

IOP NEWSLETTER 127 February 2022

CONTENTS

Letter from the president News from our members: PhD Thesis of Carlos A. Góis-Marques New position at the Field Museum: Fabiany Herrera Book announcements: Holocene Climate Change and Environment RPP Special Issue: 70th Anniversary of NIGPAS Upcoming meetings

Letter from the president

Greetings Colleagues,

With this newsletter we provide updates on some of our members and new information on regional and international conferences as we transition from virtual to in-person conferences.

Information on the European Paleobotany and Palynology Conference (EPPC) to be held in person in Stockholm this summer (19-22 June 2022), is updated on the conference webpage: https://jirango.com/cms/web/4b67cbd5?lang=eng

Deadline for registration, abstract submission, fieldtrip bookings, and EPPC conference dinner: **1st April, 2022** (Please note that these are HARD deadlines, and that registrations will not be accepted after the cut-off date).

During the EPPC conference we will hold a meeting of the IOP executive committee. **We** continue to invite nominations for honorary members. There will be options for payment of IOP membership dues onsite (please contact IOP secretary for preparation of receipts in advance; Lutz.Kunzmann@senckenberg.de)

The 6th International Palaeontological Congress (IPC6) will be held in Thailand later this year and will include sessions related to plant fossils, e.g., Devonian palaeoenvironments and mass extinctions, Understanding Asian Cenozoic landscape and climate evolution, The evolution of forest ecosystems: dead trees and the stories they tell, and The origin and rise of a land flora: from Laurentia to Gondwana and back again (please visit also the conference homepage at https://ipc6.msu.ac.th/scientific-sessions/).

With these meetings, plus regional meetings, like those detailed below, there will be good opportunities for renewed interaction among colleagues and students. I look forward to meeting and renewing acquaintances and learning new discoveries from ongoing field work and research.

Sincerely, Steve

Steven Manchester (Gainesville, FL, USA), IOP President

News from our members

Defended PhD Thesis: Carlos A. Góis-Marques (University of Lisbon, Portugal)

Dear IOP members,

I have successfully defended my PhD thesis on April 27, 2021, at the Geology department in the Faculty of Sciences of the University of Lisbon. I was supervised by José Madeira (Geologist, University of Lisbon, Portugal), José María Fernández-Palacios (Ecologist from University of La Laguna, Spain) and Miguel Menezes de Sequeira (Botanist from University of Madeira, Portugal).

My thesis was entitled 'The Quaternary palaeobotany of Madeira and Azores volcanic archipelagos (Portugal): insights into the past diversity, ecology, biogeography and evolution' (Góis-Marques, 2020), were I follow the steps of the palaeobotanists Oswald Heer (1809-1883) and Charles Bunbury (1809-1886) and their work on Madeira Island plant fossils (see Heer, 1857; Bunbury 1859).

As an exploratory project, my PhD allowed me to look for plant fossils from Madeira and Azores archipelago in museum collections and to explore, via fieldwork the palaeobotanical potential of these islands. This led me to search and study mid-19th century fossil collections from Madeira Island and São Miguel (Azores) deposited in the Natural History Museum (London), Sedgwick Museum of Earth Sciences (Cambridge) and ETH department of Earth Sciences (Zurich). Further fieldwork in Madeira Island allowed the discovery of several early Pleistocene (1.3 Ma, Calabrian) seed, fruit, flower fossils within lacustrine sediments. Among the published discoveries are the seeds of Eurya stigmosa (R.Ludw.) Mai (Theaceae), the first extinct plant found within the fossil record of an oceanic island, and *Melanoselinum* (= *Daucus*) decipiens (Schrad. & J.C.Wendl.) Hoffm. (Apiaceae) being the oldest carrot fossil known to date and the first evidence of a plant with insular woodiness. The exploration of two islands in the Azores archipelago, the Faial and Terceria Islands allowed the collection of several charcoalified woods that were buried by a pyroclastic density current with 1200 yr BP Faial Islands and the exploration of several Pleistocene leaf beds. A brief published summary of my doctoral thesis is available at the following link https://doi.org/10.5194/eggsj-70-197-2021 with a list of papers published during my PhD.

Currently I am employed as a part-time lecturer at the University of Madeira, teaching the practical's of 'plant anatomy and organogenesis', 'Botany I' and 'Botany II'. However only a small part of the specimens collected were studied during my PhD. Currently I'm working within the Madeira Botanical Group with these fossils, which includes the revision of forgotten collections in Madeira Island museums and the description of Cyperacaeae and Hymenophyllaceae fossils. However, many more are awaiting to be studied such as some of the first fossil bryophytes, Fabaceae flowers and other fruit and seed fossils. My future plans are to pursue a postdoc position to continue my research in Macaronesian archipelagos. As side note, for personal reasons I've spent my last six summers and many holidays in Lyon, France, where I've wrote many chapters of my thesis. If someone in Lyon is interested in plant fossils from insular environments and want me as a postdoc, please let me know.

Best regards, Carlos

Contacts and Social Media

Email: <u>c.goismarques@gmail.com</u> ResearchGate: https://www.researchgate.net/profile/Carlos-A-Gois-Marques Twitter: https://twitter.com/CGoisMarques



Figure 1. My last slide of my thesis defence presentation. Left picture: I (right, blue shirt)) and José Madeira (left) during fieldwork in Faial Island; right picture, from left to right, I, Miguel Menezes de Sequeira, José María Fernández-Palacios and Lea de Nascimento (informal supervisor), while coring temporary ponds in Madeira Island.



Figure 2. Non palaeobotanical field work with palaeobotanical purposes: collecting *Pittosporum coriaceum* (Pittosporaceae), an endemic and rare tree that inhabits the Madeiran temperate stink-laurel forests to study the leaf venation.

References

- Bunbury, C.J.F., 1859. On some Vegetable Remains from Madeira. Quarterly Journal of the Geological Society 15, 50-59.
- Heer, O., 1857. Ueber die fossilen Pflanzen von St. Jorge in Madeira. Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesamten Naturwissenschaften Band XV, 1-40.
- **Góis-Marques CA.** 2020. The Quaternary palaeobotany of Madeira and Azores volcanic archipelagos (Portugal): insights into the past diversity, ecology, biogeography and evolution. Unpublished PhD thesis, Faculdade de Ciências da Universidade de Lisboa.

New position at the Field Museum: Fabiany Herrera

Fabiany Herrera has moved to a new position as Assistant Curator of Paleobotany at the Field Museum in Chicago, Illinois, USA. His themes of interest include paleontology, evolutionary biology, plant systematics, plant anatomy and morphology, as well as paleoclimate and paleobiogeography.



Fabiany Herrera grew up in Colombia, surrounded by the Andes and its many types of forests; from montane to rainforests. He first became interested in rocks and mountains during his high school years and quickly felt in love with fossil and living plants later as an undergraduate student. Some of Fabiany's work includes the earliest evidence of Neotropical rainforests in South America (~60 million years old), enigmatic plants from Mongolia and China (~125 million years old), and fossil floras from Central America (~35-20 million years old). Dr. Herrera completed his Masters and PhD degrees at University of Florida in 2008 and 2014, following his B.S. at Industrial University of Santander, Colombia in 2005. He has served as Postdoctoral Research Associate, Chicago Botanic Garden, 2014-2021, as Adjunct Faculty Member, Biology Department, Elmhurst University, 2017 to present, and as Research Associate, Smithsonian Tropical Research Institute, Panama, 2005 to present.

Fabiany's research investigates 1) The evolutionary origin of the tropical rainforests and flowering plant lineages. 2) The study of Mesozoic plants to improve understanding of the timing of events in seed plant evolution. 3) Paleobiogeographic and paleoclimatic history of the Cenozoic. 4) Integrated paleobotanical and neobotanical studies of plant diversity and evolution.

Fabiany's new email address is: fherrera@fieldmuseum.org

Key publications include the following (full list can be seen here):

- Herrera F., Testo W.L., Field A.F., Clark E.G., Herendeen P.S, Crane P.R., Shi G. 2022. A permineralized Early Cretaceous lycopsid from China and the evolution of crown clubmosses. New Phytologist. https://doi.org/10.1111/nph.17874
- Shi G., Herrera F., Herendeen P.S., Clark E.G., Crane P.R. 2021. Mesozoic cupules and the origin of the angiosperm second integument. Nature. 594: 223–226 <u>https://www.nature.com/articles/s41586-021-03598-w</u>
- Herrera F., G Shi, M. A. Bickner, N. Ichinnorov, A. B. Leslie, P. R. Crane, and P. S. Herendeen. 2021. Early Cretaceous abietoid Pinaceae from Mongolia and the history of seed scale shedding. American Journal of Botany 108(8): 1–17. <u>https://doi.org/10.1002/ajb2.1713</u>
- Carvalho M.R., Jaramillo C., de la Parra F., Caballero-Rodríguez D., Herrera F., et al. 2021. Extinction at the end-Cretaceous set the origin of modern Neotropical rainforests. Science. Vol. 372, Issue 6537, pp. 63-68. https://www.science.org/doi/10.1126/science.abf1969
- Herrera F., Shi G., Mays C., Ichinnorov N., Takahashi M., Bevitt JJ., Herendee PS., Crane PR. 2020. Reconstructing Krassilovia mongolica supports recognition of a new and unusual group of Mesozoic conifers. PLoS ONE 15(1): e0226779. <u>https://doi.org/10.1371/journal.pone.0226779</u>
- Herrera F., M. Carvalho, S.L. Wing, C. Jaramillo, and P.S. Herendeen. 2019. Middle-Late Paleocene Leguminosae Fruits and Leaves from Colombia. Australian Systematic Botany (invited). 32(6): 385-408 <u>https://doi.org/10.1071/SB19001 http://www.publish.csiro.au/SB/SB19001</u>
- Herrera F., M. Carvalho, C. Jaramillo, and S.R. Manchester. 2019. 19 Million-Year-Old Spondioid Fruits from Panama Reveal a Dynamic Dispersal History for Anacardiaceae. International Journal of Plant Sciences 180 (6): 479– 492. <u>https://www.journals.uchicago.edu/doi/abs/10.1086/703551</u>
- Herrera F., G. Shi, N. Ichinnorov, M. Takahashi, E. Bugdaeva, P.S, Herendeen, and P.R. Crane. 2017. The presumed ginkgophyte Umaltolepis has seed-bearing structures resembling those of Peltaspermales and Umkomasiales. Proceedings of the National Academy of Sciences USA: 114 (12) E2385-E2391.
 http://www.pnas.org/content/114/12/E2385.abstract
- Herrera, F., SR. Manchester, and C. Jaramillo. 2012. Permineralized fruits from the late Eocene of Panama give clues of the composition of forests established early in the uplift of Central America. Review of Palaeobotany and Palynology, 175, 10–24
 http://www.epineedinect.com/composition/central/composition/central/composition/central/composition/central/composition/central/cen

http://www.sciencedirect.com/science/article/pii/S0034666712000371

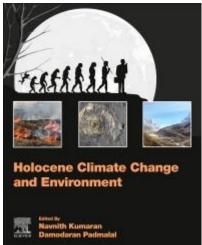
- Wing, S.L., Herrera, F., Jaramillo, C., Gomez, C., Wilf, P., and Labandeira, C.C. 2009. Late Paleocene fossils from the Cerrejón Formation, Colombia, are the earliest record of Neotropical Rainforest. Proceedings of the National Academy of Sciences USA, 106: 18627-18632. <u>http://www.pnas.org/content/106/44/18627.full</u>
- Head, J., Bloch, J. Hasting, A., Bourque, J., Cadena, E., Herrera, F, Polly, P.D., and Jaramillo, C. 2009. Giant Boine Snake From A Paleocene Neotropical Rainforest Indicates Hotter Past Equatorial Temperatures. Nature, 457: 715-718. <u>http://www.nature.com/nature/journal/v457/n7230/abs/nature07671.html</u>
- Herrera, F., CA. Jaramillo, DL. Dilcher, SL. Wing, and C. Gómez-N. 2008. Fossil Araceae from a Paleocene neotropical rainforest in Colombia. American Journal of Botany, 95(12): 1569–1583. <u>http://www.amjbot.org/content/95/12/1569.abstract</u>

Book announcements

New addition to Holocene Climate & Environment

Book Name: Holocene Climate Change and Environment 1st Edition Editors: Navnith Kumaran and Damodaran Padmalal ISBN: 978-0-323-90085-0 Language: English Imprint: Elsevier Published: 21st September 2021 Page count: 691 Link: https://www.elsevier.com/books/holocene-climate-change-and-environment/kumaran/978-0-323-90085-0

Dr. Navnith Kumaran (former Emeritus Scientist of the Council of Scientific & Industrial Research, New Delhi and a retired Senior Scientist of Agharkar Research Institute, Pune, India) and **Dr. Damodaran Padmalal** (Senior Scientist in the National Centre for Earth Science Studies (NCESS) under the Ministry of Earth Sciences, Government of India) edited the book **'Holocene Climate Change and Environment'** with their abundant research expertise as they worked over the past several decades in the field of palaeoclimatic study by using multi-proxy data.



The declared scope of the book is to compile the interdisciplinary research database on Holocene climate change from environmentally and geologically diverse regions across the Indian subcontinent which include detailed case studies of methods, data and human-environment impacts allowing for applications in climate modelling and global prediction.

Authors categorized the entire content of the book in three sections – 1. Climate Change; 2. Monsson Variability; and 3. Environmental Changes by distributing in 33 chapters.

The first section includes Holocene climate change events at different time intervals based on high-resolution, multi-proxy

records and other physical tools from all regions of India. The second section covers reviewbased records on Monsoon variability in Indian sub-continent from both marine and continental archives of biological and isotopic proxies. Section 3 deals with the Holocene environmental changes by reviewing history of coastline, fluvial system, wetlands, landforms, vegetation and ecosystem. Record of Geoarchaeology, Trace metal geochemistry, Magnetic minerology, Luminescence dating, Remote sensing and GIS based study have added a new dimension toward understanding the Holocene glacial retreats evolution of coastal landforms, landscape dynamics and human evolution. Finally in the last chapter, the authors stated the advancement of Holocene studies in global perspectives.

With all perspectives, it can be said that the book definitely is a valuable record and useful reference for all those working in Climate Science and Earth Science including Environmental Geology and Natural Hazards.

Sudha Gupta Assistant Professor of Botany Pteridology-Palaeobotany Section Department of Botany, University of Kalyani Kalyani-741235, West Bengal, INDIA E-mail: <u>sg.botany@klyuniv.ac.in</u> ; <u>sudhaguptain@gmail.com</u>

RPP Special Issue in occasion of the 70th Anniversary of Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGPAS).

Issue Editors: Jun Wang, Hermann W. Pfefferkorn, Stanislav Opluštil, Hans Kerp

Open Access link: https://www.sciencedirect.com/journal/review-of-palaeobotany-andpalynology/vol/294/suppl/C

A 300 ma coal swamp forest was *in situ* preserved by volcanic ash fall in the Wuda Coalfield, Inner Mongolia, China. Based on the taphonomic similarities to the world-famous Italian UNESCO World Heritage Site of the Roman city of Pompeii, this flora has been called Chinese "vegetational Pompeii" or the Wuda Tuff Flora.

During the past two decades, along with the progress of the open cast mining, outcrops have been accessible here and there, offering opportunities for specimen collecting and quadrat quantitative documentation. Tens of thousands of specimens have been collected and quadrat analysis has been conducted on areas over 8000 meter squares in total, for systematic study and actual floral reconstruction. The preservation of the materials is excellent. Plant branches/organs are not only often complete, but also often with inner structure partially preserved. As such, the materials are able to facilitate whole-plant reconstruction in many cases, and commonly to reach a natural taxa status with both fertile and vegetative organs known, so that the Wuda Tuff Flora proves to be a plant fossil lagerstätter, which would promote the taxonomy of late Palaeozoic plants and the community ecology of peat-forming forest. The latest research progress has been compiled in this special issue, including: 1) A review of the process of discovery, excavation and research on "vegetational Pompeii" and a detailed explanation for the interaction of the ash with the peat, and the environmental evolution (Wang J. et al., 2021, Editorial, Article 104502). 2) The dating of the absolute age of "vegetational Pompeii", 298.34 ± 0.09 Ma, very close to the Carboniferous - Permian boundary (Schmitz et al., 2021, Article 104244). 3) A case study of a 80 m² forest reconstruction to introduce the methodology of community ecology, i.e. field quadrat investigation and community ecological analysis (Opluštil et al., 2021, Article 104347). 4) Systematic study about Lycopsids (D'Antonio et al., 2021, Article 104203), sphenopsids (Libertín et al., 2021, Article 104484; Liu et al., 2021, Article 104245), seed fern (Zhou et al., 2021, Article 104282), progymnosperms noeggerathialeans (Wang J. et al., 2021, Article 104204; Bek and Wang, 2021, Article 104379), marattialean tree ferns (Wang S.J. et al., 2021, Article 104378; Wan et al., 2021, Article 104382; Votočková-Frojdová et al., 2021, Article 104479; Zhou et al., 2021, Article 104269).



Cover page image: *Tingia unita* Wang, dedicated to the 70th Anniversary of NIGPAS.

In this issue (1 editorial + 15 articles)

- 1. Editorial: Permian "vegetational Pompeii": A peat-forming in situ preserved forest from the Wuda Coalfield, Inner Mongolia, China Introduction to a volume of detailed studies. Jun Wang, Hermann W. Pfefferkorn, Stanislav Opluštil, Hans Kerp, Article 104502.
- A volcanic tuff near the Carboniferous–Permian boundary, Taiyuan Formation, North China: Radioisotopic dating and global correlation.
 Mark D. Schmitz, Hermann W. Pfefferkorn, Shu-Zhong Shen, Jun Wang, Article 104244.
- 3. T⁰ Early Permian coal-forest preserved in situ in volcanic ash bed in the Wuda Coalfield,

Inner Mongolia, China.

Stanislav Opluštil, Jun Wang, Hermann W. Pfefferkorn, Josef Pšenička, Jiří Bek, Milan Libertín, Jin-rong Wang, Ming-li Wan, Xue-zhi He, Meng-xiao Yan, Hai-bo Wei, Jana Votočková Frojdováf, Article 104347.

- 4. Two new species of *Sigillaria* Brongniart from the Wuda Tuff (Asselian: Inner Mongolia, China) and their implications for lepidodendrid life history reconstruction. Michael P. D'Antonio, C. Kevin Boyce, Jun Wang, Article 104203.
- A whole calamitacean plant *Palaeostachya guanglongii* from the Asselian (Permian) Taiyuan Formation in the Wuda Coalfield, Inner Mongolia, China. Li Liu, Josef Pšenička, Jiří Bek, Ming-li Wan, Hermann W. Pfefferkorn, Jun Wang, Article 104245.
- New data about three sphenophylls and their spores from the volcanic tuff of Wuda, Taiyuan Formation, earliest Permian, China.
 Milan Libertín, Jiří Bek, Jun Wang, Stanislav Opluštil, Josef Pšenička, Jana Votočková Frojdová, Article 104484.
- 7. A whole noeggerathialean plant *Tingia unita* Wang from the earliest Permian peatforming flora, Wuda Coalfield, Inner Mongolia. Jun Wang, Shan Wan, Hans Kerp, Jiří Bek, Shi-jun Wang, Article 104204.
- 8. A comparative study on *in situ* spores of some Paleozoic noeggerathialeans and their implications for dispersed spore assemblages. Jiří Bek, Jun Wang, Article 104379.
- 9. *Scolecopteris minuta* sp. nov., a marattialean fern from the early Permian Wuda Tuff Flora of Inner Mongolia, China.

Ming-li Wan, Wen-jun Sun, Jiří Bek, Feng Liu, Christopher Hill, Jun Wang, Article 104246.

- 10. A zygopterid fern with fertile and vegetative parts in anatomical and compression preservation from the earliest Permian of Inner Mongolia, China. Josef Pšenička, Jun Wang, Jiří Bek, Hermann W. Pfefferkorn, Stanislav Opluštil, Wei-ming Zhou, Jana Votočková Frojdová, Milan Libertín, Article 104382.
- 11. Stem diversity of the marattialean tree fern family Psaroniaceae from the earliest Permian Wuda Tuff Flora.

Shi-Jun Wang, Jun Wang, Li Liu, Jason Hilton, Article 104378.

- A 298-million-year-old gleicheniaceous fern from China. Xue-zhi He, Wei-ming Zhou, Dan-dan Li, Shi-jun Wang, Jason Hilton, Jun Wang, Article 104355.
- 13. A new leptosporangiate fern *Oligosporangiopteris zhongxiangii* gen. and sp. nov. from the lowermost Permian of Inner Mongolia, China morphology, anatomy and reproductive organs.

Jana Votočková Frojdová, Jun Wang, Josef Pšenička, Jiří Bek, Stanislav Opluštil, Milan Libertín, Article 104479.

 A new anachoropterid fern from the Asselian (Cisuralian) Wuda Tuff Flora. Wei-ming Zhou, Josef Pšenička, Jiří Bek, Ming-li Wan, C. Kevin Boyce, Jun Wang, Article 104346.

- Yangopteris ascendens (Halle) gen. et comb. nov., a climbing alethopterid pteridosperm from the Asselian (earliest Permian) Wuda Tuff Flora. Wei-ming Zhou, Shan Wan, Ming-li Wan, Jason Hilton, Josef Pšenička, Jun Wang, Article 104282.
- 16. **Plant–insect interactions in the early Permian Wuda Tuff Flora, North China.** Zhuo Feng, Jun Wang, Wei-Ming Zhou, Ming-Li Wan, Josef Pšenička, Article 104269.

Taken together with previously published about 40 papers, these articles present the significant contribution of the Chinese "vegetational Pompeii" as a plant fossil lagerstätter to our understanding of late Paleozoic plants and forest community ecology.

Jun Wang Nanjing Institute of Geology and Palaeontology, CAS 2022-01-04, Nanjing **Upcoming meetings**

MPC 2022 - Mid-Continent Paleobotanical Colloquium 2022 Friday May 6th to Sunday May 8th, 2022 Oak Spring Garden Foundation, Upperville, Virginia

Datz-Symposium

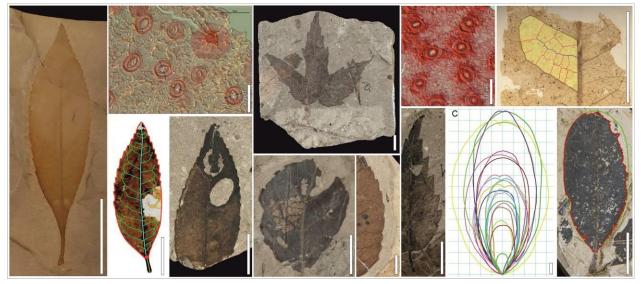
From functional traits to models – An interdisciplinary perspective on structure, functioning and evolution of ecosystems in deep-time

May 17-19, 2022; Dresden (Germany).

&

30th International Workshop on Plant Taphonomy

May 19-21, 2022; Dresden (Germany).



Symposium website:

https://www.senckenberg.de/en/datz-symposium-from-functional-traits-to-models-and-30thinternational-workshop-on-plant-taphonomy/#content-0004_2 Deadline for registration and abstract submission: April 14, 2022 Contact: Christian.Mueller@senckenberg.de

Follow us on Twitter: @CMplantinsects @AgatheToumoulin

11th European Palaeobotany and Palynology Conference 19–22 June, 2022, Stockholm, Sweden EPPC Stockholm



Regularly updated information on conference homepage: https://jirango.com/cms/web/4b67cbd5?lang=eng

Deadline for registration, abstract submission, fieldtrip bookings, conference dinner: 1st April, 2022 (Please note that these are HARD deadlines, and that registrations will not be accepted after the cut-off date)

Contact address for enquiries: <u>11th.eppc@gmail.com</u>

Keep up to date at: <u>https://www.facebook.com/11thEPPC</u>

2022 Annual NECLIME Conference Georgian National Museum in Tbilisi, Georgia September 18- 26, 2022

Conference homepage: <u>https://www.neclime.de/news.html</u> Contact: Angela Bruch (angela.bruch@senckenberg.de).



For further information please visit: <u>https://ipc6.msu.ac.th/</u> Deadline for registration and abstract submission June 15, 2022

2nd Asian Palaeontological Congress August 3-7, 2023, Tokyo, JAPAN

https://www.apc2.org/?fbclid=IwAR1IDYRXDJj751dQ8pkmULhOBrBX8WG433MVHtQurTBew n5RS9WIU7y1ZMY

Here is the link to 1st circular https://www.apc2.org/pdfs/APC2_1st_circular.pdf_

Disclaimer:

Newsletter edited by Lutz Kunzmann & Steven Manchester.

The views expressed in the newsletter are those of its correspondents, and do not necessarily reflect the policy of IOP.

Newsletters are regularly issued in February, June and October every year.

Please send us your contributions for the next edition of our newsletter (128) until end of June 2022. Contributions should be sent to Lutz.Kunzmann(at)senckenberg.de.

Homepage: <u>www.palaeobotany.org</u>

https://www.facebook.com/International-Organisation-of-Palaeobotany-543548202500847/

<u>https://twitter.com/hashtag/paleobotany?lang=en</u>

O https://www.instagram.com/explore/tags/paleobotany/?hl=en