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RESEARCH ARTICLE

Content diversity and scientific embeddedness: A scientometry-based interdisciplinary analysis of the publication practices of the journal Ecocycles during its first 10 years

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Abstract – Ten years of scientific journal publication rarely provide sufficient data for comprehensive analysis, especially in the case of a young journal that is still finding its footing. Ecocycles is an exception to this rule: thanks to the conscious efforts of the editorial board and the coherent expansion of the journal's thematic scope, a wealth of data and content has been accumulated that allows for a detailed examination of publication and author patterns, thematic orientations, and the utilization of publications. The study not only evaluates the first ten years of Ecocycles but also provides a method and example of how to analyze the operation of a relatively new scientific journal in a methodologically sound manner, on multiple levels and within multiple interpretative frameworks. The procedures and lessons presented here can be adapted for other journals, especially those seeking to position themselves in the scientific field along the lines of interdisciplinarity, transdisciplinarity and sustainability. The results of the research have shown that the evaluation of scientific publications cannot be reduced to purely quantitative indicators, but must also take into account the format, accessibility, and social context of scientific communication. As an open access journal, Ecocycles aligns itself with the new norms of scientific communication and dissemination in this sense, and is increasingly becoming part of a global scientific system characterized by openness, interactivity, and a unique interdisciplinary and transdisciplinary approach.

Keywords – Ecocycles, scientometry, Scopus, Web of Science, Dimensions database, Google Scholar, FlagCounter statistics, Sustainable Development Goals, Australian and New Zealand Standard Research Classification (ANZSRC), PlumX indicators

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INTRODUCTION

Between the first issue of Ecocycles (ISSN 2416-2140) (March 3, 2015) and the compilation of our article, 10 volumes were published. The anniversaries of professional journals often encourage editors and researchers working on the publication to analyze, evaluate, and summarize. This factor was also the primary motivation for compiling our study, but the authors were also interested in the extent to which the formal and content-related objectives published in the first issue of the journal, with particular regard to the subject matter of the journal, are reflected in the publications published in the journal.

Ten volumes is a very short period in the life of a journal, especially when we consider that the first scientific journals (Journal des Sçavans, eISSN 1775-383X and Philosophical Transactions of the Royal Society, eISSN 1471-2970 and eISSN 1471-2962) have been published continuously since 1665, apart from the ravages of public history, and are still

being published today. There are countless journals that have been serving scientific communication without interruption for one and a half to two centuries. In addition to the long life cycle of journals, there are also a significant number of specialist journals that disappear or cease publication after only a few years of operation. The results of our investigation show that the latter does not threaten the Ecocycles journal, and we will be able to take stock of the journal's prosperity every decade.

The publication of the journal's 10th volume prompted analysis and evaluation by those most actively involved in its editing, the former founding editors, the current editor-in-chief, and the co-editor; in this case, the same two scientists are involved in all functions. The paper, entitled “From roots to canopy”, applied an attribute that fits the mission of the journal, the tree, to the title. In addition to textual analyses presenting the launch and development of the journal, its most important scientific achievements, topics, and vision for the future, the article also contains quantitative elements

characterizing the journal's 10 volumes. These include the number of papers published in *Ecocycles*, the number of citations for papers published in *Ecocycles*, and the ten most cited papers published in *Ecocycles* (2015-2024). In addition to traditional bibliometric data measuring volume and content, the study also provides alternative metrics in an appendix on the use of the journal, which are indispensable in the case of online publications: the number of articles and citations in various scientific databases, such as Google Scholar, Crossref, Dimensions, as well as FlagCounter statistics on the online use and utilization of the journal's website. Therefore, in our currently published work, we refrain from repeating these data and do not analyze them. If we need to use them to compile our article, we will use the data and explanations presented by the authors Kórmíves and Némethy. In our paper, we primarily present the quantitative and qualitative characteristics of the articles published in *Ecocycles*. Staying with the tree symbol created by the authors, in our current paper we "dress up" the trees and deal with their sprouting leaves, flowers, and fruits.

METHODOLOGY

Our study is based on an analysis of *Ecocycles* over the past decade, covering the period from 2015 to 2024. The data required for the analysis were mainly obtained from numerical and textual information downloaded from the Dimensions database on January 20, 2025. We also used Scopus and Web of Science (WoS) literature and citation databases, as well as the Scimago Journal & Country Rank (SJR) and Journal Citations Report (JCR) services linked to these databases to collect and interpret the information. The alternative metric data and indicators come from the PlumX service, which is integrated into Scopus and is therefore considered canonical from a scientometric point of view. Other sources of information included the *Ecocycles* journal website and institutional, author, and other information available on the internet. Cluster analysis was used as a quantitative statistical method to create and evaluate the different categories. To form the clusters, we utilized the Australian and New Zealand Standard Research Classification (ANZSRC) used in Dimensions, Scopus, and WoS, as well as classifications created by us based on the authors and publications of the journal. We made the data-based analyses more visual by creating diagrams and tables. The methodological approach of the study is complex and multidimensional. The research methodology was based on three main pillars:

1. bibliometric analysis of the structural characteristics of publications and authors,
2. exploration of content clusters based on keywords and scientific field classifications, and
3. comparison of traditional and alternative scientometric indicators. The authors placed great emphasis not only on quantitative data, but also on meta-analysis of qualitative content.

One of the main methodological contributions of the study is that the authors did not settle for a static interpretation of classic quantitative indicators—such as publication numbers and citations—but were able to reveal complex structural and

thematic relationships with the help of cluster analysis. This technique was particularly suitable for presenting patterns of authorship, thematic clusters, interdisciplinary relationships, and the utilization of publications.

Among the methodological issues, we must mention that the classification and content metadata generation practices of systems that catalogues, explore, and process scientific publications and literature are similar in some respects but differ significantly in others. The discrepancy between the systematization of science and the science system can be explained by different scientific philosophies, taxonomies, traditions, and many other components. This is often reflected not only in technical terms, but also in the systematization, clustering, and nomenclature of the entire science. In our paper, we use the ANZSRC, the Scopus database All Science Journal Classification (ASJC), and keyword systems adapted to Scopus, such as keywords provided by the author and content exploration elements from other databases, such as MeSH (MEDLINE) and Emtree (Embase), as well as the WoS Core Collection Subject Categories classifications. The captions of the diagrams and tables illustrating the data always include the sources, which also indicates which service clustering we used.

We organized the data and values into the following three dimensions of analysis:

1. Characteristics of authors publishing in *Ecocycles* and their publications
2. Data on authors and their published articles
3. Authors' countries of origin and institutions

Authors' institutional affiliations

Regarding the data concerning the characteristics of authors publishing in *Ecocycles* and their publications covers all issues of the journal published to date. Data on authors, their publications, country of origin and institutional affiliations presented and analysed in our study does not cover the total number of institutional affiliations for the decade under review. The reason for this is that in slightly more than half of the items collected in the Dimensions database (126 publications), the affiliation data of countries, institutions, and authors cannot be found, even though the journal published this information in all cases.

We decided that it would be too much work to collect the affiliation information from each issue. Nevertheless, we will use this data in our analysis because, based on the sample set available to us, we will be able to see approximately accurate and representative ratios.

Content characteristics of publications in Ecocycles

We used keywords assigned to articles to present and categorize the research areas (Fields of Research, FoR) and content characteristics of publications in *Ecocycles*.

1. Keywords describing the content of publications at the division level
2. Keywords describing the content of publications at the group level
3. Interdisciplinary relationships of keywords describing the content of publications at the division level

The classification of the research areas (Division) and sub-areas (Group) of the publications was based on the ANZSRC system. ANZSRC is a continuously updated statistical classification system used in Australia and New Zealand, developed for the measurement and analysis of R&D. The entire system is divided into three main parts: types of activity (ToA); research areas (FoR); and social and economic objectives (SEO). For the purposes of this study, we used the FoR classification system, which consists of 23 groups (Division, first hierarchy level) expressed by Arabic numerals. Within the divisions, further sub-areas are distinguished, which are the groups (second hierarchy level). The most detailed breakdown of scientific concepts into specialist areas is represented by the fields (third hierarchy level) used within the groups. We did not extend our research to the latter.

Categorization of publications in Ecocycles based on the Sustainable Development Goals (SDG)

The list of 17 interconnected goals was adopted in 2015, the year Ecocycles magazine was launched. Its main goal is to address global challenges, including those related to poverty, inequality, climate change, environmental degradation, peace, and justice (United Nations, 2017). The Dimensions database's data collection and classification system also allows for the categorization of processed publications according to SDG goals. The data collection and classification system of the Dimensions database also allows the processed publications to be categorized according to SDG goals. The SDG goals coincide significantly with the main content profile and objectives of Ecocycles, so we also performed a content analysis of the publications based on its 17 areas.

Scientific utilization of publications in Ecocycles: traditional and alternative scientometric results

It is an accepted method and common practice in scientific public life and science policy to measure the utilization, impact factors, integration into professional public life, and prestige of publications appearing in professional journals by the number and quality of citations and other metrics. In the methodology of counting citations, scientometrists apply a method that has been in regular use for a long time and has caused much debate. The subject of the debate is whether the results of quantitative and qualitative measurements, originally created for the evaluation of journals, can be transferred to the articles published in professional journals and the evaluation of their authors (Waltman et al. 2013). While the number of citations given to articles refers to the author and publications, the methods used to measure the quality of journals apply to the journal and not to the author or publication in question. At the same time, it is also true that publication in a higher-quality and more prestigious journal is more highly valued than publishing research results in a professional journal that has not passed the test of international accreditation. The debate is not over; the question remains open today. Nevertheless, in the academic sphere, in science policy and scientific public life, in academic and higher education systems, in professional advancement, in scientific qualification, in grant and funding

decisions, and in many other areas, it has become an established and commonly used method.

In our introduction, we referred to the fact that, in addition to the traditional scientometric methods outlined in the previous paragraph, there are now other metrics that can truly measure the impact factors of a given study and its author. These metrics have been created through the internet and various new, "open" scientific communication platforms that have emerged in the scientific community, and are playing an increasingly important role. We refer to these collectively as alternative metrics, and we would add that there are many different initiatives of this kind, some of which have been in existence for a longer or shorter period of time. Many of them have become part of prosperous, "canonized" systems, such as the PlumX metric used in our paper, while others are stagnating or have died out.

In addition to showing the results of a given article and author, the various alternative metrics are also capable of accounting for more broadly interpreted uses that traditional metrics are currently unable to show. Alternative metrics reveal and take into account connections and uses in the online space. The measurements are based on the idea that interactions with research results leave "digital footprints" that can be collected using big data technology and appropriate algorithms, and are therefore measurable and analysable. The many different alternative systems work with a wide variety of measurement postulates, but as a result of recent years, the aspects that prevail in all alternative metrics in the field of scientific performance assessment seem to have become clearer. These are as follows:

1. Citations, which draw on more sources than traditional citation indexes because they also include patent citations, clinical citations, and policy citations.
2. Usage, which includes someone reading the article or using our research results in any other way. Examples include clicks, downloads, views, library holdings, and video plays.
3. Captures indicate that our paper has been noted in some way and that the reader intends to return to it. Examples include bookmarks, searches, adding to favourites, setting up reader, topic, or author alerts, or topic monitoring.
4. Mentions, measuring activities such as appearances in research-related news or blog posts, comments, opinions, Wikipedia references, and other media.
5. Social Media, this category includes shares, comments, likes, dislikes, etc. that refer to the research. (Elsevier B.V, 2025)

Alternative metrics are not immune to the heated debates surrounding traditional scientometric methods. Although their objections are based on different reasons, critics attack the newer measurement methods even more fiercely. Both in scientific public life and in science policy, these results, which are the products of Open Science and web developments, are still hardly taken into account. Their acceptance is much lower than that of traditional metrics. We are of the opinion that with the decisive shift of scientific

communication to the digital space, scientific publications are already typically published in electronic format and will be even more so in the future – alongside traditional metrics, and not instead of them – there must also be room for measurement methods that have emerged in line with the digital medium and the spirit of open science. Traditional scientometric methods, elements, and indicators are currently too static and, above all, too slow compared to the competitive pace and momentum of the shift of scientific communication largely to the online space. In comparison, alternative metrics operate with dynamic and almost up-to-date data.

The rapid expansion of artificial intelligence is expected to further accelerate and differentiate the application and spread of alternative metrics, forcing their acceptance and dynamic development in a way that is credible to the scientific community. Given that *Ecocycles* journal embraces not only Open Access but also other elements of the Open Science movement, we cannot omit the presentation of specialized alternative metrics, in this case the results of the PlumX service for the journal, when taking stock of the journal's decade-long performance.

RESULTS

Characteristics of authors and affiliations publishing in Ecocycles

According to data from the Dimensions database, a total of 370 authors and co-authors published articles in the journal between 2015 and 2024. The authors collectively contributed 550 sole or co-authored articles, meaning that each author published an average of about one and a half articles in the journal. However, behind the average data, there is a considerable variation in the number of publications per author: the highest value is 24, while the lowest number of publications is, naturally, 1.

Assessing the authors' attachment to the journal, it can be said that three types of research groups have formed around the journal. One is a smaller group that publishes regularly in the journal and therefore has close ties to it.

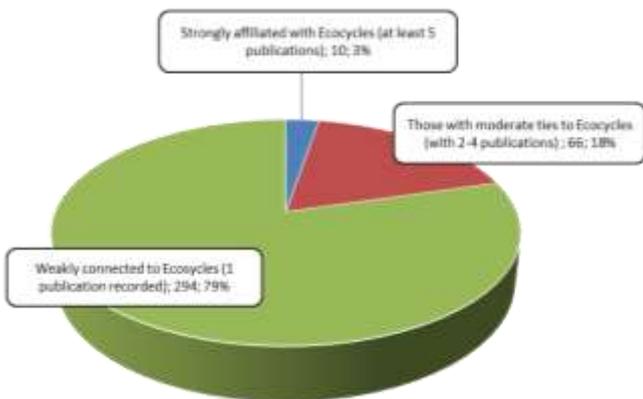


Figure 1. Degree of authors' affiliation with journals (Source: Dimensions database, 2025; Author's editing)

Alongside them, another larger group has formed, which does not publish regularly but often publishes its research results

in the journal, and therefore has a moderate rather than close connection to it. The largest group consists of authors publishing occasionally and have a weak connection to the journal (Fig. 1).

According to the affiliation data available to us, an examination of the geographical and institutional affiliations of the authors of publications reported by *Ecocycles* reveals a highly differentiated picture in several respects. On the one hand, we found that the network of authors of the journal covers all continents and includes a total of 27 countries. On the other hand, this wide coverage shows highly varying quantities, proportions, and presence. This is not unusual, other studies also found that in many cases authors' affiliations were not uniform, the same authors might register various affiliations for different articles (Devarhubli et al. 2025, A). Although all continents are represented in the journal's author pool, we find very different data in the number of affiliations of the 86 institutions that publish the articles. It is almost natural that Hungary has the highest number of institutional affiliations (27 organizations) in the journal's domestic imprint data. However, only India comes close to the number of publications linked to domestic institutions (17 organizations). Slightly more than half of the publications in *Ecocycles* come from institutions operating in these two countries (44 organizations), while the other half are shared by institutions in the remaining 25 countries (42 organizations). This ratio also means that the participation of other countries is significantly lower than that of Hungary and India, with only 1 to 4 institutions represented in each case (Fig. 2).

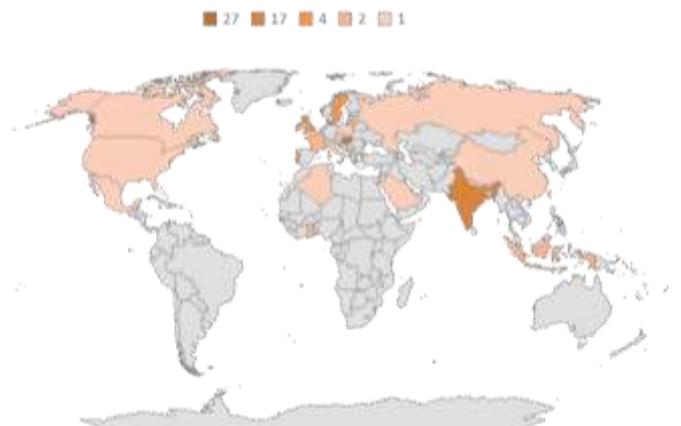


Figure 2. Authors' affiliations by country and number of institutions per author, grouped by country. (Source: Dimensions database, 2025; Author's editing)

The institutional affiliation data available to us lists a total of 86 organizations. Figure 3 shows the quantitative ranking of the 25 research institutions that have published at least three articles. The remaining 61 institutions have published only one or two articles, so we consider their impact on the journal to be negligible; for this reason, and due to space constraints, we have omitted their names. A more detailed analysis of the data confirms the data shown in Figure 2: the majority of the authors of the publications in *Ecocycles* are affiliated with research institutions in Hungary and India. In terms of the type of institutions, universities are the most common, but

there are also independent research institutions among the institutions. If we examine the disciplinary classification of the organizations issuing the publications, we see that the vast majority of publications originate from agricultural and technical universities, the agricultural or technical faculties of universities, and independent research institutions related to

suitable for defining keywords for publications. As we have already mentioned in the section on methodological issues, in our work we relied on the ANZSRC content exploration system and took into account two levels of hierarchy: divisions and groups, which allow for further breakdown of divisions and refinement of the themes of the publications.

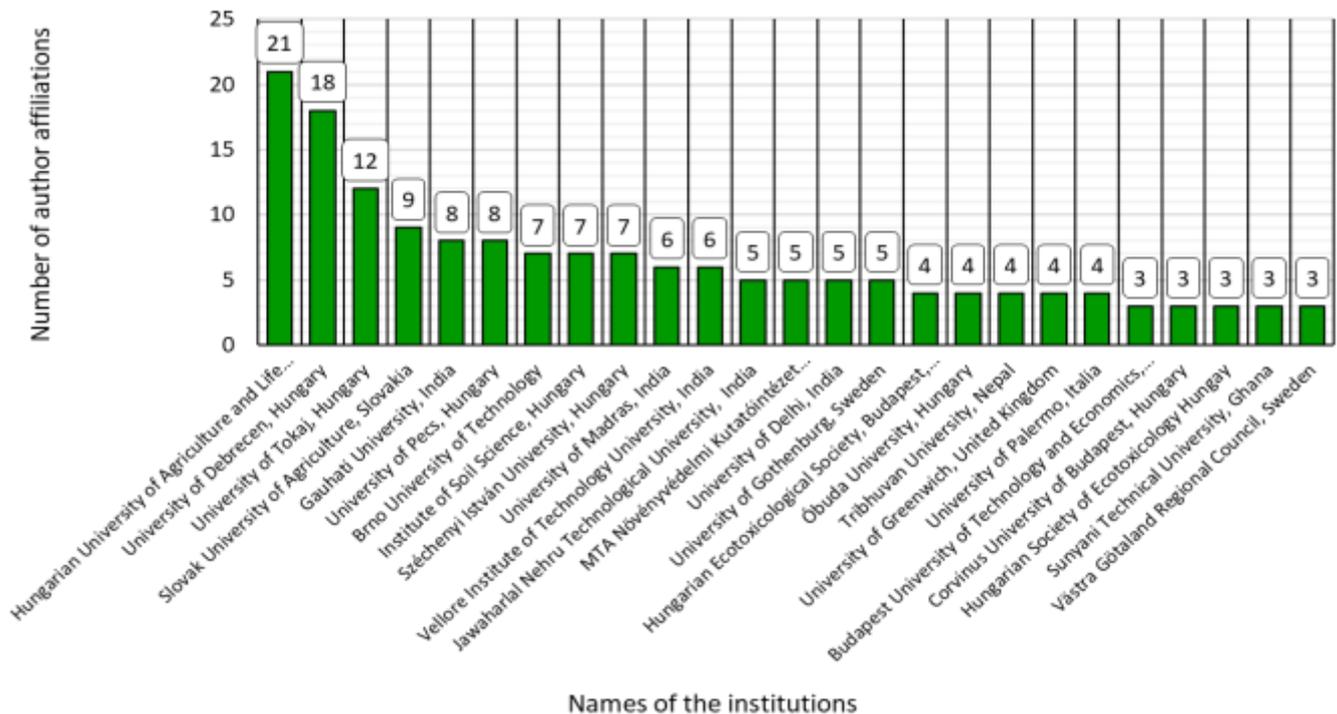


Figure 3. Affiliation data of authors with at least three publications, grouped by institution. (Source: Dimensions database, 2025; Author editing)

agricultural sciences. When evaluating the proportions, it should be taken into consideration that some of the countries in the sample do not have independent research institutes or research networks, these tasks are carried out by universities.

Content characteristics of publications in Ecocycles

The most difficult part of reconstructing and presenting the characteristics of a scientific journal is describing the content elements of the publications. When compiling content characteristics, it is worth relying on various taxonomies, classifications, and keywords found in journal articles (Pranckuté, 2021; Suiter and Sarli, 2019). Several methods have become widespread in the world of international journals for determining the keywords of publications. Some journal editors work with keyword systems used in other applications, others have developed their own keyword systems, and still others leave the determination of keywords to the authors' discretion. All three methods have their advantages and disadvantages.

The spread of the Neumann galaxy and search optimization experiments have reinforced the importance of keyword usage and keyword creation (search words/search terms on the internet). As a result, there are now several online keyword systems available, primarily aimed at supporting SEO. However, these are not specialized in exploring the content of scientific publications and are therefore less

We omitted the examination of the further content hierarchy level, the fields. When analysing the content of the journal's publications, we examined two aspects:

1. Into which scientific classes and groups can the published articles be classified? Which of the cultivated scientific fields and scientific groups are the most popular, and which are the most frequently used keywords?
2. Interdisciplinary relationships that can be defined between the scientific classes characterizing the content of the articles.

We considered the analysis of the latter to be important because, on the one hand, current and future trends in scientific research are characterized by inter-, multi-, and transdisciplinarity (Devarhubli et al. 2025, B), and on the other hand, because Ecocycles' mission, from the very beginning of the journal's publication and ever since, has been to focus on the cultivation of a holistic approach to ecological cycles.

Distribution of data and proportions of publications in Ecocycles by scientific field at the class/division level

We begin by characterizing the content of the articles examined at the highest and most general conceptual hierarchy level of the ANZSRC scientific classification,

presenting the grouping between classes/divisions. The scientific fields of the publications that have appeared in the journal so far can be divided into 18 groups. Diagram 4 shows the numerical data and proportions of the scientific fields (classes) according to the ANZSRC classification. We can see that the articles published in the journal can be classified into four groups according to their content relevance:

The first group includes the two scientific fields with the highest cultivation ratio: approximately 40 percent of the publications originate from two major scientific fields: Commerce, Management, Tourism and Services (22%) and Agricultural, Veterinary and Food Sciences (17%).

and Culture, and Mathematics. Nevertheless, the content classified in the third and fourth groups is also important because it effectively reflects the diversity of the journal's subject areas.

The analysis of publications by scientific field/class/division confirms that *Ecocycles*, in line with its commitment, approaches its subject matter with a diverse and broad perspective. The classification of the published articles and their proportions well reflect the semantics of the scientific term *ecocycle* and the thematic diversity of the concept.

In the following, we analyse which scientific concepts occur

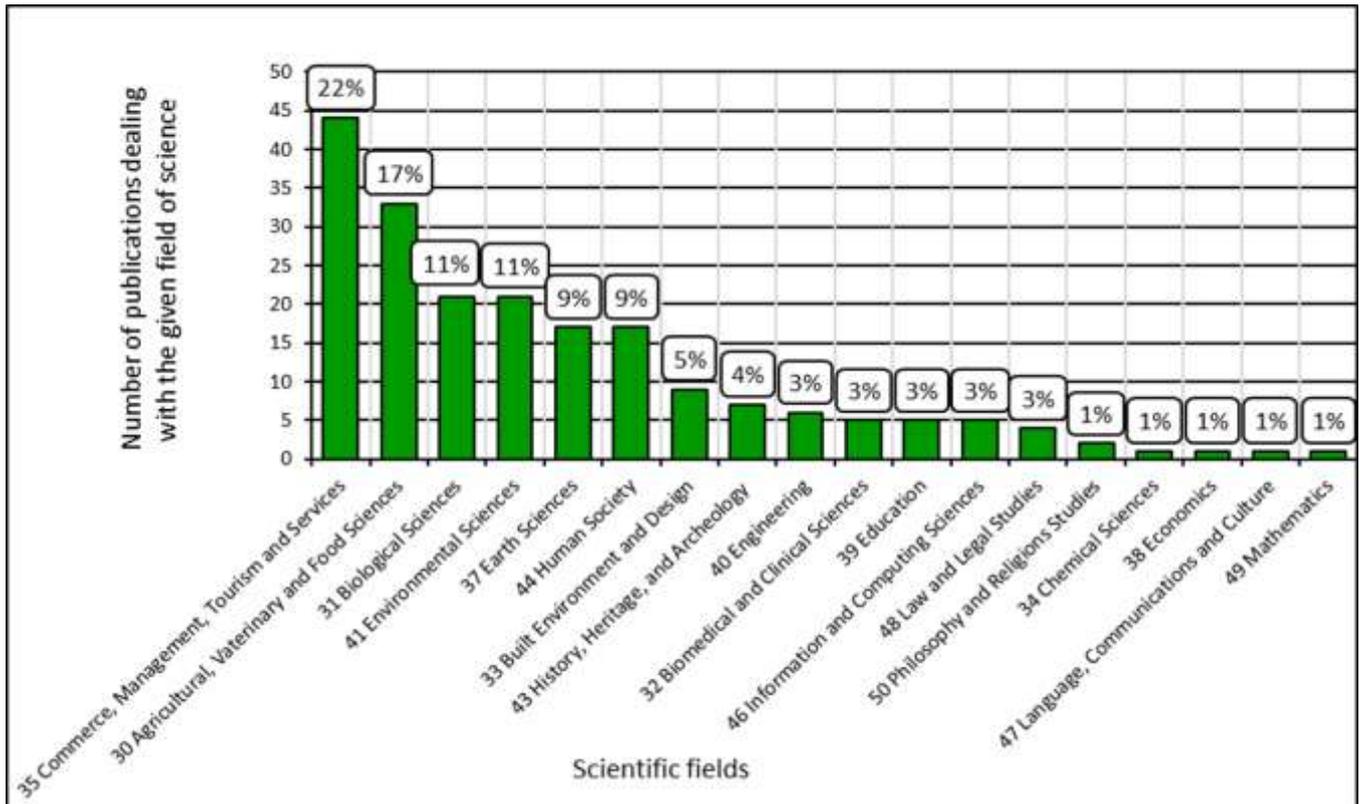


Figure 4. Data on keywords in *Ecocycles* publications between 2015 and 2024 and their distribution by scientific field at the class/division level (Source: Dimensions database, 2025; Author's editing; due to rounding in the conversion to percentages, the total value of the data series exceeds 100 percent, but does not distort the proportions to be illustrated)

The second group of scientific fields covered by the journal consists of four fields: Biological Sciences (10%), Environmental Sciences (10%), Earth Sciences (9%), and Human Society (9%).

The third group of published works consists of scientific fields, which are very similar to each other but are much less common than the previous two groups: Built Environment and Design (5%), History, Heritage and Archaeology (4%); Engineering (3%), Biomedical and Clinical Sciences (3%), Education (3%), Information and Computing Sciences (3%), Law and Legal Studies (3%).

The last group includes the scientific fields that are least represented in the content of the ten volumes of *Ecocycles*, with a share of only 1%: Philosophy and Religious Studies, Chemical Sciences, Economics, Language, Communications

and Culture, and Mathematics. Nevertheless, the content classified in the third and fourth groups is also important because it effectively reflects the diversity of the journal's subject areas. Our method further details and specifies the content of the articles published in the journal, while also highlighting the frequency of their occurrence within individual scientific fields, i.e., the intensity with which a given topic is cultivated within a class.

A detailed presentation of all scientific fields would exceed the scope of our paper, so we will only analyse the six scientific fields that are most intensively studied by the journal and cover about 80 percent of the articles.

Based on the results of our study, the content of the 44 publications in Commerce, Management, Tourism and Services, which represents the largest category, can be characterized by seven additional keywords (Fig. 5) Among

these, the keywords marketing, commercial services, and tourism appear most frequently, with the others being insignificant in comparison. According to the rules of conceptual hierarchy, it can be concluded that in the issues of the journal published so far, the discussion of ecocycles is most characteristic from these three perspectives, and these three fields are most closely related to the scientific term ecocycle.

Regarding the thematic classification of Ecocycles publications, the second most common field of science is class 30 Agricultural, Veterinary, and Food Sciences.

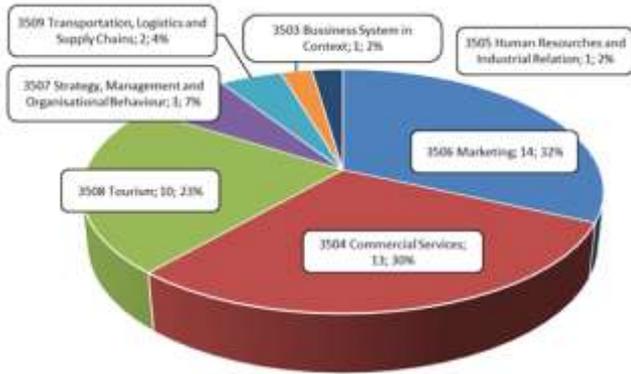


Figure 5. Keyword data and proportions of publications classified into 35 divisions (Commerce, Management, Tourism, and Services) in Ecocycles' publications between 2015 and 2024 at the group level. (Source: Dimensions database, 2025; Author's editing)

Within these research areas, the publications are characterized by nine additional keywords falling under the category. This also means that, among the scientific fields examined, this category has the richest palette of keywords characterizing research groups. The most dominant keywords in scientific publications from the field of ecocycles form four research areas: Crop and Pasture, Agricultural Biotechnology, Horticultural Production, and Veterinary Production.

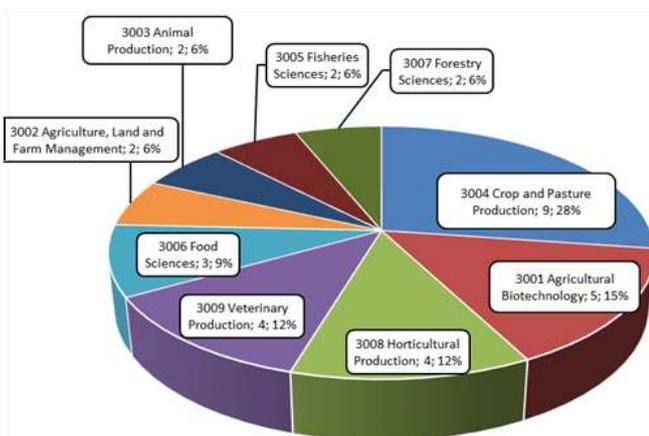


Figure 6. Keyword data and proportions of publications classified into 30 Agricultural, Veterinary, and Food Sciences divisions in Ecocycles publications between 2015 and 2024 at the group level. (Source: Dimensions database, 2025; Author's editing)

According to the data, these areas are also most closely related to the Agricultural, Veterinary, and Food Sciences category and are the most characteristic research topics in this category. Among the less characteristic keywords, Food Sciences represents the highest proportion (Fig. 6).

According to the thematic classification of Ecocycles publications, the third most common field of science, Biological Sciences, appears in a total of 21 publications in the classification system. The content of the class is characterized by five groups, which can be further divided into three groups based on their quantity and proportion within the scientific field: the Ecology and Plant Biology groups have an equal share, and these two fields dominate the discipline of biology; slightly more than half of the publications appear under these topics. Alongside these, the number of publications on Genetics and Industrial Biotechnology is relatively significant and has an equal share; together, they account for about one-third of the papers classified in this category. The fifth category, Microbiology, has only one publication. (Fig. 7)

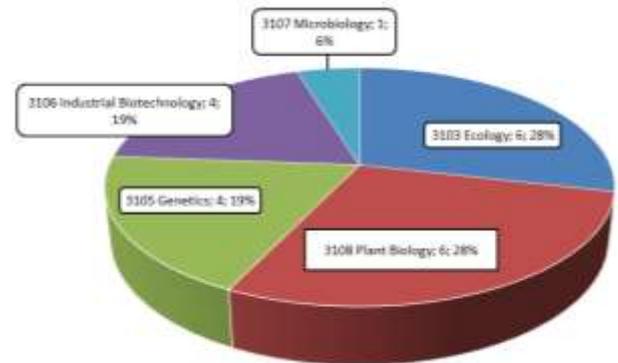


Figure 7. Keyword data and proportions of publications classified into 31 Biological Sciences divisions in Ecocycles publications between 2015 and 2024 at the group level. (Source: Dimensions database, 2025; Author's editing)

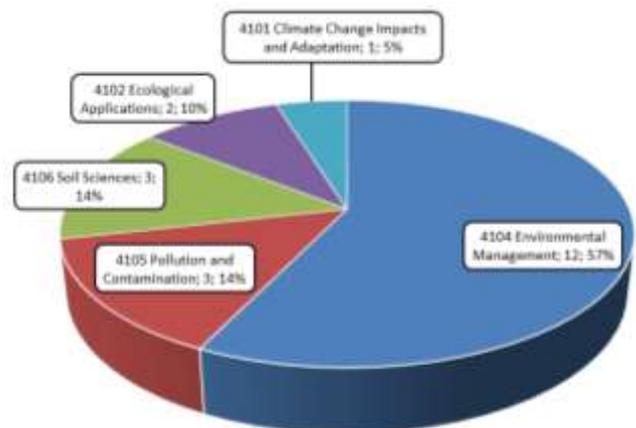


Figure 8. Keyword data and proportions characterising publications classified by Ecocycles between 2015 and 2024 in the 41 publications listed in the Environmental Sciences division of /divisions at the group level. (Source: Dimensions database, 2025; Author's editing)

The fourth most popular research category, Environmental Sciences, shows a similar distribution and proportion of keywords as Biological Sciences: 21 publications were classified in this generic category, which can be described with 5 additional specific keywords. In terms of keyword distribution and, based on this, the content of publications in the Environmental Sciences category, Environmental Management is the most dominant: this keyword characterizes well over half of the publications, with the remaining four keywords accounting for the rest (Figure 8).

The keywords characterising publications classified in the Earth Sciences category can be divided into five groups. Two groups dominate the proportions of keywords characterising the publications, and their proportions differ only slightly from each other; these are Physical Geography and Environmental Geoscience and Geoinformatics. These two research areas are relevant to about two-thirds of the publications belonging to the Earth Sciences category. Both fields are characterised by the use of complex research methods. Among them, geoinformatics has become established in the earth sciences as a whole and represents a special technology within computer science that has revolutionised earth science research. Therefore, it also occupies a prominent place in the journal's subject matter. Physical Geography and Environmental Geoscience seeks to understand the interactions between natural and social systems and provides theoretical and practical knowledge to promote sustainable development. It is noteworthy that the other three research areas appear in the journal in equal proportions (Fig. 9).

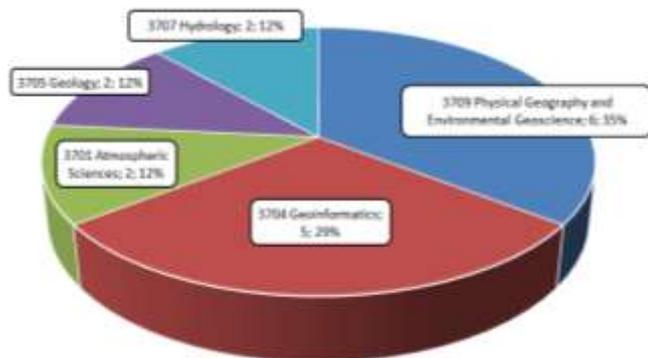


Figure 9. Keyword data and proportions of publications classified into 37 Earth Sciences divisions in *Ecocycles* publications between 2015 and 2024 at the group level. (Source of data: Dimensions database, 2025; Author's editing)

This strong connection can be explained by the fact that the complex subject matter of Human Geography – humans and their environment, the interaction between humans and space, etc. – is very close to the research topics covered by the concept of ecocycles. A similar correlation explains the second most popular research topic, sociology. Compared to the two dominant topics in the Human Society category (70%), the proportion of scientific research under other keywords is almost insignificant. Nevertheless, these keywords cover topics that are very important components of the journal's holistic approach: politics and public

administration, political science and, interestingly, gender studies and criminology (Fig. 10).

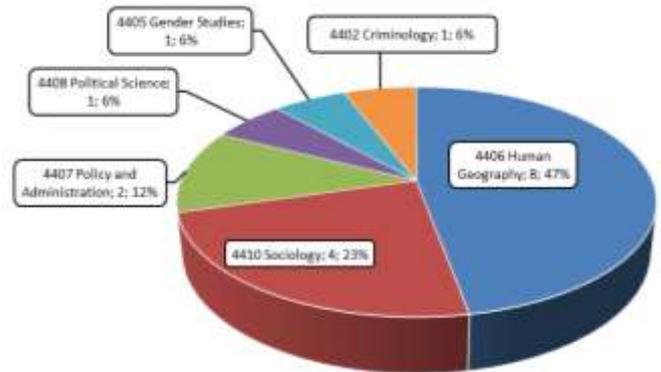


Figure 10. Data and proportions of keywords characterising publications classified under the 44 Human Society divisions of *Ecocycles*' publications between 2015 and 2024 at the group level. (Source of data: Dimensions database, 2025; Author's editing)

According to the keywords appearing in publications classified under the Human Society category, six subject areas characterise the writings of the examined cycle. Of these, almost half of the publications can be classified under the subject area of Human Geography.

Interdisciplinary characteristics of publications in Ecocycles

The interdisciplinary relationships that can be defined between the scientific divisions characterising the content of the publications are determined by diversity and the significantly different degrees of connection between other divisions (Porter and Rafols, 2009; Hernandez-Aguilar, 2020). Furthermore, even if it is not possible to quantify exactly, the transdisciplinary character of publications should be taken into consideration, primarily due to their social importance since they integrate knowledge not only from different academic disciplines but also from non-academic stakeholders (Kajikawa, 2022; Yong et al. 2022). In these cases the focus is often on solving "wicked problems" related to grand societal challenges like climate change or public health, with a strong emphasis on knowledge co-production and real-world impact.

As in the previous subsection, we are unable to present the interdisciplinary connections of all divisions/classes characterising *Ecocycles* journal articles, but only publish a detailed analysis of the four divisions that show the richest disciplinary connections in the analysis. In three cases, these classes overlap with the classes presented according to the occurrence of scientific groups and keywords, but in one case there is a deviation from the scientific fields analysed there: this is the built environment (Built Environment and Design), which at the same time shows the richest interdisciplinarity.

The results of the interdisciplinary relationship analysis indicate that the most versatile scientific field relationship is characteristic of the Built Environment and Design. Although this research area appears in only 5 per cent of the

publications, its scientific relationship network is very extensive: the content is linked to eight other classes.

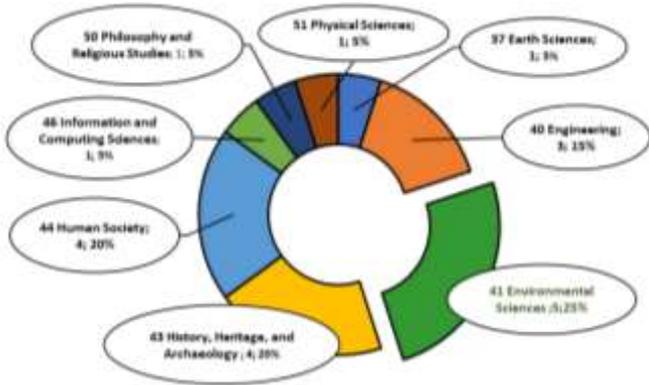


Figure 11. Characteristics of interdisciplinary relationships in publications classified under the Built Environment and Design category. (Source of data: Dimensions database, 2025; Author's editing)

Four of these divisions are the most common: Engineering, Environmental Sciences, History, Heritage, and Archaeology, and Human Society; these classifications appear in 80 per cent of the publications. The connections to other research areas are not significant. In our view, this diversity can be explained by the multifaceted nature of the field of science under study (Fig. 11).

Among the scientific articles published in the journal, the thematic correlations of publications classified under Agricultural, Veterinary, and Food Sciences show the second richest interdisciplinary connection: seven other classes appear in the classification. Based on the publications, the most characteristic correlations are shown by three classes, which together account for more than 80 per cent of the contacts: 31 Biological Sciences, 41 Environmental Sciences, and 35 Commerce, Management, Tourism, Services. Compared to their proportion, the other scientific fields are not dominant, but they are present (Fig. 12).

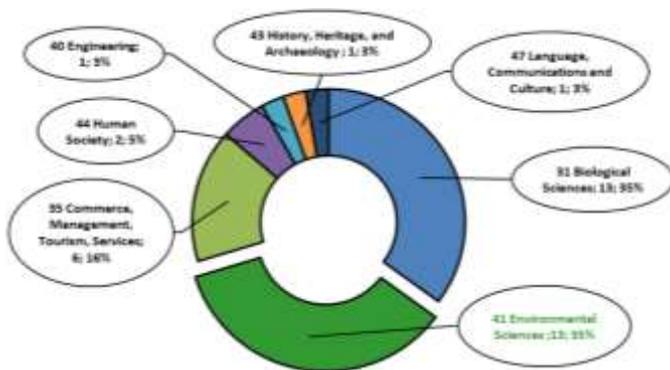


Figure 12. Characteristics of interdisciplinary relationships in publications classified under 30 Agricultural, Veterinary and Food Sciences (Source: Dimensions database, 2025; Author's editing)

Similar to the Agricultural, Veterinary and Food Sciences category, the interdisciplinary connections of publications classified under Commerce, Management, Tourism and

Services are also characterised by seven other scientific fields (Fig. 13).

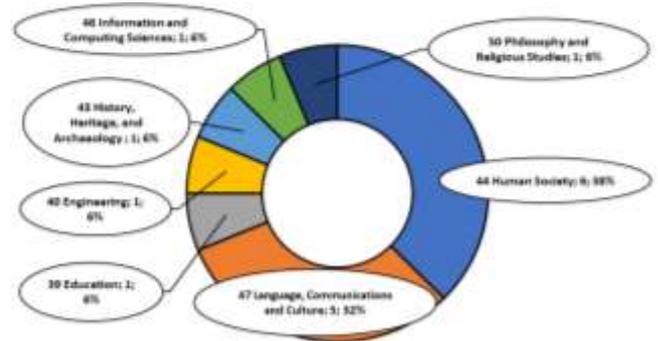


Figure 13. Characteristics of interdisciplinary relationships of publications classified in the 35 Commerce, Management, Tourism and Services class. (Source: Dimensions database, 2025; Author's editing)

Two categories dominate among these, Human Society and Language, Communications and Culture, with a combined share of 70 per cent. This high proportion can be explained, on the one hand, by the strong human and social determinants of the class under study and, on the other hand, by the interdisciplinary connections it has. The other five classes can be found in one publication each, all of which appear in the everyday understanding of the field of science under study.

Among the publications in Ecocycles, the category "Biological Sciences" shows the fourth most extensive diversity and thematic correlation: six other categories appear in the network of connections. The most significant of these is the connection to Environmental Sciences, followed by Engineering, and then Philosophy and Religious Studies. The connection between these three classes of s shows a correlation rate of more than 80 per cent, according to the classification of the publications. The other three scientific fields are also present, but their contact rate is not significant. (Fig. 14)

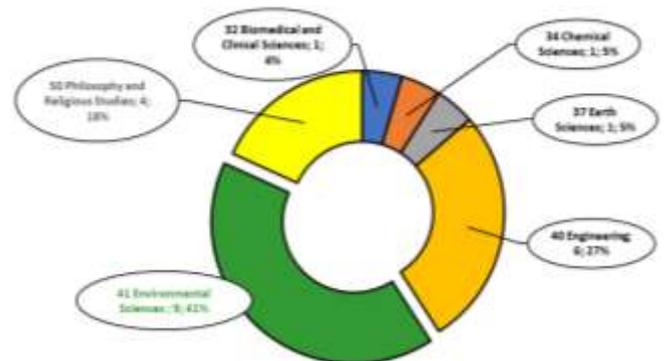


Figure 14. Characteristics of interdisciplinary connections in publications classified under the 31 Biological Sciences classes. (Source of data: Dimensions database, 2025; Author's editing)

When analysing the interdisciplinary correlations presented above, it is striking that, of the four categories discussed, the Environmental Sciences are not only present in three cases, but are also dominant in all three cases, showing the highest correlation. From this, we can conclude that the thematic

profile of the Ecocycles journal is also strongly dominant in works primarily classified in other scientific fields. Environmental Sciences does not appear in the interdisciplinary connections of publications classified in the Commerce, Management, Tourism and Services category, according to the papers published so far. Furthermore, this is also a transdisciplinary, collaborative approach that integrates academic knowledge with the knowledge of non-academic stakeholders to solve complex problems related to sustainability, such as the interactions between human and natural systems.

Categorisation of publications in Ecocycles based on the Sustainable Development Goals (SDGs)

The sustainable development agenda adopted by all member states of the United Nations (UN) in 2015 and running until

political will. A major issue identified in research is the "governance gap" – the difficulty in translating policy intentions and scientific recommendations into national and local practice (Aryee et al. 2025). This is often constrained by institutional rigidity, coordination failures, and weak accountability mechanisms. Therefore, the Dimensions database categorisation is still valid, and we use these SDG groups in our study. The need to measure SDG aspects is further reinforced by the fact that the Scopus literature and citation database also applies SDG aspects in several of its services: in examining the impact of publications, in author profiles, and in collecting authors and documents related to the SDGs. (At the time of writing, the High-Level Political Forum convened in the second half of July 2025 is forecasting an in-depth review in the areas of SDG 3, SDG 5, SDG 8, SDG 14 and SDG 17).

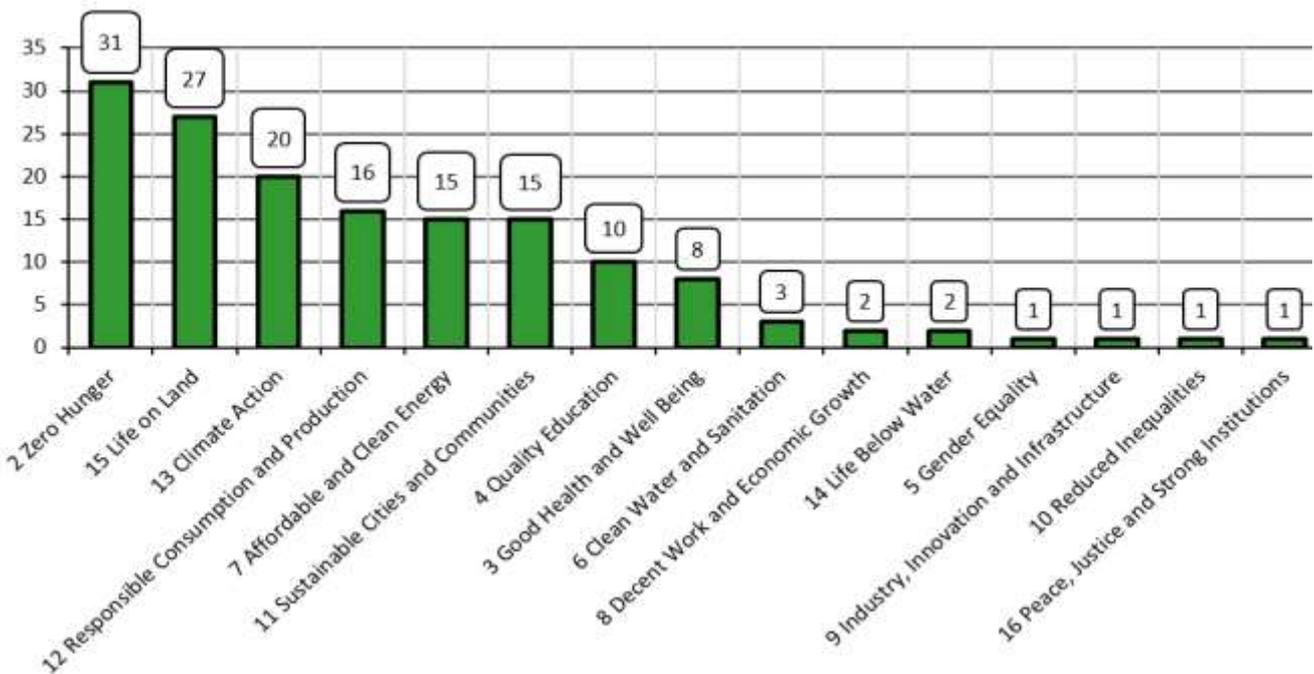


Figure 15. Data and ratios showing the content-based alignment of publications in Ecocycles with the UN SDG goals. (Source: Dimensions database, 2025; Author's editing)

2030 sets out 17 global Sustainable Development Goals (SDGs). The SDG codes and brief descriptions of the objectives are listed in Table 1. The United Nations publishes the progress of the sustainable development agenda in annual reports compiled and edited by the Department of Economic and Social Affairs (DESA) since 2016 (United Nations, Department of Economic and Social Affairs, 2024). Although DESA's 2019 and 2020, the 2024 report clearly states that current progress falls far short of what is needed to achieve the Sustainable Development Goals, and the focus areas and targets set in 2015 remain in place. Even if scientific research extensively covers the Sustainable Development Goals, academic literature and UN reports highlight a persistent gap between research and the actual realization of the goals. Key shortfalls in implementation are linked to challenges in translating academic knowledge into practical action due to issues with policy coherence, data deficiencies, and a lack of

SDG No	SDG description
SDG 1	No poverty
SDG 2	Zero hunger
SDG 3	Good health and well-being
SDG 4	Quality education
SDG 5	Gender equality
SDG 6	Clean water and sanitation
SDG 7	Affordable and clean energy
SDG 8	Decent work and economic growth
SDG 9	Industry, innovation and infrastructure
SDG 10	Reduced inequalities
SDG 11	Sustainable cities and communities
SDG 12	Responsible consumption and production
SDG 13	Climate action
SDG 14	Life below water
SDG 15	Life on land
SDG 16	Peace, justice, and strong institutions
SDG 17	Partnerships for the goals

Table 1. SDG codes and brief descriptions of the goals. (Source: <https://sdgs.un.org/goals>; Author's editing)

When evaluating the results of the Ecocycles journal, we believe it is also worth analysing the areas and extent to which the journal has contributed to the achievement of the SDGs. The analysis of this aspect partly overlaps with the direct and indirect social benefits of the publications in Ecocycles.

During the period under review, 153 of the 205 articles published in Ecocycles were related to various SDG goals in terms of content. Ecocycles articles correlate with 15 of the 17 SDG categories. The lack of articles on two SDG areas, SDG 1, No poverty, and SDG 17, Partnerships for the goals, can be attributed to the journal's profile, as these are not among the scientific fields covered by the journal. The dominance of the elements of the 15 existing SDG groups shows significantly different proportions; based on Diagram 15, there are three types of strength. Previous content analyses of the journal's publications to date clearly show that the published studies converge most strongly on the Zero Hunger, Life on Land and Climate Action SDG categories. There is a moderate correlation in the case of five SDG topics: Responsible consumption and production, Affordable and clean energy, Sustainable cities and communities, Quality education, and Good health and well-being. The other seven sustainable development categories show significantly more modest ratios.

SCIENTIFIC UTILISATION OF PUBLICATIONS IN ECOCYCLES: TRADITIONAL AND ALTERNATIVE SCIENTOMETRIC RESULTS

The utilisation of articles published in the Ecocycles journal in light of traditional metrics

We begin our evaluation of the utilisation of articles published in the journal with a bibliometric analysis that is not often used. We examine how many different types of publications and in which fields the articles belonging to the

journal appear as referenced works. To examine this, we collected data using the Cited References service of the Web of Science (WoS) literature and citation database, based on which the following results can be seen. The publications in Ecocycles are highly diverse; they have been cited in articles from a total of 103 fields. There are 461 relevant citations, and this number refers to a total of 128 articles published in Ecocycles. We are unable to present all 103 fields of expertise, so we selected the 25 research areas that were most influenced by the works published in Ecocycles. The results of our analysis show that citations of the papers appear significantly in publications on topics that have also shown a strong correlation with the subject matter of our journal in previous content analyses, including Environmental Sciences Ecology Agriculture and Business Economics.

The differences between the classes can be explained more by the differences in classification and technical terminology between the two databases than by actual content discrepancies (Fig. 16).

In addition to quantitative analysis, qualitative evaluation of references to publications is also an important indicator, although only a few research areas have adopted this method in performance evaluation to date (Mengist et al. 2020). In the next section, we will take stock of these indicators. The analysis is based on data from WoS and the Journal Citation Reports (JCR) based on it. We examine how many of the total citations of Ecocycles publications have been registered in WoS, which in itself is a mark of international prestige in terms of quality. Another aspect of this section is to examine which journals most frequently cite publications published by Ecocycles and what quartile values these journals have.

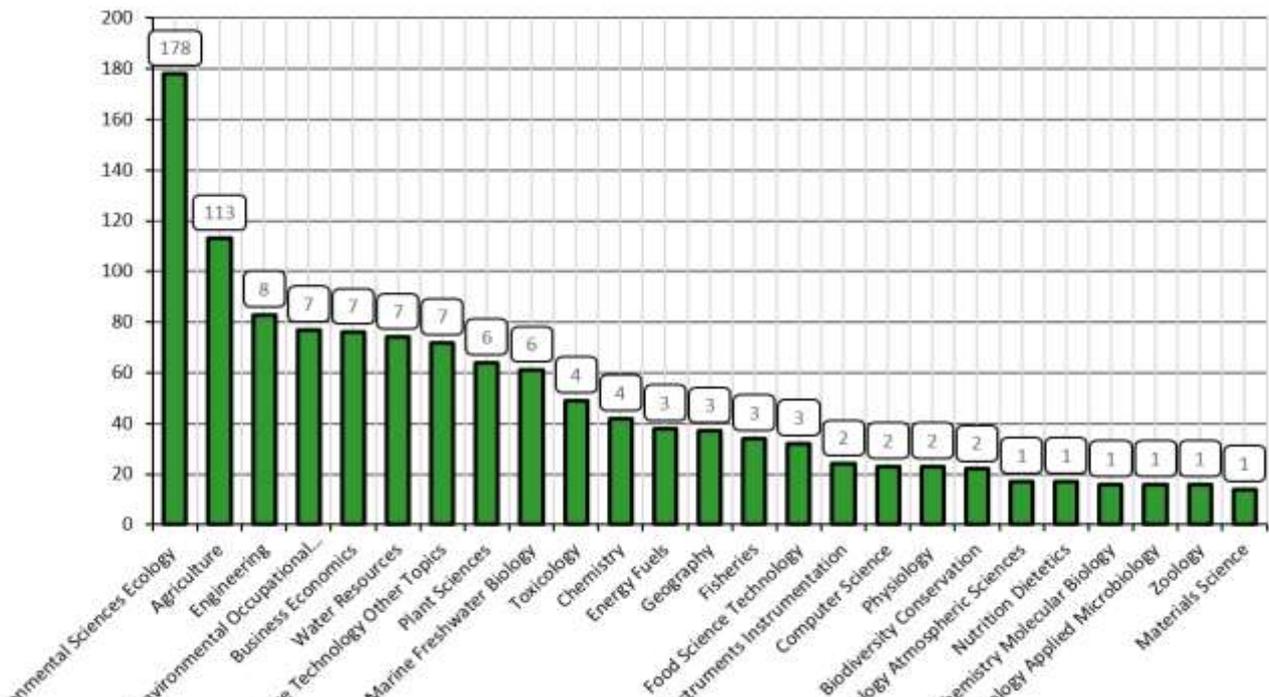


Figure 16. Most common subject areas of references in publications appearing in Ecocycles. (Source of data: Web of Science Cited References service, 2025; Author's editing)

Our data show that out of a total of 461 citations, 186 (40.35%) are publications that appeared in journals referenced in WoS. An analysis of all 186 references from the above perspective would exceed the scope of our paper, so in this case we will present 25 journals that cite Ecocycles publications the most. The results of the analysis are detailed in Table 2. Of the 186 articles referenced by WoS, 112 (60.22%) references were included in the category of the 25 most frequently referenced journals. Among them, 18 journals are classified as JCR Q1, 4 as JCR Q2 and 3 as JCR Q3. Given that the selected 25 journals represent more than 60 per cent of the total set of hits, we can consider this a representative sample.

SOURCE TITLES	RECORD COUNT	QUARTILE VALUE
SUSTAINABILITY	18	Q2
SCIENCE OF THE TOTAL ENVIRONMENT	10	Q1
THE SCIENCE OF THE TOTAL ENVIRONMENT	9	Q1
WATER	6	Q2
JOURNAL OF ENVIRONMENTAL MANAGEMENT	5	Q1
AQUACULTURE	4	Q1
HORTICULTURAL	4	Q1
JOURNAL OF CLEANER PRODUCTION	4	Q1
JOURNAL OF HAZARDOUS MATERIALS	4	Q1
AGRIENGINEERING	3	Q2
ANIMALS	3	Q1
ANIMALS AN OPEN ACCESS JOURNAL FROM MDPI	3	Q1
APPLIED SCIENCES BASEL	3	Q3
CHEMOSPHERE	3	Q1
ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH	3	Q1
ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH INTERNATIONAL	3	Q1
ENVIRONMENTAL SCIENCE PROCESSES IMPACTS	3	Q2
ENVIRONMENTAL SCIENCE TECHNOLOGY	3	Q1
FRONTIERS IN PLANT SCIENCE	3	Q1
WASTE MANAGEMENT	3	Q1
WASTE MANAGEMENT NEW YORK N.Y.	3	Q1
WATER ENVIRONMENT RESEARCH	3	Q3
WATER ENVIRONMENT RESEARCH A RESEARCH PUBLICATION OF THE WATER ENVIRONMENT FEDERATION	3	Q3
WATER RESEARCH	3	Q1
WATER RESEARCH OXFORD	3	Q1

Table 2. Most common subject areas of references in publications appearing in Ecocycles. (Source: Web of Science Cited References service, 2025; Author’s editing)

Based on this, we can say that the vast majority of citations of articles published in Ecocycles appeared in JCR Q1 and JCR Q2 journals.

Utilisation of publications in Ecocycles as reflected in PlumX metrics

About eight years ago, in August 2017, Elsevier BV, the maintainer of the Scopus literature and citation database, announced that in addition to traditional metrics, it would also use new alternative metrics called "PlumX" in Scopus. The purpose of the new metrics is to show the interactions that occur in scientific communication in the online space and which cannot be measured using traditional scientometric methods. We would like to emphasise that neither the PlumX service nor other alternative metrics are intended to replace or supplant traditional scientometric methods, but rather to create and apply indicators that further refine the assessment and evaluation of scientific performance (Elsevier, 2025). The fact that these have a place in scientific public life and in the quantitative and qualitative evaluation of performance is confirmed not only by scientific publications on the subject, but also by the data on the Ecocycles journal detailed below and their analysis. The PlumX alternative metric data for the articles are available under the "Impact" menu item of the publications, and we have also used this source. It should be added that since Scopus has only been referencing Ecocycles

since 2019, we had to take this time limit into account in the case of our journal; only data for publications between 2019 and 2024 are available at , so we were only able to process data for the six years between 2019 and 2024 using alternative measurement methods. For this period, the database contains a total of 130 publications that can be described using PlumX indicators or one of them.

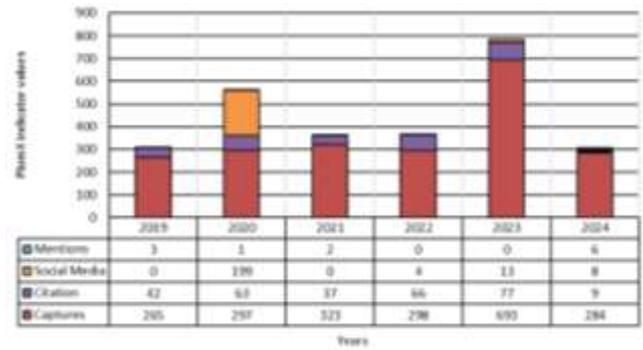


Figure 17. PlumX metrics for publications in Ecocycles, broken down by year, between 2019 and 2024 (Source of data: Scopus literature and citation database, 2025; Author’s editing)

As a first step, we examine the significance of the five previously mentioned attributes of PlumX – Citations, Usage, Captures, Mentions, Social Media – in relation to publications appearing in Ecocycles between 2019 and 2024, broken down by year. The data in Figure 17 show that the most characteristic of the five PlumX indicators is the Captures category: bookmarks, code forks, favourites, readers, and watchers. This online usage will perhaps be the most reliable user of the marked post in the future, because it indicates that the published work caught the attention of the person who marked it, and they marked it because they want to return to it. The annual breakdown of the indicator type shows quite hectic columns, but this is the dominant attribute every year. The proportion of annual indicators showing references is significantly smaller. The other indicators show a negligible proportion, except for the highlighted number of shares, likes and comments from social media in 2020. The fifth indicator is missing from the diagram. This is because we did not find a single so-called Usage-type indicator during the six years examined: clicks, downloads, views, library holdings, video plays. In our view, this is also due to the fact that the Usage and Captures indicators cannot be clearly separated, as the two indicators overlap significantly.

In our second step, we analyse the aggregate results of the PlumX metrics for the six years under review. While the previous paragraph presented the annual data, the aim here is to analyse the total utilisation of Ecocycles publications over the six years. The aggregate data show essentially the same indicator ratios as we saw in the annual breakdown. The reason we need to mention the aggregate data for the six years under review is the difference in magnitude between the traditional metrics and the summarised PlumX measurements.

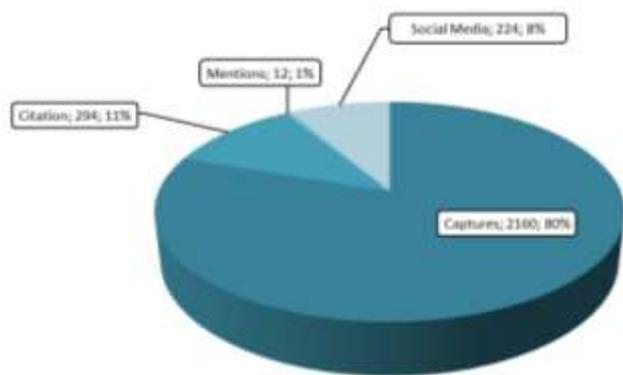


Figure 18. Aggregated PlumX metrics for publications in *Ecocycles* between 2019 and 2024. (Source of data: Scopus literature and citation database, 2025; Author's editing)

Based on the Scopus literature and citation database, the traditional metrics of utilisation and impact for a given six-year period (2019-2024) for publications appearing in *Ecocycles* can be collected, expressed by a single indicator, the number of literature references. This value is 278 items. In contrast, the much more detailed utilisation value measured by PlumX indicators and recorded in the online space for the same period is 2690, which also includes the total number of citations. The difference in magnitude between the two values is clearly visible, almost tenfold (Rasuli and Nabavi, 2024). There is no reason to consider references in the literature more valuable or useful than any alternative metric indicator, such as a professional or scientific blog post, comments, opinions, and discussions following an article, or entries and references in Wikipedia articles.

CONCLUSIONS

A detailed analysis of the first ten volumes of *Ecocycles* provides several important insights into the journal's scientific profile, development trajectory, and future potential. The volume of publications, the geographical and institutional background of the authors, and the thematic diversity of the articles all support the journal's continuous growth and stable position in the scientific field. The analysis clearly showed that the content of the publications reflects the journal's mission, which is to take a holistic approach to interdisciplinary, ecological cycles. Disciplinary diversity and inter-, multi- and transdisciplinarity – which was one of the central questions of the research – can be clearly demonstrated on the basis of content clusters and keyword analysis. The frequency and direction of connections between different scientific fields suggest that the thematic profile of *Ecocycles* is not only multifactorial but also structurally permeable, which favours the emergence of transdisciplinary scientific discourses.

In examining scientific utility, both traditional and alternative metrics confirmed the value of the journal's publications. The quantity and quality of citations, as well as data from alternative metrics such as downloads, views, and shares, show that studies published in *Ecocycles* are active participants in scientific discourse and are reaching an increasingly wider readership. This is particularly important

in light of the fact that scientific communication is increasingly taking place in digital form and is organised according to the principles of open access and open science (Klarin, 2024; Pajas, 2024).

An important conclusion is that many of the works published in *Ecocycles* are located at the intersection of research and practice, thereby strengthening the relationship between science and society. Looking ahead, this bridge-building role could be key to further strengthening the journal's profile.

One of the strengths of the research is the use of source data collected from various content and scientometric databases, in particular Dimensions, Scopus, and Web of Science. These data sources, although they use different criteria, provided a more nuanced picture of the journal's thematic system when analysed together.

Overall, the first ten years of *Ecocycles* can be considered a successful period. The development of the volume and quality of publications, thematic diversity, interdisciplinarity, transdisciplinarity and the results of scientific impact assessments all confirm that the journal has been built on solid foundations. At the same time, the journal's position is still evolving, and further steps are needed to increase its international visibility and scientific impact, particularly in terms of broadening its author base, refining its thematic focus, and standardising data reporting.

The analysis of the first ten years of the *Ecocycles* journal not only provided an opportunity to evaluate the scientific performance of a given journal, but also aims to provide a model example of how the development of scientific periodicals can be examined in a complex, methodologically sound, multidimensional way. The methods used and the conclusions drawn from them may also be relevant to other scientific publications with a similar profile, especially journals that focus on sustainability, global challenges and the social benefits of science.

It is important to emphasize the transdisciplinary character of *Ecocycles*, which goes a step further by actively involving practitioners and stakeholders from outside academia (e.g., policymakers, community members, industry experts) in the scientific communication of entire research processes, from defining the problem to implementing solutions. The goal is to co-produce knowledge that is directly applicable to real-world problems and facilitates transformative change.

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