

Interdisciplinary perspectives on conservation and culture

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Abstract

This article describes conservation and cultural perspectives from various disciplines based on research from various disciplines. The description is categorized into three parts; conservation and culture of applied science and health, conservation and culture of social science and humanity, conservation and culture of business and entrepreneurship. Natural sciences, health, social humanities, business, and entrepreneurship have all contributed to the conservation of natural resources and the environment, according to the results of journal article searches. Conservation in applied science promotes environmental, water, agricultural, biodiversity, and wildlife conservation, as well as land preservation and building reuse. Conservation can be accomplished through management and strategies derived from indigenous peoples' traditions with implications for nature conservation. The use of environmentally friendly health infrastructure is part of conservation in the health sector. Conservation is the study of the relationship between human interaction and the environment in a society in order to achieve a better life in the field of social sciences and humanities. Conservation strategy, policy, and education are important studies on conservation issues in the social sciences and humanities. Furthermore, conservation strategies are critical for identifying efficiency and conservation in support of development integration and disaster mitigation. Conservation and local wisdom-based education is a learning process that aims to raise environmental and cultural awareness and concern. In particular, conservation and local wisdom-based entrepreneurship education is a promising topic to be studied and researched further to generate various businesses that support environmental and cultural preservation.

Keywords: Conservation, Culture, Applied science, Health, Social science and humanity, Business, entrepreneurship

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INTRODUCTION

Conservation keywords can be easily found using various scientific search platforms. From the 1800s to the present, conservation publications have come a long way. These conservation topics include conservation of force (Professor Faraday, 1859; Youmans, 1868), conservation of energy (Atwater & Rosa, 1899b, 1899a; Colding, 1864; Mach, 1894; Weber, 1872; Babcock & Wikström, 1992; Costanzo et al., 1986); Abrahamse et al., 2005; Gupta & Chandra, 2002; Liu et al., 2019), conservation biology (Soulé, 1985; Rönkä, 2008; Nualart et al., 2017), and environmental conservation (Newhouse, 1990); Kueffer & Kinney, 2017; Raimi et al., 2019). Many other conservation issues have been discussed from various points of view.

The topic of conservation is often discussed and put alongside other topics, such as conservation and restoration (Dietl et al., 2015; Romañach et al., 2018; Wang et al., 2021; Arifanti et al., 2022), conservation and natural resource management (James et al., 2021), conservation and human rights (Newing & Perram, 2019), as well as development and conservation (nature-culture) (Rajangam & Sundar, 2021). Conservation and culture are also two promising research areas. The cultural context of conservation is very diverse, for example, there is the term in vitro culture (Ayuso et al., 2019; Radomir et al., 2023), slow food culture (Shumka et al., 2022), human culture (Wilcox et al., 2019), nonhuman culture (Shumka et al., 2022), culture of animal (Servheen & Gunther, 2022), culture of

marine conservation technology (Jenkins, 2022), dan household culture (Singha & Eljamal, 2021). We also often find the context of cultural preservation such as cultural conservation (Fekrsanati & Marçal, 2022; Dolores et al., 2021; Di Turo & Medeghini, 2021), residents' spontaneous culture conservation (Yang et al., 2022), and cultural heritage conservation (Erdem Erbas, 2018; Baglioni et al., 2021; Korro Bañuelos et al., 2021; Di Turo & Medeghini, 2021). The conservation context includes these cultural contexts.

In various disciplines, the topic of Culture has a very broad perspective. In the fields of social, humanities, and economics, for example, there are the term social culture (Capper et al., 2021; Aguilar-Rodríguez et al., 2021), educational culture (Tirri, 2022; Kryshchanovych et al., 2022), environmental culture (Kryukova et al., 2021), corporate culture (Siyal et al., 2022; Lorincová, 2022), business culture (Sánchez-Bayón et al., 2021; Mengxi, 2021; Devkota et al., 2020), entrepreneurial culture (Hassan et al., 2021; Al-Lawati et al., 2022; Liñán et al., 2022), culture and cognition (Norton, 2020; Cerulo et al., 2021; Vaisey, 2021) and many more cultural topics covered in various forms of scientific publications.

This article, in particular, describes the conservation and cultural perspectives of research conducted in various disciplines. The discussion is divided into three parts; conservation and culture of applied science and health, conservation and culture of social science and humanity, conservation and culture of business and entrepreneurship. The restrictions of this paper refer to the scope of Interdisciplinary International Journal of Conservation and Culture.

CONSERVATION AND CULTURE IN THE PERSPECTIVE OF APPLIED SCIENCE AND HEALTH

Conservation in applied science has a very broad scope, reflecting the development of applied sciences such as engineering, technology, architecture, informatics, communication, automotive, transportation, business and industry, agriculture, law, and education. The number of research publications in these fields demonstrates how applied science has contributed to the conservation of natural resources and the environment. Recent research (within 2020 to 2022) such as the topics of water conservation (Crouch et al., 2020; Flores & Ghisi, 2022; Pang et al., 2020; Rodriguez-Sanchez & Sarabia-Sanchez, 2020; Zinn, 2011), conservation agriculture (Experiences & Worldwide, 2022; Fuentes-Llanillo et al., 2021; Jat et al., 2020; Shrestha et al., 2020; Somasundaram et al., 2020; Wittwer et al., 2021), environmental conservation (Du et al., 2020; Little et al., 2020; Mahamadsaidovich, 2021; Truong & Clayton, 2020), biodiversity conservation (Evans, 2021; Kowarik et al., 2020; Lau, 2020; Riva & Fahrig, 2022; Sandbrook et al., 2022; B. Taylor et al., 2020), dan wildlife conservation (Cowan et al., 2021; Edelblutte et al., 2022; Hohenlohe et al., 2021; Manfredo et al., 2020; Thondhlana et al., 2020). These topics are discussed based on various fields of knowledge.

Nature conservation carried out with the local wisdom of indigenous peoples has been systematically discussed by Abas et al. (2022) and its implications for nature conservation (Uspayanti et al., 2021) and energy self-sufficiency (Sudiasmo & Muspita, 2020). Specifically, research on local wisdom in nature conservation is such as environmental conservation by the Tengger Tribe in East Java Indonesia (Putri et al., 2022), preservation of agricultural land in Serang Village, Purbalingga Regency (Putri et al., 2022), river conservation with Grebeg Susuk Wangan in Gondang Village, Kendal Regency (Qomariah et al., 2020), land management by West Timorese farmers in (Qomariah et al., 2020). Conservation of Tor Thai Mahseer Fish in Batang Haluan River (Hendrik et al., 2021), conservation of marine resources based on local wisdom of bajo mola community in wakatobi national park (Marlina et al., 2020). In addition, there is a module designed to support the learning of plant biodiversity in the field of education (Mumpuni et al., 2022).

Resource conservation management is an important part of conservation issues, for example, a review of the involvement of local communities in nature conservation (Rampheri & Dube, 2021), research on operationalizing the vulnerability of social-ecological integration (Thiault et al., 2020), research in Fiji on the contribution of tourism-based Marine conservation agreements to natural resource management (Mangubhai et al., 2020), research on the impact of natural resource



management to clarify the level and type of public goods collective action issues (Niemic et al., 2020), research on the ethical principles of research partnerships and transdisciplinary natural resource management science (Niemic et al., 2020), research on the impacts of marine or coastal nature conservation activities on human well-being (Niemic et al., 2020), discussion of the ethical principles of transdisciplinary natural resource management science and research partnerships (Niemic et al., 2020), and evaluation of capacity development in biodiversity conservation and natural resource management (Sterling et al., 2022).

Conservation includes the protection of natural areas. The goals are diverse, including the use of habitat areas to protect Indian birds (Warudkar et al., 2022), the environmental protection area of Delta do Parnaba in Northeast Brazil for the breeding and conservation of *Eretmochelys imbricata* (Neto et al., 2021), and the identification of conservation priority areas in the Poyang Lake wetland to protect waterbird habitat (Sun et al., 2019). Other research includes area protection for biodiversity conservation, namely the translation of area-based conservation pledges (Cunningham et al., 2021) and forest degradation studies (Humayun-Bin-Akram & Masum, 2020).

Conservation can also aim to reuse buildings. There are numerous studies on the adaptive reuse of buildings, such as the natural heritage reuse model (Arfa et al., 2022), building reuse trends (Owojori et al., 2021), and requirement criteria (Farjami & Türker, 2021) and evaluation (Fadaei et al., 2021). The use of such buildings can be for education (Fadaei et al., 2021) and healthcare (Diana et al., 2022).

Various technologies are used to support conservation efforts. Studies and explorations on the principles of using socially responsible conservation technology (Sandbrook et al., 2021) and Digital Image Analysis for Diagnosing the Preservation Status of Painting Cultural Heritage (Eom & Lee, 2023) are ongoing. In particular, some of the following studies tend to focus on agricultural enabling technologies such as on Microsatellites as an economical and informative technology for conservation genetics (Hauser et al., 2021), perennial ground cover as a technology for agricultural soil conservation (Schlautman et al., 2021), and Sprayable Biodegradable Polymer Membrane for soil water conservation in agricultural systems (Braunack et al., 2021).

Research in agriculture continues to be carried out both with regard to agricultural supporting technology and based on local wisdom. Research in agriculture continues to be carried out both with regard to agricultural supporting technology and based on local wisdom, such as research on local wisdom-based agricultural development such as agricultural landscape management by farmers of Ngadas Village, Malang Regency (Utami et al., 2020), cetho indigenous community agriculture to preserve nature (Prayoga et al., 2020), wetland swamp agriculture for environmental preservation (Sakir et al., 2021). Programs to build human resources through local wisdom have been carried out such as in sustainable agriculture through the Innovative STEM Project (Chongsrid et al., 2021), increasing environmental literacy (Septiani et al., 2020b) and problem solving (Septiani et al., 2020a) through the implementation of teaching materials based on agricultural local wisdom.

In the health sector, there are studies on culture-based and transcultural midwifery and nursing services. There has been a lot of research done on midwifery workplace culture (Catling et al., 2022; Catling & Rossiter, 2020), as well as the benefits of it, like shaping the student experience (Norris & Murphy, 2020). In addition, there are safety culture topics such as exploring nurses' and midwives' perspectives on safety culture factors in a university perinatal center (Ribeliéné et al., 2022), and exploring the relationship between women's safety culture, midwives' work environment, and intention to stay (Rodríguez-García et al., 2023). On transcultural issues, research was found on the use of e-learning in nursing learning (Sirilukkananan et al., 2022), as well as the use of Rasch model analysis in the development of the Chinese version of the transcultural nursing self-efficiency scale (Tian et al., 2021).

In the field of health, research such as the use of lemon leaf extract as an inhibitor of oil pipe corrosion in acidic media (Abd et al., 2023), and the use of disposal bags to dispose of residual opioids after gynecological surgery can be found as an effort to support environmental conservation (Boitano et al., 2022). In addition, one can also find environmentally friendly health support research such as green anesthesia (Reynier et al., 2021), waste disposal (Chen, 2021), carbon emission reduction



(Dogan et al., 2022), hotel marketing (L. Wang & Wong, 2021), starch modification (Maniglia et al., 2021), vegetarian behavior (Kim et al., 2020).

The studies show that the topic of conservation and culture can be viewed through the lenses of applied science and health. These are just a few of the studies that have been published recently and there are many more articles to explore from the abundance of research in this area.

CONSERVATION AND CULTURE IN THE PERSPECTIVE OF SOCIAL SCIENCE AND HUMANITY

Conservation is the study of the relationship between human interaction and the environment in a society in order to achieve a better life in the field of social sciences and humanities. Conservation strategies, policies, and education are important studies in the social sciences and humanities on conservation issues. The following describes some recent research on conservation strategies and policies and conservation-based education.

Conservation strategies are critical for identifying efficiency and conservation in order to support development integration. Conservation strategies that have been undertaken include the development of a global deep-sea monitoring and conservation strategy (Danovaro et al., 2020), a national conservation strategy for China's ecological civilization (Danovaro et al., 2020), a habitat conservation strategy along coastal settlements (Scyphers et al., 2020), and an international conservation strategy of endangered wild apple trees (Zhang et al., 2021). A conservation strategy is an approach that emphasizes the conservation of biological resources and their ecosystems to provide appropriate guidance in determining policies. Conservation policies are important and cannot be ignored (Jansen et al., 2022). Various conservation policies have been discussed with various objectives such as for conservation policies in the post-COVID-19 transition (Cooke et al., 2021), and the development of building energy conservation in China (Han et al., 2021), as well as utilization.

Conservation strategies and policies are also closely related to disaster mitigation efforts. These efforts can be carried out by involving community participation such as in soil and water conservation (Indrawati et al., 2022) and mangrove area development (Utama et al., 2022; Khakhim et al., 2021). Other efforts are made through the use of local wisdom such as the adoption of customary laws in the coastal areas of Aceh Besar (Sulaiman et al., 2021), the study of local cultural storytelling (Fakhrudin & Elmada, 2022), and the inventory of local culture as a means of learning disaster mitigation (Afrian et al., 2020).

Conservation-based education is a learning process that aims to build care and awareness of the environment, for instance, water conservation education for elementary school students can make them realize the importance of preserving water in the Nenetzingo Watershed, Mexico (Valenzuela-Morales et al., 2022). According to a review of research on the outcomes of environmental conservation education, environmental education is generally very positive and improves environmental quality (Ardoin et al., 2020; Sakurai & Uehara, 2020). The results of conservation education can build positive characters of individuals and communities who care about their environment.

A local wisdom approach can also be used to develop positive character. Character education based on local wisdom is the education of values, manners, morals, and character so that individuals can make good or bad decisions in their lives. Various learning strategies are carried out by teachers to build local culture-based characters such as online integrated character education strategies that involve parents (Ariani et al., 2022), multicultural education strategies in early childhood education (Suri & Chandra, 2021), cross-cultural strategies (Suwanda et al., 2020), and integration of flipped classroom and local cultural values in higher education (Jamaluddin & Malang, 2021).

One effort to revitalize tradition is the cultivation of positive character in local wisdom-based learning. If traditions are no longer exist in our daily lives, they will eventually become extinct. Efforts are made to anticipate these problems by conducting studies and research in cultural revitalization areas, such as research to model the spatial distribution of Amah Mutsun priority cultural plants (A. Taylor et al., 2023). The strategies that can be done for cultural revitalization are culinary tourism



(Wondirad et al., 2021), film media (Tiwahyupriadi & Ayuningtyas, 2020) and building communities (DrSarunporn & Pongsrirojana, 2021).

The various strategies and policies to support environmental and cultural conservation that have been described are a small part of the many studies and research that have been conducted in the area of social and cultural sciences.

CONSERVATION AND CULTURE IN THE PERSPECTIVE OF BUSINESS AND ENTREPRENEURSHIP

Conservation in business and entrepreneurship holds great promise for being studied. On the conservation aspect, business and entrepreneurship are part of natural resource conservation management. Various theories are discussed to support these activities such as transformative business practices for biodiversity conservation (Panwar, 2023), pro-environmental technologies as social business applications (Manika et al., 2021). However, there is a business impact on conservation as found in Sakina's (2020) research. Therefore, it is necessary to improve the character of conservation and entrepreneurship earlier for students such as research on chemistry project-based learning with an Ethno-STEM approach (Sudarmin et al., 2023).

Teachers use a variety of learning strategies to raise awareness of the importance of students having entrepreneurial character. The utilization of local wisdom potential is very diverse. This attracts teachers to implement it in classrooms with the aim of increasing interest in entrepreneurship, including the use of Gusjigang Local Wisdom in the application of a project-based learning model for grade VI students (Malitasari et al., 2022), an experiential learning model based on entrepreneurship based on local wisdom for students (Munir et al., 2021) and early childhood (Umayah & Huliyah, 2021), integrative learning based on local wisdom Jagong Maton (Puspitasari & Priatmoko, 2022), and learning with modules based on local wisdom of Madura Island (Setyo Wardhani & Mellyaning Khoiriya, 2020). Not only in formal education, students and college students, there is also empowerment of community entrepreneurship based on local wisdom for women migrant workers (Yuniriyanti et al., 2021).

The entrepreneurial spirit will encourage people to do business by utilizing the potential of local wisdom. This creates many implications, including the sustainability of tourism businesses in South Central Timor by empowering traditional weaving craftsmen (Sudarmin et al., 2023) and environmental preservation through the development of traditional woven sarong businesses (Harjanti et al., 2020). These studies need to be further developed to encourage businesses that support natural resource conservation management and cultural preservation.

CONCLUSION

Research on the topic of conservation and culture that has been conducted is both monodisciplinary and interdisciplinary. Interdisciplinary research is being conducted to solve various problems to support nature and culture conservation. Conservation and culture are viewed very diversely from various scientific perspectives, such as natural sciences, health, social humanities, business, and entrepreneurship. The results show that conservation in the field of applied science has more places than other fields of science. Applied science can make a significant contribution to the preservation of natural resources and the environment. Community support based on local wisdom is a separate point in its implementation as a carrying capacity for conservation. In addition, management, strategies, policies, and education that support the preservation of nature and culture are equally important components for the implementation of a more tangible preservation of nature and culture. The use of appropriate technology is also a leverage to achieve the goal of conservation. The true role of agricultural, health, and economic researchers who support the conservation and application of local cultural values can also provide more value for the welfare of communities that are unique to each region. The development of entrepreneurial characters and business skills based on conservation and culture is another effort to advance and prosper the community.



Limitations and future direction

This article describes various scientific perspectives on conservation and culture. Much of the description focuses on published research from 2020 to 2022. This limitation is expected to stimulate in-depth studies on conservation from monodisciplinary, interdisciplinary and multidisciplinary perspectives.

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REFERENCES

- Abas, A., Aziz, A., & Awang, A. (2022). A Systematic Review on the Local Wisdom of Indigenous People in Nature Conservation. *Sustainability (Switzerland)*, *14*(6). <https://doi.org/10.3390/su14063415>
- Abd, A. N., Daaj, S. I., & Jawad, A. A. (2023). Corrosion Inhibition of Oil Pipelines in Acidic Medium by Using Limon leaves Extract as an Environmentally Friendly Inhibitor. *HIV Nursing*, *23*(2), 976–983. <http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203>
- Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology*, *25*(3), 273–291. <https://doi.org/10.1016/j.jenvp.2005.08.002>
- Afriani, R., Hariadi, J., Akob, B., & Islami, Z. R. (2020). Local Culture Inventory for Disaster Mitigation Learning. *IOP Conference Series: Earth and Environmental Science*, *412*(1). <https://doi.org/10.1088/1755-1315/412/1/012017>
- Aguilar-Rodríguez, I. E., Bernal-Torres, C. A., Aldana-Bernal, J. C., Acosta-Aguinaga, A. G., Artieda-Cajilema, C. H., & Chalá, P. (2021). Relationship between social culture, industry 4.0, and organizational performance in the context of emerging economies. *Journal of Industrial Engineering and Management*, *14*(4), 750–770. <https://doi.org/10.3926/jiem.3560>
- Al-Lawati, E. H., Abdul Kohar, U. H., & Shahrin Suleiman, E. (2022). Entrepreneurial culture in educational institutions: A scoping review. *Cogent Business and Management*, *9*(1). <https://doi.org/10.1080/23311975.2021.1997237>
- Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, *241*(April 2019), 108224. <https://doi.org/10.1016/j.biocon.2019.108224>
- Arfa, F. H., Zijlstra, H., Lubelli, B., & Quist, W. (2022). Adaptive Reuse of Heritage Buildings: From a Literature Review to a Model of Practice. *Historic Environment: Policy and Practice*, *13*(2), 148–170. <https://doi.org/10.1080/17567505.2022.2058551>
- Ariani, F., Ulfatin, N., Supriyanto, A., & Arifin, I. (2022). Implementing Online Integrated Character Education and Parental Engagement in Local Cultural Values Cultivation. *European Journal of Educational Research*, *11*(3), 1699–1714. <https://doi.org/10.12973/eu-jer.11.3.1699>
- Arifanti, V. B., Kauffman, J. B., Subarno, J. B., Ilman, M., Tosiani, A., & Novita, N. (2022). Contributions of mangrove conservation and restoration to climate change mitigation in Indonesia. *Global Change Biology*, *28*(15), 4523–4538. <https://doi.org/10.1111/gcb.16216>
- Atwater, W. O., & Rosa, E. B. (1899a). A new respiration calorimeter and experiments on the conservation of energy in the human body, II. *Physical Review (Series I)*, *9*(4), 214.
- Atwater, W. O., & Rosa, E. B. (1899b). A new respiration calorimeter and experiments on the conservation of energy in the human body. I. *Physical Review (Series I)*, *9*(3), 129.
- Ayuso, M., García-Pérez, P., Ramil-Rego, P., Gallego, P. P., & Barreal, M. E. (2019). In vitro culture of the endangered plant *Eryngium viviparum* as dual strategy for its ex situ conservation and source



- of bioactive compounds. *Plant Cell, Tissue and Organ Culture*, 138(3), 427–435. <https://doi.org/10.1007/s11240-019-01638-y>
- Babcock, G. T., & Wikström, M. (1992). Oxygen activation and the conservation of energy in cell respiration. *Nature*, 356(6367), 301–309.
- Baglioni, M., Poggi, G., Chelazzi, D., & Baglioni, P. (2021). Advanced materials in cultural heritage conservation. *Molecules*, 26(13). <https://doi.org/10.3390/molecules26133967>
- Boitano, T. K. L., Norton, S. B., Shrestha, K. S., Smith, H. J., Leath, C. A., & Straughn, J. M. (2022). Using an Environmentally Friendly Disposal Bag to Discard Leftover Opioids After Gynecologic Surgery. *Obstetrics and Gynecology*, 139(1), 91–96. <https://doi.org/10.1097/AOG.0000000000004593>
- Braunack, M. V., Filipović, V., Adhikari, R., Freischmidt, G., Johnston, P., Casey, P. S., Wang, Y., Šimůnek, J., Filipović, L., & Bristow, K. L. (2021). Evaluation of a Sprayable Biodegradable Polymer Membrane (SBPM) Technology for soil water conservation in tomato and watermelon production systems. *Agricultural Water Management*, 243(August 2020). <https://doi.org/10.1016/j.agwat.2020.106446>
- Capper, T., Muurlink, O., & Williamson, M. (2021). Social culture and the bullying of midwifery students whilst on clinical placement: A qualitative descriptive exploration. *Nurse Education in Practice*, 52(March), 103045. <https://doi.org/10.1016/j.nepr.2021.103045>
- Catling, C., & Rossiter, C. (2020). Midwifery workplace culture in Australia: A national survey of midwives. *Women and Birth*, 33(5), 464–472. <https://doi.org/10.1016/j.wombi.2019.09.008>
- Catling, C., Rossiter, C., Cummins, A., & McIntyre, E. (2022). Midwifery workplace culture in Sydney, Australia. *Women and Birth*, 35(4), e379–e388. <https://doi.org/10.1016/j.wombi.2021.07.001>
- Cerulo, K. A., Leschziner, V., & Shepherd, H. (2021). Rethinking Culture and Cognition. *Annual Review of Sociology*, 47, 63–85. <https://doi.org/10.1146/annurev-soc-072320-095202>
- Chen, C. (2021). Implementation of an Environmentally Friendly Approach of a Hospital-Practice of Medical Waste Disposal. *IOP Conference Series: Earth and Environmental Science*, 728(1). <https://doi.org/10.1088/1755-1315/728/1/012004>
- Chongsrid, R., Awnpoon, S., & Sukkasame, N. (2021). How to Incorporate Local Wisdom and Powerful Ideas into Creation of Innovative STEM Projects for Sustainable Agricultural Development. *Conference Proceedings. New Perspectives in Science Education*.
- Colding, A. (1864). XI. On the history of the principle of the conservation of energy: To the editors of the Philosophical Magazine and Journal. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 27(179), 56–64.
- Cooke, S. J., Soroye, P., Brooks, J. L., Clarke, J., Jeanson, A. L., Berberi, A., Piczak, M. L., Reid, C. H., Desforges, J. E., Guay, J. D., Drake, A. K., Jardine, A. M., Ethier, J. P., Keefe, H. E., Medd, A. M., Edwards, B. P. M., Reeve, C., Perkovic, A., Frempong-Manso, A., ... Bennett, J. R. (2021). Ten considerations for conservation policy makers for the post-covid-19 transition. *Environmental Reviews*, 29(2), 111–118. <https://doi.org/10.1139/er-2021-0014>
- Costanzo, M., Archer, D., Aronson, E., & Pettigrew, T. (1986). Energy Conservation Behavior. The Difficult Path From Information to Action. *American Psychologist*, 41(5), 521–528. <https://doi.org/10.1037/0003-066X.41.5.521>
- Cowan, M. A., Callan, M. N., Watson, M. J., Watson, D. M., Doherty, T. S., Michael, D. R., Dunlop, J. A., Turner, J. M., Moore, H. A., Watchorn, D. J., & Nimmo, D. G. (2021). Artificial refuges for wildlife conservation: what is the state of the science? *Biological Reviews*, 96(6), 2735–2754. <https://doi.org/10.1111/brv.12776>
- Crouch, M. K., Guerrero, B., Amosson, S., Marek, T., & Almas, L. (2020). Analyzing potential water conservation strategies in the Texas Panhandle. *Irrigation Science*, 38(5–6), 559–567. <https://doi.org/10.1007/s00271-020-00691-2>
- Cunningham, C. A., Crick, H. Q. P., Morecroft, M. D., Thomas, C. D., & Beale, C. M. (2021). Translating area-based conservation pledges into efficient biodiversity protection outcomes. *Communications Biology*, 4(1), 1–5. <https://doi.org/10.1038/s42003-021-02590-4>
- Danovaro, R., Fanelli, E., Aguzzi, J., Billett, D., Carugati, L., Corinaldesi, C., Anno, A. D., Gjerde, K.,



- Jamieson, A. J., Kark, S., McClain, C., Levin, L. A., Levin, N., Ramirez-Llodra, E., Ruhl, H. A., Smith, C. R., Dell'Anno, A., Gjerde, K., Jamieson, A. J., ... Smith, C. R. (2020). Ecological variables for developing a global Deep-Ocean Monitoring and Conservation Strategy. *Nature Ecology & Evolution*, 4(February), 30–31. <http://dx.doi.org/10.1038/s41559-019-1091-z>
- Devkota, N., Paudel, U. R., & Bhandari, U. (2020). Does westernization influence the business culture of a touristic city? *Economics and Sociology*, 13(4), 154–172. <https://doi.org/10.14254/2071-789X.2020/13-4/10>
- Di Turo, F., & Medeghini, L. (2021). How green possibilities can help in a future sustainable conservation of cultural heritage in Europe. *Sustainability (Switzerland)*, 13(7), 1–14. <https://doi.org/10.3390/su13073609>
- Diana, L., D'Auria, S., Acampa, G., & Marino, G. (2022). Assessment of Disused Public Buildings: Strategies and Tools for Reuse of Healthcare Structures. *Sustainability (Switzerland)*, 14(4). <https://doi.org/10.3390/su14042361>
- Dietl, G. P., Kidwell, S. M., Brenner, M., Burney, D. A., Flessa, K. W., Jackson, S. T., & Koch, P. L. (2015). Conservation paleobiology: Leveraging knowledge of the past to inform conservation and restoration. *Annual Review of Earth and Planetary Sciences*, 43(December), 79–103. <https://doi.org/10.1146/annurev-earth-040610-133349>
- Dogan, E., Hodžić, S., & Šikić, T. F. (2022). A way forward in reducing carbon emissions in environmentally friendly countries: the role of green growth and environmental taxes. *Economic Research-Ekonomika Istrazivanja*, 35(1), 5879–5894. <https://doi.org/10.1080/1331677X.2022.2039261>
- Dolores, L., Macchiaroli, M., & De Mare, G. (2021). Sponsorship's financial sustainability for cultural conservation and enhancement strategies: An innovative model for sponsees and sponsors. *Sustainability (Switzerland)*, 13(16). <https://doi.org/10.3390/su13169070>
- DrSarunporn, A., & Pongsrirojana, C. (2021). Strategy Management of Thai Kite Art and Cultural Revitalization and Preservation by the Participation of the Laksi Communities, Bangkok, Thailand. *Turkish Journal of Computer and Mathematics Education*, 12(8), 2172–2179.
- Du, H. S., Ke, X., & Wagner, C. (2020). Inducing individuals to engage in a gamified platform for environmental conservation. *Industrial Management and Data Systems*, 120(4), 692–713. <https://doi.org/10.1108/IMDS-09-2019-0517>
- Edelblutte, É., Krithivasan, R., & Hayek, M. N. (2022). Animal agency in wildlife conservation and management. *Conservation Biology*, 1–42. <https://doi.org/10.1111/cobi.13853>
- Eom, T. H., & Lee, H. S. (2023). A Study on the Diagnosis Technology for Conservation Status of Painting Cultural Heritage Using Digital Image Analysis Program. *Heritage*, 6(2), 1839–1855. <https://doi.org/10.3390/heritage6020098>
- Erdem Erbas, A. (2018). Cultural heritage conservation and culture-led tourism conflict within the historic site in Beyoğlu, Istanbul. *WIT Transactions on Ecology and the Environment*, 217, 647–659. <https://doi.org/10.2495/SDP180551>
- Evans, M. C. (2021). Re-conceptualizing the role(s) of science in biodiversity conservation. *Environmental Conservation*, 48(3), 151–160. <https://doi.org/10.1017/S0376892921000114>
- Experiences, S., & Worldwide, A. (2022). *Agriculture Worldwide*.
- Fadaei, S., Bahramjerdi, N., & Tootoonchi, R. (2021). Evaluation Criteria for Adaptive Reuse of Heritage Buildings to Assign Educational Use; Case Study: School of Conservation and Restoration Evaluation Criteria for Adaptive Reuse of Heritage Buildings to Assign Educational Use Evaluation Criteria for Adapt. *Armanshahr Architecture & Urban Development*, 13(McDm), 33. <https://doi.org/10.22034/AAUD.2020.198337.1969>
- Fakhruddin, I., & Elmada, M. A. G. (2022). Local wisdom as a part of disaster communication: a study on the local storytelling in disaster mitigation. *ETNOSIA : Jurnal Etnografi Indonesia*, 7(2), 154–166. <https://doi.org/10.31947/etnosia.v7i2.22145>
- Farjami, E., & Türker, Ö. O. (2021). The extraction of prerequisite criteria for environmentally certified adaptive reuse of heritage buildings. *Sustainability (Switzerland)*, 13(6), 1–27.



- <https://doi.org/10.3390/su13063536>
- Fekrsanati, F., & Marçal, H. (2022). Affirming Change in Participatory Practices of Cultural Conservation. In *Participatory Practices in Art and Cultural Heritage: Learning Through and from Collaboration* (pp. 127–141). Cham: Springer International Publishing.
- Flores, R. A., & Ghisi, E. (2022). Water Benchmarking in Buildings: A Systematic Review on Methods and Benchmarks for Water Conservation. *Water (Switzerland)*, 14(3). <https://doi.org/10.3390/w14030473>
- Fuentes-Llanillo, R., Telles, T. S., Soares Junior, D., de Melo, T. R., Friedrich, T., & Kassam, A. (2021). Expansion of no-tillage practice in conservation agriculture in Brazil. *Soil and Tillage Research*, 208. <https://doi.org/10.1016/j.still.2020.104877>
- Gupta, M. J., & Chandra, P. (2002). Effect of greenhouse design parameters on conservation of energy for greenhouse environmental control. *Energy*, 27(8), 777–794. [https://doi.org/10.1016/S0360-5442\(02\)00030-0](https://doi.org/10.1016/S0360-5442(02)00030-0)
- Han, S., Yao, R., & Li, N. (2021). The development of energy conservation policy of buildings in China: A comprehensive review and analysis. *Journal of Building Engineering*, 38. <https://doi.org/10.1016/j.jobbe.2021.102229>
- Harjanti, W., Ujianto, & Riduwan, A. (2020). Environmental Dynamics and Potential Development of Woven Sarong Business Based on Local Wisdom. *International Journal of Management Sciences and Business Research*, 9(3), 1–9.
- Hassan, Z., Lashari, M. K., & Basit, A. (2021). Cultivating entrepreneurial culture among students in Malaysia. *Entrepreneurial Business and Economics Review*, 9(1), 119–135. <https://doi.org/10.15678/EBER.2021.090108>
- Hauser, S. S., Athrey, G., & Leberg, P. L. (2021). Waste not, want not: Microsatellites remain an economical and informative technology for conservation genetics. *Ecology and Evolution*, 11(22), 15800–15814. <https://doi.org/10.1002/ece3.8250>
- Hendrik, H., Fauzi, M., Ramadana, T., Hendrizal, A., & Effendi, I. (2021). Local Wisdom and Conservation Status of Tor Thai Mahseer Fish (Tor Tambroide S Blkr) in the Batang Haluan River, West Sumatra, Indonesia. *International Journal of Conservation Science*, 12(4), 1547–1556.
- Hohenlohe, P. A., Funk, W. C., & Rajora, O. P. (2021). Population genomics for wildlife conservation and management. *Molecular Ecology*, 30(1), 62–82. <https://doi.org/10.1111/mec.15720>
- Humayun-Bin-Akram, M., & Masum, K. M. (2020). Forest degradation assessment of Ratargul Special Biodiversity Protection Area for conservation implications. *Forestist*, 70(2), 77–84. <https://doi.org/10.5152/forestist.2020.20016>
- Indrawati, D. R., Supangat, A. B., Purwanto, Wahyuningrum, N., & Subandrio, B. (2022). Community participation in soil and water conservation as a disaster mitigation effort. *IOP Conference Series: Earth and Environmental Science*, 1109(1). <https://doi.org/10.1088/1755-1315/1109/1/012030>
- Jamaluddin, A. Bin, & Malang, U. N. (2021). The effect of integrated flipped classroom with local cultural values on character building in higher education. *İlköğretim Online*, 20(2), 54–66. <https://doi.org/10.17051/ilkonline.2021.02.11>
- James, R., Gibbs, B., Whitford, L., Leisher, C., Konia, R., & Butt, N. (2021). Conservation and natural resource management: Where are all the women? *Oryx*, 55(6), 860–867. <https://doi.org/10.1017/S0030605320001349>
- Jansen, J., Woolley, S. N. C., Dunstan, P. K., Foster, S. D., Hill, N. A., Haward, M., & Johnson, C. R. (2022). Stop ignoring map uncertainty in biodiversity science and conservation policy. *Nature Ecology and Evolution*, 6(7), 828–829. <https://doi.org/10.1038/s41559-022-01778-z>
- Jat, M. L., Chakraborty, D., Ladha, J. K., Rana, D. S., Gathala, M. K., McDonald, A., & Gerard, B. (2020). Conservation agriculture for sustainable intensification in South Asia. *Nature Sustainability*, 3(4), 336–343. <https://doi.org/10.1038/s41893-020-0500-2>
- Jenkins, L. D. (2022). Power, politics, and culture of marine conservation technology in fisheries. *Conservation Biology*, 36(3), 1–10. <https://doi.org/10.1111/cobi.13855>
- Khakhim, N., Lazuardi, W., Wicaksono, A., Pratama, D. N. D., & Musthofa, A. (2021). Priority areas for



- mangrove conservation to support disaster mitigation efforts in pacitan bay. *International Journal of Safety and Security Engineering*, 11(5), 593–603. <https://doi.org/10.18280/IJSSE.110511>
- Kim, M. J., Hall, C. M., & Kim, D. K. (2020). Predicting environmentally friendly eating out behavior by value-attitude-behavior theory: does being vegetarian reduce food waste? *Journal of Sustainable Tourism*, 28(6), 797–815. <https://doi.org/10.1080/09669582.2019.1705461>
- Korro Bañuelos, J., Rodríguez Miranda, Á., Valle-Melón, J. M., Zornoza-Indart, A., Castellano-Román, M., Angulo-Fornos, R., Pinto-Puerto, F., Acosta Ibáñez, P., & Ferreira-Lopes, P. (2021). The role of information management for the sustainable conservation of cultural heritage. *Sustainability (Switzerland)*, 13(8), 1–21. <https://doi.org/10.3390/su13084325>
- Kowarik, I., Fischer, L. K., & Kendal, D. (2020). Biodiversity conservation and sustainable urban development. *Sustainability (Switzerland)*, 12(12), 1–8. <https://doi.org/10.3390/su12124964>
- Kryshtanovych, M., Kryshtanovych, S., Chubinska, N., Khromova, Y., & Sylkin, O. (2022). The System of Public Administration in educational institutions in rural regions in the context of the development of educational culture. *Revista Brasileira de Educação Do Campo*, 1–16. <https://doi.org/10.20873/uft.rbec.e14140>
- Kryukova, E. M., Khetagurova, V. S., Ilyin, V. A., Chizhikova, V. V., & Kosoplechev, A. V. (2021). Forming students' environmental culture: modern educational approaches and technologies. *Journal of Advanced Pharmacy Education and Research*, 11(2), 113–118. <https://doi.org/10.51847/UQUXVBZTOQ>
- Kueffer, C., & Kinney, K. (2017). What is the importance of islands to environmental conservation? *Environmental Conservation*, 44(4), 311–322. <https://doi.org/10.1017/S0376892917000479>
- Lau, J. D. (2020). Three lessons for gender equity in biodiversity conservation. *Conservation Biology*, 34(6), 1589–1591. <https://doi.org/10.1111/cobi.13487>
- Liñán, F., Jaén, I., & Martín, D. (2022). Does entrepreneurship fit her? Women entrepreneurs, gender-role orientation, and entrepreneurial culture. *Small Business Economics*, 58(2), 1051–1071. <https://doi.org/10.1007/s11187-020-00433-w>
- Little, C. L., Perry, E. E., Fefer, J. P., Brownlee, M. T. J., & Sharp, R. L. (2020). An interdisciplinary review of camera image collection and analysis techniques, with considerations for environmental conservation social science. *Data*, 5(2), 1–19. <https://doi.org/10.3390/data5020051>
- Liu, Z., Li, W., Chen, Y., Luo, Y., & Zhang, L. (2019). Review of energy conservation technologies for fresh air supply in zero energy buildings. *Applied Thermal Engineering*, 148, 544–556.
- Lorincová, S. (2022). *THE ROLE OF CORPORATE CULTURE IN ECONOMIC DEVELOPMENT OF SMALL AND MEDIUM-SIZED ENTERPRISES*. 28(1), 220–238.
- Mach, E. (1894). On the principle of the conservation of energy. *The Monist*, 5(1), 22–54.
- Mahamadsaidovich, X. Y. (2021). International Organizations Aimed At Environmental Conservation. *The American Journal of Applied Sciences*, 03(02), 105–110. <https://doi.org/10.37547/tajas/volume03issue02-12>
- Malitasari, L. N., Utaminingsih, S., & Ismaya, E. A. (2022). The Effectiveness of Implementing Project-Based Learning Models with Studentpreneurs Based on Gusjigang Local Wisdom in Theme V Entrepreneurship Class VI. *Uniglobal Journal of Social ...*, 1, 47–52. <https://www.ujssh.com/index.php/ujssh/article/view/19%0Ahttps://www.ujssh.com/index.php/ujssh/article/download/19/21>
- Manfredo, M. J., Teel, T. L., Don Carlos, A. W., Sullivan, L., Bright, A. D., Dietsch, A. M., Bruskotter, J., & Fulton, D. (2020). The changing sociocultural context of wildlife conservation. *Conservation Biology*, 34(6), 1549–1559. <https://doi.org/10.1111/cobi.13493>
- Mangubhai, S., Sykes, H., Manley, M., Vukikomoala, K., & Beattie, M. (2020). Contributions of tourism-based Marine Conservation Agreements to natural resource management in Fiji. *Ecological Economics*, 171(January). <https://doi.org/10.1016/j.ecolecon.2020.106607>
- Maniglia, B. C., Castanha, N., Le-Bail, P., Le-Bail, A., & Augusto, P. E. D. (2021). Starch modification through environmentally friendly alternatives: a review. *Critical Reviews in Food Science and*



- Nutrition*, 61(15), 2482–2505. <https://doi.org/10.1080/10408398.2020.1778633>
- Manika, D., Antonetti, P., Papagiannidis, S., & Guo, X. (2021). How Pride Triggered by Pro-environmental Technology Adoption Spills Over into Conservation Behaviours: A Social Business Application. *Technological Forecasting and Social Change*, 172(July), 121005. <https://doi.org/10.1016/j.techfore.2021.121005>
- Marlina, Sumarmi, & Astina, I. K. (2020). Sustainable marine ecotourism management: A case of marine resource conservation based on local wisdom of bajo mola community in wakatobi national park. *Geojournal of Tourism and Geosites*, 32(4), 1317–1323. <https://doi.org/10.30892/GTG.32419-575>
- Mengxi, W. (2021). Business Culture and Strategy--Take IBM as an example. *Journal of Sociology and Ethnology*, 3(5), 124–130. <https://doi.org/10.23977/jsoc.2021.030523>
- Mumpuni, K. E., Susilo, H., Rohman, F., & Ramli, M. (2022). Designing a module for learning plant biodiversity: An effort for conservation of local wisdom. *Biosfer*, 15(1), 85–96. <https://doi.org/10.21009/biosferjpb.22663>
- Munir, S., Merlinda, S., Soesilo, Y. H., & Windrayadi, Y. D. P. (2021). Experience-Based Learning Models in Entrepreneurship Courses: An Innovation to Promote Entrepreneurship Based on Local Wisdom. *KnE Social Sciences*, 2021, 341–350. <https://doi.org/10.18502/kss.v5i8.9386>
- Neto, M., Nascimento, P., Araújo, K. D. C., & Santana, W. M. (2021). Breeding success and conservation of *Eretmochelys imbricata* in the Delta do Parnaíba Environmental Protection Area , northeastern Brazil. *Cuadernos de Herpetologia*, 35(2), 253–259. [https://doi.org/10.31017/CdH.2021.\(2021-005\)ABSTRACT](https://doi.org/10.31017/CdH.2021.(2021-005)ABSTRACT)
- Newhouse, N. (1990). Implications of attitude and behavior research for environmental conservation. *The Journal of Environmental Education*, 22(1), 26–32.
- Newing, H., & Perram, A. (2019). What do you know about conservation and human rights? *Oryx*, 53(4), 595–596. <https://doi.org/10.1017/S0030605319000917>
- Niemiec, R. M., McCaffrey, S., & Jones, M. S. (2020). Clarifying the degree and type of public good collective action problem posed by natural resource management challenges. *Ecology and Society*, 25(1). <https://doi.org/10.5751/ES-11483-250130>
- Norris, S., & Murphy, F. (2020). A community of practice in a midwifery led unit. How the culture and environment shape the learning experience of student midwives. *Midwifery*, 86, 102685. <https://doi.org/10.1016/j.midw.2020.102685>
- Norton, M. (2020). Cultural sociology meets the cognitive wild: advantages of the distributed cognition framework for analyzing the intersection of culture and cognition. *American Journal of Cultural Sociology*, 8(1), 45–62. <https://doi.org/10.1057/s41290-019-00075-w>
- Nualart, N., Ibáñez, N., Soriano, I., & López-Pujol, J. (2017). Assessing the Relevance of Herbarium Collections as Tools for Conservation Biology. *Botanical Review*, 83(3), 303–325. <https://doi.org/10.1007/s12229-017-9188-z>
- Owojori, O. M., Okoro, C. S., & Chileshe, N. (2021). Current status and emerging trends on the adaptive reuse of buildings: A bibliometric analysis. *Sustainability (Switzerland)*, 13(21). <https://doi.org/10.3390/su132111646>
- Pang, J., Liu, X., & Huang, Q. (2020). A new quality evaluation system of soil and water conservation for sustainable agricultural development. *Agricultural Water Management*, 240(February), 106235. <https://doi.org/10.1016/j.agwat.2020.106235>
- Panwar, R. (2023). Business and biodiversity: achieving the 2050 vision for biodiversity conservation through transformative business practices. *Biodiversity and Conservation*, 1–7.
- Prayoga, K., Riezky, A. M., Syuhada, A. R., & Prayoga, D. S. (2020). Socio cultural and agricultural local wisdom by cetho indigenous community to preserve the nature. *Agromix*, 11(1), 21–32. <https://doi.org/10.35891/agx.v11i1.1843>
- Professor Faraday. (1859). XXIV. On regelation, and on the conservation of force. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 17(113), 162–169.
- Puspitasari, F. F., & Priatmoko, S. (2022). The Development of Integrative Entrepreneurship Education



- based on Local Wisdom through “Jagong Maton.” *Nidhomul Haq : Jurnal Manajemen Pendidikan Islam*, 6(3), 690–703. <https://doi.org/10.31538/ndh.v6i3.1757>
- Putri, F. K., Noven, H. J., Nurcahyati, M., Irfan, A. N., Septiasari, A., Batoro, J., & Setyawan, A. D. (2022). Local wisdom of the Tengger Tribe, East Java, Indonesia in environmental conservation. *Asian Journal of Ethnobiology*, 5(1), 20–34. <https://doi.org/10.13057/asianjethnobiol/y050203>
- Qomariah, A., Setiawan, H., Purnaweni, H., & Ali Syahbana, J. (2020). Grebeg Susuk Wangan: A river conservation based on local wisdom in Gondang Village, Kendal Regency. *E3S Web of Conferences*, 202(06014), 1–5. <https://doi.org/10.1051/e3sconf/202020206014>
- Radomir, A. M., Stan, R., Florea, A., Ciobotea, C. M., Bănuță, F. M., Negru, M., Neblea, M. A., & Sumedrea, D. I. (2023). Overview of the Success of In Vitro Culture for Ex Situ Conservation and Sustainable Utilization of Endemic and Subendemic Native Plants of Romania. *Sustainability (Switzerland)*, 15(3). <https://doi.org/10.3390/su15032581>
- Raimi, M., SULEIMAN, R. M., Odipe, O. E., Tolulope, S. J., Oshatunberu, M., Olalekan, A. S., & Makanjuola, C. B. (2019). Women Role in Environmental Conservation and Development in Nigeria. *SSRN Electronic Journal*, 1(2), 1–16. <https://doi.org/10.2139/ssrn.3425832>
- Rajangam, K., & Sundar, A. (2021). Reading the Entanglements of Nature-culture Conservation and Development in Contemporary India. *Journal of South Asian Development*, 16(1), 7–32. <https://doi.org/10.1177/097317412111013676>
- Rampheri, M. B., & Dube, T. (2021). Local community involvement in nature conservation under the auspices of Community-Based Natural Resource Management: A state of the art review. *African Journal of Ecology*, 59(4), 799–808. <https://doi.org/10.1111/aje.12801>
- Reynier, T., Berahou, M., Albaladejo, P., & Beloeil, H. (2021). Moving towards green anaesthesia: Are patient safety and environmentally friendly practices compatible? A focus on single-use devices. *Anaesthesia Critical Care and Pain Medicine*, 40(4). <https://doi.org/10.1016/j.accpm.2021.100907>
- Ribeliene, J., Macijauskienė, J., Tamelienė, R., Kudrevičienė, A., Nedzelskienė, I., & Blaževičienė, A. (2022). Factors Relating to a Safety Culture in the University Perinatal Center: The Nurses’ and Midwives’ Perspective. *International Journal of Environmental Research and Public Health*, 19(16). <https://doi.org/10.3390/ijerph19169845>
- Riva, F., & Fahrig, L. (2022). The disproportionately high value of small patches for biodiversity conservation. *Conservation Letters*, 15(3), 1–7. <https://doi.org/10.1111/conl.12881>
- Rodríguez-García, M. C., Martos-López, I. M., Casas-López, G., Márquez-Hernández, V. V., Aguilera-Manrique, G., & Gutiérrez-Puertas, L. (2023). Exploring the relationship between midwives’ work environment, women’s safety culture, and intent to stay. *Women and Birth*, 36(1), e10–e16. <https://doi.org/10.1016/j.wombi.2022.04.002>
- Rodriguez-Sanchez, C., & Sarabia-Sanchez, F. J. (2020). Does water context matter in water conservation decision behaviour? *Sustainability (Switzerland)*, 12(7), 1–16. <https://doi.org/10.3390/su12073026>
- Romañach, S. S., DeAngelis, D. L., Koh, H. L., Li, Y., Teh, S. Y., Barizan, R. S. R., & Zhai, L. (2018). Conservation and Restoration of Mangroves: Global Status, Perspectives, and Prognosis. *Ocean & Coastal Management*, 154, 72–82. <http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203>
- Rönkä, M. (2008). Fundamentals of Conservation Biology. *Ecoscience*, 15(4), 555–556.
- Sakina, B. (2020). Public Perception of the Development of Café Business and its Affect on the Sustainable Conservation District Images : The Case of Braga, Bandung - Indonesia. *Engineering, Mathematics and Computer Science (EMACS) Journal*, 2(2), 65–71. <https://doi.org/10.21512/emacsjournal.v2i2.6393>
- Sakir, I. M., Sriati, Saptawan, A., & Juniah, R. (2021). Local Wisdom of the Wetland Swamps Agricultural System for a Sustainable Environment. *IOP Conference Series: Earth and Environmental Science*, 810(1). <https://doi.org/10.1088/1755-1315/810/1/012021>
- Sakurai, R., & Uehara, T. (2020). Effectiveness of a marine conservation education program in



- Okayama, Japan. *Conservation Science and Practice*, 2(3), 1–13. <https://doi.org/10.1111/csp2.167>
- Sánchez-Bayón, A., García-Vaquero, M., & Lominchar, J. (2021). Wellbeing Economics: Beyond The Labour Compliance & Challenge For Business Culture. *Journal of Legal, Ethical and Regulatory Issues*, 24(Special Issue 1), 1–13.
- Sandbrook, C., Clark, D., Toivonen, T., Simlai, T., O'Donnell, S., Cobbe, J., & Adams, W. (2021). Principles for the socially responsible use of conservation monitoring technology and data. *Conservation Science and Practice*, 3(5), 1–12. <https://doi.org/10.1111/csp2.374>
- Sandbrook, C., Gómez-Baggethun, E., & Adams, W. M. (2022). Biodiversity conservation in a post-COVID-19 economy. *Oryx*, 56(2), 277–283. <https://doi.org/10.1017/S0030605320001039>
- Schlautman, B., Bartel, C., Diaz-Garcia, L., Fei, S., Flynn, S., Haramoto, E., Moore, K., & Raman, D. R. (2021). Perennial groundcovers: An emerging technology for soil conservation and the sustainable intensification of agriculture. *Emerging Topics in Life Sciences*, 5(2), 337–347. <https://doi.org/10.1042/ETLS20200318>
- Scyphers, S. B., Beck, M. W., Furman, K. L., Haner, J., Keeler, A. G., Landry, C. E., O'Donnell, K. L., Webb, B. M., & Grabowski, J. H. (2020). Designing effective incentives for living shorelines as a habitat conservation strategy along residential coasts. *Conservation Letters*, 13(5), 1–10. <https://doi.org/10.1111/conl.12744>
- Septiani, F., Sriyati, S., & Amprasto. (2020a). The Implementation of Learning Materials Based on Local Wisdom of Agricultural in Binjai to Improve the Students Problem Solving Abilities. *Proceedings of the 7th Mathematics, Science, and Computer Science Education International Seminar, MSCEIS 2019*. <https://doi.org/10.4108/eai.12-10-2019.2296323>
- Septiani, F., Sriyati, S., & Amprasto. (2020b). *The Implementation of Teaching Materials Based on Local Agricultural Wisdom in Binjai to Improve Student Environmental Literacy*. 399(Icepp 2019), 80–85. <https://doi.org/10.2991/assehr.k.200130.086>
- Servheen, C., & Gunther, K. A. (2022). Conservation and management of the culture of bears. *Ecology and Evolution*, 12(4), 1–7. <https://doi.org/10.1002/ece3.8840>
- Setyo Wardhani, I., & Mellyaning Khoiriya, R. (2020). Development of Entrepreneurship E-Module for Elementary School Students Based on Local Wisdom in Madura Island. *Journal of Disruptive Learning Innovation (JODLI)*, 1(2), 36–44.
- Shrestha, J., Subedi, S., Timsina, K., & Kandel, M. (2020). Conservation agriculture as an approach towards sustainable crop production: A Review. *Farming & Management*, 5(1). <https://doi.org/10.31830/2456-8724.2020.002>
- Shumka, S., Berberi, E., Kulici, M., Muçaj, S., & Vladi, F. (2022). Assessing the relationship between biodiversity conservation and slow food culture in selected protected areas in Albania. *Biodiversitas*, 23(3), 1319–1326. <https://doi.org/10.13057/biodiv/d230316>
- Singha, B., & Eljamal, O. (2021). Exploring Attitudes and Household Culture to Encourage Water Conservation Behavior. *Proceedings of International Exchange and Innovation Conference on Engineering & Sciences (IEICES)*, 7, 149–154. <https://doi.org/10.5109/4738581>
- Sirilukkananan, K., Oatme, S., Chaiphibalsarisdi, P., Cruz, C., & Mungsoongnern, S. (2022). Development of teaching and learning in transcultural nursing for Cambodian nursing students using e-learning. *Science, Engineering and Health Studies*, 16, 1–5. <https://doi.org/10.14456/sehs.2022.16>
- Siyal, S., Ahmad, R., Riaz, S., Xin, C., & Fangcheng, T. (2022). The Impact of Corporate Culture on Corporate Social Responsibility: Role of Reputation and Corporate Sustainability. *Sustainability (Switzerland)*, 14(16). <https://doi.org/10.3390/su141610105>
- Somasundaram, J., Sinha, N. K., Dalal, R. C., Lal, R., Mohanty, M., Naorem, A. K., Hati, K. M., Chaudhary, R. S., Biswas, A. K., Patra, A. K., & Chaudhari, S. K. (2020). No-Till Farming and Conservation Agriculture in South Asia—Issues, Challenges, Prospects and Benefits. *Critical Reviews in Plant Sciences*, 39(3), 236–279. <https://doi.org/10.1080/07352689.2020.1782069>
- Soulé, M. E. (1985). What is conservation biology? *BioScience*, 35(11), 727–734.



- <https://doi.org/10.11647/obp.0177.01>
- Sterling, E. J., Sigouin, A., Betley, E., Zavaleta Cheek, J., Solomon, J. N., Landrigan, K., Porzecanski, A. L., Bynum, N., Cadena, B., Cheng, S. H., Clements, K. R., Finchum, R., Geresy, M., Gomez, A., Groom, M., Loffeld, T. A. C., Miller, D. C., Rakotobe, D., Rao, M., ... Jones, M. S. (2022). The state of capacity development evaluation in biodiversity conservation and natural resource management. *Oryx*, *56*(5), 728–739. <https://doi.org/10.1017/S0030605321000570>
- Sudarmin, Pujiastuti, S. E., Asyhar, R., Prasetya, A. T., Diliarosta, S., & Ariyatun. (2023). Chemistry Project-Based Learning for Secondary Metabolite Course With Ethno-STEM Approach to Improve Students' Conservation and Entrepreneurial Character in the 21st Century. *Journal of Technology and Science Education*, *13*(1), 393–409.
- Sudiasmo, F., & Muspita, N. C. (2020). Local wisdom in environment conservation: A study on a conservation and energy self-sufficient village. *Masyarakat, Kebudayaan Dan Politik*, *33*(4), 405. <https://doi.org/10.20473/mkp.v33i42020.405-412>
- Sulaiman, S., Abdullah, M. A., Ahmad, K. B., Mansur, T. M., Susiana, S., Roesa, N., & Sautunnida, L. (2021). Customary law adoption in state law related to disaster mitigation of coastal area in Aceh Besar. *IOP Conference Series: Earth and Environmental Science*, *674*(1). <https://doi.org/10.1088/1755-1315/674/1/012112>
- Sun, C., König, H. J., Uthes, S., Chen, C., Li, P., & Hemminger, K. (2019). Protection effect of overwintering water bird habitat and defining the conservation priority area in Poyang Lake wetland, China. *Environmental Research Letters*, *15*(12). <https://doi.org/10.1088/1748-9326/abc6d0>
- Suri, D., & Chandra, D. (2021). Teacher's strategy for implementing multiculturalism education based on local cultural values and character building for early childhood education. *Journal of Ethnic and Cultural Studies*, *8*(4), 271–285. <https://doi.org/10.29333/ejecs/937>
- Suwanda, I. M., Suyitno, I., & Sarmini, M. (2020). *Building The Nation Character In Cross Cultural Country Through Character Education Based On Local Culture*. *226(Icss)*, 209–213. <https://doi.org/10.2991/icss-18.2018.44>
- Taylor, A., Sigona, A., & Kelly, M. (2023). Modeling spatial distributions of Amah Mutsun priority cultural plants to support Indigenous cultural revitalization. *Ecosphere*, *14*(1), 1–16. <https://doi.org/10.1002/ecs2.4374>
- Taylor, B., Chapron, G., Kopnina, H., Orlikowska, E., Gray, J., & Piccolo, J. J. (2020). The need for ecocentrism in biodiversity conservation. *Conservation Biology*, *34*(5), 1089–1096. <https://doi.org/10.1111/cobi.13541>
- Thiault, L., Gelcich, S., Marshall, N., Marshall, P., Chlous, F., & Claudet, J. (2020). Operationalizing vulnerability for social–ecological integration in conservation and natural resource management. *Conservation Letters*, *13*(1), 1–13. <https://doi.org/10.1111/conl.12677>
- Thondhlana, G., Redpath, S. M., Vedeld, P. O., van Eden, L., Pascual, U., Sherren, K., & Murata, C. (2020). Non-material costs of wildlife conservation to local people and their implications for conservation interventions. *Biological Conservation*, *246*(February), 108578. <https://doi.org/10.1016/j.biocon.2020.108578>
- Tian, Y., Wang, L., Xu, Y., & He, Z. (2021). The Development of Chinese Version of Transcultural Nursing Self-Efficiency Scale: Using Rasch Model Analysis. *Journal of Transcultural Nursing*, *32*(1), 30–40. <https://doi.org/10.1177/1043659619896827>
- Tirri, K. (2022). Giftedness in the Finnish educational culture. *Gifted Education International*, *38*(3), 445–448. <https://doi.org/10.1177/02614294211054204>
- Tiwahyupriadi, D., & Ayuningtyas, Y. (2020). Indonesian Horror Film: Deconstruction of Repetitive Elements of Indonesian Urban Legend for Cultural Revitalization, Creativity, and Critical Thinking. *KnE Social Sciences*, *2020*, 115–125. <https://doi.org/10.18502/kss.v4i12.7589>
- Truong, M. X. A., & Clayton, S. (2020). Technologically transformed experiences of nature: A challenge for environmental conservation? *Biological Conservation*, *244*. <https://doi.org/10.1016/j.biocon.2020.108532>



- Umayah, U., & Huliyah, M. (2021). Early Childhood Learning Model Based On Local Wisdom Entrepreneurship In Banten Province. *Indonesian Journal of Islamic Early Childhood Education*, 6(1), 78–87. <https://doi.org/10.51529/ijiece.v6i1.223>
- Uspayanti, R., Butarbutar, R., Fredy, Hiskya, H. J., Sajriawati, & Ainani, A. F. (2021). Local Wisdom and its Implication for Nature Conservation. *Review of International Geographical Education Online*, 11(5), 292–302. <https://doi.org/10.48047/rigeo.11/5/30>
- Utama, W. M., Selian, M. F., & Fitrianda, A. (2022). Study of the Benefits of Mangrove Conservation on Hydrometeorological Disaster Mitigation Effort in the Coastal Area , Banda Aceh City. *Budapest International Research and Critics Institute-Journal*, 5(2), 15288–15297.
- Utami, S., Antariksa, & Santoso, D. K. (2020). *Local Wisdom of Farmers in Ngadas Village, Malang Regency in the Management of Agricultural Landscapes*. 195(Hunian 2019), 65–68. <https://doi.org/10.2991/aer.k.200729.011>
- Vaisey, S. (2021). Welcome to the Real World: Escaping the Sociology of Culture and Cognition. *Sociological Forum*, 36(S1), 1297–1315. <https://doi.org/10.1111/socf.12770>
- Valenzuela-Morales, G. Y., Hernández-Téllez, M., Ruiz-Gómez, M. de L., Gómez-Albores, M. A., Arévalo-Mejía, R., & Mastachi-Loza, C. A. (2022). Water Conservation Education in Elementary Schools: The Case of the Nenetzingo River Catchment, Mexico. *Sustainability (Switzerland)*, 14(4). <https://doi.org/10.3390/su14042402>
- Wang, L., & Wong, P. P. W. (2021). Marketing of environmentally friendly hotels in China through religious segmentation: a theory of planned behaviour approach. *Tourism Review*, 76(5), 1164–1180. <https://doi.org/10.1108/TR-08-2019-0327>
- Wang, X., Xiao, X., Xu, X., Zou, Z., Chen, B., Qin, Y., Zhang, X., Dong, J., Liu, D., Pan, L., & Li, B. (2021). Rebound in China's coastal wetlands following conservation and restoration. *Nature Sustainability*, 4(12), 1076–1083. <https://doi.org/10.1038/s41893-021-00793-5>
- Warudkar, A., Goyal, N., Kher, V., Vinay, K. L., Chanda, R., Bandi, R. S., Jenkins, C. N., Robin, V. V., & Pimm, S. L. (2022). Using the area of habitat to assess the extent of protection of India's birds. *Biotropica*, 54(6), 1466–1479. <https://doi.org/10.1111/btp.13132>
- Weber, W. (1872). I. Electrodynamical measurements.—Sixth Memoir, relating specially to the Principle of the Conservation of Energy. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, 43(283), 1–20.
- Wilcox, J. J. S., Boissinot, S., & Idaghdour, Y. (2019). Falcon genomics in the context of conservation, speciation, and human culture. *Ecology and Evolution*, 9(24), 14523–14537. <https://doi.org/10.1002/ece3.5864>
- Wittwer, R. A., Bender, S. F., Hartman, K., Hydbom, S., Lima, R. A. A., Loaiza, V., Nemecek, T., Oehl, F., Olsson, P. A., Petchey, O., Prechsl, U. E., Schlaeppli, K., Scholten, T., Seitz, S., Six, J., & Van Der Heijden, M. G. A. (2021). Organic and conservation agriculture promote ecosystem multifunctionality. *Science Advances*, 7(34), 1–13. <https://doi.org/10.1126/sciadv.abg6995>
- Wondirad, A., Kebete, Y., & Li, Y. (2021). Culinary tourism as a driver of regional economic development and socio-cultural revitalization: Evidence from Amhara National Regional State, Ethiopia. *Journal of Destination Marketing and Management*, 19(August 2020), 100482. <https://doi.org/10.1016/j.jdmm.2020.100482>
- Yang, Y., Wang, S., Cai, Y., & Zhou, X. (2022). How and why does place identity affect residents' spontaneous culture conservation in ethnic tourism community? A value co-creation perspective. *Journal of Sustainable Tourism*, 30(6), 1344–1363. <https://doi.org/10.1080/09669582.2021.1945070>
- Youmans, E. L. (1868). *The correlation and conservation of forces*. D. Appleton & Company.
- Yuniriyanti, E., Sudarwati, R., & Nurdewanto, B. (2021). Social Engineering: Implementing the Empowerment of Retired Women Migrant Workers Based on Local Wisdom and Social Entrepreneurship. *The International Journal of Humanities & Social Studies*, 9(8), 90–97. <https://doi.org/10.24940/theijhss/2021/v9/i8/hs2108-037>
- Zhang, H. X., Li, X. S., Wang, J. C., & Zhang, D. Y. (2021). Insights into the aridification history of Central



Asian Mountains and international conservation strategy from the endangered wild apple tree.
Journal of Biogeography, 48(2), 332–344. <https://doi.org/10.1111/jbi.13999>

Zinn, J. A. (2011). Soil and water conservation: An overview. *Agricultural Conservation*, 115–142.
https://doi.org/10.1007/978-3-319-95675-6_91

