

PERSONAL INFORMATION

Ioan DUTCA

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WORK EXPERIENCE

- 2022 - present **Associate professor**
Transilvania University of Brasov, Brasov, Romania
- 2014 - present **Research fellow**
Buckinghamshire New University (UK)
- 2012 – 2022 **Lecturer**
Transilvania University of Brasov, Brasov, Romania
- 2012 – 2013 **Leverhulme Trust Visiting Fellow**
Buckinghamshire New University (UK)

EDUCATION

- October 2007 – May 2011 **PhD**
Transilvania University of Brasov, Brasov, Romania
- October 2005 – June 2007 **MSc**
Transilvania University of Brasov, Brasov, Romania
- October 2000 – June 2005 **BSc**
Transilvania University of Brasov, Brasov, Romania

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Listening	Spoken production	
English	Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

IT skills R – The R Project for Statistical Computing.
JAGS – Just Another Gibbs Sampler.
WinBUGS – Bayesian inference Using Gibbs Sampling.
HTML – working knowledge.

Driving licence B

ADDITIONAL INFORMATION

Publications

Publications

- Keith, Heather, Zoltán Kun, Sonia Hugh, Miroslav Svoboda, Martin Mikoláš, Dusan Adam, Dmitry Bernatski, Ioan Dutcă et al. (2024) Carbon carrying capacity in primary forests shows potential for mitigation achieving the European Green Deal 2030 target. *Communications Earth & Environment* 5, 1, 256.
<https://doi.org/10.1038/s43247-024-01416-5>
- Florea, S. C., Dutca, I., & Nita, M. D. (2024). Tradeoffs and limitations in determining tree characteristics using 3D pointclouds from terrestrial laser scanning: A comparison of reconstruction algorithms on European bech (*Fagus sylvatica* L.) trees: A Case Study with European Beech (*Fagus sylvatica*). *Annals of Forest Research*, 67(2), 185-199.
<https://doi.org/10.15287/afr.2024.3885>
- Stăncioiu, P.T., Dutcă, I., Florea, S.C. and Paraschiv, M., 2022. Measuring Distances and Areas under Forest Canopy Conditions—A Comparison of Handheld Mobile Laser Scanner and Handheld Global Navigation Satellite System. *Forests*, 13(11), p.1893.
<https://doi.org/10.3390/f13111893>
- Dutcă, I., Cernat, A., Stăncioiu, P.T., Ioraș, F. and Niță, M.D., 2022. Does slope aspect affect the aboveground tree shape and volume allometry of European Beech (*Fagus sylvatica* L.) trees?. *Forests*, 13(7), p.1071. <https://doi.org/10.3390/f13071071>
- Dutcă, I., McRoberts, R. E., Næsset, E., & Blujdea, V. N. (2022). Accommodating heteroscedasticity in allometric biomass models. *Forest Ecology and Management*, 505, 119865.
<https://doi.org/10.1016/j.foreco.2021.119865>
- Stăncioiu, P. T., Șerbescu, A. A., & Dutcă, I. (2021). Live Crown Ratio as an Indicator for Tree Vigor and Stability of Turkey Oak (*Quercus cerris* L.): A Case Study. *Forests*, 12(12), 1763.
<https://doi.org/10.3390/f12121763>
- Blujdea, V. N., Sikkema, R., Dutcă, I., & Nabuurs, G. J. (2021). Two large-scale forest scenario modelling approaches for reporting CO2 removal: a comparison for the Romanian forests. *Carbon Balance and Management*, 16(1), 1-17.
<https://doi.org/10.1186/s13021-021-00188-1>
- Osewe, E. O., & Dutcă, I. (2021). The Effects of Combining the Variables in Allometric Biomass Models on Biomass Estimates over Large Forest Areas: A European Beech Case Study. *Forests*, 12(10), 1428.
<https://doi.org/10.3390/f12101428>
- Blujdea, V. N., Viskari, T., Kulmala, L., Gârbacea, G., Dutcă, I., Miclăuș, M., ... & Liski, J. (2021). Silvicultural Interventions Drive the Changes in Soil Organic Carbon in Romanian Forests According to Two Model Simulations. *Forests*, 12(6), 795. <https://doi.org/10.3390/f12060795>
- Dutcă, I., Mather, R., & Ioraș, F. (2020). Sampling trees to develop allometric biomass models: How does tree selection affect model prediction accuracy and precision?. *Ecological Indicators*, 117, 106553. <https://doi.org/10.1016/j.ecolind.2020.106553>
- Dutcă, I., Zianis, D., Petrișan, I. C., Bragă, C. I., Ștefan, G., Yuste, J. C., & Petrișan, A. M. (2020). Allometric Biomass Models for European Beech and Silver Fir: Testing Approaches to Minimize the Demand for Site-Specific Biomass Observations. *Forests*, 11(11), 1136.
<https://doi.org/10.3390/f11111136>
- Blennow, K., Persson, J., Gonçalves, L. M. S., Borys, A., Dutcă, I., Hynynen, J., ... & Reyer, C. P. (2020). The role of beliefs, expectations and values in decision-making favoring climate change adaptation—implications for communications with European forest professionals. *Environmental Research Letters*, 15(11), 114061.
<https://doi.org/10.1088/1748-9326/abc2fa>
- Persson, J., Blennow, K., Gonçalves, L., Borys, A., Dutcă, I., Hynynen, J., ... & Reyer, C. P. (2020). No polarization—expected values of climate change impacts among European forest professionals and scientists. *Sustainability*, 12(7), 2659.
<https://doi.org/10.3390/su12072659>
- Dutcă, I. (2019). The variation driven by differences between species and between sites in allometric biomass models. *Forests*, 10(11), 976. <https://doi.org/10.3390/f10110976>
- Dutcă, I., McRoberts, R. E., Næsset, E., & Blujdea, V. N. (2019). A practical measure for determining if diameter (D) and height (H) should be combined into D²H in allometric biomass models. *Forestry: An International Journal of Forest Research*, 92(5), 627-634.
<https://doi.org/10.1093/forestry/cpz041>
- Stăncioiu, P. T., Dutcă, I., Bălăcescu, M. C., & Ungurean, Ș. V. (2019). Coexistence with Bears in Romania: A Local Community Perspective. *Sustainability*, 11(24), 7167.
<https://doi.org/10.3390/su11247167>

Publications

- Dutcă, I., Mather, R., Blujdea, V.N., Ioraș, F., Olari, M. and Abrudan, I.V., (2018). Site-effects on biomass allometric models for early growth plantations of Norway spruce (*Picea abies* (L.) Karst.). *Biomass and Bioenergy*, 116, pp.8-17.
<https://doi.org/10.1016/j.biombioe.2018.05.013>
- Dutcă, I., Stăncioiu, P.T., Abrudan, I.V., Ioraș, F., (2018). Using clustered data to develop biomass allometric models: the consequences of ignoring the clustered data structure, *Plos One*, 13(8). <https://doi.org/10.1371/journal.pone.0200123>
- Dutcă, I., (2018). Biomass data for young, planted Norway spruce (*Picea abies* (L.) Karst.) trees in Eastern Carpathians of Romania, *Data in Brief*, 19, 2384-2392.
<https://doi.org/10.1016/j.dib.2018.07.033>
- Dutca, I., Mather, R., Ioras, F. (2018). Tree biomass allometry during the early growth of Norway spruce (*Picea abies*) varies between pure stands and mixtures with European beech (*Fagus sylvatica*). *Canadian Journal of Forest Research*, 48(1), 77-84.
<https://doi.org/10.1139/cjfr-2017-0177>
- Palaghianu, C., Dutca, I. (2017). Afforestation and reforestation in Romania: History, current practice and future perspectives. *Reforesta*, 4, 54-68
<http://journal.reforestationchallenges.org/index.php/REFOR/article/view/58>
- Dutca, I., Negruțiu, F., Ioras, F., Maher, K., Blujdea, V.N., Ciuvăț, L.A. (2014). The Influence of Age, Location and Soil Conditions on the Allometry of Young Norway Spruce (*Picea abies* L. Karst.) Trees. *Notulae Botanicae Horti Agrobotanici*, 42(2), 579-582.
<http://www.notulaeobotanicae.ro/index.php/nbha/article/viewFile/9714/7771>
- Ciuvăț, A.L., Abrudan, I.V., Blujdea, V., Dutca, I., Nuta, I. S., Elena, E.D.U. (2013). Biomass Equations and Carbon Content of Young Black Locust (*Robinia pseudoacacia* L.) Trees from Plantations and Coppices on Sandy Soils in South-Western Romanian Plain. *Notulae Botanicae Horti Agrobotanici*, 41(2), 590-592.
<http://notulaeobotanicae.ro/index.php/nbha/article/viewFile/9355/7673>
- Blujdea, V., Pilli, R., Dutcă, I., Ciuvăț, L., Abrudan, I.V. (2012). Allometric biomass equations for young broadleaves in plantations in Romania. *Forest Ecology and Management*, 264, p172–184.
<https://doi.org/10.1016/j.foreco.2011.09.042>
- Dutcă, I., Abrudan, I.V., Stăncioiu, P.T., Blujdea, V. (2010) Biomass Conversion and Expansion Factors for Young Norway Spruce (*Picea abies* (L.) Karst.) Trees Planted on Non-Forest Lands in Eastern Carpathians. *Notulae Botanicae Horti Agrobotanici*, 38(3), p286 - 292.
<http://www.notulaeobotanicae.ro/index.php/nbha/article/view/5450/5103>
- Stăncioiu, P.T., Abrudan, I.V., Dutcă, I. (2010) The Natura 2000 ecological network and forests in Romania: implications on management and administration. *International Forestry Review*, Vol.12(1), p106- 113.
<https://doi.org/10.1505/for.12.1.106>
- Dutcă, I., Abrudan, I.V. (2010). Estimation of Forest Land Cover Change in Romania between 1990 and 2006. *Bulletin of Transilvania University of Brasov, Series II Forestry, Wood Industry and Agricultural Food Engineering*, Vol. 2 (51), p13-18.
<http://webbut.unitbv.ro/BU2010/Series%20II/BULETIN%20II%20PDF/Forestry/Dutca%20I.pdf>

Projects

Testing the replacement of trees regenerated from vegetative shoots with trees regenerated from seeds as a measure to improve forest carbon sink

Funded by European Forest Institute

Period 2024 – 2025

Position: Principal investigator

Budget: 140000 EUR

Co-designing Holistic Forest-based Policy Pathways for Climate Change Mitigation: ForestPaths

Funded by European Commission, Horizon 2020;

Period 2022-2026

Position: Project team member

Budget: 131000 EUR

Holistic management practices, modelling and monitoring for European forest soils (HOLISOILS);

Funded by European Commission, Horizon 2020;

Period 2021-2025

Position: Project team member

Budget: 170000 EUR

Improving the accuracy and precision of biomass estimations for *Fagus sylvatica* L., from tree level to large area, using terrestrial laser scanning technology – BIOPREDICT.

Funded by UEFISCDI

Period: 2020-2022

Position: Principal investigator

Budget: 439000 RON (~88000 EUR)

Mobilizing and Monitoring Climate Positive Efforts in Forests and Forestry - FORCLIMIT

Funded by ERA-GAS, Horizon 2020

Period: 2017-2020

Position: Project team member

Budget: 170000 EUR

Estimation of carbon accumulation dynamics through afforestation, using classic and modern tools

Funded by the National Council of Scientific Research in Higher Education, BD programme

Period: 2008-2010

Position: Principal investigator

Modelling of carbon sequestration in transitory forest ecosystems associated with forest land use change in Romania (FORLUC)

Funded by the National Council of Scientific Research in Higher Education, PNII programme

Period: 2007-2010

Position: Project team member

25.05.2025