

# **Ecological Solutions and Evidence: A Bibliometric Study**

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## **ABSTRACT**

*The present study is based on the Bibliometric study analysis of 260 research articles published in 3 volumes that appeared in the British Ecological Society Journal with the name Ecological Solution and Evidence from 2021 to 2023 the analysis covers mainly the number of article authorship pattern country-wise, institute-wise, degree of collaboration, author productivity, length of papers, etc. The results show that out of a total of 260 single-author contributed 55(%) of the articles, while 160 (%) of the articles were contributed by joint authors it has been revealed that most of the contributors are from Australia and the USA 32(12.30%) the study also shows the majority articles 260(%) is published in the 3 years from 2021 to 2023 in the journal.*

**KEYWORDS:** Bibliometric, Ecological Solutions and Evidence, British Ecological Society.

## **INTRODUCTION**

The term 'Bibliometrics' was first used by Alan Pritchard in 1969 to denote a new discipline where quantitative methods were employed to probe scientific communication by measuring and analyzing various aspects of written documents. Bibliometrics is an emerging thrust area of research from different branches of human knowledge. Bibliometrics has become a standard tool of science policy and research management in the last decades. All significant compilations of science indicators heavily rely on publication and citation statistics and other, more sophisticated Bibliometric techniques. Bibliometrics is a quantitative evaluation of all macro and micro communication publication patterns along with their authorship by mathematical and statistical calculation.[Sengupta,1985]Bibliometrics can be applied to any subject area and most of the problems are concerned with written communication. It helps to monitor the growth of literature and patterns of research. This paper studies the Bibliometric analysis of the literature published in the Journal of Documentation

The current study is The bibliometric analysis of "Ecological Solutions and Evidence" published by the British Ecological Society in 2020 published quarterly, by the year 2021 Ecological Solutions and Evidence had successfully published 4 volumes with some 15 or 20 articles per issue. In this study, we will analyze articles published during the period of 2021 to 2023

## **Definition of Analysis**

### **Bibliometric**

Hulme (1923) "The purpose of a statistical bibliography is to shed light on the process of writing communication and to the nature and course of development of a discipline by means of counting and analyzing the various facets of written communication

Bibliometrics is described essentially as a quantitative analysis of publications to ascertain specific kinds of phenomena (Khaparde, 2011)

## **Ecological Solutions and Evidence**

Ecological Solution and Evidence publisher's articles with direct relevance for the management of biological resources and ecological systems we welcome original research, data articles, case studies, and short reports communicating key findings and observation for all areas relating to practical environment management, we encourage all major themes in applied ecology such as conservation biology global change, environmental pollution, wildlife and habitat management, land use and management, aquatic resources, restoration ecology, and the management of pests, weeds, and diseases Ecological solutions and Evidence is the journal at the Centre of Applied Ecology Resources a new repository from the British Ecological Society to preserve, share and discover knowledge on the management of resources

## **British Ecological Society**

The British Ecological Society is a learned society in the field of ecology that was founded in 1913. It is the oldest ecological society in the world. The Society's original objective was "to promote and foster the study of Ecology in its widest sense" and this remains the central theme guiding its activities today. The Society had, circa 2024 around 7,000 members of which 14% are students. Of its members, 42% are outside the United Kingdom, in a total of 92 countries. The head office is located in London.

## **REVIEW OF LITERATURE**

(Alhamdi, Khaparde & Kanekar, 2014) attempted a Bibliometric analysis of ten volumes (57-66) in the field of Journal of Documentation. It is based on the references appended to the International Journal of "Journal of Documentation" during 2001-2010. The present study is based on 15150 references appended to 364 articles contributed by the authors in the Journal of Documentation. It was found that journal citations are more in number than other citations. Also, it was found that Solo Researchers are Predominant than Collaborative Researchers. The extent of collaboration was not very popular in the Journal of Documentation. The mean relative growth for articles and citations in the first five years 2001 to 2005 is reduced according to the last five years 2006 to 2010. The value of group co-efficient (gp) was only 0.46. It was seen that researchers cited the latest documents. Out of 364 articles there are 175 articles have pages length from 11 to 20.

(Alhamdi, Khaparde & Shesharao, 2014) They conducted a Scientometric analysis of 56 papers published in the Library and Information Science & Technical Abstract (LISTA) on internet use in the subject of library & Information science during the period 2004 - 2013. The study focused on various aspects: such as document types, growth Rate (GR), and doubling time (DT) of publications and citations, year-wise, authorship pattern, institutions

involved, and most prolific authors of the journal. The study revealed that most of the papers (71.4%) of papers were contributed by multiple authors. The USA is the top producing country with 8 (14.3%) publications of the total output. All the articles were published in the English language. The mean doubling time for the first five years (i.e. 2004 to 2008) is only (1.05) which is increased to (6.07) during the last five years (2009 to 2013). Maximum 35 (62.5%) out of 56 of the authors do not mention their email addresses in the paper

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(Yasinullah Shafiullah, Prof. Vaishali Khaparde and Fawaz Abdullah Alhamdi(2015 ) The the present paper deals with a Bibliometric study of five volumes which contained 30 issues and a total number of 259 articles appending 7,397 citations published during the year 2010 to 2014 in the “Electronic Library Journal” during the period 2010-2014 The bibliographic details concerning each article such as types of articles, number of articles in each issue, number of citations in each article, authorship patterns, publication date and the name of the journals were collected and taken into consideration for studying and analyzing. Findings showed that the highest number of articles (57) were published in the year 2010 and the articles published in 2014 contain the the highest number of citations (1,807), around 78 percent of contributions were categorized as research studies followed by case studies. The average length of articles published in The Electronic Library is 15.5 pages per article. the majority of authors cited journals (4,516 citations; 61.1%) followed by web resources (1,170 citations; 15.8%). Also the single authors (43.883 percent) have made major contributions followed by joint authors (26.895 percent), and “The Electronic Library” which is the source journal leads the table with a record number of 409 citations with 9.063 % followed by Library Hi Tech (119 citations).

## **OBJECTIVE OF THE STUDY**

- ✓ To Study Year Wise Distribution of papers
- ✓ To find out the issue wise distribution of articles
- ✓ To Study authorship pattern of paper
- ✓ Degree of collaboration & Rate Single author
- ✓ To Find Most Productive Author
- ✓ To study Institute –wise distribution of papers
- ✓ To analysis country wise distribution
- ✓ To find Length of Articles

## SCOPE AND LIMITATION

The present study is to provide a sketch of. A total number of 260 articles the present study is limited to 260, Ecological Solutions and Evidence during the period of 2021-2023

## METHODOLOGY

The study is based on the 260 Articles Ecological Solutions and Evidence during the period 3 years (2021-2023). The quantitative method used in this article

### Data Collection

Data can be numerically expressed that is quantified quantifiable or objective (Fasibs off and Dely,1990) the data was collected from the Articles of British Ecological Society Ecological Solutions and Evidence, with the help of Excel. Total 260 articles, during 2021-2023.

## DATA ANALYSIS

All the details such as authors, title, and year of publication, and institutional affiliation etc of all articles published form 2021 to 2023 were recorded for the following analysis

### Year Wise Distributions of Articles

**Table No 1** Year Wise Distributions of Articles

Year	Volume	Issue	No of Articles	Total	Percentage
2021	2	1	23	78	30
		2	19		
		3	20		
		4	23		
2022	3	1	20	97	37.30
		2	24		
		3	22		
		4	24		
2023	4	1	20	85	32.69
		2	23		
		3	22		
		4	20		
		<b>Total</b>		<b>260</b>	<b>100</b>

The Table No 1 shows the year-wise distribution of articles in 4 volumes for the journal the table reveals table reveals there are a total of 260 articles out of which the highest number of articles 97( 37.30%) are published in volume 3 year( 2022) And lows number of articles are published 78(30%) volume 2 year(2021)

**Distribution of Articles (Issue Wise)**

**Table No 2** Distribution of Articles (Issue Wise)

<b>Year</b>	<b>Issue</b>	<b>Article</b>	<b>Cumulative Frequency</b>	<b>Cumulative Percentage</b>
<b>2021</b>	Issue No. 1 (Jan-March)	23	23	8.84
	Issue No. 2 (April -June )	19	42	16.15
	Issue No. 3 (July –Sep )	20	62	23.84
	Issue No.4 (Oct-Dec )	23	85	32.69
<b>2022</b>	Issue No. 1 (Jan-March)	20	105	40.38
	Issue No. 2 (April -June )	24	129	49.61
	Issue No. 3 (July –Sep)	22	151	58.07
	Issue No.4 (Oct-Dec )	24	175	67.30
<b>2023</b>	Issue No. 1 (Jan-March)	20	195	75
	Issue No. 2 (April -June )	23	218	83.84
	Issue No. 3 (July –Sep)	22	240	92.30
	Issue No.4 (Oct-Dec )	20	260	100
	<b>Total</b>			

Table 2 gives us the cumulative distribution of articles in Ecological Solutions and Evidence from 2021to 2023 and its Percentage.

**Authorship pattern of contribution**

**Table No 3** Authorship pattern of contribution

<b>Year</b>	<b>Single</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>	<b>More than Five</b>	<b>Total No of papers</b>	<b>Percentage</b>
2021	20	19	10	12	15	19	95	36.5
2022	14	10	16	17	11	20	88	33.84
2023	21	11	12	10	14	9	77	29.6
	55	40	38	39	41	48	<b>260</b>	<b>100</b>

It is revealed in the study maximum Table No 3 95 articles have been published by the single contribution of authors and it is followed by 89 articles by two author’s contributions. By three authors articles have been published respectively.

**Degree of collaboration**

**Table No 04** Degree of collaboration

year	Single Authored Publication	Multi Authored paper (Nm) Publication	NM+NS	Degree of collaboration
2021	20	76	95	0.8
2022	14	75	89	0.84
2023	21	56	77	0.72
	55	206	260	0.79

The extend of collaboration in research can be measured with the help of the formal given by Subraman

The formula is as follows:  $C = \frac{NM}{NM+NS}$

$$C = \frac{NM}{NM+NS}$$

Where, C= Degree of Collaboration

Nm = Number of multiple authors

Ns = Number of single authors

**Author Productivity Distribution volume wise**

Yoshikane calculated Average Author per Paper (AAPP) and Productivity per Author (PPA) in the paper, which is published in Scientometrics journal. The formula is mathematically represented as below:

$$\begin{aligned} \text{Average Author per Paper} &= \text{No. of Author/No. of Papers} \\ &= 521/260 \\ &= 2.0 \end{aligned}$$

$$\begin{aligned} \text{Productivity per author} &= \text{No .of paper /No of authors} \\ &= 260/521 \\ &= 0.49 \end{aligned}$$

**Most Productive Authors ranking of list author**

**Table No 5** Most Productive Authors ranking of list author

Sr No	Name of Author	No of Article's	Percentage	Rank
1	Thibaut Couturier	22	8.46	1
2	Sarah Bauduin	17	6.53	2
3	Aure Durbecq	14	5.38	3
4	Nina Roth,	14	5.38	3
5	Adam Kimberley	13	5	4
6	Janet I. Reid	10	3.84	5
7	Chen Wang	10	3.84	5

8	Hui Zhang	10	3.84	5
9	Catharina Vendl	9	3.46	6
10	Krithi K. Karanth	9	3.46	6
11	Vishnupriya Sankararaman	8	3.07	7
12	Geoff M. Hilton	8	3.07	8
13	Shinichi Nakagawa	7	2.69	8
14	Catharina Vend	7	2.69	9
15	Jason A. Summers	7	2.69	9
16	<u>Gregory P. Dietl,</u>	7	2.69	9
17	Charlotte Francesiaz	6	2.3	10
18	Raphaël Mathevet	6	2.3	10
19	Olivier Gimenez	6	2.3	10
20	<u>Rebecca Prado</u>	5	1.92	11
21	ThomasH. Mackay- Smith	5	1.92	11
22	Adam Kimberley,	5	1.92	11
23	Lonnie P. Hansen	4	1.53	12
24	<u>Stephen R. Durham</u>	4	1.53	12
25	Gustaf Hugelius	4	1.53	12
26	Marco Bazzan	3	1.15	13
27	Shinichi Nakagawa	3	1.15	13
28	David A. W. Mille	2	0.76	14
29	Liwei Zhu	2	0.76	14
30	One Time Author (1*33 )	33	12.69	2
	Total	<b>260</b>	<b>100</b>	

It can be observed from table No 5 that the most productive authors are Thibaut Couturier had contributed 22(8.46%) papers Sarah Bauduin17 (6.53%) it is also observed from table that is there were 33 author associated with single paper

### **Channels Communication**

**Table No 6** Various Channels of Communication

Sr No	Document Type	Frequency	Percentage
1	Research Articles	92	33.46
2	Data Articles	39	15
3	Research	32	12.30
4	Practice Insight	11	4.23

5	Editorial Choice	22	8.46
6	Perspective	18	6.92
7	Registered Report stage 1	12	4.61
8	Registered Report stage 2	11	4.23
9	Erratum	5	3.125
10	Editorial	8	3.07
11	Not Mention	10	3.84
	<b>Total</b>	<b>260</b>	<b>100</b>

The Table No 6 shows that the highest 77(29.61%) of literature was published in article, followed by data analysis is 39(15%), research is in 32 (12.30%) not mention 10 (3.84%)

### Country Wise Distributions of contributions

**Table No 7** Country wise Distribution of Contribution

Sr No	Country	Total	Percentage	Rank
1	USA	32	12.30	1
2	Australia	21	8.07	2
3	China	20	7.69	3
4	France	19	7.30	4
5	United Kingdom	16	6.15	5
6	Argentina	15	5.76	6
7	Japan	12	4.61	7
8	New York	12	4.61	7
9	Denmark	11	4.23	8
10	Germany	10	3.84	9
11	Sweden	10	3.84	9
12	Belgium	9	3.46	10
13	Canada	9	3.46	10
14	Spain	8	3.07	11
15	Greece	8	3.07	11
16	Israel	7	2.69	12
17	South Korea	7	2.69	12
18	Italy	6	2.30	12
19	Switzerland	6	2.30	7
20	One-time Country 1* 12)	12	4.61	7
21	Two -time Country 2* 10)	10	3.84	9
	<b>Total</b>	<b>260</b>	<b>100</b>	



The table no 7 show that, the county wise distribution of contribution; out of the total 260 contributions, the highest 32 (12.30 %) of the contribution of the USA. 21(8.07 %) of the contribution have been contributed from Australia and lowest country have been single time 12(4.61%) each

**Distribution of Reference and article by volume**

**Table No 8** Distribution of Reference and article by volume

Sr. No	Year	Vol	No of Articles (A)	No of Reference (B)	Average No of Reference per	%	Cumulative		Rank (B/A)*
							Reference	Percentage	
1	2021	2	78	4557	58.42	37.70	4557	37.70	1
2	2022	3	97	3772	38.88	39.48	9329	77.18	3
3	2023	4	85	2755	44.18	22.81	12086	100	2
<b>Total</b>			<b>260</b>	<b>11086</b>	<b>42.64</b>		<b>100</b>	<b>100</b>	

Table No 8 shows that, the volume-wise distribution of reference given in Ecological Solutions and Evidence during 2021 to 2023 The highest number of references has been published in vol.2, 2021 is 4557, Hence, vol. 2 stands in 1st position with having more the average number of references per article is 37.70, followed by Vol 4 with 44.18 average number of references per article and the lowest average number of references per article is 38.88 in vol.3

**Institute wise of Distribution of Articles**

**Table No 9** Institute wise of Distribution of Articles

Sr No	Institution	No of Articles	Percentage	Rank
1	Evolution & Ecology Research Centre, School of Biological, Earth and Environmental Sciences,	31	11.9	1
2	The Nature Conservancy,Nachusa Grasslands, Franklin Grove, Illinois,USA	19	7.3	2
3	Bumblebee Conservation Trust, University of Sterling, Stirling, FK9 4LA, UK	16	6.15	3
4	Department of Forest Entomology, Forestry and Forest Products Research Institute, 1 Matsunosato, Tsukuba, Ibaraki 305-8687, Japan	15	5.76	4
5	The School of Botany, The University of Melbourne, Parkville, Vic., 3010, Australia	13	5.38	4
6	CSIRO Ecosystem Sciences, GPO Box 2583, Brisbane, QLD 4001, Australia	12	4.61	5
7	Marine Sciences Program, Department of Biological Sciences, Florida International University, 3000 NE 151st Street, North Miami, FL 33181, USA	12	4.61	5

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8	Swedish Board of Fisheries, Institute of Freshwater Research, Stångholmsvägen 2, SE-17893 Drottningholm, Sweden	11	4.23	6
9	Centre d'Etudes Biologiques de Chizé, CNRS UPR 1934, 79369 Villiers en Bois, France	9	3.46	7
10	New South Wales Department of Environment, Climate Change & Water, PO Box 494, Armidale NSW 2350, Australia	9	3.46	7
11	Department of Ecosystem Science and Management	8	3.07	8
12	Department of Forestry and Natural Resources	8	3.07	8
13	Nature Conservation Foundation, Mysore, India2Snow Leopard Trust, Seattle, Washington, USA	8	3.07	8
14	School of Agriculture and Environment, Massey University, Palmerston North, New Zealand	7	2.69	9
15	University of Montana, Missoula, Montana, USA	7	2.69	9
16	Natural Resource Ecology & Management, OklahomState University	6	2.3	10
17	The Pennsylvania State University, University	6	2.3	10
18	Institute of Environmental and Interdisciplinary Science, Carleton University,	5	1.92	11
19	Department of Fish and Wildlife Conservation, Virginia Tech, Blacksburg, Virginia, USA	5	1.92	11
20	Department of Animal Ecology and Tropical Biology, Biocenter, University of Wurzburg, Germany	4	1.53	12
21	School of Geography, University of Leeds, Leeds, UK	4	1.53	12
22	INRAE, UMR Sol Agro et Hydrosystème Specialization, Rennes, Franc	3	1.1	13
23	Department of Natural Sciences, Ecology and Environment Research Centre	3	1.1	13
24	Indigenous Environmental Studies and Sciences Program, Peterborough, Ontario, Canada	3	1.1	13
	Single time Institute(1*22)	22	8.46	14
	Two time Institute(2*14)	14	5.3	
	<b>Total</b>	<b>260</b>	<b>100</b>	<b>15</b>

The table 9 show that the institution wise distribution of contributors, out of 260 contributors the highest number of contributors 31(11.9%) are from Evolution & Ecology Research Centre, School of Biological, Earth and Environmental Sciences second rank goes to The Nature Conservancy,Nachusa Grasslands, Franklin Grove, Illinois,USA with 19(7.3%) contributions, 22 institution contributing with 2that is 14(5.3%)

**Length of Articles by page**

**Table No 10** Length of Articles by page

No of Pages	Year			Total	Percentage
	2021	2022	2023		
1- 5	25	19	12	56	21.53
6- 10	14	18	20	52	20
11- 15	18	15	13	46	17.69
16- 20	20	12	12	44	16.92
21- 25	13	11	10	34	13.07
26- 30	13	8	7	28	10.76
Total	<b>103</b>	<b>83</b>	<b>74</b>	<b>260</b>	<b>100</b>

Table 10 shows the length of articles by page in the period under study. 56 articles (21.53 %) are between 6 and 10 pages in length,52 articles (20 %) between 11 and 15 pages, 46 articles (17.69%) between 16 and 20 pages, 44 article (16.92 %) between 21 and 25 pages, and 34 article (13.07 %) between 26-30 pages. Clearly, most articles (10.76 %)

**FINDING & CONCLUSION**

The present study confined to the publication of 260 research articles printed in 4 vol. of appeared within the Ecological Solutions and Evidence from 2021 to 2023.

The study reveals that the very best number of articles The highest number of reference has been published in vol.2, 2021 is 4557, Hence, vol. 2 stand in 1st position with having more average number of references per article that is 37.70, followed by Vol 4 with 44.18 average number of references per articles and the lowest average number of references per article is 38.88 in vol.3

It also found that out of a total of 260 contributors,206 contributed a joint-authored paper and 55 contributors contributed a single-author paper out of 260 articles.

- The USA is ranked first with 32(12.30%) publication.
- Out of 260 articles, the highest 166(63.36%) Articles used by authors in the study.
- The most productive authors are Thibaut Couturier had contributed 22(8.46 %) papers.
- A total 11086 references were used by authors in their study, out of 260 articles,

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