**Curriculum Vitae Dr. BARBARA BEIKIRCHER**

Date and place of birth: November 29th, 1977; Bruneck (Italy)

Languages: German (native), English (fluent),

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**UNIVERSITY** **EDUCATION**

09/2020 – **Senior Scientist (PostDoc 50%)**, University of Innsbruck

04/2014 – 08/2020 **Hertha Firnberg position** at the University of Innsbruck. Financed by the Austrian Science Fund project ‘Hydraulics of juvenile trees: Effects of seed provenance’.

04/2009 – 03/2014 **PostDoc** at the University of Innsbruck. Financed by the Austrian Science Fund Translational Research project ‘Winter damage on apple trees – causes, effects and avoidance strategies’.

12/2008 – 03/2009 **Project leader** at the University of Innsbruck. Financed by the Federal State Government of South Tyrol project ‘Adaptations of apple trees to frost drought – wild forms, old cultivars and high-yield cultivars compared’.

05/2005-11/2008 PhD in Ecophysiology

 **PhD thesis**: ‘*Water relations of woody species: water transport and transpiration, and their relevance for the recultivation of dry sites*’ (Department of Botany, University of Innsbruck, supervisor: Stefan Mayr).

10/1998–11/2004 Studies of biology/botany at the University of Innsbruck

**Diploma thesis**: ‘*Zusammenhang zwischen Frosthärte und Zellwandelastizität, gemessen an Picea abies und Pinus cembra im Zuge des Austreibens*’ (supervisor: Gilbert Neuner).

**Current Research Activities**

In my research, I focus on plant ecophysiology of Alpine ecosystems with special regard to water relations of woody plants. Over the last decade I worked on plant hydraulics, with links to growth form, xylem anatomy, drought and frost stress on adult trees as well as on seedlings. My current projects deal with:

**Seedling hydraulics**: In course of my Hertha Firnberg scholarship, I started to work with current year tree seedlings. This required testing and adapting of various hydraulic methods. Recently, I was awarded an Austrian Science Fund project exploring the influence of frosts, drought and shade on early ontogenetic tree stages.

**Drought tolerance, acclimation ability and recovery potential**: From the beginning of my scientific career, I dealt with the ability of plants to adjust their hydraulic system to their morphology as well as to environmental conditions. In my current project, I focus on the ability of mature trees to acclimatize to and recover from, respectively, long-term summer drought. This project is carried out in the Kranzberg forest in collaboration with the TU Munich. Furthermore, I am involved in a project dealing with the impact of fertilisation on drought tolerance of juvenile trees.

**Winter drought and apple trees**: Starting with an project on winter damage in apple trees, I became interested in the phenomenon of frost drought as well as hydraulics of artificial plant ecosystem, such as highly managed orchards. In frame of several projects I have been investigating the impact of frost drought on survival and performance of apple trees, as well as the influence of fertilisation on drought tolerance.

**Self-active acquired Third-Party-Funds**

1. ‘Hydraulic impairment in early ontogenetic tree stages: Influence of frosts, drought and shade’, Austrian Science Fund (D-A-CH programme); 11/2022 – 10/2026; € 239.022.
2. ‘Drought acclimation and recovery of beech and Norway spruce’, Austrian Science Fund (D-A-CH programme); 01/2019 – 12/2022; € 239.022.
3. ‘Hydraulics of juvenile trees: Effects of seed provenance’, Austrian Science Fund (Hertha Firnberg programme); 04/2014 – 08/2020; € 219.630.
4. ‘Adaptations of apple trees to frost drought – wild forms, old cultivars and high-yield cultivars compared’, Federal State Government of South Tyrol; 05/2008 – 04/2009; € 25.000.

**ONGOING PARTICIPATION IN FUNDED RESEARCH PROGRAMS**

“The effect of fertilization on seedling hydraulics” (FWF Lise Meitner, M3204), PI Dr. Feng Feng, 04/2022 – 04/2024, € 177.980.

**Awards**

1. ‘Award of the Principality of Liechtenstein for scientific research at the University of Innsbruck’, 2019
2. ‘Theodor Körner Award’ awarded from the Theodor Körner Fond, Austria, 2014
3. ‘South Tyrolean research award for young researchers’ awarded from the Federal State Government of South Tyrol, 2013
4. ‘Prix de la France – Category PostDoc’ awarded from the Interdisciplinary focus on France of the University of Innsbruck, 2010

**Functions in Societies**

Management Committee Member in the Cost-Action ‘STReESS – Studying Tree Responses to extreme Events: a SynthesiS’ (2012 – 2016).

**Reviewer for the following journals**

Forests ♦ Journal of Experimental Botany ♦ New Phytologist ♦ Plant Biology ♦ Trees – Structure and Function ♦ Tree Physiology

**Science communication**

Public lectures:

* Klimawandel und Wald: Bäume unter Stress? Südtiroler Forstverein, Terlan, 10.07.2021.
* Sommer- und Wintertrockenheit als Gefahr für den Apfelanbau? Verein der Absolventen landwirtschaftlicher Schulen, Terlan, 22.01.2019.
* Frosttrocknis als Ursache für Winterschäden an Apfelbäumen? Ein Vergleich zwischen Wildformen, alten und neuen Kultursorten. Tagung "Treffpunkt Forschung" - EURAC Bozen, Bozen, 09.11.2011.

Articles in Transfer-Oriented Journals

* Beikircher, Barbara; Mittmann, Claudia; Mayr, Stefan (2012): Winterschäden II. Trockenstress: Ursache für Winterschäden? In: Obstbau und Weinbau 49/10, S. 336 - 339.
* Pramsohler, Manuel; Neuner, Gilbert; Mayr, Stefan; Beikircher, Barbara (2012): Winterschäden auf der Spur. In: Südtiroler Landwirt 66/20, S. 71 - 74.

Workshop

* ‘Women in natural sciences’ in frame of a sparkling science project at the Bundesrealgymnasium Dornbirn Schoren (12/2016)

**Ten most important publications**

1. Beikircher B., Sack L., Ganthaler A., Losso A., Mayr S. (2021): Hydraulic-stomatal coordination in tree seedlings: tight correlation across environments and ontogeny in *Acer pseudoplatanus*. New Phytologist doi.org/10.1111/nph.17585
2. Tomasella M., Casolo V., Natale S., Petruzzellis F., Kofler W., Beikircher B., Mayr S., Nardini A. (2021): Shade-induced reduction of stem nonstructural carbohydrates increases xylem vulnerability to embolism and impedes hydraulic recovery in *Populus nigra*. New Phytologist 231, 108-121. doi.org/10.1111/nph.17384
3. Mayr S., Schmid P., Beikircher B., Feng F., Badel E. (2020): Die hard: timberline conifers survive annual winter embolism. New Phytologist 226, 13-20. doi.org/10.1111/nph.16304
4. Beikircher B., Losso A., Gemassmer M., Jansen S., Mayr S. (2019): Does fertilization explain the extraordinary hydraulic behaviour of apple trees? Journal of Experimental Botany 70, 1915-1925. doi: 10.1093/jxb/erz070
5. Losso A., Bär A., Dämon B., Dullin C., Ganthaler A., Petruzzellis F., Savi T., Tromba G., Nardini A., Mayr S., Beikircher B. (2019): Insights from in vivo micro-CT analysis: testing the hydraulic vulnerability segmentation in *Acer pseudoplatanus* and *Fagus sylvatica* seedlings. New Phytologist 221, 1831-1842. doi: 10.1111/nph.15549
6. Cailleret M., … Beikircher B….et al. (2017) A synthesis of radial growth patterns preceding tree mortality. Global Change Biol. 23, 1675-1690. doi: org/10.1111/gcb.13535
7. Nolf M., Rosani A., Ganthaler A., Beikircher B., Mayr S. (2016): Herb hydraulics: Inter- and intraspecific variation in three *Ranunculus* species. Plant Physiology 170, 2085-2094. doi: org/10.1104/pp.15.01664
8. Beikircher B., DeCesare C. & Mayr S. (2013): Hydraulics of high-yield orchard trees: A case study of three *Malus domestica* cultivars. Tree Physiology 33, 1296-1307. doi: 10.1071/fp16048
9. Beikircher B., Ameglio T., Cochard H. & Mayr S. (2010): Limitation of the Cavitron technique by conifer pit aspiration. Journal of Experimental Botany 61, 3385-3393. doi: 10.1093/jxb/erq159
10. Beikircher B. & Mayr S. (2008): The hydraulic architecture of *Juniperus communis*: shrubs and trees compared. Plant, Cell and Environment 31, 1545-1556. 2008. doi: org/10.1111/j.1365-3040.2008.01860.x