Indigenous Knowledge In Borneo: **A Bibliometric Review**

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Abstract

The paper is to presents a bibliometric review of the research publication output of indigenous knowledge in Borneo. This study adopted a bibliometric analysis based on the data obtained from the Scopus research database. The main keyword used is "Borneo", to highlight research relevant that reflected through its publications and their research productivity. This study attempts to focus analyses the results using standard bibliometric indicators such as publication year, document type, source type, source title, languages, subject area, keywords analysis, geographical distribution, authorship, active institutions, and citation analysis on the subject of "Borneo" throughout 5 years (2017-2021) impact study. From the major findings, Universiti Malaysia Sabah and Universiti Malaysia Sarawak from Malaysia are the institutions and country that produced the most publications output on this study. The study also shows the results on the most subjects are in agricultural and biological sciences, arts, and humanities, biochemistry, genetics, and molecular biology. Besides that, this study aims to facilitate the search for information, bibliography materials and knowledge topics, especially on Borneo.

Keywords: *Borneo, Indigenous Knowledge, Bibliometric, Scopus, research productivity*

Introduction

Indigenous knowledge refers to the understandings, skills, and philosophies developed by societies with long histories of interaction with their natural surroundings. For rural and indigenous peoples, local knowledge informs decision-making about fundamental aspects of day-to-day life.

Borneo is the third-largest island in the world and the largest in Asia. The island is politically divided among three countries: Malaysia and Brunei in the north, and Indonesia to the south. The island is politically divided among three countries: Malaysia and Brunei in the north, and Indonesia to the south. It is the only island in the world to be politically administered by three countries at once. Approximately 73% of the island is Indonesian territory. In the north, the East Malaysian states of Sabah and Sarawak make up about 26% of the island. Additionally, the Malaysian federal territory of Labuan is situated on a small island just off the coast of Borneo. The sovereign state of Brunei, located on the north coast, comprises about 1% of Borneo's land area. A little more than half of the island is in the Northern Hemisphere, including Brunei and the Malaysian portion, while the Indonesian portion spans the Northern and Southern hemispheres. Table 1 summarizes the understanding of its economy by the countries.

Literature Review

Indigenous knowledge is highly connected to spirituality. According to Clarry Sada (2019), any development must accommodate the indigenous people gradually to preserve the environment and culture. Borneo Island is one of the heartbeats of the world, therefore, the governments should preserve the land of Borneo as conservation areas and forests. However, in the last few years, it has become the industrial area so many business organizations run their businesses in various sectors such as plantation, mining, and other explorations. Unfortunately, the development has not got much impact on the indigenous people in the area because the local has not yet ready for the impact of industrialization.

Bibliometric analysis is a widely used research method for detecting the state of the art for a particular field. The method can utilize quantitative analysis and statistics to describe patterns of publications within a given period or body of literature. Researchers employ bibliometric analysis for determining the evaluation of a field of study or to ascertain influences and the relationships of several distinct fields. The term bibliometric was first invented by Fairthorne (1969) and Pritchard (1969). Bibliometrics is one of the most systematic measures for analysing literature and most often uses quantitative approaches. In addition, the bibliometric analysis can identify the research gaps and provide guidance for the future studies within the emerging field.

Table 1
Economy by the countries

Countries	Economy
Brunei	Up to 90% of the state's GDP is dependent on crude oil and natural gas. Because of its rich oil resources, Brunei is the fourth-largest producer of oil in Southeast Asia.
Malaysia (Sabah & Sarawak)	Timber export was the main resource of Sabah's economy, but with efforts to save forests and its flora and fauna, the palm oil trade has emerged as an alternative trade. Other agricultural products that Sabah trades in, include rubber and cacao along with fisheries and vegetables. With time, the tourism industry has turned out to be the second-largest contributor to the economy.

	LNG and petroleum are the main sources of the Malaysian federal government's economy for decades, while Sarawak merely receives a royalty. Tropical hardwood timber is the backbone of Malaysian exports and Sarawak is one of the largest exporters of such type of wood. Both the state's economy is also influenced by its rising tourism industry. Almost every year the state witnesses a drastic increase in the number of tourists visiting Sabah and Sarawak.
Indonesia	Around 73% of the island of Borneo is covered by Kalimantan, the Indonesian territory, which is sub-divided into four major parts such as East Kalimantan, West Kalimantan, North Kalimantan, and South Kalimantan. The economy of East Kalimantan is dependent on natural resources such as oilfield exploration, natural gas as well as coal and gold mining. Other sources of income include agriculture and tourism. The economy of South Kalimantan is supported by many economic sectors. Agricultural sectors include rice, corn, peanuts, soy beans, coconut, rubber, cloves, and cacao. Livestock, fish products, and the forestry sector have a major role in the economy of South Kalimantan. The mining sector is ruled by petroleum, coal, diamond, gold, iron ore, and tiles. Wood carvings, rattan and wood furniture, reptile skins, and
	weaving are famous handicrafts. Major exports for West Kalimantan are processed wood, rubber, and fish while log, sawn timber, rattan, and resin come from Central Kalimantan.

Method

Scopus science database was used in this bibliometric research to analyse collected documents with the title, abstract, and keyword of "Borneo". This study analyses all types of publications released from 2017 to June 2021 in the Scopus database. Scopus is an extensive multidisciplinary database containing citations and abstracts from peer-reviewed papers, industry journals, books, patent records, and conference publications. It offers tools to track, analyse and visualize search data. In addition, currently, the Scopus database contains more than 39,743 titles, of which over 25,000 actives and 14,558 inactive titles (mostly predecessors of the active titles) and it has also contained more than 210,000 books. This kind of database can provide an inclusive overview of the scientific research output of the world. Currently, the Scopus database is considered one of the primary sources of related information by the international scientific community.

Bibliometric analysis was executed by the Scopus database as of June 2021. The following keywords have been used in the Scopus database to search relevant articles which is related to (TITLE-ABS-KEY (Borneo) AND (LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017).

- Microsoft Excel 2019 was used to compute the frequency and percentage of each publication and to create appropriate graphical representations.

Objectives

This research conducted a bibliometric analysis published on Borneo by involving the following research questions:

RQ1 What is the current trend and impact of publication on Borneo studies?

RQ2. Which are the most productive and influential countries, institutions, and authors on Borneo studies?

RQ3. Which are the most influential articles on Borneo's studies?

RQ4. How many publications can be collected for bibliographies?

This paper has been divided into four sections containing methodology, results, and findings, and interpretations and discussion of various considerations and elaboration in answering the research questions. This research aimed to gain a deeper understanding and trends research on Borneo studies, especially in its increasing worldwide of information and knowledge on Borneo studies.

This study will also help the researchers to propose future research recommendations by examining the Scopus database publications in the indigenous knowledge in Borneo. Meanwhile, from the results, we can compile and collect those relevant publications into the bibliographies for academic and research references.

Results and Findings

This part shows the results obtained from the bibliometric analysis to solve the problems raised in the research. From the Scopus research database, 1572 documents related to the Borneo study were generated. The current research aimed to answer the current trend and impact of publication in Borneo studies. Secondly, to recognize the most productive and influential countries, institutions, and authors on Borneo studies, and finally, to know the most influential articles on Borneo studies.

Annual growth data up until June 2021 were also presented in the findings, including their frequency and percentage. To understand the current trends and impact of publications in Borneo studies, we used a total of publications divided by year, country, journal, author, and organization to analyse publication trends in Borneo studies. We use bibliographic data collected from the Scopus database to calculate the data for this analysis. The discussion over the annual growth will show the trend and impact of publications Borneo studies is the first point for showing the current trends.

Publication by year

Table 2 shows the number of publications between 5 years from 2017 to 2021. The study on Borneo is growing steadily, in 2020 has the highest peak, with 415 publications reported (26.40%) from the total of 1572 publications generated in Scopus database.

Table 2
Annual growth of publication

Year	TP	%
2021	176	11.20%
2020	415	26.40%
2019	337	21.44%
2018	348	22.14%
2017	296	18.83%

Document type

We also analyse the document gathered from the Scopus database based on the document type, source type, as well as the source title. The document type can be either journal article, conference paper, review, article, book, book chapter, or editorial. Table 3 presents the document type analyses from this study. Journal articles represent highest percentage (80.85%) of the articles published on Borneo research study, followed by conference paper (12.28%) review paper (2.86%) and book chapter (1.97%).

Table 3
Publication by document type

Document Type	TP	%
Article	1271	80.85%
Conference Paper	193	12.28%
Review	45	2.86%
Book Chapter	31	1.97%
Book	1	0.06%

TP: Total publication

Source type

While there are various document types for the published articles on Borneo, there are also different categories of source type identified in this study. Table 4 shows that most of the articles are published in the journal compared to conference proceedings and books.

Table 4
Publication by source type

Source Type	TP	%
Journal	1343	85.43%
Conference Pro-ceeding	184	11.70%
Book Series	28	1.78%
Book	17	1.08%

TP: Total publication

Source title

From the various journals published based on the objective of the studies. Table 5 below shows the top source titles with minimum (TP=10) that have been published and produced by each source title. It can be seen from the table that Iop Conference Series Earth and Environmental Science host the highest paper on relevant study (TP=72). Followed by Zootaxa (TP=45) and Biodiversitas (TP=34). Meanwhile the Journal of Physics Conference Series, Phytotoxa and Aip Conference Proceedings have published at least (TP=20).

Table 5
Publication by source title

Source Title	TP	%
Iop Conference Series Earth and Environmental Science	72	4.58%
Zootaxa	45	2.86%
Biodiversitas	34	2.16%
Journal of Physics Conference Series	24	1.53%
Phytotaxa	22	1.40%
Aip Conference Proceedings	20	1.27%
Biological Conservation	17	1.08%
Scientific Reports	17	1.08%
Plos One	14	0.89%
Biotropica	13	0.83%
Forest Ecology and Management	13	0.83%
Iop Conference Series Materials Science and Engineering	13	0.83%
Malaysian Applied Biology	13	0.83%
Biogeosciences	12	0.76%
Zookeys	12	0.76%
Environmental Research Letters	11	0.70%
Peerj	11	0.70%
Forests	10	0.64%
Journal Of Sustainability Science and Management	10	0.64%
Raffles Bulletin of Zoology	10	0.64%

Languages of documents

Based on Table 6, English is commonplace for most of the publications in this research domain (TP=1571; 99.94%) and another encountered language include French (TP=1, 0.06%)

Table 6
Publication by languages

Language	TP	%
English	1571	99.94%
French	1	0.06%

TP: Total publication

Subject area

This study next classifies the published documents based on the subject area as summarizes in Table 7. The distribution of research on Borneo emerges mainly from Agricultural and Biological Sciences (TP=772, 49.11%), Environmental Science (TP=475, 30.22%) and Earth and Planetary Sciences (TP=277, 17.62%). However, there are also other subject areas that also published articles on Borneo as reported in Table 7.

Table 7
Publication by subjects

Subject Area	TP	%
Agricultural and Biological Sciences	772	49.11%
Arts and Humanities	52	3.31%
Biochemistry, Genetics and Molecular Biology	151	9.61%
Business, Management and Accounting	22	1.40%
Chemical Engineering	6	0.38%
Chemistry	35	2.23%
Computer Science	56	3.56%
Decision Sciences	20	1.27%
Dentistry	3	0.19%
Earth and Planetary Sciences	277	17.62%
Economics, Econometrics and Finance	18	1.15%
Energy	74	4.71%
Engineering	83	5.28%
Environmental Science	475	30.22%
Health Professions	4	0.25%
Immunology and Microbiology	73	4.64%
Materials Science	37	2.35%
Mathematics	13	0.83%
Medicine	158	10.05%
Multidisciplinary	58	3.69%
Neuroscience	13	0.83%
Nursing	4	0.25%
Pharmacology, Toxicology and Pharmaceutics	42	2.67%
Physics and Astronomy	62	3.94%
Psychology	1	0.06%
Social Sciences	185	11.77%
Veterinary	17	1.08%

TP: Total publication

Keywords analysis

Table 8 showed the top of keywords used from the published research on Borneo. This analysis described the research relevant on Borneo studies that emerged the niche areas to further research.

Table 8
Keywords analysis

Subject Area	TP	%
Borneo	769	48.92%
Malaysia	384	24.43%
Indonesia	204	12.98%
East Malaysia	191	12.15%
Article	178	11.32%
Sabah	167	10.62%
Animals	158	10.05%
Animal	155	9.86%
Sarawak	152	9.67%
Human	129	8.21%
Biodiversity	127	8.08%
Nonhuman	122	7.76%
Kalimantan	110	7.00%
Male	99	6.30%
Female	95	6.04%
Southeast Asia	84	5.34%
Tropical Forest	81	5.15%
Elaeis	80	5.09%
Humans	77	4.90%
Forestry	75	4.77%
Rainforest	70	4.45%
Taxonomy	70	4.45%
Phylogeny	69	4.39%
Controlled Study	68	4.33%
Brunei Darussalam	66	4.20%
Forest	61	3.88%
Climate Change	59	3.75%
Deforestation	58	3.69%
New Species	57	3.63%
Adult	55	3.50%
Genetics	55	3.50%
Tropics	55	3.50%
Forests	51	3.24%
Sumatra	51	3.24%
Conservation	49	3.12%
Sunda Isles	46	2.93%
Greater Sunda Islands	44	2.80%
Land Use	43	2.74%

Ecosystem	41	2.61%
Physiology	41	2.61%
Remote Sensing	39	2.48%
Plasmodium Knowlesi	36	2.29%
Species Diversity	36	2.29%
Genetic Variation	35	2.23%
Oil Palm	35	2.23%
Major Clinical Study	34	2.16%
Peatland	34	2.16%
Classification	33	2.10%
Malaria	33	2.10%
Parasitology	33	2.10%
Unclassified Drug	33	2.10%
Brunei	32	2.04%
Morphology	32	2.04%
Isolation And Purification	31	1.97%
Pacific Ocean	31	1.97%
Species Richness	31	1.97%
Tree	31	1.97%
Habitat Fragmentation	30	1.91%
Primate	30	1.91%
Chemistry	29	1.84%
Polymerase Chain Reaction	29	1.84%
Priority Journal	29	1.84%
Selective Logging	29	1.84%
Sustainable Development	29	1.84%
Concentration (composition)	28	1.78%
Ecosystems	28	1.78%
Pongo Pygmaeus	28	1.78%
South China Sea	28	1.78%
Agriculture	27	1.72%
Land Use Change	27	1.72%
Tropical Environment	27	1.72%
Tropical Region	27	1.72%
Wetlands	27	1.72%
Environmental Protection	26	1.65%
Forest Management	26	1.65%
Mammalia	26	1.65%
Plantation	26	1.65%
Carbon Dioxide	25	1.59%
Drought	25	1.59%
Mammal	25	1.59%
Tropical Rain Forest	25	1.59%
El Nino	24	1.53%
Palm Oil	24	1.53%
Peat	24	1.53%
Trees	24	1.53%
Animalia	23	1.46%
Distribution	23	1.46%
Ecology	23	1.46%
Endangered Species	23	1.46%
Logging	23	1.46%
Logging (timber)	23	1.46%
Prevalence	23	1.46%

TP: Total publication

Distribution of publication by countries

Table 9 indicates the top countries that collaborated to produce the publication on Borneo studies. There are 8 countries in the rank produced above (TP=100) on the research. Malaysia is the highest (TP=992), Indonesia (TP=527) and United Kingdom (TP=260). Followed by United States (TP=224), Australia (TP=155), Japan (TP=154), Brunei Darussalam (TP=140) and Germany (TP=104). From the table 9, the remaining countries also shown the high interest to collaborate their research on Borneo from difference perspectives

Table 9
Publications by countries

Country	TP	%
Malaysia	992	63.10%
Indonesia	527	33.52%
United Kingdom	260	16.54%
United States	224	14.25%
Australia	155	9.86%
Japan	154	9.80%
Brunei Darussalam	140	8.91%
Germany	104	6.62%
Singapore	79	5.03%
Netherlands	65	4.13%

China	56	3.56%
France	56	3.56%
Czech Republic	27	1.72%
Switzerland	27	1.72%
Canada	23	1.46%
Thailand	21	1.34%
Italy	20	1.27%
South Africa	18	1.15%
Spain	18	1.15%
India	17	1.08%
Norway	17	1.08%
South Korea	17	1.08%
New Zealand	14	0.89%
Taiwan	14	0.89%
Austria	12	0.76%
Denmark	11	0.70%
Belgium	9	0.57%
Saudi Arabia	9	0.57%
Bangladesh	8	0.51%
Finland	8	0.51%
Pakistan	8	0.51%
Panama	8	0.51%
Philippines	8	0.51%
Portugal	8	0.51%
Sweden	8	0.51%
Vietnam	8	0.51%
Russian Federation	7	0.45%
Hong Kong	6	0.38%
Poland	6	0.38%
Hungary	5	0.32%
Nigeria	5	0.32%

TP: Total publication

Authorship analysis

Table 10 shows the number of author(s) per documents. The top author is by Professor Dr Benoît Goossens from Cardiff University, United Kingdom (TP=46), followed by Associate Professor Dr Henry Bernard from (TP=30), Professor Dr Charles Santhanaraju Vairappan (TP=27), Associate Professor Dr Monica Suleiman (TP=23) from Universiti Malaysia Sabah. Other authors also published more than 20 publications are Associate Professor Dr Mohd Azlan Jayasilan (TP=22) from Universiti Malaysia Sarawak.

Table 10
Publications by autoship

Author Name	TP	%
Goossens, B.	46	2.93%
Bernard, H.	30	1.91%
Vairappan, C.S.	27	1.72%
Suleiman, M.	23	1.46%
Mohd-Azlan, J.	22	1.40%
Ewers, R.M.	19	1.21%
Ancrenaz, M.	18	1.15%
Meijaard, E.	18	1.15%
Reynolds, G.	17	1.08%
Struebig, M.J.	17	1.08%
Kamada, T.	16	1.02%
Nilus, R.	16	1.02%
Vijith, H.	16	1.02%
Wong, S.Y.	16	1.02%
Boyce, P.C.	15	0.95%
Dodge-Wan, D.	15	0.95%
Jeffree, M.S.	15	0.95%
Budiman, E.	14	0.89%
Burslem, D.F.R.P.	14	0.89%
Chung, A.Y.C.	14	0.89%
Das, I.	14	0.89%

TP: Total publication

Most active institutions

Table 11 shows the affiliations from which most of the publications produced. Universiti Malaysia Sabah is the top rank with (TP=265), followed by Universiti Malaysia Sarawak (TP=217) and Universiti Brunei Darussalam (TP=115). Other institutions produced below 100 publications on the relevant research.

Table 11
Publications by active institutions

Institution	TP	%
Universiti Malaysia Sabah	265	16.86%
Universiti Malaysia Sarawak	217	13.80%
Universiti Brunei Darussalam	115	7.32%
Forest Research Centre - Sandakan	78	4.96%
Lembaga IlmuPengetahuan Indonesia	75	4.77%
University of Malaya	70	4.45%
Kyoto University	57	3.63%
Sabah Wildlife Department	53	3.37%
IPB University	50	3.18%
Universiti Putra Malaysia	48	3.05%
DanauGirang Field Centre	48	3.05%
Universiti Kebangsaan Malaysia	47	2.99%
National University of Singapore	45	2.86%
Cardiff University	45	2.86%
College of Biomedical and Life Scienc-es	44	2.80%
Universiti Malaysia Terengganu	43	2.74%
Universiti Sains Malaysia	42	2.67%
The University of Queensland	39	2.48%
Universitas Gadjah Mada	36	2.29%
Curtin University, Malaysia	35	2.23%
Imperial College London	35	2.23%

Citation analysis

The productivity of the researchers also can be measured by the number of citations that has been cited per year. Table 12 discloses the topmost cited articles from Scopus database with at least 40 citations received (based on the number of times being cited). The document entitled "Topography shapes the structure, composition and function of tropical forest landscapes" by Jucker T., et al. (2018) has so far received the highest number of citations (84 citations). Followed by Qie, L et al. (2017), document entitled "Long-term carbon sink in Borneo's forests halted by drought and vulnerable to edge effects" (68 citations), and a document entitled "Impact of regional haze towards air quality in Malaysia: A review" by Latif M.T., et al. (2018) which received 67 citations. Another document entitled "Palaeolithic cave art in Borneo" by Aubert M., et al. (2018) also received (61 citations). This table also shown the most influence document with minimum of 40 citations received throughout the year.

Table 12
Publications by citations

Authors	Title	Year	Source Title	Cited by
Jucker T., et al. (2018)	Topography shapes the structure, composition and function of tropical forest landscapes	2018	Ecology Letters	84
Qie L., et al. (2017)	Long-term carbon sink in Borneo's forests halted by drought and vulnerable to edge effects	2017	Nature Commu-nications	68
Latif M.T., et al. (2018)	Impact of regional haze towards air quality in Malaysia: A review	2018	Atmos-pheric Environ-ment	67
Aubert M., et al. (2018)	Palaeolithic cave art in Borneo	2018	Nature	61
Voigt M., et al. (2018)	Global Demand for Natural Resources Eliminated More Than 100,000 Bornean Orangutans	2018	Current Biology	55

Santika T., et al. (2017)	Community forest management in Indonesia: Avoided deforestation in the context of anthropgenic and climate complexities	2017	Global Environmental Change	55
Taufik M., et al. (2017)	Amplification of wildfire area burnt by hydrological drought in the humid tropics	2017	Nature Climate Change	53
Sa'adi Z., et al. (2017)	Projection of spatial and temporal changes of rainfall in Sarawak of Borneo Island using statistical downscaling of CMIP5 models	2017	Atmospheric Research	51
Sa'adi Z., et al. (2019)	Trends analysis of rainfall and rainfall extremes in Sarawak, Malaysia using modified MannKendall test	2019	Meteorology and Atmospheric Physics	49
Asner G.P., et al. (2018)	Mapped aboveground carbon stocks to advance forest conservation and recovery in Malaysian Borneo	2018	Biological Conservation	49
Ma C.-K., et al. (2017)	Repair and rehabilitation of concrete structures using confinement: A review	2017	Construction and Building Materials	49
Ashton L.A., et al. (2019)	Termites mitigate the effects of drought in tropical rainforest	2019	Science	48
Usinow-icz J., et al. (2017)	Temporal coexistence mechanisms contribute to the latitudinal gradient in forest diversity	2017	Nature	47
Morgans C.L., et al. (2018)	Evaluating the effectiveness of palm oil certifiction in delivering multiple sustainability objectives	2018	Environmental Research Letters	46
Gaveau D.L.A., et al. (2019)	Rise and fall of forest loss and industrial plantations in Borneo (2000–2017)	2018	Conservation Letters	44
Luke S.H., et al. (2017))	The effects of catchment and riparian forest quality on stream environmental conditions across a tropical rainforest and oil palm landscape in Malaysian Borneo)	2017	Ecohydrology	43

Abram N.K., et al. (2017)	Oil palmcommunity conflict mapping in Indonesia: A case for better community liaison in planning for development initiatives	2017	Applied Geography	43
Santika T., et al. (2019)	Does oil palm agriculture help alleviate poverty? A multidimensional counterfactual assessment of oil palm development in Indonesia	2019	World Development	41
Riutta T., et al. (2018)	Logging disturbance shifts net primary productivity and its allocation in Bornean tropical forests	2018	Global Change Biology	41
Wearn O.R., et al. (2017)	Mammalian species abundance across a gradient of tropical landuse intensity: A hierarchical multispecies modelling approach	2017	Biologcal Conservation	41
Breitfeld H.T., et al. (2017)	A Triassic to Cretaceous Sundaland-Pacific subduction margin in West Sarawak, Borneo	2017	Tectonophysics	41

Conclusion

This study has initiated a review of all kinds of scholarly works published to date on the topic of Borneo. The study reports the trend of the previous studies using selected bibliometric indicators as obtained from the Scopus database. Overall, bibliometric details of 1572 documents were extracted from the Scopus database. Most of the articles were published in the journal (TP=1343), and English becomes a primary language (99.94%).

Mainly topic about Borneo comes from the subjects agricultural and biological sciences, arts, and humanities, biochemistry, genetics, and molecular biology. As for the contributing institutions and countries, the top rank is from Universiti Malaysia Sabah and Universiti Malaysia Sarawak (Malaysia), Universiti Brunei Darussalam (Brunei) and Lembaga Ilmu Pengetahuan Indonesia (Indonesia).

Overall, this bibliometric data analysis can be one of the best references for the K@Borneo in compiling the resources on the topic of Borneo. The Indigenous knowledge of Borneois presented in the world of academic research and be part of the research niche areas that covers expand in the research journals based on the contribution countries.

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Copyright statement

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