctor of Philosophy; Major: Sustainable Forest Management. Advisor: Dr. Anthony Davis. Topic: Root System Function in Douglas-fir: Considerations for Seedling Quality. Graduated summer 2019.

Sean Marcum; Degree: Master of Science; Major: Sustainable Forest Management. Advisor: Dr. Matt Powers. Topic: Un-even Aged Management effects on understory regeneration. Graduated fall 2019.

Caren Mendonca; Degree: Doctor of Philosophy; Major: Forestry (Auburn University). Advisor: Dr. Lisa Samuelson. Topic: 3-PG Model Parameterization for Longleaf Pine Forests to Estimate Long-Term Growth Responses under Different Climate Change Scenarios.

Liam Gilson; Master of Science; Major: Sustainable Forest Management. Advisor: Dr. Douglas Maguire. Topic: Comparative growth rate of Douglas-fir families planted in New Zealand and western Oregon.

Martin Uranga; Doctor of Philosophy; Major: Sustainable Forest Management. Advisor: Dr. Douglas Maguire. Topic: Determining tree list for Douglas-for stands.

Julia Kachanova; Master of Science; Major: Forest Sciences. (University of Padova). Advisor: Dr. Marco Carrer. Topic: Drought resistance for Douglas-for seed sources.

## **Teaching Experience**

At Oregon State University:

Silviculture - Reforestation (FOR 442 - spring). Course focus on the ecophysiological principles and silvicultural practices needed to successfully regenerate forestlands in North America. Topics include natural and artificial regeneration, forest tree nurseries, site preparation, seedling quality and handling, genetics, disease, vegetation management, animal damage protection, early stand management, and ecological considerations. Emphasis will be placed on regeneration methods applied to Pacific North West.

International Intensive Silviculture (FOR 542 – fall). Course will focus on the operational and ecological aspects of intensive silvicultural management of planted forests around the world. Guest speakers located in a different countries describe the type of silvicultural management that is currently carried out in his/her country. From species and genetic selection, to harvest and rotation length, including site preparation and planting techniques will be covered each session. Emphasis will be placed on comparing silvicultural practices applied on each country in relation to the management applied to plantations in western Oregon

3-PG Forest Growth Model (FOR 599 - fall). Course co-taught with Dr. Richard Waring. The course focus on the foundations and practical use of the process-based model 3-PG. Some of the topics of the course will include: Introduction to Model and underlying assumptions;

climatic driving variables derived from monthly temperature extremes; effects of thinning, natural mortality, and defoliation on stand growth; distinguish the relative importance of climate and soil properties; develop allometric relations for growth allocation without going to the field.

Study Abroad to Chile: Mountains to the Sea: Conservation and Management of Water and Forest Resources in Chile (FOR 499 – spring break; 3 credits). The course explores the complex ecological, climatic, and management dimensions of forest management, conservation and restoration through an immersive experience in Chile. The course includes natural Chilean forests and managed forest plantations in a range of settings from the coast to the Andes foothills. Student will interact extensively with Chilean students and also Chilean faculty who are working on various aspects of forest ecology, resource conservation, research, and management.

Study Abroad to Chile / Mini Course: Intensive Silvicultural Management of Planted Forests in Chile (FOR 499 – spring break; 1 credit). This 3 days course focus on precision silviculture for planted eucalyptus and radiata pine forests in Chile, including visits to experimental and operational stands.

At the University of Florida:

Plant Ecophysiological Measurement Techniques (BOT-6935). Course offered in spring semester 2014. This course has the objective to familiarize graduate students with some of the tools necessary to measure ecophysiological parameters in the field.

Plant Water Relations Techniques (FOR-6345C). Co-taught during spring semester 2010 and 2012.

Forest Sustainability, Productivity and Health (FOR-5161). Guest lecturer.

Tree Biology (FOR-3342C). Guest lecturer.

Physiology of Forest Trees (FOR-6340). Guest lecturer.

## **Peer review experience**

Associate Editor for *New Forests*.

Editorial Board member for *Forests*.

Editor Special Issue "Forest Regeneration in Changing Environments" for *New Forests* (Nov. 2018)

Editor Special Issue "Intensive Silviculture" for *Forests* (ongoing)

Peer reviewer for: African Journal of Agricultural Research, Agroforestry Systems, Annals of Forest Science, BioResources, Bosque, Canadian Journal of Forest Research, European Journal of Forest Research, Forest Ecology and Management, Forest Science, Forest Systems, International Journal of Forestry Research, Journal of Agroforestry, Journal of Forest Science, New Forests, New Phytologist, Sensors, Southern Journal of Applied Forestry and Tree Physiology.

## **Training courses (select)**

2009. Greenhouse gas accounting and management, April 30 - May 5, Gainesville, FL.

2006. Training program on assessing crop production, nutrient management, climatic risk and environmental sustainability with simulation models, May 15-24, Griffin, GA.

2001. International workshop on production and silviculture in intensively managed forest plantations, September 23 - October 3, Raleigh, NC.

2000. Training workshop on physiological-based forest growth model: physiological principles predicting growth (3-PG), February 4-5, Concepcion, Chile.