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# Understanding trade-offs and synergies among soil functions to support decision-making for sustainable cultivated land use

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## KEYWORDS

agro-ecosystem, bayesian belief networks, soil ecosystem services, soil parameters, soil multi-functionality

## A Corrigendum on

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In the original article, in the **References** section the reference for “Debeljak et al., 2019” was incorrectly written as “Debeljak, M., Trajanov, A., Kuzmanovski, V., Schröder, J., Sandén, T., Spiegel, H., et al. (2019). Scientific data management in the age of big data: An approach supporting a resilience Index development effort. *Front. Environ. Sci.* 7, 1–13. doi:10.3389/fenvs.2019.00072.” It should be:

“Debeljak, M., Trajanov, A., Kuzmanovski, V., Schröder, J., Sandén, T., Spiegel, H., et al. (2019). A Field-Scale Decision Support System for Assessment and Management of Soil Functions. *Front. Environ. Sci.* 7, 115. doi:10.3389/fenvs.2019.00115.”

In the original article, in the **References** section the reference for “Fiantis et al., 2022” was incorrectly written as “Fiantis, D., RudiyantoGinting, F. I., Utami, S. R., SukarmanAnda, M., Jeon, S. H., Minasny, B., et al. (2022). Sustaining the productivity and ecosystem services of soils in Indonesia, *Geoderma Reg.* 28, 488.” It should be:

“Fiantis, D., Rudiyanto, Ginting, F.I., Utami, S.R., Sukarman, Anda, M., et al. (2022). Sustaining the productivity and ecosystem services of soils in Indonesia. *Geoderma Reg.* 28, e00488. doi:10.1016/j.geodrs.2022.e00488.”

In the original article, the **References** for “Van Leeuwen et al., 2019” was incorrectly written as “Van Leeuwen, J. P., Creamer, R. E., Cluzeau, D., Debeljak, M., Gatti, F., Henriksen, C. B., et al. (2019). Scientific data management in the age of big data: An

approach supporting a resilience Index development effort. *Front. Environ. Sci.* 7, 1–13. doi:10.3389/fenvs.2019.00072.” It should be:

“Van Leeuwen, J.P., Creamer, R.E., Cluzeau, D., Debeljak, M., Gatti, F., Henriksen, C.B., et al. (2019). Modeling of soil functions for assessing soil quality: Soil biodiversity and habitat provisioning. *Front. Environ. Sci.* 7, 113. doi:10.3389/fenvs.2019.00113.”

In the original article, the **References** for “Wang, A., et al., 2022” was incorrectly written as “Wang, A., Liu, S., Xie, J., Ouyang, W., He, M., Lin, C., et al. (2022). Response of soil microbial activities and ammonia oxidation potential to environmental factors in a typical antimony mining area. *J. Environ. Sci.* 127, 767–779. doi:10.1016/j.jes.2022.07.003.” It should be:

“Wang, A., Liu, S., Xie, J., Ouyang, W., He, M., Lin, C., et al. (2023). Response of soil microbial activities and ammonia oxidation potential to environmental factors in a typical antimony mining area. *J. Environ. Sci.* 127, 767–779. doi:10.1016/j.jes.2022.07.003.”

In the original article, the **References** for “Zhong et al., 2020” was incorrectly written as “Zhong, L., Wang, J., Zhang, X., and Ying, L. J. (2020). Effects of agricultural land consolidation on ecosystem services: Trade-offs and synergies. *J. Clean. Prod.* 264, 121412. doi:10.1016/j.jclepro.2020.121412.” It should be:

“Zhong, L., Wang, J., Zhang, X., and Ying, L., (2020). Effects of agricultural land consolidation on ecosystem services: Trade-offs and synergies. *J. Clean. Prod.* 264, 121412. doi:10.1016/j.jclepro.2020.121412.”

In the original article there was a mistake in section **Results**, sub-section *Identification of critical factors*, second paragraph. This sentence previously stated:

“The intensity of respiration can reflect soil organism activity and the intensity of material metabolism (Wang, A., et al., 2022).”

The corrected sentence appears below:

“The intensity of respiration can reflect soil organism activity and the intensity of material metabolism (Wang, A., et al., 2023).”

In the original article there was a mistake in section **Discussion**, sub-section *Trade-offs and synergies among soil multi-functionality*, second paragraph. This sentence previously stated:

“A synergistic relationship between Soil regulating services (such as CSR and PFIB) is frequently observed in agro-ecosystems (Lv et al., 2019).”

The corrected sentence appears below:

“A synergistic relationship between Soil regulating services (such as CSR and PFIB) is frequently observed in agro-ecosystems (Li et al., 2022).”

In the original article there was a mistake in section **Discussion**, sub-section *Multifunctional regulation of cultivated land soil for farmers*, second paragraph. This sentence previously stated:

“It is worth noting that our study was carried out at the field scale, and the main body of soil multifunctional regulation was small farmers (Wang et al., 2022).”

The corrected sentence appears below:

“It is worth noting that our study was carried out at the field scale, and the main body of soil multifunctional regulation was small farmers.”

The authors apologize for these errors and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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