

Appendix S1 List of the 176 publications considered in literature review

Authors	Year	Name of article	Publication	Citation Number
Bai, Y., Zhuang, C.W., Ouyang, Z.Y., Zheng, H. and Jiang, B.	2011	Spatial characteristics between biodiversity and ecosystem services in a human-dominated watershed	Ecological Complexity	64
Bakker, M.R., Brunner, I., Ashwood, F., Bjarnadottir, B., Bolger, T., Børja, I., et al.	2019	Belowground Biodiversity Relates Positively to Ecosystem Services of European Forests	Frontiers in Forests and Global Change	79
Bennett, E.M., Peterson, G.D. and Gordon, L.J.	2009	Understanding relationships among multiple ecosystem services	Ecology Letters	66
Li, J., Zhou, Z. X.	2016	Natural and human impacts on ecosystem services in Guanzhong - Tianshui economic region of China	Environmental Science and Pollution Research	
Chen, X.C., Chen, Y.Q., Shimizu, T., Niu, J., Nakagami, K.i., Qian, X.P., et al.	2017	Water resources management in the urban agglomeration of the Lake Biwa region, Japan: An ecosystem services-based sustainability assessment	Science of The Total Environment	101
Conti, G. and Díaz, S.	2013	Plant functional diversity and carbon storage – an empirical test in semi-arid forest ecosystems	Journal of Ecology	81
Cord, A.F., Bartkowski, B., Beckmann, M., Dittrich, A., Hermans-Neumann, K., Kaim, A., et al.	2017	Towards systematic analyses of ecosystem service trade-offs and synergies: Main concepts, methods and the road ahead	Ecosystem Services	73
Dai, E.F., Wang, X.L., Zhu, J.J. and Xi, W.M.	2017	Quantifying ecosystem service trade-offs for plantation forest management to benefit provisioning and regulating services	Ecology and Evolution	59
Davies, K.K., Fisher, K.T., Dickson, M.E., Thrush, S.F. and Le Heron, R.	2015	Improving ecosystem service frameworks to address wicked problems	Ecology and Society	113
DeLoyde, C.N.M. and Mabee, W.E.	2023	Ecosystem service values as an ecological indicator for land management decisions: A case study in southern Ontario, Canada	Ecological Indicators	13
Dong, X.B. and Liu, M.X.	2022	Relationships among LUCC, ecosystem services and human well-being	Journal of Beijing Normal University (Natural Science)	97
Eisenhauer, N., Hines, J., Isbell, F., van der Plas, F., Hobbie, S.E., Kazanski, C.E., et al.	2018	Plant diversity maintains multiple soil functions in future environments	eLife	83
Farley, J.	2012	Ecosystem services: The economics debate	Ecosystem Services	118
Feng, Q., Zhao, W.W., Fu, B.J., Ding, J.Y. and Wang, S.	2017	Ecosystem service trade-offs and their influencing factors: A case study in the Loess Plateau of China	Science of The Total Environment	74
Fu, Q., Li, B., Yang, L. L., Wu, Z. L., Zhang, X. S.	2015	Ecosystem Services Evaluation and Its Spatial Characteristics in Central Asia's Arid Regions: A Case Study in Altay Prefecture, China	Sustainability	
Fisher, B. and Kerry Turner, R.	2008	Ecosystem services: Classification for valuation	Biological Conservation	5
Fu, B.J. and Yu, D.D.	2016	Trade-off analyses and synthetic integrated method of multiple ecosystem services	Resources Science	70
Harrison, P.A., Berry, P.M., Simpson, G., Haslett, J.R., Blicharska, M., Bucur, M., et al.	2014	Linkages between biodiversity attributes and ecosystem services: A systematic review	Ecosystem Services	114
He, C.Y., Zhang, D., Huang, Q.X. and Zhao, Y.Y.	2016	Assessing the potential impacts of urban expansion on regional carbon storage by linking the LUSD-urban and InVEST models	Environmental Modelling & Software	
He, Z.J., Cheng, J.H., Liu, Y.J. and Zhang, Y.J.	2023	Impacts of land use and climate change on ecosystem regulating services in the Qinghai-Xizang (Tibet) Plateau from 1990 to 2020	Journal of Glaciology and Geocryology	93

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Authors	Year	Name of article	Publication	Citation Number
He, Z.Q., Shang, X., Zhang, T.H. and Yun, J.Y.	2022	Coupled regulatory mechanisms and synergy/trade-off strategies of human activity and climate change on ecosystem service value in the loess hilly fragile region of northern Shaanxi, China	Ecological Indicators	126
Wei, C. W., Zeng, J. Q., Wang, J. P., Jiang, X. B., You, Y. F., Wang, L. Y.	2023	Assessing the Impact of Climate and Human Activities on Ecosystem Services in the Loess Plateau Ecological Screen, China	Remote Sensing	
Hou, Y.Z., Zhao, W.W., Liu, Y.X., Yang, S.Q., Hu, X.P. and Cherubini, F.	2021	Relationships of multiple landscape services and their influencing factors on the Qinghai–Tibet Plateau	Landscape Ecology	123
Huang, Y.T. and Wu, J.Y.	2023	Spatial and temporal driving mechanisms of ecosystem service trade-off/synergy in national key urban agglomerations: A case study of the Yangtze River Delta urban agglomeration in China	Ecological Indicators,	63
Ji, J., Chen, J.F., Ding, T.H. and Li, Y.H.	2024	Coupling coordination betweenurban flood resilience and ecosystem services in the Yangtze River Delta urban agglomerations	Acta Ecologica Sinica (in Chinese)	49
Wang, F., Yuan, X. Z., Zhang, D.	2021	Detecting the Complex Relationships and Driving Mechanisms of Key Ecosystem Services in the Central Urban Area Chongqing Municipality, China	Remote Sensing	
Kroll, F., Müller, F., Haase, D. and Fohrer, N.	2012	Rural–urban gradient analysis of ecosystem services supply and demand dynamics	Land Use Policy	98
Kumar, P.E.	2010	The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundation	Blackwell Publishing Asia	122
Kusi, K.K., Khattabi, A. and Mhammdi, N.	2023	Analyzing the impact of land use change on ecosystem service value in the main watersheds of Morocco	Environment, Development and Sustainability	90
Laforest-Lapointe, I., Paquette, A., Messier, C. and Kembel, S.W.	2017	Leaf bacterial diversity mediates plant diversity and ecosystem function relationships	Nature	82
Lester, S.E., Costello, C., Halpern, B.S., Gaines, S.D., White, C. and Barth, J.A.	2013	Evaluating tradeoffs among ecosystem services to inform marine spatial planning	Marine Policy	58
Li, S.C., Zhang, C.Y., Liu, J.L., Zhu, W.B., Ma, C. and Wang, Y.	2013	The tradeoffs and synergies of ecosystem services: Research progress, development trend, and themes of geography	Geographical Research	
Liu, Y.B., Huang, N., Liu, C.H., Li, S.S. and Giannetti, B.F.	2024	Spatio-temporal evolution and driving factors of regulating ecosystem service value: a case study of Poyang Lake Area, China	Frontiers in Ecology and Evolution	124
Locher-Krause, K.E., Lautenbach, S. and Volk, M.	2017	Spatio-temporal change of ecosystem services as a key to understand natural resource utilization in Southern Chile	Regional Environmental Change	102
Martínez-Harms, M.J. and Balvanera, P.	2012	Methods for mapping ecosystem service supply: a review	International Journal of Biodiversity Science, Ecosystem Services & Management	37
McInnes, R.J. and Everard, M.	2017	Rapid Assessment of Wetland Ecosystem Services (RAWES): An example from Colombo, Sri Lanka	Ecosystem Services	52
Mengist, W., Soromessa, T. and Legese, G.	2020	Ecosystem services research in mountainous regions: A systematic literature review on current knowledge and research gaps	Science of The Total Environment	34
Morán-Ordóñez, A., Ramsauer, J., Coll, L., Brotons, L. and Ameztegui, A.	2021	Ecosystem services provision by Mediterranean forests will be compromised above 2°C warming	Global Change Biology	89
Onaíndia, M., Fernández de Manuel, B., Madariaga, I. and Rodríguez-Loinaz, G.	2013	Co-benefits and trade-offs between biodiversity, carbon storage and water flow regulation	Forest Ecology and Management	65

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Authors	Year	Name of article	Publication	Citation Number
Pan, Q., Wen, Z., Wu, T., Zheng, T.C., Yang, Y.Z., Li, R.N. and Zheng, H.	2022	Trade-offs and synergies of forest ecosystem services from the perspective of plant functional traits: A systematic review	Ecosystem Services	62
Peh, K.S.H., Balmford, A., Bradbury, R.B., Brown, C., Butchart, S.H.M., Hughes, F.M.R., et al.	2013	A toolkit for rapid assessment of ecosystem services at sites of biodiversity conservation importance	Ecosystem Services	44
Qi, W.H., Li, H.R., Zhang, Q.F. and Zhang, K.R.	2019	Forest restoration efforts drive changes in land-use/land-cover and water-related ecosystem services in China's Han River basin	Ecological Engineering	51
Qiu, J.J., Liu, Y.H., Chen, C.J. and Huang, Q.Y.	2023	Spatial structure and driving pathways of the coupling between ecosystem services and human well-beings: A case study of Guangzhou	Journal of Natural Resources	96
Qiu, M.L., Van de Voorde, T., Li, T., Yuan, C.C. and Yin, G.Y.	2021	Spatiotemporal variation of agroecosystem service trade-offs and its driving factors across different climate zones	Ecological Indicators	125
Quijas, S., Romero-Duque, L.P., Trilleras, J.M., Conti, G., Kolb, M., Brignone, E., et al.	2019	Linking biodiversity, ecosystem services, and beneficiaries of tropical dry forests of Latin America: Review and new perspectives	Ecosystem Services	11
Raudsepp-Hearne, C., Peterson, G.D., Tengö, M., Bennett, E.M., Holland, T., Benessaiah, K., et al.	2010	Untangling the Environmentalist's Paradox: Why Is Human Well-being Increasing as Ecosystem Services Degrade?	BioScience	95
Ren, Q.R., Liu, D.D. and Liu, Y.F.	2023	Spatio-temporal variation of ecosystem services and the response to urbanization: Evidence based on Shandong province of China	Ecological Indicators	
Rodríguez, J.P., Beard, T.D., Bennett, E.M., Cumming, G.S., Cork, S.J., Agard, J., et al.	2006	Trade-offs across Space, Time, and Ecosystem Services	Ecology and Society	54
Runting, R.K., Bryan, B.A., Dee, L.E., Maseyk, F.J.F., Mandle, L., Hamel, P., et al.	2017	Incorporating climate change into ecosystem service assessments and decisions: a review	Global Change Biology	6
Schägnier, J.P., Brander, L., Maes, J. and Hartje, V.	2013	Mapping ecosystem services' values: Current practice and future prospects	Ecosystem Services	55
Seidl, R., Albrich, K., Erb, K., Formayer, H., Leidinger, D., Leitinger, G., et al.	2019	What drives the future supply of regulating ecosystem services in a mountain forest landscape?	Forest Ecology and Management	87
Shi, Y., Wang, R.S., Huang, J.L. and Yang, W.R.	2012	An analysis of the spatial and temporal changes in Chinese terrestrial ecosystem service functions	Chinese Science Bulletin	38
Song, W. and Deng, X.Z.	2017	Land-use/land-cover change and ecosystem service provision in China	Science of The Total Environment	91
Fedele, G., Locatelli, B., Djoudi, H.	2017	Mechanisms mediating the contribution of ecosystem services to human well-being and resilience	Ecosystem services	
Poissonnet, M., Brudo, V., and Dosso, M.	2006	The protected forest of Kakamega (Western Kenya) between two immediate futures: Announced destruction or concerted management?	Cahiers Agricultures	
Tian, Y.C., Wang, S.J., Bai, X.Y., Luo, G.J. and Xu, Y.	2016	Trade-offs among ecosystem services in a typical Karst watershed, SW China	Science of The Total Environment	60
Watanabe, M.D.B. and Ortega, E.	2011	Ecosystem services and biogeochemical cycles on a global scale: valuation of water, carbon and nitrogen processes	Environmental Science & Policy	7
Wei, F.L., Wang, S., Fu, B.J. and Liu, Y.X.	2020	Representation of biodiversity and ecosystem services in East Africa's protected area network	Ambio	103

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Wood, E.M. and Pidgeon, A.M.	2015	Extreme variations in spring temperature affect ecosystem regulating services provided by birds during migration	Ecosphere	88
Xie, G.D., Zhang, C.X., Zhang, L.M., Chen, W.H. and Li, S.M.	2015	Improvement of the Evaluation Method for Ecosystem Service Value Based on Per Unit Area	Journal of Natural Resources (in Chinese)	39
Xu, X.B., Yang, G.S., Tan, Y., Liu, J.P. and Hu, H.Z.	2018	Ecosystem services trade-offs and determinants in China's Yangtze River Economic Belt from 2000 to 2015	Science of The Total Environment	85
Yang, X.N., Zhou, Z.X., Li, J., Fu, X., Mu, X.M. and Li, T.	2016	Trade-offs between carbon sequestration, soil retention and water yield in the Guanzhong-Tianshui Economic Region of China	Journal of Geographical Sciences	61
Yin, C.C., Zhao, W.W. and Pereira, P.	2022	Soil conservation service underpins sustainable development goals	Global Ecology and Conservation	104
Yin, F., Mao, R.Z., Fu, B.J. and Liu, G.H.	2006	Farmland ecosystem service and its formation mechanism	Chinese Journal of Applied Ecology (in Chinese)	72
Yu, Z.Y., Deng, X.Z. and Cheshmehzangi, A.	2022	The Grain for Green Program Enhanced Synergies between Ecosystem Regulating Services in Loess Plateau, China	Remote Sensing	67
Yuan, Z.Y.Y. and Wan, R.R.	2019	A review on the methods of ecosystem service assessment	Ecological Science (in Chinese)	40
Zhai, R. and Tao, F.L.	2017	Contributions of climate change and human activities to runoff change in seven typical catchments across China	Science of The Total Environment	92
Zhang, B., Shi, Y.T. and Wang, S.	2022	A Review on the Driving Mechanisms of Ecosystem Services Change	Journal of Resources and Ecology	116
Zhang, C., Li, J. and Zhou, Z.X.	2022	Ecosystem service cascade: Concept, review, application and prospect	Ecological Indicators	71
Zhang, H.Y., Fan, J.W., Cao, W., Zhong, H.P., Harris, W., Gong, G.L., et al.	2018	Changes in multiple ecosystem services between 2000 and 2013 and their driving factors in the Grazing Withdrawal Program, China	Ecological Engineering	48
Zhao, W.W., Liu, Y.J., Feng, Q., Wang, Y.P. and Yang, S.Q.	2018	Ecosystem services for coupled human and environment systems	Progress in Geography	127
Kim, H., Oh, K., Lee, D.	2021	The contribution of ecosystem regulating services based on their interrelationship in the urban ecosystem	Applied Sciences	
Balasubramanian, M.	2019	Economic value of regulating ecosystem services: a comprehensive at the global level review	Environmental monitoring and assessment	
Häyhä, T., Franzese, P. P., Paletto, A., & Fath, B. D.	2015	Assessing, valuing, and mapping ecosystem services in Alpine forests	Ecosystem services	
Sumarga, E., Hein, L., Edens, B., & Suwarno, A.	2015	Mapping monetary values of ecosystem services in support of developing ecosystem accounts	Ecosystem services	
Le Provost, G., Schenk, N. V., Penone, C., Thiele, J., Westphal, C., Allan, E., et al.	2023	The supply of multiple ecosystem services requires biodiversity across spatial scales	Nature ecology & evolution	80
Schowalter, T. D., Noriega, J. A., & Tschamtk, T.	2018	Insect effects on ecosystem services-Introduction	Basic and Applied Ecology	
Steiner, N. S., Bowman, J., Campbell, K., Chierici, M., Eronen-Rasimus, E., Falardeau, M., et al.	2021	Climate change impacts on sea-ice ecosystems and associated ecosystem services	Elem Sci Anth	
Alamgir, M., Turton, S. M., Macgregor, C. J., & Pert, P. L.	2016	Assessing regulating and provisioning ecosystem services in a contrasting tropical forest landscape	Ecological Indicators	

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Cortinovis, C., & Geneletti, D.	2019	A framework to explore the effects of urban planning decisions on regulating ecosystem services in cities	Ecosystem Services	
Chen, W., & Chi, G.	2023	Ecosystem services trade-offs and synergies in China, 2000-2015	International Journal of Environmental Science and Technology	
Eric, A., Chrystal, M. P., Erik, A., Kenneth, B., & Robert, C.	2022	Evaluating ecosystem services for agricultural wetlands: a systematic review and meta-analysis	Wetlands Ecology and Management	
Schon, N.L., Dominati, E.J.	2020	Valuing earthworm contribution to ecosystem services delivery	Ecosystem services	
Xu, W., Xiao, Y., Zhang, J., Yang, W. U., Zhang, L. U., Hull, V., et al.	2017	Strengthening protected areas for biodiversity and ecosystem services in China	Proceedings of the National Academy of Sciences	
Dang, K. B., Burkhard, B., Müller, F., & Dang, V. B.	2018	Modelling and mapping natural hazard regulating ecosystem services in Sapa, Lao Cai province, Vietnam	Paddy and Water Environment	
Hasan, S. S., Zhen, L., Miah, M. G., Ahamed, T., & Samie, A.	2020	Impact of land use change on ecosystem services: A review	Environmental Development	
Jiang, H., Wu, W., Wang, J., Yang, W., Gao, Y., Duan, Y., et al.	2021	Mapping global value of terrestrial ecosystem services by countries	Ecosystem Services	
Zhao, M., Peng, J., Liu, Y., Li, T., & Wang, Y.	2018	Mapping Watershed-Level Ecosystem Service Bundles in the Pearl River Delta, China	Ecological economics	
Baskent, E. Z.	2020	A Framework for Characterizing and Regulating Ecosystem Services in a Management Planning Context	Forests	
Qiao, X., Gu, Y., Zou, C., Wang, L., Luo, J., & Huang, X.	2018	Trade-offs and Synergies of Ecosystem Services in the Taihu Lake Basin of China	Chinese Geographical Science	
Chen, H., Fleskens, L., Schild, J., Moolenaar, S., Wang, F., & Ritsema, C.	2022	Impacts of large-scale landscape restoration on spatio-temporal dynamics of ecosystem services in the Chinese Loess Plateau	Landscape Ecology	
Shen, C., Zheng, W., Shi, H., Ding, D., & Wang, Z.	2015	Assessment and regulation of ocean health based on ecosystem services: Case study in the Laizhou Bay, China	Acta Oceanologica Sinica	
Zhang, Y., Pan, Y., Li, M., Wang, Z., Wu, J., Zhang, X., & Cao, Y.	2021	Impacts of human appropriation of net primary production on ecosystem regulating services in Tibet	Ecosystem Services	
Lara, B., Gandini, M., & Salese, S.	2023	Changes in regulating ecosystem services and their relationship with land use changes in the Argentina Pampas	Revista Chapingo Serie Ciencias Forestales	
Davies, H. J., Doick, K. J., Hudson, M. D., & Schreckenberg, K	2017	Challenges for tree officers to enhance the provision of regulating ecosystem services from urban forests	Environmental Research	
Xu, Y., Tang, H., Wang, B., & Chen, J.	2016	Effects of land-use intensity on ecosystem services and human well-being: a case study in Huailai County, China	Environmental Earth Sciences	
Charles, M., Ziv, G., Bohrer, G., & Bakshi, B. R.	2020	Connecting air quality regulating ecosystem services with beneficiaries through quantitative serviceshed analysis	Ecosystem services	
Qian, D., Li, Q., Guo, X., Fan, B., Lan, Y., Si, M., & Cao, G.	2023	Ecosystem services relationship characteristics of the degraded alpine shrub meadow on the Qinghai-Tibetan Plateau	Ecology and Evolution	
Kong, L., Zheng, H., Xiao, Y., Ouyang, Z., Li, C., Zhang, J., & Huang, B.	2018	Mapping Ecosystem Service Bundles to Detect Distinct Types of Multifunctionality within the Diverse Landscape of the Yangtze River Basin, China	Sustainability	
Qiu, J., Yu, D., & Huang, T.	2022	Influential paths of ecosystem services on human well-being in the context of the sustainable development goals	Science of The Total Environment	

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Qiu, J., Carpenter, S. R., Booth, E. G., Motew, M., Zipper, S. C., Kucharik, C. J., et al.	2018	Scenarios reveal pathways to sustain future ecosystem services in an agricultural landscape	Ecological Applications	4
Rendon, P., Steinhoff-Knopp, B., Saggau, P., & Burkhard, B.	2020	Assessment of the relationships between agroecosystem condition and the ecosystem service soil erosion regulation in Northern Germany	PloS One	
Sutherland, I. J., Villamagna, A. M., Dallaire, C. O., Bennett, E. M., Chin, A. T., Yeung, A. C., et al.	2018	Undervalued and under pressure: A plea for greater attention toward regulating ecosystem services	Ecological Indicators	
Lin, Z., Wu, T., Xiao, Y., Rao, E., Shi, X., & Ouyang, Z.	2022	Protecting biodiversity to support ecosystem services: An analysis of trade-offs and synergies in southwestern China	Journal of Applied Ecology	
Liu, J., Li, J., Gao, Z., Yang, M., Qin, K., & Yang, X.	2016	Ecosystem Services Insights into Water Resources Management in China: A Case of Xi'an City	International journal of environmental research and public health	4
Jiang, W., Lü, Y., Liu, Y., & Gao, W	2020	Ecosystem service value of the Qinghai-Tibet Plateau significantly increased during 25 years	Ecosystem Services	
Harmáčková, Z. V., & Vačkář, D.	2015	Modelling regulating ecosystem services trade-offs across landscape scenarios in Trebonsko Wetlands Biosphere Reserve, Czech Republic	Ecological Modelling	
Cai, W., Gibbs, D., Zhang, L., Ferrier, G., & Cai, Y.	2017	Identifying hotspots and management of critical ecosystem services in rapidly urbanizing Yangtze River Delta Region, China	Journal of Environmental Management	
Fu, B., Xu, P., Wang, Y., & Guo, Y.	2019	Integrating Ecosystem Services and Human Demand for a New Ecosystem Management Approach: A Case Study from the Giant Panda World Heritage Site	Sustainability	4
Zhang, Z., Gao, J., Fan, X., Zhao, M., & Lan, Y.	2016	Assessing the variable ecosystem services relationships in polders over time: a case study in the eastern Chaohu Lake Basin, China	Environmental Earth Sciences	
Liu, X., Ding, J., & Zhao, W.	2023	Divergent responses of ecosystem services to afforestation and grassland restoration in the Tibetan Plateau	Journal of Environmental Management	
Chen, B., Jing, X., Liu, S., Jiang, J., & Wang, Y.	2022	Intermediate human activities maximize dryland ecosystem services in the long-term land-use change: Evidence from the Sangong River watershed, northwest China	Journal of Environmental Management	
Zhang, X., Xie, H., Shi, J., Lv, T., Zhou, C., & Liu, W.	2020	Assessing Changes in Ecosystem Service Values in Response to Land Cover Dynamics in Jiangxi Province, China	International Journal of Environmental Research and Public Health	4
Manhães, A. P., Mazzochini, G. G., Oliveira-Filho, A. T., Ganade, G., & Carvalho, A. R.	2016	Spatial associations of ecosystem services and biodiversity as a baseline for systematic conservation planning	Diversity and Distributions	
Colloredo-Mansfeld, R., Castro-Díez, P., Alonso, Á., Saldaña-López, A., & Granda, E.	2021	Effects of widespread non-native trees on regulating ecosystem services	Science of the Total Environment	
Schmalz, B., Kruse, M., Kiesel, J., Müller, F., & Fohrer, N.	2016	Water-related ecosystem services in Western Siberian lowland basins-Analysing and mapping spatial and seasonal effects on regulating services based on ecohydrological modelling results	Ecological Indicators	
Wang, Z., Mao, D., Li, L., Jia, M., Dong, Z., Miao, Z., et al.	2019	Quantifying changes in multiple ecosystem services during 1992-2012 in the Sanjiang Plain of China	Science of the Total Environment	4
Zou, Z., Zeng, F., Wang, K., Zeng, Z., Tang, H., & Zhang, H.	2020	Evaluation and Tradeoff Analysis of Ecosystem Service for Typical Land-Use Patterns in the Karst Region of Southwest China	Forests	
Blaix, C., Moonen, A. C., Dostatny, D. F., Izquierdo, J., Le Corff, J., Morrison, J., et al.	2018	Quantification of regulating ecosystem services provided by weeds in annual cropping systems using a systematic map approach	Weed research	

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Fleischer, P., Pichler, V., Fleischer Jr, P., Holko, L., ek Máli, F., Gömöryová, E., et al.	2017	Forest ecosystem services affected by natural disturbances, climate and land-use changes in the Tatra Mountains	Climate Research	
Manes, F., Marando, F., Capotorti, G., Blasi, C., Salvatori, E., Fusaro, L., et al.	2016	Regulating Ecosystem Services of forests in ten Italian Metropolitan Cities: Air quality improvement by PM10 and O3 removal	Ecological indicators	
Ai, J., Sun, X., Feng, L., Li, Y., & Zhu, X.	2015	Analyzing the spatial patterns and drivers of ecosystem services in rapidly urbanizing Taihu Lake Basin of China	Frontiers of Earth Science	
Hepcan, C. C., & Hepcan, S.	2018	Assessing regulating ecosystem services provided by the Ege University Rectorship Garden	Urban Forestry & Urban Greening	
Guerra, C. A., Maes, J., Geijzendorffer, I., & Metzger, M. J.	2016	An assessment of soil erosion prevention by vegetation in Mediterranean Europe: Current trends of ecosystem service provision	Ecological Indicators	
Xue, H., Li, S., & Chang, J.	2015	Combining ecosystem service relationships and DPSIR framework to manage multiple ecosystem services	Environmental monitoring and assessment	
Nedkov, S., Campagne, S., Borisova, B., Krpec, P., Prodanova, H., Kokkoris, I. P., et al.	2022	Modeling water regulation ecosystem services: A review in the context of ecosystem accounting	Ecosystem Services	
Lee, H., & Lautenbach, S.	2016	A quantitative review of relationships between ecosystem services	Ecological Indicators	
Wang, B., Tang, H., & Xu, Y.	2017	Integrating ecosystem services and human well-being into management practices: Insights from a mountain-basin area, China	Ecosystem services	
Xu, Z., Wei, H., Fan, W., Wang, X., Zhang, P., Ren, J., et al.	2019	Relationships between ecosystem services and human well-being changes based on carbon flow-A case study of the Manas River Basin, Xinjiang, China	Ecosystem Services	
Wong, C. P., Jiang, B., Bohn, T. J., Lee, K. N., Lettenmaier, D. P., Ma, D., & Ouyang, Z.	2017	Lake and wetland ecosystem services measuring water storage and local climate regulation	Water Resources Research	
Li, X., Tian, Y., Gao, T., Jin, L., Li, S., Zhao, D., et al.	2020	Trade-Offs Analysis of Ecosystem Services for the Grain for Green Program: Informing Reforestation Decisions in a Mountainous Headwater Region, Northeast China	Sustainability	
Delgado, L. E., & Marín, V. H.	2016	Well-being and the use of ecosystem services by rural households of the Rio Cruces watershed, southern Chile	Ecosystem services	
Khosravi Mashizi, A., & Sharafatmandrad, M.	2021	Water regulation and soil retention services in semiarid ecosystems of southeastern Iran, 2018-2020	International Journal of Environmental Science and Technology	
Xu, M., Dong, X., Yang, X., Wang, R., Zhang, K., Zhao, Y., et al.	2017	Using palaeolimnological data and historical records to assess long-term dynamics of ecosystem services in typical Yangtze shallow lakes (China)	Science of the Total Environment	
Zhou, P., Zhang, H., Huang, B., Ji, Y., Peng, S., & Zhou, T.	2022	Are productivity and biodiversity adequate predictors for rapid assessment of forest ecosystem services values?	Ecosystem Services	
Law, E. A., Bryan, B. A., Meijaard, E., Mallawaarachchi, T., Struebig, M., & Wilson, K. A.	2015	Ecosystem services from a degraded peatland of Central Kalimantan: implications for policy, planning, and management	Ecological Applications	
Han, X., Yu, J., Zhao, X., & Wang, J.	2021	Spatiotemporal evolution of ecosystem service values in an area dominated by vegetation restoration: Quantification and mechanisms	Ecological Indicators	
Yang, Y., Zheng, H., Kong, L., Huang, B., Xu, W., & Ouyang, Z.	2019	Mapping ecosystem services bundles to detect high- and low-value ecosystem services areas for land use management	Journal of Cleaner Production	
Wang, Y. Q., Sun, X. Y.	2024	Trade-off and synergy of ecosystem services in the Yellow River Basin and their spatiotemporal heterogeneity	Environmental Science (In Chinese)	

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Authors	Year	Name of article	Publication	Citation Number
Zhang, B. T., Li, Z. X., Feng, Q., Lu, Z. X., Zhang, B. J., Cheng, W.J.	2024	Evolution of ecosystem service value based on land use change in Qilian Mountains from 1990 to 2020	Acta Ecologica Sinica (In Chinese)	
Yang, S. Y., LI, Z. J.	2023	Spatio-temporal pattern of ecosystem service value evolution in the Yihe River Basin in the context of land use change	Urban Planning International (In Chinese)	
Zhu H. S., Zhai, J., Hou, P., Wang, Q., Chen, Y., Jin, D. D., Wang Y. C.	2022	The protection characteristics of key ecological functional zones from the perspective of ecosystem service trade-off and synergy	Acta Geographica Sinica (In Chinese)	
Tan, D., Ding, S. Y., Han, B. L., Pan, X. L., Liu, H. X.	2022	Impact of different development patterns on the value of regulating services of urban ecosystems	Acta Ecologica Sinica (In Chinese)	
Zhang, W. J., Sun, X. Y., Zhou, J.	2021	Spatial-temporal dynamics of tradeoffs between crucial ecosystem services in Nansihu Lake Basin	Acta Ecologica Sinica (In Chinese)	
LV, R. F., Zhao, W. P., Tian, X. L., et al.	2021	The trade-offs among ecosystem services and their response to socio-ecological environment in Qilian Mountains	Journal of Glaciology and Geocryology (In Chinese)	
Chen, X. M., Wang, X. F., Feng, X. M., Zhang, X. R., Luo, G. X.	2021	Ecosystem service trade-off and synergy on Qinghai-Tibet Plateau	Geographical Research (In Chinese)	
Guo, C. Y., Gao, S., Zhou, B. Y., Gao, J. H.	2019	Effects of land use change on ecosystem service value in Funiu Mountain based upon a grid square	Acta Ecologica Sinica (In Chinese)	
Qian, C. Y., Gong, J., Zhang, J. X., Liu, D. Q., Ma, X. C.	2016	Change and tradeoffs-synergies analysis on watershed ecosystem services: A case study of Bailongjiang Watershed, Gansu	Acta Geographica Sinica (In Chinese)	
Shi, L. Y., Cui, S. H., Yin, K., Liu, J.	2010	The impact of land use/cover change on ecosystem service in Xiamen	Acta Geographica Sinica (In Chinese)	
Xu, T., Xu, Y., Jiang, B., Zhang, L., Song, W. B., Zhou, D. M.	2015	Evaluation of the ecosystem services in Caohai Wetland, Guizhou Province	Acta Ecologica Sinica (In Chinese)	
Ren, Y. J., Lü, Y. H., Fu, B. J., Zhang, K.	2017	Biodiversity and Ecosystem Functional Enhancement by Forest Restoration: A Meta-analysis in China	Land Degradation & Development	109
Carlier, J., Doyle, M., Finn, J. A. ÓhUallacháin, D., Ruas, S., Vogt, P., Moran, J.	2024	Modelling enhancement of Ecosystem Services provision through integrated agri-environment and forestry measures	Science of The Total Environment	106
Li, G. Y., Wu, Z. N., He, Y., Chen, C., Long, Y.	2024	The promotion of sustainable land use planning for the enhancement of ecosystem service capacity: Based on the FLUS-INVEST-RUSLE-CASA model	PLOS ONE	
Greenway, M.	2017	Stormwater wetlands for the enhancement of environmental ecosystem services: case studies for two retrofit wetlands in Brisbane, Australia	Journal of Cleaner Production	108
Hu,C. G., Wang,Z. Y., Li,J. M., Liu, H., Sun,D. Q.,	2022	Quantifying the Temporal and Spatial Patterns of Ecosystem Services and Exploring the Spatial Differentiation of Driving Factors: a Case Study of Sichuan Basin, China	Frontiers in Environmental Science	110
Huang, Y. T., Wu, J. Y.	2023	Spatial and temporal driving mechanisms of ecosystem service trade-off/synergy in national key urban agglomerations: A case study of the Yangtze River Delta urban agglomeration in China	Ecological Indicators	
Sutherland, Ira J., Villamagna, Amy M., Dallaire, Camille Ouellet., Bennett, Elena M., Chin, Andrew T. M., Yeung, Alex C. Y., et al.	2018	Undervalued and under pressure: A plea for greater attention toward regulating ecosystem services	Ecological Indicators	

Appendix S1 List of the 176 publications considered in literature review

Authors	Year	Name of article	Publication	Citation Number
Xie, Z. Y., He, L. J., Mao, Z., Wan, W., Song, X., Wu, Z. J., et al.	2024	Spatial heterogeneity of natural and socio-economic features shape that of ecosystem services. A large-scale study on the Yangtze River economic Belt, China	Ecological Indicators	111
Xia, H., Yuan, S. F., Prishchepov, Alexander V.	2023	Spatial-temporal heterogeneity of ecosystem service interactions and their social-ecological drivers: Implications for spatial planning and management	Resources, Conservation and Recycling	112
Wang, Y. Q., Sun, X. Y.,	2024	Trade-off and Synergy of Ecosystem Services in the Yellow River Basin and Their Spatiotemporal Heterogeneity	Environmental Science (In Chinese)	
Lan Y. Z., SUN T. H., Li W. W.	2023	Trade-offs and synergies of farmland ecosystem services in Loess Plateau: A case study of Longdong Region, Northwest China	Transactions of the Chinese Society of Agricultural Engineering (In Chinese)	
Li, D. H., Zhang, X. Y., Wang, Y., Zhang, X., Li, L., Lu, L.	2021	Evolution process of ecosystem services and the trade-off synergy in Xin'an River Basin	Acta Ecologica Sinica (In Chinese)	
Xiao, Y., Rao, E. M., Shi X. W., Zhang, P.	2020	Relationships among different types of ecosystem service in Southwest China	Chinese Journal of Applied Ecology (In Chinese)	
Wang C., Liu, C. F., Wu, Y. H., Liu, Y. Y.	2019	Spatial pattern, tradeoffs and synergies of ecosystem services in loess hilly region: A case study in Yuzhong County	Chinese Journal of Ecology (In Chinese)	
Liu, H., Wu, J., Chen, X. L.	2018	Study on spatial-temporal change and trade-off/synergy relationships of ecosystem services in the Danjiangkou water source area	Acta Ecologica Sinica (In Chinese)	
Zhao, L., Wang, Y. Q. Hu, X. J., Jiang, H. W., Zang, Z. H., Xu, W. H., et al.	2024	Analysis of value change and driving factors of ecosystem regulating products in Hanzhong	Environmental Protection Science (In Chinese)	
Sun, J., XU, M., Liu, D.	2024	Impact Analysis of the Spatial Change of Ecosystem Climate Regulation Services in the Yangtze River Delta	Journal of Ecology and Rural Environment (In Chinese)	
Yang, Y. H., Qin, T. L., Gao, H. Y.	2024	Analysis of the evolution of ecosystem service value and its driving factors in the Yellow River Source Area, China	Ecological Indicators	
Zhang, Y. Q., Zhao, X., Gong, J., Luo, F., Pan, Y. P.	2024	Effectiveness and driving mechanism of ecological restoration efforts in China from 2009 to 2019	Science of the total environment	
Lin, Q., Zhang, K., Shen, J., Liu, E.F.	2019	Integrating long-term dynamics of ecosystem services into restoration and management of large shallow lakes	Science of the total environment	
Lan, J., Lei, X. D., He, X., Gao, W. Q., Guo, H.	2023	Multiple mechanisms drive biodiversity-ecosystem service multifunctionality but the dominant one depends on the level of multifunctionality for natural forests in northeast China	Forest ecology and management	
Xu, X. H., Yu, J., Wang, F. E.	2022	Analysis of ecosystem service drivers based on interpretive machine learning: a case study of Zhejiang Province, China	Environmental Science and Pollution Research	
Li, J. H., Cui, M., Cai, Q., Liu, Y. G., Bo, W. J.	2024	Spatiotemporal Patterns and Drivers of Trade-Offs and Synergy in the Beijing-Tianjin Sand Source Control Project: A Bayesian Belief Network-Based Analysis	Sustainability	
Huang, X., Wang, L.	2023	Spatial Heterogeneity and Factors Influencing Ecosystem Services in the Yimeng Mountainous Area	Polish Journal of Environmental Studies	
Liu, Z. T., Wu, R., Chen, Y. X., Fang, C. L., Wang, S. J.	2021	Factors of ecosystem service values in a fast-developing region in China: Insights from the joint impacts of human activities and natural conditions	Journal of Cleaner Production	
Qiu, S. J., Ding, Z. H., Liu, H. Y., Peng, J., Zhang, H. B., Quine, T. A.	2021	Understanding the relationships between ecosystem services and associated social-ecological drivers in a karst region: A case study of Guizhou Province, China	Progress in Physical Geography: Earth and Environment	