

Daftar Pustaka

- Ajaz Ahmed, M. A., Abd-Elrahman, A., Escobedo, F. J., Cropper, W. P., Martin, T. A., & Timilsina, N. (2017). Spatially-explicit modeling of multi-scale drivers of aboveground forest biomass and water yield in watersheds of the Southeastern United States. *Journal of Environmental Management*, *199*, 158–171. <https://doi.org/10.1016/j.jenvman.2017.05.013>
- Allen, R. G., Pereira, L. S., Raes, D., & Smith, M. (1998). *Crop evapotranspiration. Guidelines for computing crop water requirements*. Food and Agriculture Organization of the United Nations.
- Anderson, J. R., Hardy, E. E., Roach, J. T., & Witmer, R. E. (1976). *A land use and land cover classification system for use with remote sensor data*. <https://doi.org/10.3133/pp964>
- Aşılıoğlu, F., & Çay, R. D. (2023). A dual spatial analysis method based on recreation opportunity spectrum and analytical hierarchy process for outdoor recreation site suitability. *Journal of Outdoor Recreation and Tourism*, *44*, 100703. <https://doi.org/10.1016/j.jort.2023.100703>
- Balai Taman Nasional Gunung Merbabu. (2020a). *Mandala Merbabu: Buku I Seri Ekologi Merbabu*.
- Balai Taman Nasional Gunung Merbabu. (2020b). *Rencana Strategi Taman Nasional Gunung Merbabu 2020-2024*.
- Balai Taman Nasional Gunung Merbabu. (2023). *Statistik Taman Nasional Gunung Merbabu 2023*.
- Balai Taman Nasional Gunung Merbabu. (2024). *Laporan Kinerja Balai Taman Nasional Gunung Merbabu 2024*.
- Batker, D., Swedeen, P., Costanza, R., Torre, I. de la, Boumans, R., & Bagstad, K. (2008). *A New View of the Puget Sound Economy: The Economic Value of Nature's Services in the Puget Sound Basin*.
- Belgiu, M., & Drăgu, L. (2016). Random forest in remote sensing: A review of applications and future directions. *ISPRS Journal of Photogrammetry and Remote Sensing*, *114*, 24–31. <https://doi.org/10.1016/J.ISPRSJPRS.2016.01.011>
- Berbés-Blázquez, M., González, J. A., & Pascual, U. (2016). Towards an ecosystem services approach that addresses social power relations. *Current Opinion in Environmental Sustainability*, *19*, 134–143. <https://doi.org/10.1016/j.cosust.2016.02.003>
- Bhagabati, N., Barano, T., Conte, M., Ennaanay, D., Hadian, O., McKenzie, E., Olwero, N., Rosenthal, A., Shapiro, A., Tallis, H., & Wolny, S. (2012). *A Green Vision for Sumatra: Using ecosystem services information to make recommendations for sustainable land use planning at the province and district level*. The Natural Capital Project, WWF-US, and WWF-Indonesia.
- Bhagabati, N. K., Ricketts, T., Sulistyawan, T. B. S., Conte, M., Ennaanay, D., Hadian, O., McKenzie, E., Olwero, N., Rosenthal, A., Tallis, H., & Wolny, S. (2014). Ecosystem services reinforce Sumatran tiger conservation in land use

- plans. *Biological Conservation*, 169, 147–156.
<https://doi.org/10.1016/j.biocon.2013.11.010>
- Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). *Ucinet for Windows: Software for Social Network Analysis* (MA: Analytic Technologies., Ed.).
- Boumans, R., Costanza, R., Farley, J., Wilson, M. A., Portela, R., Rotmans, J., Villa, F., & Grasso, M. (2002). Modeling the dynamics of the integrated earth system and the value of global ecosystem services using the GUMBO model. *Ecological Economics*, 41(3), 529–560. [https://doi.org/10.1016/S0921-8009\(02\)00098-8](https://doi.org/10.1016/S0921-8009(02)00098-8)
- Boumans, R., Roman, J., Altman, I., & Kaufman, L. (2015). The Multiscale Integrated Model of Ecosystem Services (MIMES): Simulating the interactions of coupled human and natural systems. *Ecosystem Services*, 12, 30–41. <https://doi.org/10.1016/J.ECOSER.2015.01.004>
- Budyko, M. I., & Miller, D. H. (1974). *Climate and Life*. Academic Press.
- Clark R.N., & Stankey G.H. (1979). *The recreation opportunity spectrum: a framework for planning, management, and research*. Pacific Northwest Forest & Range Experiment Station.U.S.D.A.Forest Service General Technical Report PNW.
- Costanza, R. (2008). Ecosystem services: Multiple classification systems are needed. *Biological Conservation*, 141(2), 350–352.
<https://doi.org/10.1016/j.biocon.2007.12.020>
- Costanza, R., d’Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O’Neill, R. V., Paruelo, J., Raskin, R. G., Sutton, P., & van den Belt, M. (1997). The value of the world’s ecosystem services and natural capital. *Nature*, 387(6630), 253–260.
<https://doi.org/10.1038/387253a0>
- Costanza, R., de Groot, R., Braat, L., Kubiszewski, I., Fioramonti, L., Sutton, P., Farber, S., & Grasso, M. (2017). Twenty years of ecosystem services: How far have we come and how far do we still need to go? *Ecosystem Services*, 28, 1–16. <https://doi.org/10.1016/J.ECOSER.2017.09.008>
- Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Farber, S., & Turner, R. K. (2014). Changes in the global value of ecosystem services. *Global Environmental Change*, 26, 152–158.
<https://doi.org/10.1016/j.gloenvcha.2014.04.002>
- Costanza, R., Pérez-Maqueo, O., Martinez, M. L., Sutton, P., Anderson, S. J., & Mulder, K. (2008). The Value of Coastal Wetlands for Hurricane Protection. *Ambio*, 37(4), 241–248.
- Crouse, T., & Lowe, P. A. (2018). Snowball Sampling. In *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*. SAGE Publications, Inc. <https://doi.org/10.4135/9781506326139.n636>
- Dashtbozorgi, F., Hedayatiaghmashhadi, A., Dashtbozorgi, A., Ruiz–Agudelo, C. A., Fürst, C., Cirella, G. T., & Naderi, M. (2023). Ecosystem services valuation using InVEST modeling: Case from southern Iranian mangrove forests. *Regional Studies in Marine Science*, 60, 102813.
<https://doi.org/10.1016/J.RSMA.2023.102813>

- De Groot, R., Brander, L., Van der Ploeg, S., Costanza, R., Bernard, F., Braat, L., Christie, M., Crossman, N., Ghermandi, A., Hein, L., Hussain, S., Kumar, P., McVittie, A., Portela, R., Rodriguez, L. C., Ten Brink, P., & Van Beukering, P. (2012). Global estimates of the value of ecosystems and their services in monetary units. *Ecosystem Services*, *1*(1), 50–61. <https://doi.org/10.1016/j.ecoser.2012.07.005>
- Dewi, K., Hardian, A. S., & Cahyono, S. A. (2024). Assessing the Economic Value of Water Environmental Services in Mount Merbabu National Park. *Jurnal Sylva Lestari*, *12*(2), 338–352. <https://doi.org/10.23960/jsl.v12i2.802>
- Di Febbraro, M., Sallustio, L., Vizzarri, M., De Rosa, D., De Lisio, L., Loy, A., Eichelberger, B. A., & Marchetti, M. (2018). Expert-based and correlative models to map habitat quality: Which gives better support to conservation planning? *Global Ecology and Conservation*, *16*, e00513. <https://doi.org/10.1016/J.GECCO.2018.E00513>
- Direktur Jenderal KSDAE. (2021). *Surat Keputusan Direktur Jenderal KSDAE Nomor SK.55/KSDAE/PIKA/KSA.0/3/2021 tentang Zonasi Taman Nasional Gunung Merbabu*.
- Dittrich, A., Seppelt, R., Václavík, T., & Cord, A. F. (2017). Integrating ecosystem service bundles and socio-environmental conditions – A national scale analysis from Germany. *Ecosystem Services*, *28*, 273–282. <https://doi.org/10.1016/J.ECOSER.2017.08.007>
- Driver, B. L., Brown, P. J., Stankey, G. H., & Gregoire, T. G. (1987). The ROS planning system: Evolution, basic concepts, and research needed. *Leisure Sciences*, *9*(3), 201–212. <https://doi.org/10.1080/01490408709512160>
- Droogers, P., & Allen, R. G. (2002). Estimating Reference Evapotranspiration Under Inaccurate Data Conditions. *Irrigation and Drainage Systems*, *16*(1), 33–45. <https://doi.org/10.1023/A:1015508322413>
- Du, C., Sun, F., Yu, J., Liu, X., & Chen, Y. (2016). New interpretation of the role of water balance in an extended Budyko hypothesis in arid regions. *Hydrology and Earth System Sciences*, *20*(1), 393–409. <https://doi.org/10.5194/hess-20-393-2016>
- European Environment Agency. (2019). *Reclassification of Corine Land Cover Categories into The Hemeroby Scale*.
- Fan, Y., & Ma, S. (2024). Integrating fuzzy analytic hierarchy process into ecosystem service-based spatial planning: A case study of the Shenyang metropolitan area, China. *Ecological Informatics*, *81*, 102625. <https://doi.org/10.1016/J.ECOINF.2024.102625>
- Fernandez-Campo, M., Rodríguez-Morales, B., Dramstad, W. E., Fjellstad, W., & Diaz-Varela, E. R. (2017). Ecosystem services mapping for detection of bundles, synergies and trade-offs: Examples from two Norwegian municipalities. *Ecosystem Services*, *28*, 283–297. <https://doi.org/10.1016/J.ECOSER.2017.08.005>
- Fischer, A., & Eastwood, A. (2016). Coproduction of ecosystem services as human–nature interactions—An analytical framework. *Land Use Policy*, *52*, 41–50. <https://doi.org/10.1016/j.landusepol.2015.12.004>

- Grosinger, J., Vallet, A., Palomo, I., Buclet, N., & Lavorel, S. (2021). Collective capabilities shape the co-production of nature's contributions to people in the alpine agricultural system of the Maurienne valley, France. *Regional Environmental Change*, 21(4), 117. <https://doi.org/10.1007/s10113-021-01840-9>
- Gunawan, H., Bismark, M., & Krisnawati, H. (2013). Kajian Sosial Ekonomi Masyarakat Sekitar sebagai Dasar Penetapan Tipe Penyangga Taman Nasional Gunung Merbabu, Jawa Tengah. *Jurnal Penelitian Hutan Dan Konservasi Alam*, 2013(2), 103–119. <https://doi.org/10.20886/jphka.2013.10.2.103-119>
- Hall, L. S., Krausman, P. R., & Morrison, M. L. (1997). The Habitat Concept and a Plea for Standard Terminology. *Wildlife Society Bulletin (1973-2006)*, 25(1), 173–182. <http://www.jstor.org/stable/3783301>
- Hamel, P., & Bryant, B. P. (2017). Uncertainty assessment in ecosystem services analyses: Seven challenges and practical responses. *Ecosystem Services*, 24, 1–15. <https://doi.org/10.1016/J.ECOSER.2016.12.008>
- Hamel, P., & Guswa, A. J. (2015). Uncertainty analysis of a spatially explicit annual water-balance model: case study of the Cape Fear basin, North Carolina. *Hydrology and Earth System Sciences*, 19(2), 839–853. <https://doi.org/10.5194/hess-19-839-2015>
- Handayani, K. P., & Latifiana, K. (2019). Distribusi Spasial Lutung Surili (*Presbytis comata*) di Taman Nasional Gunung Merbabu. *Prosiding Seminar Nasional Konservasi Dan Pemanfaatan Tumbuhan Dan Satwa Liar*, 118–125.
- Handziko, R. C., Prabowo, Y., Fathin, M. I., Falach, A. I., & Mahesa, R. (2021). Diversity of Diurnal Herpetofauna in Gunung Merbabu National Park. *Jurnal Penelitian Kehutanan Faloak*, 5(1), 1–15. <https://doi.org/10.20886/jpkf.2021.5.1.1-15>
- Hartanto, B. A., Hidayat, J. W., & Prasetyono, B. W. H. E. (2019). Strategi Konservasi Kolaboratif Antar Kelembagaan Dalam Mendukung Pelestarian Kawasan Taman Nasional Gunung Merbabu di Kabupaten Boyolali. *Proceeding Biology Education Conference*, 200–209.
- Hasan, M. A. (2024). Enhancing social cooperation through hiking tourism: A case study of the selo route in Mount Merbabu National Park. *Journal of Sustainability, Society, and Eco-Welfare*, 2(1), 24–35. <https://doi.org/10.61511/jssew.v2i1.2024.922>
- Hebda, R. J., & Brown, K. J. (2024). Climate, wildfire, and volcanic ash drivers of ecosystem change in high mountain forests, British Columbia, Canada. *Canadian Journal of Forest Research*, 54(10), 1085–1099. <https://doi.org/10.1139/CJFR-2023-0180>
- Hong, C., Burney, J. A., Pongratz, J., Nabel, J. E. M. S., Mueller, N. D., Jackson, R. B., & Davis, S. J. (2021). Global and regional drivers of land-use emissions in 1961–2017. *Nature*, 589(7843), 554–561. <https://doi.org/10.1038/s41586-020-03138-y>
- IPCC. (2006). *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (H. Eggleston, L. Buendia, K. Miwa, T. Ngara, & K. Tanabe, Eds.). Institute for Global Environmental Strategies (IGES).

- Ismaili Alaoui, H., Chemchaoui, A., El Asri, B., Ghazi, S., Brhadda, N., & Ziri, R. (2023). Modeling predictive changes of carbon storage using invest model in the Beht watershed (Morocco). *Modeling Earth Systems and Environment*, 9(4), 4313–4322. <https://doi.org/10.1007/s40808-023-01697-3>
- Jericó-Daminello, C., Schröter, B., Mancilla Garcia, M., & Albert, C. (2021). Exploring perceptions of stakeholder roles in ecosystem services coproduction. *Ecosystem Services*, 51, 101353. <https://doi.org/10.1016/j.ecoser.2021.101353>
- Joyce, K., & Sutton, S. (2009). A method for automatic generation of the Recreation Opportunity Spectrum in New Zealand. *Applied Geography*, 29(3), 409–418. <https://doi.org/10.1016/j.apgeog.2008.11.006>
- Kalinauskas, M., Shuhani, Y., Pinto, L. V., Inácio, M., & Pereira, P. (2024). Mapping ecosystem services in protected areas. A systematic review. *Science of The Total Environment*, 912, 169248. <https://doi.org/10.1016/J.SCITOTENV.2023.169248>
- Karyanto, P., Bagasta, A. R., Setiawan, A., & Cheyne, S. (2024). Distribution of the vulnerable Langur Javan fuscous leaf monkey (*Presbytis fredericae*, Sody 1930) in the central parts of Java Island. *AIP Conference Proceedings*, 080048. <https://doi.org/10.1063/5.0186512>
- Kementerian Kehutanan. (2004). *Keputusan Menteri Kehutanan Nomor SK.135/Menhut-II/2004 tentang Perubahan Fungsi Kawasan Hutan Lindung dan Taman Wisata Alam pada Kelompok Hutan Gunung Merbabu*.
- Kementerian Kehutanan. (2014a). *Keputusan Menteri Kehutanan Nomor SK.3623/Menhut-VII/KUH/2014 tentang Penetapan Kawasan Hutan Taman Nasional Gunung Merbabu (SK.3623/Menhut-VII/KUH/2014)*.
- Kementerian Kehutanan. (2014b). *Peraturan Menteri Kehutanan Republik Indonesia Nomor: P.85/Menhut-II/2014 tentang Tata Cara Kerjasama Penyelenggaraan Kawasan Suaka Alam dan Kawasan Pelestarian Alam*.
- Kementerian Kehutanan dan Lingkungan Hidup. (2015). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Republik Indonesia Nomor P.76/Menlhk-Setjen/2015 tentang Kriteria Zona Pengelolaan Taman Nasional dan Blok Pengelolaan Cagar Alam, Suaka Margasatwa, Taman Hutan Raya dan Taman Wisata Alam*.
- Kementerian Lingkungan Hidup dan Kehutanan. (2019a). *Peraturan Menteri Lingkungan Hidup Dan Kehutanan Nomor 8 Tahun 2019 tentang Pengusahaan Pariwisata Alam di Suaka Margasatwa, Taman Nasional, Taman Huta Raya, dan Taman Wisata Alam*.
- Kementerian Lingkungan Hidup dan Kehutanan. (2019b). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor 18 Tahun 2019 tentang Pemanfaatan Air dan Energi Air di Suaka Margasatwa, Taman Nasional, Taman Hutan Raya, dan Taman Wisata Alam*.
- Kementerian Lingkungan Hidup dan Kehutanan. (2021a). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor 3 Tahun 2021 tentang Standar Kegiatan Usaha pada Penyelenggaraan Perizinan Berusaha Berbasis Risiko Sektor Lingkungan Hidup dan Kehutanan*.

- Kementerian Lingkungan Hidup dan Kehutanan. (2021b). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor 5 Tahun 2021 tentang Tata Cara Penerbitan Persetujuan Teknis Dan Surat Kelayakan Operasional Bidang Pengendalian Pencemaran Lingkungan*.
- Kienast, F., Degenhardt, B., Weilenmann, B., Wäger, Y., & Buchecker, M. (2012). GIS-assisted mapping of landscape suitability for nearby recreation. *Landscape and Urban Planning*, *105*(4), 385–399. <https://doi.org/10.1016/J.LANDURBPLAN.2012.01.015>
- Kija, H. K., Ogutu, J. O., Mangewa, L. J., Bukombe, J., Verones, F., Graae, B. J., Kideghesho, J. R., Said, M. Y., & Nzunda, E. F. (2020). Spatio-Temporal Changes in Wildlife Habitat Quality in the Greater Serengeti Ecosystem. *Sustainability*, *12*(6), 2440. <https://doi.org/10.3390/su12062440>
- Klenk, N. L., & Wyatt, S. (2015). The design and management of multi-stakeholder research networks to maximize knowledge mobilization and innovation opportunities in the forest sector. *Forest Policy and Economics*, *61*, 77–86. <https://doi.org/10.1016/j.forpol.2015.06.008>
- Kusumanegara, A., Kartono, A. P., & Prasetyo, L. B. (2017). Habitat Preference of Surili Gunung Ciremai National Park. *Media Konservasi*, *22*(1), 26–34. <https://doi.org/10.29244/medkon.22.1.26-34>
- Kusumaningrum, L., & Izdihar, R. S. (2022). Potential Carbon Storage In The Forest Area Of Mount Merbabu National Park (MMbNP) Resort Selo Central Java. *IOP Conference Series: Earth and Environmental Science*, *1098*(1), 012055. <https://doi.org/10.1088/1755-1315/1098/1/012055>
- Landis, J. R., & Koch, G. G. (1977). An Application of Hierarchical Kappa-type Statistics in the Assessment of Majority Agreement among Multiple Observers. *Biometrics*, *33*(2), 363. <https://doi.org/10.2307/2529786>
- Latifiana, K., & Handayani, K. P. (2019). Prediksi Kesesuaian Habitat Surili Jawa (*Presbytis comata*) di Taman Nasional Gunung Merbabu. *Jurnal Primatologi Indonesia*, *16*(1), 16–23.
- Li, M., Liang, D., Xia, J., Song, J., Cheng, D., Wu, J., Cao, Y., Sun, H., & Li, Q. (2021). Evaluation of water conservation function of Danjiang River Basin in Qinling Mountains, China based on InVEST model. *Journal of Environmental Management*, *286*, 112212. <https://doi.org/10.1016/J.JENVMAN.2021.112212>
- Li, Y., He, Y., Liu, W., Jia, L., & Zhang, Y. (2023). Evaluation and Prediction of Water Yield Services in Shaanxi Province, China. *Forests*, *14*(2), 229. <https://doi.org/10.3390/f14020229>
- Liu, S., Costanza, R., Troy, A., D'Aagostino, J., & Mates, W. (2010). Valuing New Jersey's Ecosystem Services and Natural Capital: A Spatially Explicit Benefit Transfer Approach. *Environmental Management*, *45*(6), 1271–1285. <https://doi.org/10.1007/s00267-010-9483-5>
- Liu, S., & Stern, D. I. (2008). A Meta-Analysis of Contingent Valuation Studies in Coastal and Near-Shore Marine Ecosystems. *Munich Personal RePEc Archive*, *11720*.
- Liu, W., Yang, L., Zhu, M., Adamowski, J. F., Barzegar, R., Wen, X., & Yin, Z. (2021). Effect of Elevation on Variation in Reference Evapotranspiration

- under Climate Change in Northwest China. *Sustainability*, 13(18), 10151. <https://doi.org/10.3390/su131810151>
- Liu, Y., Mei, X., Yue, L., & Zhang, M. (2025). Response of carbon storage to land use change and multi-scenario predictions in Zunyi, China. *Scientific Reports*, 15(1), 236. <https://doi.org/10.1038/s41598-024-81444-5>
- Malinga, R., Gordon, L. J., Jewitt, G., & Lindborg, R. (2015). Mapping ecosystem services across scales and continents – A review. *Ecosystem Services*, 13, 57–63. <https://doi.org/10.1016/J.ECOSER.2015.01.006>
- Marlianingrum, P. R., Kusumastanto, T., Adrianto, L., & Fahrudin, A. (2021). Valuing habitat quality for managing mangrove ecosystem services in coastal Tangerang District, Indonesia. *Marine Policy*, 133, 104747. <https://doi.org/10.1016/J.MARPOL.2021.104747>
- Martínez-Harms, M. J., & Balvanera, P. (2012). Methods for mapping ecosystem service supply: a review. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 8(1–2), 17–25. <https://doi.org/10.1080/21513732.2012.663792>
- Martín-López, B., Iniesta-Arandia, I., García-Llorente, M., Palomo, I., Casado-Arzuaga, I., Del Amo, D. G., Gómez-Baggethun, E., Oteros-Rozas, E., Palacios-Agundez, I., Willaarts, B., González, J. A., Santos-Martín, F., Onaindia, M., López-Santiago, C., & Montes, C. (2012). Uncovering ecosystem service bundles through social preferences. *PLoS ONE*, 7(6), 1–11. <https://doi.org/10.1371/journal.pone.0038970>
- Meacham, M., Queiroz, C., Norström, A. V., & Peterson, G. D. (2016). Social-ecological drivers of multiple ecosystem services: What variables explain patterns of ecosystem services across the Norrström drainage basin? *Ecology and Society*, 21(1), art14. <https://doi.org/10.5751/ES-08077-210114>
- Millennium Ecosystem Assessment. (2005). *Ecosystems and human well-being: wetlands and water*. World Resources Institute.
- Moreira, M., Fonseca, C., Vergílio, M., Calado, H., & Gil, A. (2018). Spatial assessment of habitat conservation status in a Macaronesian island based on the InVEST model: a case study of Pico Island (Azores, Portugal). *Land Use Policy*, 78, 637–649. <https://doi.org/10.1016/J.LANDUSEPOL.2018.07.015>
- Nabatchi, T., Sancino, A., & Sicilia, M. (2017). Varieties of Participation in Public Services: The Who, When, and What of Coproduction. *Public Administration Review*, 77(5), 766–776. <https://doi.org/10.1111/puar.12765>
- Natural Capital Project. (2025). *InVEST 3.17.0*. Stanford University, University of Minnesota, Chinese Academy of Sciences, The Nature Conservancy, World Wildlife Fund, Stockholm Resilience Centre and the Royal Swedish Academy of Sciences.
- Ndayizeye, G., Imani, G., Nkengurutse, J., Irapagarikiye, R., Ndiokubwayo, N., Niyongabo, F., & Cuni-Sanchez, A. (2020). Ecosystem services from mountain forests: Local communities' views in Kibira National Park, Burundi. *Ecosystem Services*, 45, 101171. <https://doi.org/10.1016/J.ECOSER.2020.101171>
- Nelson, E., Mendoza, G., Regetz, J., Polasky, S., Tallis, H., Cameron, Dr., Chan, K. M., Daily, G. C., Goldstein, J., Kareiva, P. M., Lonsdorf, E., Naidoo, R.,

- Ricketts, T. H., & Shaw, Mr. (2009). Modeling multiple ecosystem services, biodiversity conservation, commodity production, and tradeoffs at landscape scales. *Frontiers in Ecology and the Environment*, 7(1), 4–11. <https://doi.org/10.1890/080023>
- Nie, C., Yang, J., & Huang, C. (2016). Assessing the Habitat Quality of Aquatic Environments in Urban Beijing. *Procedia Environmental Sciences*, 36, 162–168. <https://doi.org/10.1016/J.PROENV.2016.09.027>
- Ningrum, A., Setiawan, Y., & Tarigan, S. D. (2022). Annual Water Yield Analysis with InVEST Model in Tesso Nilo National Park, Riau Province. *IOP Conference Series: Earth and Environmental Science*, 950(1), 012098. <https://doi.org/10.1088/1755-1315/950/1/012098>
- Nugroho, A. (2022). Pemodelan spasial untuk tingkat kesesuaian habitat Surili Jawa (Presbytis comate fredericae Sody, 1930) di Taman Nasional Gunung Merbabu (TNGMb). *Geomedia Majalah Ilmiah Dan Informasi Kegeografian*, 20(2), 68–84. <https://doi.org/10.21831/gm.v20i2.51818>
- Ode, Å., Fry, G., Tveit, M. S., Messager, P., & Miller, D. (2009). Indicators of perceived naturalness as drivers of landscape preference. *Journal of Environmental Management*, 90(1), 375–383. <https://doi.org/10.1016/J.JENVMAN.2007.10.013>
- Opdam, P., Albert, C., Fürst, C., Grêt-Regamey, A., Kleemann, J., Parker, D., La Rosa, D., Schmidt, K., Villamor, G. B., & Walz, A. (2015). Ecosystem services for connecting actors – lessons from a symposium. *Change and Adaptation in Socio-Ecological Systems*, 2(1). <https://doi.org/10.1515/cass-2015-0001>
- Ostrom, E. (1996). Crossing the great divide: Coproduction, synergy, and development. *World Development*, 24(6), 1073–1087. [https://doi.org/10.1016/0305-750X\(96\)00023-X](https://doi.org/10.1016/0305-750X(96)00023-X)
- Paracchini, M. L., Zulian, G., Kopperoinen, L., Maes, J., Schägner, J. P., Termansen, M., Zandersen, M., Perez-Soba, M., Scholefield, P. A., & Bidoglio, G. (2014). Mapping cultural ecosystem services: A framework to assess the potential for outdoor recreation across the EU. *Ecological Indicators*, 45, 371–385. <https://doi.org/10.1016/j.ecolind.2014.04.018>
- Pemerintah Indonesia. (1990). *Undang-undang No. 5 Tahun 1990 tentang Konservasi Sumber Daya Alam Hayati dan Ekosistemnya*.
- Peng, J., Hu, X., Wang, X., Meersmans, J., Liu, Y., & Qiu, S. (2019). Simulating the impact of Grain-for-Green Programme on ecosystem services trade-offs in Northwestern Yunnan, China. *Ecosystem Services*, 39, 100998. <https://doi.org/10.1016/J.ECOSER.2019.100998>
- Primmer, E., & Furman, E. (2024). How have measuring, mapping and valuation enhanced governance of ecosystem services? *Ecosystem Services*, 67, 101612. <https://doi.org/10.1016/J.ECOSER.2024.101612>
- Redhead, J. W., Stratford, C., Sharps, K., Jones, L., Ziv, G., Clarke, D., Oliver, T. H., & Bullock, J. M. (2016). Empirical validation of the InVEST water yield ecosystem service model at a national scale. *Science of The Total Environment*, 569–570, 1418–1426. <https://doi.org/10.1016/j.scitotenv.2016.06.227>

- Rohayaton, E., Rahayu, L., & Purwanto, R. H. (2012). *Penaksiran Kandungan Karbon Tersimpan di Atas Permukaan Tanah di Kawasan Taman Nasional Gunung Merbabu* [Skripsi]. Universitas Gadjah Mada.
- Rova, S., & Pranovi, F. (2017). Analysis and management of multiple ecosystem services within a social-ecological context. *Ecological Indicators*, 72, 436–443. <https://doi.org/10.1016/j.ecolind.2016.07.050>
- Sattler, C., Loft, L., Mann, C., & Meyer, C. (2018). Methods in ecosystem services governance analysis: An introduction. *Ecosystem Services*, 34, 155–168. <https://doi.org/10.1016/j.ecoser.2018.11.007>
- Schmidt, S., Manceur, A. M., & Seppelt, R. (2016). Uncertainty of Monetary Valued Ecosystem Services – Value Transfer Functions for Global Mapping. *PLOS ONE*, 11(3), e0148524. <https://doi.org/10.1371/journal.pone.0148524>
- Scott, J. (1988). Social Network Analysis. *Sociology*, 22(1), 109–127. <https://doi.org/10.1177/0038038588022001007>
- Scott, J. (2012). *What is Social Network Analysis?* Bloomsbury Academic. <https://doi.org/10.5040/9781849668187>
- Seixas, C. S., & Berkes, F. (2009). Community-based enterprises: The significance of partnerships and institutional linkages. *International Journal of the Commons*, 4(1), 183. <https://doi.org/10.18352/ijc.133>
- Sharma, R., Nehren, U., Rahman, S. A., Meyer, M., Rimal, B., Aria Seta, G., & Baral, H. (2018). Modeling Land Use and Land Cover Changes and Their Effects on Biodiversity in Central Kalimantan, Indonesia. *Land*, 7(2), 57. <https://doi.org/10.3390/land7020057>
- Standar Nasional Indonesia. (2014). *SNI 7645-1:2014 tentang Klasifikasi Penutup Lahan - Bagian 1: Skala kecil dan menengah*.
- Sulton, M. N., Putri, nur R. A., Nugraheni, R. S., Afifah, R. N., Fadilah, R. N., Indrawan, M., Kusumaningrum, L., Sunarto, Sutarno, Sugiyarto, Pradhan, P., & Setyawan, A. D. (2023). Estimating carbon storage using remote sensing in the Selo Resort forest area of Mount Merbabu National Park, Central Java, Indonesia. *Biodiversitas Journal of Biological Diversity*, 24(11). <https://doi.org/10.13057/biodiv/d241149>
- Sun, G., Alstad, K., Chen, J., Chen, S., Ford, C. R., Lin, G., Liu, C., Lu, N., McNulty, S. G., Miao, H., Noormets, A., Vose, J. M., Wilske, B., Zeppel, M., Zhang, Y., & Zhang, Z. (2011). A general predictive model for estimating monthly ecosystem evapotranspiration. *Ecohydrology*, 4(2), 245–255. <https://doi.org/10.1002/eco.194>
- Supartono, T., & Kosasih, D. (2022). Identifikasi Penyebab Ketidakhadiran Surili (*Presbytis comata*) pada Sebuah Ekosistem Kebun Campuran di Kabupaten Kuningan, Jawa Barat. *Jurnal Penelitian Hutan Dan Konservasi Alam*, 19(1), 69–83. <https://doi.org/10.20886/jphka.2022.19.1.69-83>
- Suyana, J., Krismonanto, W., Muliawati, E. S., Widijanto, H., & Hartati, S. (2022). The Characteristics of Soil Organic Carbon (SOC) at Forest Stands of Mount Merbabu National Park and Upland Farming. *IOP Conference Series: Earth and Environmental Science*, 1114(1), 012052. <https://doi.org/10.1088/1755-1315/1114/1/012052>

- Talakua, J. G., Wahyudiono, S., & Hadi, D. S. (2023). Inventarisasi Jenis Penyusun Tumbuhan di Taman Nasional Gunung Merbabu pada Jalur Pendakian Via Selo. *AGROFORETECH*, 1(3), 2145–2152.
- TEEB. (2010). *Mainstreaming The Economics Of Nature: A Synthesis of the Approach, Conclusions, and Recommendations of TEEB*. Earthscan.
- Tongco, Ma. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research and Applications*, 5, 147. <https://doi.org/10.17348/era.5.0.147-158>
- Troy, A., & Wilson, M. A. (2006). Mapping ecosystem services: Practical challenges and opportunities in linking GIS and value transfer. *Ecological Economics*, 60(2), 435–449. <https://doi.org/10.1016/J.ECOLECON.2006.04.007>
- Vardon, M., May, S., Keith, H., Burnett, P., & Lindenmayer, D. (2019). Accounting for ecosystem services – Lessons from Australia for its application and use in Oceania to achieve sustainable development. *Ecosystem Services*, 39, 100986. <https://doi.org/10.1016/J.ECOSER.2019.100986>
- Walz, U., & Stein, C. (2014). Indicators of hemeroby for the monitoring of landscapes in Germany. *Journal for Nature Conservation*, 22(3), 279–289. <https://doi.org/10.1016/J.JNC.2014.01.007>
- Weiskopf, S. R., Rubenstein, M. A., Crozier, L. G., Gaichas, S., Griffis, R., Halofsky, J. E., Hyde, K. J. W., Morelli, T. L., Morisette, J. T., Muñoz, R. C., Pershing, A. J., Peterson, D. L., Poudel, R., Staudinger, M. D., Sutton-Grier, A. E., Thompson, L., Vose, J., Weltzin, J. F., & Whyte, K. P. (2020). Climate change effects on biodiversity, ecosystems, ecosystem services, and natural resource management in the United States. *Science of The Total Environment*, 733, 137782. <https://doi.org/10.1016/J.SCITOTENV.2020.137782>
- Widyaningsih, T. S., Darwin, M. M., Pangaribowo, E. H., & Maryudi, A. (2022). Harnessing social innovations and mobilizing networks for improving local livelihoods: cases of two community-managed forests from Indonesia. *Forests, Trees and Livelihoods*, 31(1), 27–44. <https://doi.org/10.1080/14728028.2021.2018668>
- Woodhead, A. J., Kenter, J. O., Thomas, C. D., & Stringer, L. C. (2025). How ecosystem services are co-produced: a critical review identifying multiple research framings. *Ecosystem Services*, 71, 101694. <https://doi.org/10.1016/j.ecoser.2024.101694>
- Wu, S., Guo, Z., Askar, A., Li, X., Hu, Y., Li, H., & Saria, A. E. (2024). Dynamic land cover and ecosystem service changes in global coastal deltas under future climate scenarios. *Ocean & Coastal Management*, 258, 107384. <https://doi.org/10.1016/J.OCECOAMAN.2024.107384>
- Xie Gao-di, Zhen Lin, Lu Chun-xia, Xiao Yu, & Chen Cao. (2008). Expert Knowledge Based Valuation Method of Ecosystem Services in China. *Journal of Natural Resources*, 23(5).
- Yang, S., Li, L., Zhu, R., Luo, C., Lu, X., Sun, M., & Xu, B. (2024). Assessing land-use changes and carbon storage: a case study of the Jialing River Basin, China. *Scientific Reports*, 14(1), 15984. <https://doi.org/10.1038/s41598-024-66742-2>

- Yin, L., Zheng, W., Shi, H., & Ding, D. (2022). Ecosystem services assessment and sensitivity analysis based on ANN model and spatial data: A case study in Miaodao Archipelago. *Ecological Indicators*, *135*, 108511. <https://doi.org/10.1016/J.ECOLIND.2021.108511>
- Zhang, H., & Smith, J. W. (2023). A data-driven and generalizable model for classifying outdoor recreation opportunities at multiple spatial extents. *Landscape and Urban Planning*, *240*, 104876. <https://doi.org/10.1016/j.landurbplan.2023.104876>
- Zhang, L., Hickel, K., Dawes, W. R., Chiew, F. H. S., Western, A. W., & Briggs, P. R. (2004). A rational function approach for estimating mean annual evapotranspiration. *Water Resources Research*, *40*(2). <https://doi.org/10.1029/2003WR002710>