

Nam Jin Noh

Ph.D. Forest Ecosystem Ecologist
 Professor, Department of Forest Resources
 College of Forest and Environmental Science
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**AREA OF RESEARCH INTERESTS**

Belowground Carbon Dynamics, Carbon and Nitrogen Cycles, Soil Biogeochemistry, Component Respiration, Ecosystem Ecology, Forest Management, Silviculture, Climate Change Manipulation Experiment

[Google Scholar](#) | [ResearchGate](#)

EDUCATION

- 2011 Ph.D., Bioresource and Ecology, Department of Environmental Science and Ecological Engineering, Korea University, Seoul, Korea (Advisor: Yowhan Son)
- 2006 M.S., Forest Genetics and Forest Ecology, Department of Forest Resources, Korea University, Seoul, Korea (Advisor: Yowhan Son)
- 2002 B.S., College of Life and Environmental Science, Korea University, Seoul, Korea

PROFESSIONAL EXPERIENCE

- 2021.03 – present Professor, College of Forest Environmental Science, Kangwon National University
- 2020.01 – 2021.02 Research Scientist, Forest Technology and Management Research Center, National Institute of Forest Science (NIFoS), Korea
- 2017.12 – 2020.01 Postdoctoral Research Fellow, Hawkesbury Institute for the Environment, Western Sydney University, Australia (Supervisor: Pendall E)
- 2016.04 – 2017.11 Postdoctoral Research Fellow, School of Forest Resources and Environmental Science, Michigan Technological University, MI, USA (Supervisor: Wagenbrenner J)
- 2014.03 – 2016.02 JSPS Postdoctoral Research Fellow for Overseas Researchers (Program of Pathway to University Positions in Japan), River Basin Research Center, Gifu University, Gifu, Japan (Supervisor: Muraoka H)
- 2012.04 – 2014.02 Research Associate, River Basin Research Center, Gifu University, Gifu, Japan
- 2011.03 – 2012.02 Lecturer/Research Professor, Institute of Environment and Ecology, Korea University, Korea
- 2010.09 – 2011.06 Lecturer, College of Natural Science, University of Seoul, Seoul, Korea

RESEARCH PROJECTS & GRANTS

- 2021 – present Development of the smart forest resource model. Korea Forest Service (PIs. Son Y, Kim C, Park GS, Lee KH, Noh NJ)
- 2021 – present Study on the effects of induced tree species on soil properties, NIFoS (PIs. Kim S, Koo N)
- 2020 – present Research on the effects of open field extreme climate event on growth performances of major conifer species seedlings. Korea Forest Service (PIs. Son Y, Cho MS)
- 2020 – present Development of forest management techniques to improve quality and productivity for major timber species. NIFoS (PI. Cho MS)
- 2020 – 2021 Development of advanced techniques to construct nursery operating system for high quality seedlings. NIFoS (PI. Cho MS)
- 2017 – 2021 Temperature sensitivity of soil respiration and its components in SE Australia. Australian Research Council – Discovery Program (PI. Pendall E)
- 2016 – 2020 Future of Black Ash Wetlands. USDA Forest Service/Great Lake Research Initiative (PIs. Kolka R, Wagenbrenner J, Pypker T, Storer A, Noh NJ, Liu F)
- 2015 – 2016 Impact assessment of global warming on biogeochemical plant-soil feedback mechanisms in forest ecosystems by in-situ artificial warming and ecosystem modelling. National Research Foundation of Korea (NRF), \$30,000 (PI. Noh NJ)

- 2014 – 2015 Open-field warming experiments on forest soil carbon and nitrogen dynamics to achieve accurate future projection. Japan Society for the Promotion of Science (JSPS), US\$123,000 for research and stipend (PI. Noh NJ)
- 2012 – 2013 Climate change impact assessment of forest ecosystem functions by satellite-ecophysiology-modelling integrated study. JSPS (PI. Muraoka H)
- 2010 – 2012 Determining the impact of global warming on carbon cycling in temperate forest ecosystem: a study using an open-field warming experiment. NRF (PI. Son Y)
- 2009 – 2011 Studies on method of intact root respiration rate and model for annual root respiration in a *Pinus densiflora* forest. NRF (PI. Son Y)
- 2007 – 2010 Quantifying and predicting terrestrial carbon sinks in East Asia: Toward a network of climate change research. NRF-NSFC-JSPS (Coordinator: Noh NJ/ PIs. Son Y, Fang J, Muraoka H)
- 2006 – 2009 Carbon cycling dynamics and modelling of *Pinus densiflora* stands with different stand densities in Korea. NRF (PI. Son Y)
- 2005 – 2012 Korea National Long-Term Ecological Research: coarse woody debris dynamics. Ministry of Environment

SELECTED PEER-REVIEWED PUBLICATIONS

2021

- Noh NJ, Crous KY, Salomón RL, Li J, Pendall E. 2021. Elevated CO₂ alters the temperature sensitivity of stem CO₂ efflux in a mature eucalypt woodland (in review)
- Renchon AA, Drake JE, Macdonald C, Sihi D, Hinko-Najera N, Tjoelker MG, Arndt SK, Noh NJ, Davidson E, Pendall E. 2021. Simultaneous measurements of soil and ecosystem respiration in a mature Eucalypt woodland: advantages, lessons, and questions. *JGR-Biogeoscience* [126\(3\):e2020JG006221](#)
- Sha L, Teramoto M, Noh NJ, Hashimoto S, Yang M, Sanwangsri M, Liang N. 2021. Soil carbon flux research in the Asian region: Review and future perspectives. *Journal of Agricultural Meteorology* [77\(1\):24-51](#)

2020

- Li J, Pei J, Pendall E, Reich PB, Noh NJ, Li B, Fang C, Nie M. 2020. Rising temperature may trigger deep soil carbon loss across forest ecosystems. *Advanced Science* [7\(19\):2001242](#)
- Noh NJ, Crous KY, Li J, Zineb C, Craig BVM, Stefan A, Reich PB, Tjoelker M, Pendall E. 2020. Does root respiration in Australian rainforest tree seedlings acclimate to experimental warming? *Tree Physiology* [40\(9\): 1192-1204](#)
- Jiang M, Medlyn BE, Drake J, Duursma RA, Anderson IC, ..., Noh NJ et al. The fate of carbon in a mature forest under carbon dioxide enrichment. *Nature* [580\(7802\):227-231](#)
- Li J, Nie M, Pendall E, Reich PB, Pei J, Noh NJ, Zhu T, Li B, Fang C. 2020. Biogeographic variation in temperature sensitivity of decomposition in forest soils. *Global Change Biology* [26\(3\):1873-1885](#)
- Noh NJ, Cho M. 2020. Early growth performance of *Zelkova serrata* trees according to seedling age and planting density. *Journal of Korean Society of Forest Science* [109\(4\):390-399](#)
- Noh NJ, Kwon B, Yang A, Cho M. 2020. Effect of planting density on early growth performances of *Zelkova serrata* trees. *Journal of Korean Society of Forest Science* [109\(3\):281-290](#)

2019

- Suzuki S, Ataka M, Djukic I, ..., Noh NJ et al. (2019) Harmonized data on early stage litter decomposition using tea material across Japan. *Ecological Research* 34(5):575-576
- Salomón RL, Steppe K, Crous KY, Noh NJ, Ellsworth DS (2019) Elevated CO₂ does not affect stem CO₂ efflux nor stem respiration in dry Eucalyptus woodland, but it shifts the vertical gradient in xylem [CO₂]. *Plant Cell & Environment* 42(7):2151-2164
- Noh NJ, Shannon JP, Bolton NW, Davis JC, Van Grinsven MJ, Pypker TG, Kolka RK, Wagenbrenner JW (2019) Temperature responses of carbon dioxide fluxes from coarse dead woods in a black ash wetland. *Wetland Ecology and Management* 27:157-170

2018

- Li J, Yan D, Pendall E, Pei J, Noh NJ, He JS, Li B, Nie M, Fang C (2018) Depth dependence of soil carbon temperature sensitivity across Tibetan permafrost regions. *Soil Biol. Biochem.* [126:82-90](#)

- Van Grinsven M, Shannon J, Bolton N, Davis J, Noh NJ, Wagenbrenner J, Kolka R, Pypker T (2018) Response of black ash wetland gaseous soil carbon fluxes to a simulated emerald ash borer infestation. *Forests* [9:324](#)
- Bolton N, Shannon J, Davis J, Van Grinsven M, Noh NJ, Schooler S, Kolka R, Pypker T, Wagenbrenner J (2018) Methods to Improve Survival and Growth of Planted Alternative Species Seedlings in Black Ash Ecosystems Threatened by Emerald Ash Borer. *Forests* [9:146](#)
- Shannon J, Van Grinsven M, Davis J, Bolton N, Noh NJ, Pypker T, Kolka K (2018) Water level controls on sap flux of canopy species in black ash wetlands. *Forests* [9:147](#)

2017

- Noh NJ, Kuribayashi M, Saitoh TM, Muraoka H (2017) Different responses of soil, heterotrophic, and autotrophic respirations to a 4-year soil warming experiment in a cool-temperate deciduous broadleaved forest in central Japan. *Agricultural and Forest Meteorology* [247:560-570](#)
- Noh NJ, Yoon TK, Kim RH, Bolton NW, Kim C, Son Y (2017) Carbon and nitrogen accumulation and decomposition from coarse woody debris in a naturally regenerated Korean red pine (*Pinus densiflora* S. et Z.) forest. *Forests* [8:214](#)
- Kurabayashi M, Noh NJ, Saitoh TM, Itoh A, Wakazuki Y, Tamagawa I, Muraoka H (2017) Current and future carbon budget at Takayama site, Japan, evaluated by a regional climate model and a process-based terrestrial ecosystem model. *International Journal of Biometeorology* [61:989-1001](#)

2007 – 2016

- Noh NJ, Lee SJ, Jo W, Yoon TK, Chung H, Son Y (2016) Effects of experimental warming on soil respiration and biomass in *Quercus variabilis* Blume and *Pinus densiflora* Sieb. et Zucc. Seedlings. *Annals of Forest Science*, [73:533-545](#)
- Noh NJ, Kuribayashi M, Saitoh TM, Nakaji T, Nakamura M, Hiura T, Muraoka H (2016) Responses of soil, heterotrophic and autotrophic respiration to open-field experimental soil warming in a cool-temperate deciduous forest. *Ecosystems* [19:504-520](#)
- Yoon TK, Noh NJ, Chung H, Yang AR, Son Y (2015) Soil nitrogen transformations and availability in upland pine and bottomland alder forests. *Forests* [6:2941-2958](#)
- Yoon TK, Noh NJ, Kim S, Han S, Son Y (2015) Coarse woody debris respiration of Japanese red pine forests in Korea: controlling factors and contribution to the ecosystem carbon cycle. *Ecological Research*, [30:723-734](#)
- Han S, Chung H, Noh NJ, Lee SJ, Jo W, Yoon TK, Yi K, Park C, Ko S, Son Y (2015) Effect of open-field experimental warming on leaf phenology of *Quercus variabilis* seedlings. *Journal of Plant Ecology*, [7:559-566](#)
- Yoon TK, Noh NJ, Han S, Kwak H, Lee WK, Son Y (2015) Soil properties and small-scale spatial variability of Korea swamp. *Landscape Ecology and Engineering*, [11:303-312](#)
- Yoon TK, Noh NJ, Han S, Lee J, Son Y (2014) Soil moisture effects on leaf litter decomposition and soil carbon dioxide efflux in wetland and upland forests. *Soil Science Society of America Journal*, [78:1804-1816](#)
- Yoon TK, Han S, Lee D, Han SH, Noh NJ, Son Y (2014) Effects of sample size and temperature on coarse woody debris respiration from *Quercus variabilis* logs. *Journal of Forest Research*, [19:249-259](#)
- Yoon TK, Zhao Y, Noh NJ, Han S, Kang H, Son Y (2014) Early fertilization and absorbent treatments continuously enhanced windbreak tree growth and soil properties in the Hetao Plain of Inner Mongolia, China. *Forest Science and Technology* [10:46-50](#)
- Noh NJ, Kim C, Bae SW, Lee WK, Yoon TK, Muraoka H, Son Y (2013) Carbon and nitrogen dynamics in a *Pinus densiflora* forest with low and high stand densities. *Journal of Plant Ecology* [6:368-379](#)
- Kuribayashi M, Noh NJ, Saitoh TM, Tamagawa I, Wakazuki Y, Muraoka H (2013) Comparison of snow water equivalent estimated in central Japan by high-resolution simulations using different land-surface models. *SOLA*, [9:148-152](#)
- Nagai S, Saitoh TM, Noh NJ, Yoon TK, Kobayashi H, Suzuki R, Nasahara KN, Son Y, Muraoka H (2013) Utility of information in photographs upwards from the floor of closed-canopy deciduous broadleaved and evergreen coniferous forests for continuous observation of canopy phenology. *Ecological Informatics* [18:10-19](#)
- Noh NJ, Chung H, Ryu SR, Son Y, Lee SK, Yoon TK, Yang AR, Kim J (2012) Changes in soil properties of *Abies holophylla* and *Quercus*-dominated stands 4 years after trenching. *Scandinavian Journal of Forest Research* [27:579-604](#)

- Noh NJ, Son Y, Jo W, Yi K, Park CW, Han S (2012) Preliminary study on estimating of fine root growth in a *Pinus densiflora* natural forest using a minirhizotron technique. *Forest Science and Technology* [8:47-50](#)
- Kim C, Son Y, Lee WK, Jeong J, Noh NJ, Kim SR, Yang AR (2012) Litter decomposition and nutrient dynamics following forest tending (Soopkakkugi) works in a *Pinus densiflora* stand. *Forest Science and Technology* [8:99-104](#)
- Park CW, Ko S, Yoon TK, Han S, Yi K, Jo W, Jin L, Lee SJ, Noh NJ, Chung H, Son Y (2012) Differences in soil aggregate, microbial biomass carbon concentration and, soil carbon between *Pinus rigida* and *Larix kaempferi* plantations in Yangpyeong, central Korea. *Forest Science and Technology* [8:38-46](#)
- Noh NJ, Son Y, Bae SW, Lee N, Son Y (2011) Preliminary study on measurement of intact root respiration of *Pinus densiflora* seedlings. *Forest Science and Technology* [7:87-90](#)
- Yoon TK, Chung H, Kim RH, Noh NJ, Seo KW, Lee SK, Jo W, Son Y (2011) Coarse woody debris mass dynamics in temperate natural forests of Mt. Jumbong, Korea. *Journal of Ecology and Field Biology* [34:115-125](#)
- Seo KW, Heo SJ, Son Y, Noh NJ, Lee SK, Yoon CG (2011) Soil moisture condition and soil nitrogen dynamics in a pure *Alnus japonica* forest in Korea. *Landscape Ecology and Engineering* [7: 93-99](#)
- Noh NJ, Son Y, Lee SK, Seo KW, Heo SJ, Yi MJ, Park PS, Kim RH, Son YM, Lee KH (2010) Carbon and nitrogen storage in an age-sequence of *Pinus densiflora* stands in Korea. *Science China Life Science* [53:822-830](#)
- Noh NJ, Son Y, Lee SK, Yoon TK, Seo KW, Lee WK, Bae SW, Hwang J (2010) Influence of stand density on soil CO₂ efflux for *Pinus densiflora* in central Korea. *Journal of Plant Research* [123:411-419](#)
- Lee N, Koo JW, Noh NJ, Kim J, Son Y (2010) Autotrophic and heterotrophic respirations in needle fir and *Quercus*-dominated stands in a cool-temperature forest, central Korea. *Journal of Plant Research* [123:485-495](#)
- Noh NJ, Son Y, Koo JW, Seo KW, Kim RH, Lee YY, Yoo KS (2010) Comparison of nitrogen fixation for north- and south- facing *Robinia pseudoacacia* stands in central Korea. *Journal of Plant Biology* [53:61-69](#)
- Noh NJ, Son Y, Lee SK, Jo W, Lee N, Bae SW, Kim HS (2010) Diurnal pattern of soil CO₂ efflux in a *Pinus densiflora* forest measured using an open-flow chamber system. *Forest Science and Technology* [6:41-45](#)
- Lee N, Koo JW, Noh NJ, Kim J, Son Y (2010) Seasonal variation in soil CO₂ efflux in evergreen coniferous and broad-leaved deciduous forests in a cool-temperate forest, central Korea. *Ecological Research* [25:609-617](#)
- Kim C, Son Y, Lee WK, Jeong J, Noh NJ (2009) Influences of forest tending works on carbon distribution and cycling in a *Pinus densiflora* S. et Z. stand in Korea. *Forest Ecology and Management* [257:1420-1426](#)
- Razak SA, Son Y, Lee WK, Cho Y, Noh NJ (2009) Afforestation and reforestation with the clean development mechanism: potentials, problems, and future directions. *Forest Science and Technology* [5:45-56](#)
- Lee AR, Noh NJ, Cho Y, Lee WK, Son Y (2009) Estimating the soil carbon stocks for a *Pinus densiflora* forest using the soil carbon model, Yasso. *Journal of Ecology and Field Biology* [32:47-53](#)
- Seo KW, Son Y, Rhoades CC, Noh NJ, Koo JW, Kim JG (2008) Seedling growth and heavy metal accumulation of candidate woody species for revegetating Korean mine spoils. *Restoration Ecology* [16:702-712](#)
- Noh NJ, Son Y, Kim RH, Seo KW, Koo JW, Park IH, Lee YJ, Lee KH, Son YM (2007) Biomass accumulations and the distribution of nitrogen and phosphorous within three *Quercus acutissima* stands in central Korea. *Journal of Plant Biology* [50:461-466](#)

PROFESSIONAL SERVICE AND ACTIVITIES

Membership (previous, current)	Ecological Society of America, American Geophysical Union, Soil Science Society of America, Society of American Forestry, Korea Forest Society, Ecological Society of Japan, Asiaflux, KNLTER, JaLTER
Journal Review	Forest Ecology and Management, Journal of Plant Research, Pedosphere, Agricultural and Forest Meteorology, Forest Science and Technology, Journal of Plant Ecology, Tree Physiology, Ecological Research, Science of the Total Environment, Land Degradation & Development, iForest, Forests, New Phytologist
Recent workshop Organization	Workshop on the Future of Ash Forests, 25-27 July, 2017, MN, USA (Lead-organizer) link , article

MILITARY SERVICE

2002.03 – 2004.06 Korea Army, Discharged 1st Lieutenant