

## Viktor Myroniuk

Professor, Dr. Sci. (Forest Inventory and Forest Mensuration)  
Department of Forest Mensuration and Forest Management  
National University of Life and Environmental Sciences of Ukraine  
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### EDUCATION

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*National University of Life and Environmental Sciences of Ukraine, Kyiv (Ukraine)*

**Doctor of Science (Forest Inventory and Forest Mensuration)** **July 2019**

**Dissertation Title:** Theoretical and Experimental Substantiation of Forest Inventory in Flat Land Ukraine Using Satellite Imagery

*National Agricultural University, Kyiv (Ukraine)*

**Candidate of Science (Forest Inventory and Forest Mensuration)** **June 2007**

**Dissertation Title:** The Volume and Stems Form of Trees in the Urban Area of Kyiv

*National Agricultural University, Kyiv (Ukraine)*

**Master's degree in Forest Management** **December 2003**

**Thesis Title:** Developing Local Volume Tables for Scots Pine Logs

*National Agricultural University, Kyiv (Ukraine)*

**Bachelor's degree in Forestry** **June 2002**

**Thesis Title:** A Comparative Analysis of Methods for Round Wood Volume Estimation

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### AREAS OF SPECIFICATIONS

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- Predictive forest cover mapping using satellite images
  - Spatial analysis of vegetation patterns and geographic information systems
  - Sample-based forest inventory
  - Probabilistic wildfire risk simulation
  - Modeling forest stands and trees parameters
  - Forest management
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### WORK EXPERIENCE

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*National University of Life and Environmental Sciences of Ukraine, Kyiv (Ukraine)*

**Professor** **January 2021 – Present**

*National University of Life and Environmental Sciences of Ukraine, Kyiv (Ukraine)*

**Associate Professor** **December 2010 – December 2020**

*National Agricultural University, Kyiv (Ukraine)*

**Professor Assistant / Lecturer** **September 2006 – November 2010**

*National University of Life and Environmental Sciences of Ukraine, Kyiv (Ukraine)*

**Researcher** **September 2006 – Present**

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### PERSONAL SKILLS

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**Mother tongues:** Ukrainian

**Foreign language:** English, Russian

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
<b>C1</b>	<b>C1</b>	<b>C1</b>	<b>C1</b>	<b>C1</b>

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

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## PROFESSIONAL SKILLS

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### Earth Observation / Remote Sensing

- Proficient in use of multiple optical satellite-based platforms for land cover mapping
- Experience in pre-processing multispectral satellite images for classification
- Experience with active (SAR, LiDAR) sensors (Sentinel 1, ALOS PALSAR, GEDI) in the forest inventory
- Advanced experience with dense time series analysis to map forest attribute parameters using forest inventory data, including but not limited to LandTrendr and CCDC
- Experience in wildfire and forest disturbance mapping using time series of satellite images
- Good knowledge of a variety of global forest cover products available at ~25-30 m and ~250-500 m spatial resolutions

### Programming and Computing

- Proficient in R language
- Advanced experience with Google Earth Engine platform
- Knowledgeable in python and JavaScript coding

### GIS and Data Analysis

- Proficient in QGIS, ESRI ArcGIS software; experience in ERDAS Imagine, ENVI software
- Proficient in satellite image classification using machine learning (RF, SVM) and imputation algorithms (k-Nearest Neighbors)
- Experience in landscape-level wildfire simulation using FlamMap-based software
- Experience in variety multi-scale geospatial analysis
- Advanced experience in general statistical analysis

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## PROJECTS / GRANTS

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Advancing Remote Sensing-based Methods of Forest Resources Assessment (Project No 0121U110106) funded by Ministry of Education and Science of Ukraine (2021–2022). Grant support: \$35,000. Project manager

FirEURisk "Development a holistic, risk-wise strategy for European wildfire management" (GA 101003890) funded by European Union's Horizon 2020 Program (2021–2025). Project team member (REEFMC, grant support €180,000)

Impact of Wildfires on the Carbon Cycle of Forest Ecosystems (Project No 0122U200407) funded by Ministry of Education and Science of Ukraine and OeAD-GmbH (2021–2022). Grant support: €8,500. Project manager

Development of a Methodology for Improved Forest Inventory (Project No 0118U000292) funded by Ministry of Education and Science of Ukraine (2018–2020). Grant support: \$60,000. Project manager

Conserving, Enhancing and Managing Carbon Stocks and Biodiversity in The Chornobyl Exclusion Zone (Project No GFL/4634) funded by GEF (2015–2018). Grant support: \$200,000. Project team member

Assessment of carbon cycling of forests based on advanced systems approaches (Project No UA 08/2017) funded by Ministry of Education and Science of Ukraine and OeAD-GmbH (2017–2018). Grant support: €8,500. Project team member

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## SCHOLARSHIP / FUNDING / AWARDS

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**Fulbright Visiting Scholar Program** Grant G-1-00005. Project Title: "Tracking Forest Fragmentation in Ukraine and the Western United States: A Comparative Analysis Based on Remote Sensing Approach and Management Implication". USDA Forest Service Pacific Northwest Research Station, Corvallis, OR, USA. (March – December 2021). Personal grant: \$35,625

**Short-term Scholarship** of the US Forest Service-funded International Program G-3-10895 "Apply methods in remote sensing and statistics to build ignition probability maps". Portland State University, Portland, OR, USA. (April – May 2017). Personal grant: \$6,500

**The Prize of Parliament of Ukraine 2020 for Young Scientists.** Resolution of the Verkhovna Rada of Ukraine on December 1, 2021 № 1918-IX. Prize award: \$4,500

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OTHER ACTIVITIES / APPOINTMENTS

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**Short-Term Consultant** at the World Bank (February 2022 – June 2022)

**National short-term expert** in the project "Technical Support to Forest Policy Development and National Forest Inventory Implementation" (Project-No.: W-UKR 21-01) supported by the Federal Ministry of Food and Agriculture (2022-2023)

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PUBLICATIONS

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**Featured Publications:**

**Myroniuk, V.**, Zibtsev, S., Bogomolov, V., Goldammer, J. G., Soshenskyi, O., Levchenko, V., & Matsala, M. (2023). Combining Landsat time series and GEDI data for improved characterization of fuel types and canopy metrics in wildfire simulation. *Journal of Environmental Management*, 345, 118736. <https://doi.org/10.1016/j.jenvman.2023.118736> (Personal contribution: Workflow development and application in Google Earth Engine)

**Myroniuk, V.**, Bell, D. M., Gregory, M. J., Vasylyshyn, R., & Bilous, A. (2022). Uncovering forest dynamics using historical forest inventory data and Landsat time series. *Forest Ecology and Management*, 513, 120184. <https://doi.org/10.1016/j.foreco.2022.120184> (Personal contribution: Mapping forest attributes dynamics using the CCDC temporal segmentation and GNN imputation algorithms in Google Earth Engine)

**Myroniuk, V.**, Bilous, A., Khan, Y., Terentiev, A., Kravets, P., Kovalevskyi, S., & See, L. (2020). Tracking rates of forest disturbance and associated carbon loss in areas of illegal amber mining in Ukraine using Landsat Time Series. *Remote Sensing*, 12(14), 2235. <https://doi.org/10.3390/rs12142235> (Personal contribution: Mapping forest disturbances using Google Earth Engine version of LandTrendr segmentation algorithm)

**Myroniuk, V.**, Kutia, M., Sarkissian, A. J., Bilous, A., & Liu, Sh. (2020). Regional-Scale Forest Mapping over Fragmented Landscapes Using Global Forest Products and Landsat Time Series Classification. *Remote Sensing*, 12(1), 187. <https://doi.org/10.3390/rs12010187> (Personal contribution: Random Forest classification of seasonal composited mosaics of Landsat images in Google Earth Engine; accuracy assessment of forest masks)

Ager, A. A., Lasko, R., **Myroniuk, V.**, Zibtsev, S., Day, M. A., Usenia, U., ... Evers, C. R. (2019). The wildfire problem in areas contaminated by the Chernobyl disaster. *Science of The Total Environment*, 696, 133954. <https://doi.org/10.1016/j.scitotenv.2019.133954> (Personal contribution: Wildfires modeling using FlamMap-based software; mapping land cover using Landsat time series; processing MOD/MYD14 data)

**Other Peer-Reviewed Articles:**

**Myroniuk, V.**, Bilous, A., Lakyda, P., Lesnik, O., Burianchuk, M., Svychnuk, V., ... Matsala, M. (2023). Taper equations for eight major forest tree species in flat land Ukraine. *Forestry: An International Journal of Forest Research*, cpac052. <https://doi.org/10.1093/forestry/cpac052> (Personal contribution: Mixed-effect stem taper modeling, and validation)

Hall, J. V., Zibtsev, S. V., Giglio, L., Skakun, S., **Myroniuk, V.**, Zhuravel, O., Goldammer, J. G., & Kussul, N. (2021). Environmental and political implications of underestimated cropland burning in Ukraine. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/abfc04> (Personal contribution: Application of Landsat, Sentinel 2, and PlanetScope imagery for identification of open burnings)

Matsala, M., Bilous, A., **Myroniuk, V.**, Diachuk, P., Burianchuk, M., & Zadorozhniuk, R. (2021). Natural forest regeneration in Chernobyl Exclusion Zone: Predictive mapping and model diagnostics. *Scandinavian Journal of Forest Research*, 1–13. <https://doi.org/10.1080/02827581.2021.1890816> (Personal contribution: Validation predictive mapping models)

Lakyda, P., Shvidenko, A., Bilous, A., **Myroniuk, V.**, Matsala, M., Zibtsev, S., ... Kraxner, F. (2019). Impact of Disturbances on the Carbon Cycle of Forest Ecosystems in Ukrainian Polissya. *Forests*, 10(4), 337. <https://doi.org/10.3390/f10040337> (Personal contribution: Mapping forest attributes using multispectral satellite images and forest inventory data)

Bilous, A., **Myroniuk, V.**, Holiaka, D., Bilous, S., See, L. D., & Schepaschenko, D. (2017). Mapping growing stock volume and forest live biomass: a case study of the Polissya region of Ukraine. *Environmental Research Letters*, 12(10), 13. <https://doi.org/10.1088/1748-9326/aa8352> (Personal contribution: Preprocessing RapidEye satellite images, mapping forest cover, imputing growing volume and live biomass using k-Nearest Neighbors approach)

Evangelidou, N., Zibtsev, S., **Myroniuk, V.**, Zhurba, M., Hamburger, T., Stohl, A., ... Kireev, S. I. (2016). Resuspension and atmospheric transport of radionuclides due to wildfires near the Chernobyl Nuclear Power Plant in 2015: An impact assessment. *Scientific Reports*, 6. <https://doi.org/10.1038/srep26062> (Personal contribution: Mapping burned areas using time series of Landsat images)

**Book chapter:**

Lakyda, P., Bilous, A., Shvidenko, A., **Myroniuk, V.**, Matsala, M., Vasylyshyn, R., Holiaka, D., & Lakyda, I. (2018). Ecosystem Services of Ukrainian Forests: a Case Study for the Polissya Region. Kyiv: NUBiP of Ukraine. (Personal contribution: Mapping forest cover, imputing growing stock volume using multispectral satellite images)

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**Featured work written in Ukrainian:**

**Myroniuk V.** (2020). *Inventory of flat land forests of Ukraine using satellite imagery*. Monograph. Kharkiv: Globus.

**Myroniuk V.** (2019). Mapping tree species composition of forest stands using Landsat seasonal mosaics and sample-based forest inventory. *Proceedings of the Forestry Academy of Sciences of Ukraine*, 19, 135–143. <https://doi.org/10.15421/411935>

**Myroniuk, V.** (2018). Forest cover mapping using Landsat-based seasonal composited mosaics. *Scientific Bulletin of UNFU*, 28(1), 28–33. <https://doi.org/10.15421/40280105>

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**Conference papers:**

**Myroniuk, V.**, Zibtsev, S., Bogomolov, S., Soshenskyi, O., Gumeniuk, V., & Vasylyshyn, R. A web-based platform LANDSCAPE FIRES: regional-level fire management information system for Northern Ukraine. Conference Proceedings, Geoinformatics, May 2021, Volume 2021, p.1–6. <https://doi.org/10.3997/2214-4609.20215521113>

Kutia, M., **Myroniuk, V.**, & Sarkissian, A. (2018). Evaluation of Sentinel-2 Composited Mosaics and Random Forest Method for Tree Species Distribution Mapping in Suburban Areas of Kyiv City, Ukraine. In Proceedings of the International Workshop on Environmental Management, Science and Engineering - Volume 1: IWEMSE, ISBN 978-989-758-344-5, pages 597-604. DOI: 10.5220/0007563505970604

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**Conference Activity:**

**Myroniuk V.**, Zibtsev S., Soshenskyi S., Gumeniuk V., Vasylyshyn R., Bidolakh D. Mapping fire severity over heterogeneous forested landscapes in the Eastern Ukraine to support postfire forest management. XVI International Scientific Conference "Monitoring of Geological Processes and Ecological Condition of the Environment". November 15–18, 2022, Kyiv, Ukraine.

**Myroniuk V.**, Zibtsev S., Bogomolov V., Sydorenko S., Soshensky O., & Gumeniuk V. Mapping canopy base height using GEDI relative height metrics for wildfire simulation models. TerraEnvision 2022: Nature-based solutions to facilitate the transitions for living within the planetary boundaries, June 27 – July 1, 2022, Utrecht, the Netherlands.

**Myroniuk, V.**, Bilous, A., Diachuk, P., Fedyna, K., & Matsala, M. (2019). Configuring Sample Plots: Sample-Based Forest Inventory and Accuracy Implications. 3<sup>rd</sup> International Conference "Smart Bio". May 2, 2019. Kaunas, Lithuania.

Gregory M., Bell D., Gorelick N., & **Myroniuk V.** Utilizing high-performance and data-rich cloud platforms for nearest neighbor imputation models: Bringing NN to the cloud. ForestSAT 2018: Entering a New Era in Forest Observation and Analysis, October 1–5, 2018, College Park, Maryland, USA.

Lakyda, P., Bilous, A., **Myroniuk, V.**, Vasylyshyn, R., Lakyda, I., Matsala, M., & Dyatchuk, P. (2018). Disturbances impact on carbon emissions in forest ecosystems of Ukrainian Polissya. Cool Forests at Risk? The Critical Role of Boreal and Mountain Ecosystems for People, Bioeconomy, and Climate. Book of Abstracts: IBRA2018, September 17–20, 2018, 72. IIASA, Laxenburg, Austria.

Kutia, M., Gautam, M., & **Myroniuk, V.** (2017). The Use of Sentinel-2 Imagery and Random Forest Classifier for Kyiv City Suburban Forest Mapping. The 3rd Global Forum of Ecological Economics in Forestry, May 20–21, 2017, 27–39. Nanchang, China.