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"Conservation Culturomes: Metrics of evolution of public interest"

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“Conservation Culturomes:

Metrics of evolution of public interest”

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Dedications

In loving memory of my brother-in-law George Poulkas (1978- 2017) and of my nephew Stefanos Kiosegiannidis (1993-2018).

This Thesis is also dedicated to my two underage daughters, hoping that this endeavor might be a useful example to shape their future.

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Abstract

As demonstrated over time from the Environmental Sciences, it is absolutely essential to study the relationship between social, political and economic development regarding the formation and transformation of human attitudes and priorities. Hence, monitoring trends in public interest is extremely important for the proper planning and implementation of environmental policy. A newly emerging science which combines biodiversity with human cultural and social diversity through the analysis of changes in words or phrases frequencies in vast digital databases in the World Wide Web, reflecting the fluctuations of public interest, is called *"Culturomics"*. This Thesis investigates the trends in public interest in main environmental terms and concepts, in particular, regarding biodiversity conservation, as they arise from *Google Trends* and the determinants that they affect to them, through four case studies. The goal is to capture the evolution of public interest comparing the data of three earlier published scientific metrics to recent metrics, defining some ephemerality indicators. In addition, a new metric using a wide collection of terms of the modern environmental lexicography was carried out also, in order to assess the contemporary environmental discourse impact to the public. Simple operations i.e. curve fitting, geometric distances and size (distance)/rank distributions on the arrangement of sets of terms in- and between- different metrics are performed in order to uncover the systematic evolution of "Culturomes".

Keywords: Public Interest; Culturomes; Biodiversity; Google Trends; Internet; Ephemerality; distance metrics.

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1. Introduction

Almost two centuries after the formulation of the *Theory of Evolution* in Charles Darwin's book *"On the Origins of Species by means of Natural Selection*" (Darwin C. 1859) and exactly 80 years after Theodosius Dobzhansky's confirmation about the *"light of evolution"* (quoted in Begon et al. 2006) in his book *"Genetics and the Origin of Species",* a new theory is emerging that could be described as "*The theory of evolution by biocultural selection*". Scientific research over the last few decades has clearly demonstrated that human activities affect our planet in unprecedented ways. Over time, it is becoming increasingly clear that climate change, biodiversity loss, land use changes, limited access to good quality water and many other environmental problems are more than just *"human impacts on the environment"* (O'Brien 2010). They are obvious effects of modernity (Clausen and York 2007), symptoms of sovereign (erroneous) growth patterns, results of social relationships, and short-sighted perspective products closely linked to beliefs, values and views at global level (York et al. 2003). Personal attitudes and choices affected by the cultural environment (Hofstede 1984, Zimmerer 1994). Therefore, studying the trends of public awareness and engagement on conservation issues is essential for the advancement and implementation of relevant policies (Ladle et al. 2016, Inglehart 1995). A deep understanding of the role of human beings and their social, cultural, political and economic relations which are leading to large-scale transformations of human attitudes and behaviors is necessary, in the light of what scientists consider as "the limits of the planet", and this finding implies a shift to the discourse that environmental issues are studied and addressed (Rockstrom et al. 2009, quoted in O'Brien, 2010). This shift should include changes in the way

global change research is conducted, including exploratory questions about public response and its priorities (Hulme 2009, O'Brien et al. 2010). Nowadays, the data of social science research are becoming increasingly recognized by research institutes and natural scientists, as being of utmost important to understand and to response to the phenomenon of global change. However, little attention has been paid to the role played by experiences, beliefs, prejudices, consciousness and culture in global change research (Hulme 2009). Natural environmental science has already contributed substantially to the field of global change through research on climate impact, vulnerability of natural environment, land use changes, biodiversity conservation, threats and other environmental problems (Turner et al. 1990 quoted in O'Brien 2010). Physical scientists have disseminated the results of their studies, through conferences, meetings, committees and countless of publications and reports. International organizations have been writing scenarios on the future course of the phenomena and on this basis different models have been built. Typically, these models take account human society as a unified one, without examining the subjective differences between groups, people and nations. For example, as far as the food problem is concerned, it was estimated that the average person consumes 2,500 calories a day as food (FAO), but this is not entirely right because there is much differentiation between people's prosperity. Thus, while the average American citizen might consumes about 8,000 calories a day, the Ethiopian resident maybe consumes less than 800 calories, or the 10%. Hence, U.S. and Ethiopian citizens' ecological footprint is very different and in any case these two people cannot be considered as one ensemble, since the distribution of livelihood resources is not equitable (Venetoulis, Chazan & Gaudet 2004 quoted in Wray –Lake et. al. 2010). Moreover, the predatory exploitation of the natural resources of developing countries to

meet the needs of Western societies, has led their nationwide primary production system to collapse and that is precisely the definition of *"The Netherlands Fallacy"* (York R. & Rosa E.A. 2003). According to World Wide Fund (WWF 2010) the 60% of biodiversity loss during the last 35 years occured in poorer tropical nations. Extreme poverty and biodiversity hot spots is a very harmful combination (Barrett et al. 2011). The UN's "2010 target" have not been met and efforts to address the loss of biodiversity need to be strengthened by reversing "business as usual" policies and sustained investment in global biodiversity monitoring (Butchart 2010). Therefore "*No Poverty*" and "*Zero Hunger*" are United Nation's No1 and No2 Global Goals for the Sustainable Development, respectively (United Nations, Sustainable Development Goals, http://www.un.org, assessed on 2nd of September 2017). Although there is a long tradition in human-environment research and knowledge about global change and earth systems which has been acquired over the past decades, many specialized issues in the field of man geography have not been approached in the modern perception of global change, especially of climate change. Land use changes, climate change, physicochemical properties of the environment and biodiversity are the key components of the changing globe's biosphere processes that are interrelated and interdependent. In this perspective, it is indispensable to combine cultural diversity with biodiversity and it seems that a new concept called *"biocultural diversity"* is rising (Diaz et al. 2015).

1.1 The public Interest

First researches for public interest in the environment began in USA in early 70's when the environmental movement emerged and a new rising science started to developed as a part of Sociology, called *Environmental Sociology*. Since the 70's, several researchers

had been studying changes in environmental concern. To that direction, Van Liere and Dunlap (1980, 1981) in their literature review reports, studied the results of those researches and investigated the relation between environmental concern and social-demographic variables like age, sex, income, education, occupational prestige, residence, political party and political ideology. Some of the most important theories i.e. *The Cultural Theory* (Mamadouh 1999), the *Postmaterialism* (Inglehart 1971), the *Norm Activation Theory* (Stern et al. 1999), the *Theory of the Reasoned Action* (Kaizer and Scheuthle 2003) and the *Theory of Planned Behavior* (Kaiser F.G. et al. 2005, Kaiser F.G. 2006) had been formulated and proposed to interpret public environmental behavior according to social and psychological factors. The common method used for measuring public interest was asking people in opinion surveys i.e. Gallup pools, Gallup Opinion Index, etc. (Scheitle 2011, Dunlap 1991). All primary data of the studies above were results of direct polls like personal interviews, written queries, telephone interviews and more recently e-mails, that means a lot of expenses, too many working hours and hard work "in the field". Using those methods, from data manipulation until the final results reporting usually takes time, so there is always a time lag between surveys and current views of the public (Ahern et al. 2013, Israel and Wolf-Branigin 2011, Messmer TA et al. 2001, Wilde and Pope 2013). However, the sizes of the samples might be some hundreds or in the best case some thousands of answers, targeting a limited place or country, e.g. USA. Furthermore, these studies often involved ethical and moral questions (Jackson 1983), they are subjected to no response bias (Armstrong and Overton 1977, Embree and Whitehead 1993) and even lying and suspicion (Hample 1980). Twenty years ago Internet invaded human lives in all sectors of their activity like markets, labor, studying, travelling, information, social media,

communications, leisure time, etc. The growth rate of Internet penetration was explosive, even higher than the world's population growth rate after the Industrial Revolution, and in our days almost half of the world's population has become internet users (table 1, figures 1, 2). Human societies have entered to the Petabyte Age, an era of massively abundant data, in the beginning of the most measured age in history which is "*different because more is different*" (Anderson 2008 quoted in Troumbis 2017a). Hereinafter it is not necessary to ask people if they interested in environmental issues but this can be investigated and measured through internet searches and massive digital data, using applied mathematics to manipulate a vast amount of numbers. In addition, the quantification of vast amounts of data gives the potential advantages of greater reach, cost efficiency and responsiveness compared to the traditional polling (Anderson 2008 quoted in Troumbis 2017a). Web – based data could be used to improve public or administrator awareness for environmental issues and recent results showed an increase in public interest in new ecological concepts (Malcevski et al., 2012). All data included in the World Wide Web and the access to them achieved through a search engine which is a software system designed to search for any kind of information. There is a plenty of search engines but only few of them are sufficiently spread worldwide. Google, Bing, Yahoo, Baidu, AOL, Ask and Excite are most used, however the "lion's share" belongs to Google with a percentage of 80.61% (http://www.netmarketshare.com/, accessed 20 September 2017, figure 3). Respectively with the total number of Internet users which is almost 3.5 billion, this percentage corresponds to 2.8 billion Google users worldwide. On Sunday 8th of October 2017, Google search queries rate processed almost 63,000 per second, which translates to over 5.5 billion searches per day and 1.986 trillion searches

per year worldwide, (http://www.internetlivestats.com/ google-search-statistics/, accessed on 8 October 2017).

Table 1. Internet users and World Population (in millions). Source: Internet Live Stats (www.InternetLiveStats.com)[1].

Year	Internet Users (millions)	World Population (millions)
2000	414.79	6,126.62
2001	502.29	6,204.31
2002	665.07	6,282.30
2003	781.44	6,360,76
2004	913.33	6,439.84
2005	1,030.10	6,519.64
2006	1,162.92	6,600.22
2007	1,373.23	6,681.61
2008	1,575.07	6,763.73
2009	1,766.40	6,846.48
2010	2,023.20	6,929.73
2011	2,231.96	7,013.43
2012	2,494.74	7,097.50
2013	2,728.43	7,181.72
2014	2,956.39	7,265.79
2015	3,186.00	7,349.47
2016	3,424.97	7,432.66

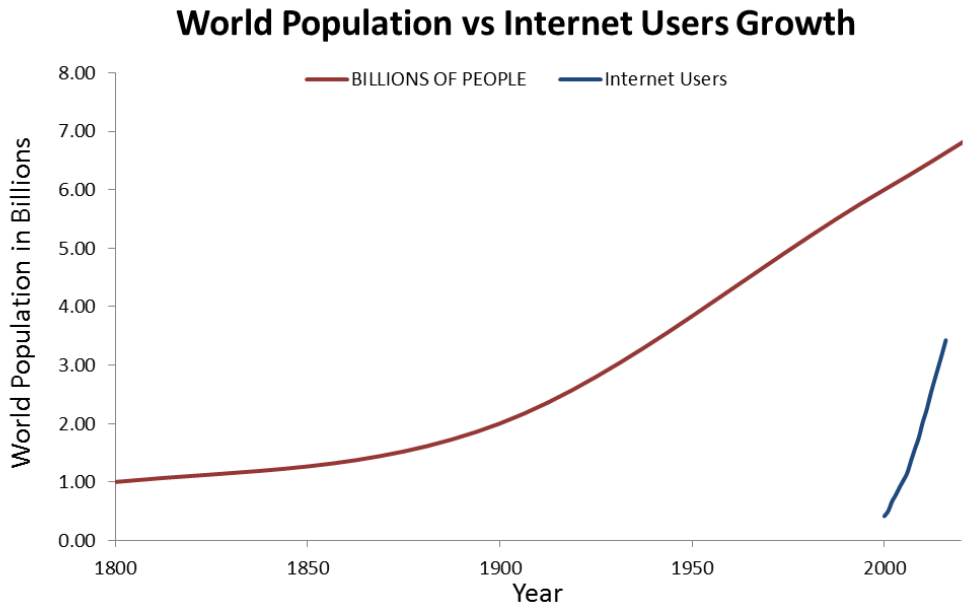


Figure 1. World population growth and Internet penetration growth between years 2000-2016 (data from UN Population Division, 2004 revision). Source: Internet Live Stats (www.InternetLiveStats.com, assessed on 8th of October 2017).

[1] Elaboration of data by International Telecommunication Union (ITU), World Bank, and United Nations Population Division.

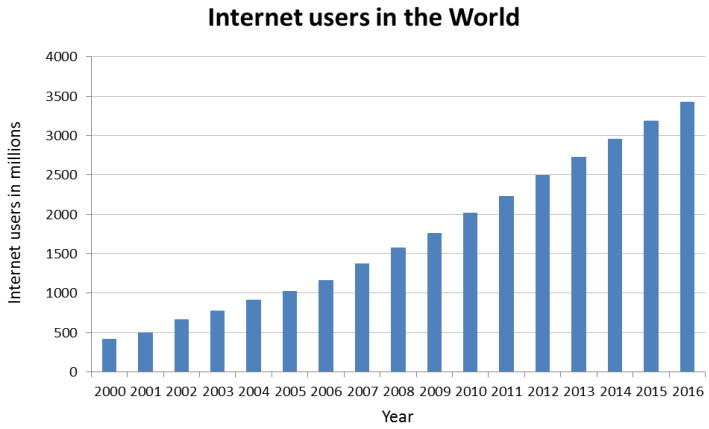


Figure 2. Internet users growth (in millions) between years 2000-2017.

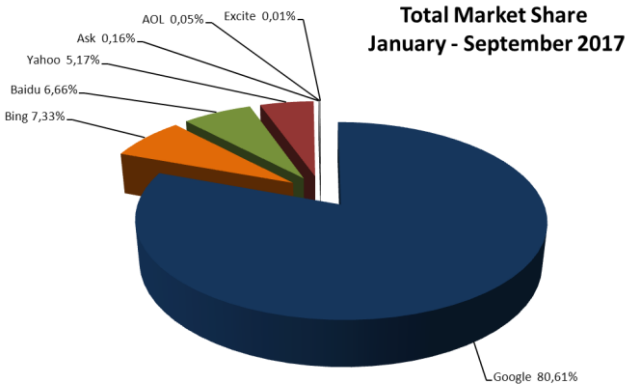


Figure 3. Total market share of the most popular search engines worldwide.Source: Net Market Share, 2017.
http://www.netmarketshare.com/search-engine-marketshare.aspx?qprid=4&qpcustomd=0, (Accessed on 8th of October 2017).

1.2 Google Trends

One out of several services provided by Google for free is *Google Trends* (GTs hereafter) (https://trends.google.com/). It shows how frequently a term is entered in Google during each month or, for some countries, during each week. It is a very simple procedure and GTs users have only to enter a term in the GTs' searching bar and choose the geographic region (by country or worldwide), the time period (after the 1st of January 2004) and the category (in one out of 25 categories or in all of them). The application returns a file in format CSV that can be downloaded. This CSV file is an

timeline index with monthly or weekly search volume for the searched term/s within a particular geographic region, divided by the total number of queries in that region during each specified reference time period. The maximum value defined as 100 and all other values are normalizing according to that maximum. To make it clear, these values are not the actual (absolute) volume but scaled rankings of percentages (relative Google search volume) on a range from 0 to 100 based on a topic's proportion in relation to the highest term's ranked percentage of the geography and time range it represents (McCallum and Bury 2013, Ficetola 2013). In order to understand how GTs work, an example of a preliminary study is given below. The term *"Climate Change"* was entered to the GTs searching bar, the geographic region defined as worldwide and time period defined from 2004 (1st of January) to 2017 (data retrieved on 5th of December 2017). The CSV file was downloaded and manipulated properly to produce a graph depicting the normalized Google search data from 2004 to 2017 (figure 4). It is noticed that GTs volumes are not ordinated in a flat line but there is a continuous maximum and a minimum variation. It is confirmed that the tops correspond to the dates of some main events. The year 2005 was recorded as "Atlantic hurricane season" with an estimated 3,913 deaths and record damage of about $159.2 billion (NOAA, April 13 2006). Year's 2007 top, corresponds to the 4th Assessment Report of the Intergovernmental Panel of Climate Change (IPCC, Geneva, Switzerland 2007). All the other tops are dated to the United Nations Climate Change Conferences (COP). The first 2017 top corresponds to June 2017 which was the 4th hottest June for the last 137 years (https://climate.nasa.gov/, assessed on 5th of July 2017). The last top dated to COP 23 held in Bonn which actually didn't attracted the same public interest as the two previous conferences. Hence, it is sufficiently perceived that GTs constantly reflect the public

interest which fluctuates depending on several milestones events. This might be a very useful tool for governmental agencies to monitor critical direct pressures on biodiversity, i.e. invasive species. Moreover, the public awareness would increase by strengthening the use of GTs for studying the biodiversity conservation issues (Proulx 2014).

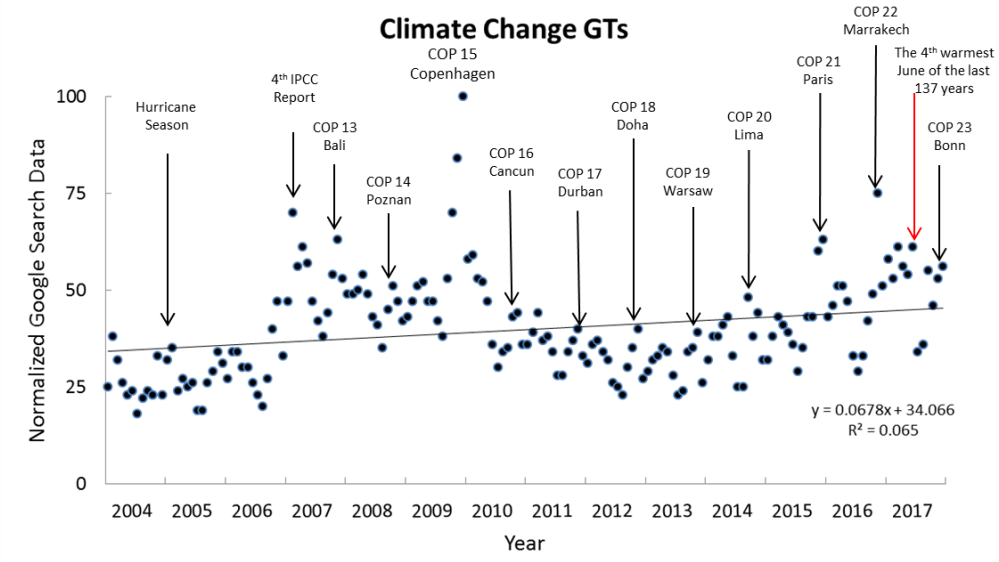


Figure 4. Scaled, normalized search data obtained from GTs search for the term *"Climate Change"* during 2004-2017 (data retrieved on 5th of December 2017).

1.3 Biodiversity Conservation

The 80's can be described as the most fruitful decade in terms of environmental research. During the 80's, basic concepts have been constructed and emerged, which to date they lie in the core of Environmental Science, specifically regarding to the Environmental Policy. In 1985, the first fundamental law, *Endangered Species Act of (1973), Public Law 93-205, 28/12/1973*, which introduced by the President of the United States, Richard Nixon, in order to regulate the protection of threatened species, was expiring. In an effort to extent the validity of that law and to adjust its regulations,

and before the launching of the large-scale public debate on the US Congress, a multidisciplinary committee was set up at the Smithsonian Museum in Washington by leading American scientists. The subject was to construct the arguments which their representatives would present to Congress. In that endeavor, the need to make a verbal change was at the same time a mental change in the way in which the concept of nature and environment would presented in the public discourse. The adopted idea was that the concept of "biological diversity" should emerge on the surface as an expression of the vast diversity of living world at all levels. From the genes within an individual, the interactions between individuals of a population or between populations and different species, up to the landscapes (habitats). At one of the meetings of this committee it was proposed to join the two words and create a new word that would be more attractive to the public and in any case more effective in discussions on environmental issues. Therefore, "biological diversity" transformed into "biodiversity", without of course being able for the scientists to think and imagine the successful resonance this new term would had in the future, substituting older relevant terms and giving a new dimension to the environmental issue. So, this new scientific term was adopted in 1985 and a few years later, with the release of the volume "Biodiversity" (Wilson 1988), it acquired the field of modern environmental science and politics (Novacek 2008). The other two important concepts invented in the 80's were "*global change*" in 1986 and "*sustainable development*" in 1987 (figure 5). However, recently it is widely accepted by scientists that biodiversity issues lack of understanding by the public and this fact is a major obstacle for planning and implementation of biodiversity-related policies which have to be accepted and supported by the public (Fisher and Young, 2007). Although the effects of biodiversity loss are evident and scientists believe that since 1500 the vertebrate

extinction for instance, moved forward 24–85 times much faster than during the Cretaceous mass extinction (McCallum L.M, 2015), surprisingly only the 44% of citizens in Europe, a continent with the lowest degree of illiteracy, really know what biodiversity means (Flash Eurobarometer 2013, quoted in Troumbis 2017b) and this is strongly incompatible with the No 1 Aichi Target (Perrings et al. 2010).

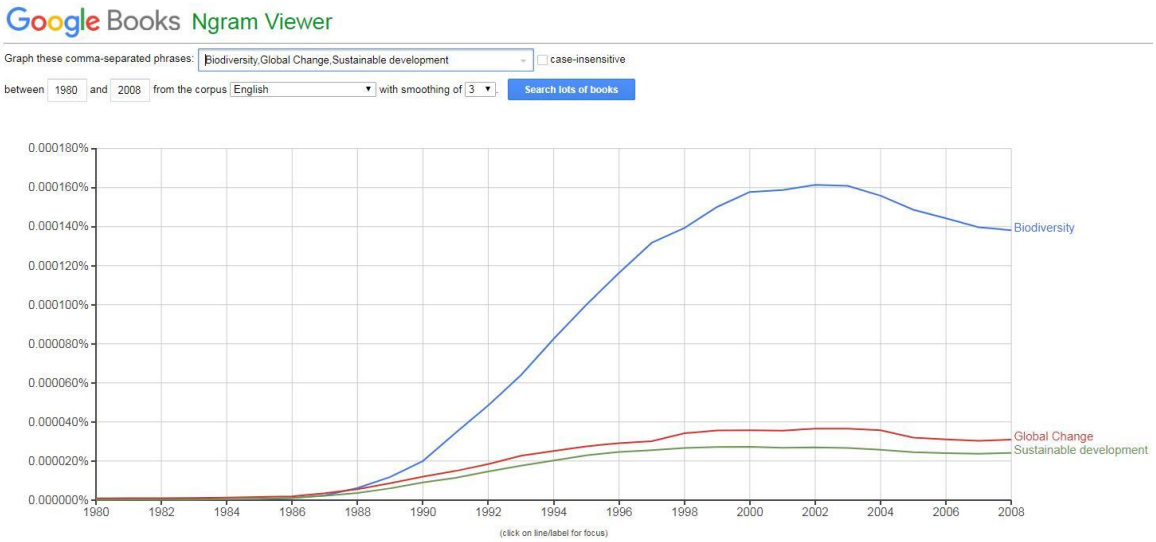


Figure 5. Three new concepts *"Biodiversity"*, *"Global Change"* and *"Sustainable Development"* emerged in 80's as depicted in Google Books Ngram Viewer. (https://books.google.com/ngrams/, assessed on 13th October 2017).

This Thesis is articulated in three sections. First, a clarification of Funk and Rusowsky (2014) analysis of Internet searches for five flag environmental issues in seven major Internet languages and trend analysis of public interest evolution between languages and cultures during period (2004–2017). Seven languages namely English, Spanish, Portuguese, Russian, France, Arab and Chinese were used to search GTs for *"biodiversity"*, *"conservation"*, *"climate change"*, *"sustainability"* and *"endangered species"*. Second, a contradistinction between GTs of older publications i.e. Andrew et al. (2016), McCallum & Bury (2013), Ficetola (2013) and recent metrics for the same terms, time period and geographic region, trying to investigate if and how GTs volumes

are changing over time, calculating the "size" of the ephemerality between different metrics such as for each term, as for the total metrics. Finally, a replication of Andrew's et al. (2016) comprehensive analysis was carried out using 244 terms of modern environmental discourse and lexicography carefully selected through the literature, related to six main categories: "Organisms", "Ecosystems", "Science", "Policy/Management", "Environment" and "Economy", in order to define the modern trends.

2. Methods

2.1 The linguistic effect in Culturomes

Changes in frequency of the words used by search engines like Google, form people's culture and the formal study of these changes called "*Culturomics*". (Michel et al. 2011). The sets of terms and concepts related to the environmental and biodiversity conservation issues and databases of GTs data in a given period of observation defined as *Culturomes*. Obviously, *Culturomes* affected by local languages which reflect the different cultural and language groups (Correia et al. 2017). *Google Trends* (https://trends.google.com/) might reveal which is the most frequent language used for Internet surfing regarding flag environmental terms. Therefore, search queries related to five flag environmental terms by a selection of seven languages, English, Spanish, Portuguese, Russian, French, Arab and the traditional script of Chinese, which sufficiently, reflect the majority of human population worldwide (table 2). *Google Translation* was used and the selected flag environmental terms were: "*biodiversity*", "*conservation*", "*sustainability*", "*climate change*" and "*endangered species*". Some technical issues regading *Google Translation* presented below. For instance, in Spanish, Portuguese and French many words contain letters with accents and special

characters. In test queries by the same words, with or without accents, a multiple variation was founded. As Funk & Rusowski (2014) confirmed, in Spanish, the word "*conservación*" used less frequent than the word "*conservacion*"; mean normalized Google search values of 13.8 to 52.7 respectively (comparative search data retrieved on 8/10/2017). The same applies to the word "*ecología*"; mean normalized Google search values of 3.9 to 45.2 respectively (comparative search data retrieved on 8/10/2017). On the contrary, in Portuguese the word "*conservação*" used more frequent than the word "*conservacao*"; mean normalized Google search values of 55.5 to 5.2 respectively (comparative search data retrieved on 8/10/2017). Furthermore in French, the words "*biodiversité*", and "*durabilité*" used more frequent than the words "*biodiversite*" and "*durabilite*"; mean normalized Google search values of 42.8 to 7.07, and 46.8 to 11.7 respectively (comparative search data retrieved on 8/10/2017). But also in French language, the word "*écologie*" used less frequent than the word "*ecologie*"; mean normalized Google search values of 20.3 to 37.06 respectively (comparative search data retrieved on 8/10/2017). There are conflicting results, so it is not sufficient to rely on a definite rule that is appropriate for each country and for every word. Another issue for critique is the used language in relation to the reference country. GTs searches in preliminary studies confirmed that in some countries the local language prevails on English but for some others the opposite is true. For instance, on GTs metrics by the term "*environment*" in France and Spain, local language prevails on English language with local language mean normalized GTs volumes 39.7 and 43.45 respectively, against English language mean normalized GTs volumes 5.4 and 4.9 respectively. However, searches by the same term in Portugal, Russia, China and United Arab Emirates, English language with mean normalized GTs volumes 34.77, 30.46, 23.52 and 39.47

respectively, prevails on the local languages with mean normalized GTs volumes 23.87, 5.07, 1.99 and 3.37 respectively (data retrieved on 19th of October 2017). To overcome the particularities as mentioned above, the country search was defined as worldwide and the reference period from 1st January 2004 to 8th of October 2017. The CSV files were downloaded for regression analysis using Microsoft® Excel Analysis Tools. The search volume was calculated in two ways: a) The comparative search where the terms were searched and normalized to a scale ranked from 0 to 100, simultaneously, according to the *Google Trends* limitation to compare up to five terms in the same search simultaneously. The value 100 was given to the most frequent used language and all other languages' volumes were normalized according to that maximum. The languages were separated into two groups of four terms each one. Considering that English language is the most widespread, it was included in both groups and it was used as benchmark in order to be compared to the other languages. The first group (Group A) included English, Spanish, Portuguese and Russian and the second (Group B) included English, French, Arab and Chinese. b) The relative search, where each language was searched separately (individually) and normalized to a scale ranked from 0 to 100. The value 100 was given to the date that the relevant term had the highest traceability. In this case, trends depicted more clearly.

Table 2. Google Translation for the five flag environmental terms in seven languages.

EN	ES	PORTG	RUS	FR	ARAB	CHI
Biodiversity	biodiversidad	biodiversidade	биоразнообразия	biodiversité	التنوعالبيولوجي	生物多樣性
Conservation	conservacion	conservação	сохранение	conservation	صـ يادة	保護
Climate change	Cambio climatico	Das Alteracoes Climaticas	Изменение климата	Changement climatique	تغيرالمناخ	氣候變化
Sustainability	Sostenibilidad	Sustentabilidade	устойчивость	Durabilité	الاستدامة	**可持續性**
Endangered species	Especie en peligro	Espécies em perigo	Вымирающие виды	Les espèces menacees	الأنواع المهددة بالإنقراض	**瀕危物種**

2.2 The GTs' Ephemerality of public interest

Google Trends enables users to define a reference time period for each entered term. Therefore, a GTs user reasonably could assume that defining an older time period (e.g. from 2004 to 2013) nowadays, the returned GTs volume would be the same as it was when an older search should have been carried out for the same time period. Is there any kind of *"memorie calendar"* in the GTs and if not, how ephemeral the trends are? To prove whether this is applied, the GTs values of three published reports were compared to recalculated recent GTs searches by the same terms, geographic region and time period as the initial GTs. The selected published reports were McCallum and Bury (2013), Ficetola (2013) and Andrew et al. (2016). In McCallum and Bury's (2013) report there are given GTs volumes of 19 environmental terms between years 2004-2010 (7 years). In Ficetola's report there are given GTs volumes for 6 flag environmental related terms and 6 unrelated to environmental issues for the time period 2004 up to the 8th of June 2013 (9.43 years). The yearly slope value (slope/yr) for each term for the recalculated GTs searches was calculated exactly as McCallum and Bury way, in both cases, that is the difference between the average yearly volumes of the first year (2004) and the last year (2010 and 2013 respectively), divided by the total number of the years (7 and 9.43 respectively). In Andrew's et al. report, r^2 and slope values for each one of the 291 terms, are given in an appendix in their paper (Andrew et al. 2016, Appendix I). Recalculated GTs search was carried out for the same 291 terms by the same time period 2004-2013 and as reference country defined the USA, as it has been defined in Andrew's et al. analysis. For 14 out of 291 terms, the GTs return no results due to internal GTs processes as they were discussed below (see paragraph 3.2.1). The new CSV files were downloaded for regression analysis and new r^2/ slope values for

every term returned. The recalculated GTs searches were carried out on 17th, 23rd and 27th of September 2017. For regression analysis was used Microsoft® Excel Analysis Tools. Each term's regression coefficients were plotted against slope in r^2/slope graphs. The new r^2/slope values compared to the older published r^2/slope values. The *Euclidean Distance* (ED hereafter) between r^2 and slope values, was calculated and each metric's terms ranked according to the ED (ED/rank terms ordination). To correlate ED to the fluctation (decline or increase) of the public interest, ED plotted against the Δslope (slope $_{\text{initial metric}}$ − slope $_{\text{recalculated metric}}$) and ED/$\Delta$slope graphs were produced, where it is clearly depicted how terms ordinated, so as according to the public interest, as to the GTs ephemerality. The "zero" point reflects to the initial GTs data and as terms distributed further away, the ephemerality increases. Each term's distance from the "zero" point reflects the "size" of term's ephemerality (φ_T). The sum of term's epimerality (φ_T) divided by the total of terms gives the average ephemerality or the "culturome ephemerality" (φ_c). Term's ephemerality (φ_T) and culturome ephemerality (φ_c) can be calculated using the *Pythagorean Theorem* as below:

$$\varphi T = \sqrt{ED^2 + \Delta slope^2} \qquad (1)$$

$$\varphi c = \frac{\sum_{i=1}^{n} \sqrt{ED_i{}^2 + \Delta slope_i{}^2}}{n} \qquad (2)$$

Where: ED = the Euclidean Distance
i = each term
n = total terms
φ_T = term ephemerality
φ_c = culturome ephemerality
Δslope = slope $_{\text{initial metric}}$ − slope $_{\text{recalculated metric}}$

The different ED/rank curves were compared to the classic Zipf's distribution (Zipf GK 1949) and the maximum divergence between them detected using the *Kolmogorov Smirnov test (*K-S test hereinafter*)* (Kolmogorov A.N. 1933, Smirnov N.V. 1933).

Another one way to formulate the evolution of public interest is by comparing the coefficients of 2nd degree polynomial U-shape GTs curves of metrics' r^2/slope planes as mentioned above. The general function of parabolic models is $f(x) = ax^2 + bx + c$ where: α determines the width of the responding curve, b: the position of its minimum along the x-axis, and c: its position along the y-axis. Two fitted parabolic models, $f_1 = a'x^2 + b'x + c'$ and $f_2 = ax^2 + bx$ can be constructed according to the value assigned to the c coefficient (c vs. c=0). Calculated differences in α, b, c values within collections of terms and/or between different observation periods indicate changes in public interest; for example, changes in α values measure changes in the internal discursive coherence per conceptual domain as represented by the width of consecutive in time or compared U-curves (Figure 6).

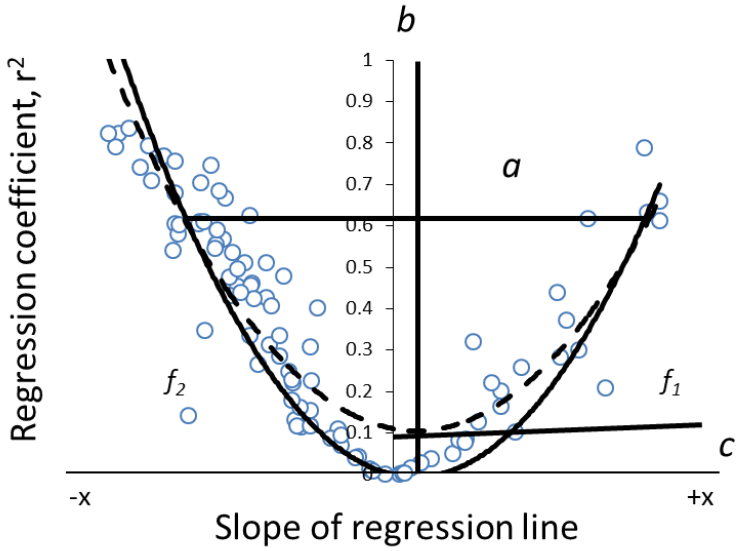


Figure 6: Example of the proposed technique. In this case, a snapshot of a collection of terms is ordinated in the GTs r^2/slope plane (dots in the background). Two fitted parabolic curves (2nd degree polynomial), f1 and f2, differing in coefficient c-value (c vs. c=0, respectively; details in the text), visualize some quantitative characteristics of the entire collection. Although the overall width of the curve, expressed by coefficient a, is almost equal (obviously, similar behavior of the public), there is a horizontal positive displacement (b>0) along the slope gradient; and, a vertical displacement (c>0) along the regression coefficient gradient. Variations when collections of terms correspond to different -in time- snapshots and/or different lexicographic composition are produced when a, b, c values of fitted polynomial curves differ.

In order to estimate GTs values and trends of the same terms as McCallum & Bury (2013), Ficetola (2013) and Andrew et al. (2016) nowadays, the same searches were recalculated from the perspective of 2017. McCallum and Bury (19 terms), Ficetola (12 terms) and Andrew et al. (291 terms) were entered to GTs searching bar and the CSVs files downloaded for regression analysis (data retrieved on 21st, 23rd and 29th of September 2017 respectively). The same procedure as above applied and each term's r^2/slope new value as it was calculated by the regression analysis, depicted to r^2/slope, ED/rank and ED/Δslope graphs.

2.3 A new Conservation Culturome

In the context of *Culturomics*, following Andrew's et al. (2016) method, queries were carried out regarding a big selection of 244 terms, carefully selected from the literature related to environmental issues, building a new *Culturome*, to understand more thoroughly the evolution of public interest. The terms were separated into six wide categories (Appendix I). The categories were: i) organisms (50 terms), ii) ecosystems (42 terms), iii) science (20 terms), iv) policy/management (70 terms), v) environment (47 terms) and vi) economy (15 terms) (table 3, figure 7). Some of the common names, classes and special categories of animals and plants were included in the category *"Organisms"* e.g. *"African elephant"*, *"amphibians"*, *"migratory species"* etc. Types of ecosystems and ecosystem functions were included in the category *"Ecosystems"*

e.g. "*coral reefs*", "*estuaries*", "*erosion control*" etc. "*CO_2 emissions*", "*extreme events*" and "*sea level rise*" are some indicative terms included in the category *"Environment"*. "*Agriculture*", "*industry*", "*bioeconomics*" and "*transports*" are some indicative terms included in the category *"Economy"*. "*Ecology*", "*trophic levels*" and "*species interactions*" are some indicative terms included in the category *"Science"*. Finally, "*Aichi targets*", "*sustainable consumption*" and "*protected areas*" are some of the terms included in the category "*Policy/management*". The geographic region for all queries defined as worldwide and the time period from 2004 to 2017 and data retrieved on 12th of September 2017. The outputs CSV files downloaded for regression analysis to determine the dispersion, the slope, and the strength of each query, using Microsoft® Excel Analysis Tools. The emerged regression coefficient (r^2) and slope of all the terms were plotted together in a r^2/slope graph for further interpretation.

Table 3. Distribution of the 244 terms related to environmental issues into six wide categories.

	Categories	N (terms)
	Overall	244
1	Organisms	50
2	Ecosystems	42
3	Science	20
4	Policy/ management	70
5	Environment	47
6	Economy	15

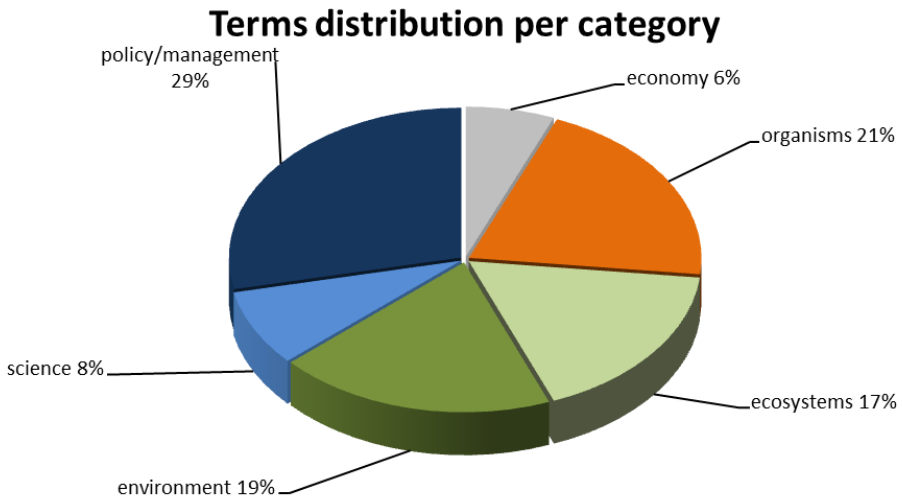


Figure 7. Terms distribution percentage per category.

3. Results and Discussion

3.1 The linguistic effect in Culturomes

3.1.1. The comparative GTs search

As it turned out from the analysis, the most used language for all the queries was English followed by Spain, Portuguese, Chinese and French, in a rank scale according to the average Google search volume of all the terms. Generally, queries in Russian and Arab had a negligible percentage in relation to the total searching volume (table 4). The term *"biodiversity",* in English, had the highest mean GT's value (51.97) and a continuous decline from 2004 to 2008. By 2009 to 2017 followed a flat trend and a slightly rising course after 2014. In Spanish language, *"biodiversity"* had the second highest mean GT's value (40.54), a more gentle variation with a slight increasing trend until 2010 and a slight decreasing trend until 2017. Portuguese and French both followed almost the same trend as Spanish but with less mean GT's values (11.27 and 7.71 respectively). Queries in Arab and Chinese had a negligible mean absolute value (figure 8). The term *"conservation"* in English had also the highest mean GT's volume

(51.21), a declining trend from 2004 to 2012 and a flat trend afterwards. The second highest volume for the term *"conservation"* had the queries in Chinese (traditional) language with a declining trend from 2004 to 2010 and increasing trend afterwards; mean GT's volume 26.28. Spanish, Arab, Portuguese and Russian followed with mean GT's volume 7.40, 3.16, 3.03 and 1.42 respectively. In French, *"conservation"* search term is exactly the same as it is in English language, so French excluded from this comparison (figure 8). As for the term *"climate change"* queries in English had the highest mean GT's volume (39.22) and far behind (7.01) the Spanish language followed in the second position. It is remarkable that there is a cycle time span separated into two peaks (2009, 2017) and two troughs (2005, 2013) in a 8 year time scale, indicated cycles in public interest (Troumbis 2017 a, b). All the other languages had almost zero mean GT's volume (figure 9). For the term *"sustainability"* queries in English had 75.5 mean GT's volume, Portuguese 20.38, Spanish 6.85, Russian 2.13 and French 0.98. Queries in Arab and Chinese had zero mean volume (figure 9). Finally the search for last flag term *"endangered species"* gave sufficient GT's volume and a stable declining trend through years 2004 -2017, only for the English language. All the other languages had almost zero value (figure 10).

Table 4. Mean normalized Google Search volume per term and per language according to the comparative search method (data retrieved on 8th of October 2017).

Term Language	Biodiversity	Conservation	Climate Change	Sustainability	Endangered Species	Average Volume
English	51.97	51.21	39.22	75.5	28.34	49.248
Spanish	40.54	7.40	7.01	6.85	0.37	12.434
Portuguese	11.27	3.03	0	20.38	0	6.936
Russian	0.006	1.43	0	2.13	0	0.7132
French	7.71	-	1.10	0.98	0	2.4475
Arab	0.16	3.16	0	0	0	0.664
Chinese	0.45	26.28	0	0	0.01	5.348

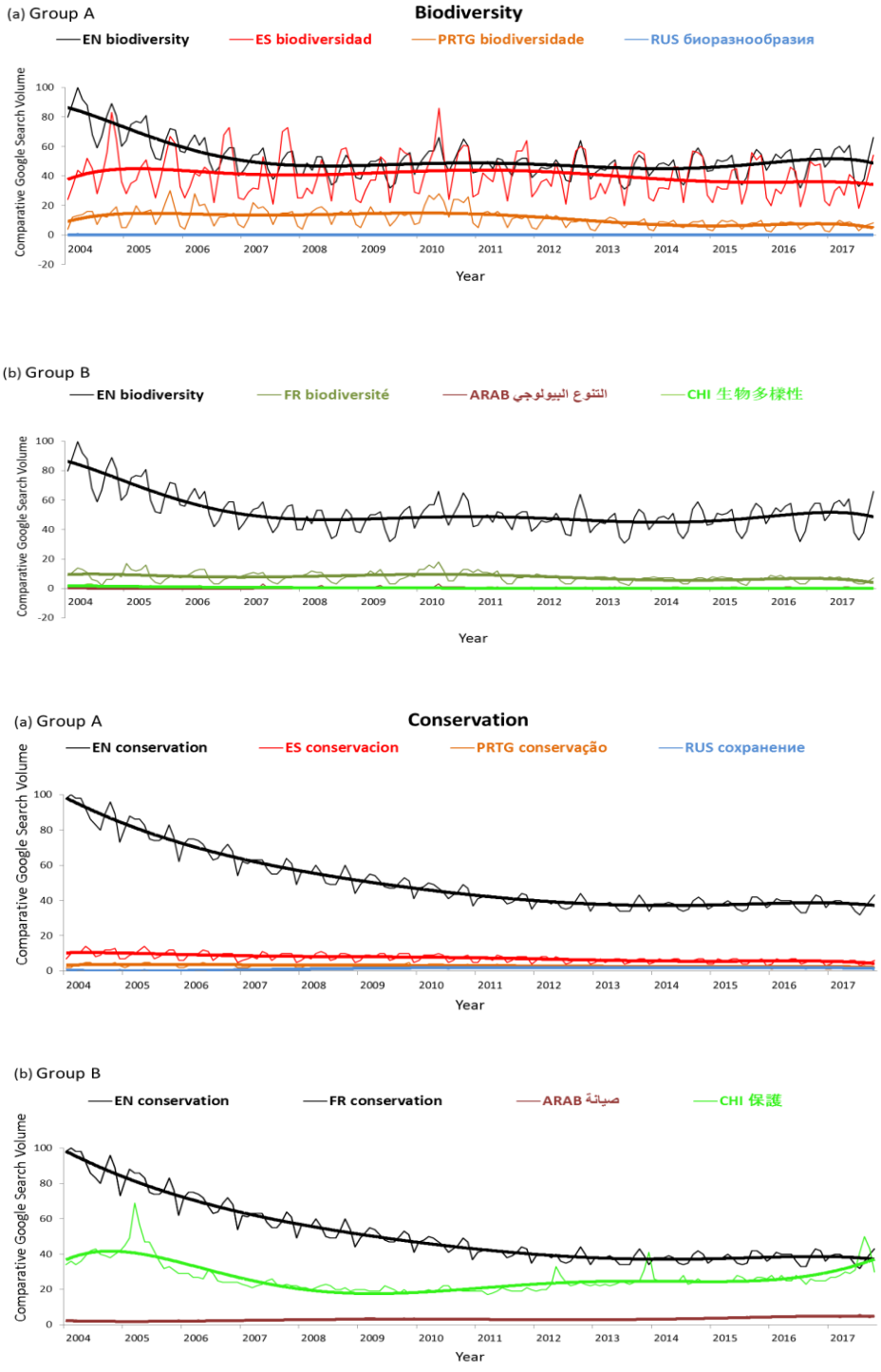


Figure 8. Comparative volumes and trends through worldwide searches using terms *"biodiversity"* and *"conservation"* in English, Spanish, Portuguese, Russian, French, Arab and Chinese (traditional), obtained by Google Trends from 1st of January 2004 to 8th of October 2017. Languages separated into two groups: Group A fig (a) and Group B fig (b). English language included in both groups. Trend lines correspond to 6th degree polynomial.

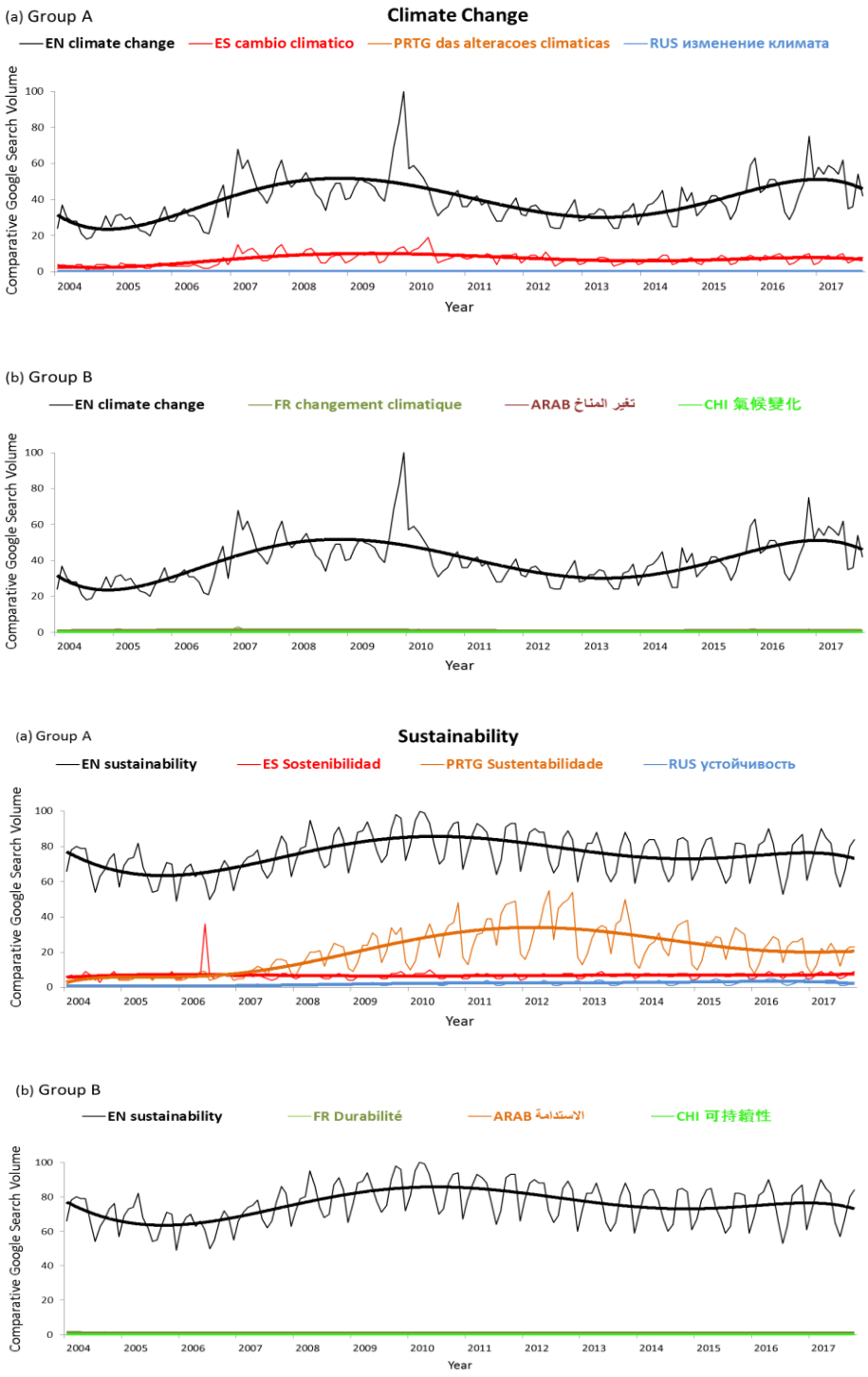


Figure 9. Comparative volumes and trends through worldwide searches using terms *"Climate change"* and *"Sustainability"* in English, Spanish, Portuguese, Russian, French, Arab and Chinese (traditional), obtained by *Google Trends* from 1st of January 2004 to 8th of October 2017. Languages separated into two groups: Group A and Group B. English language included in both groups. Trend lines correspond to 6th degree polynomial.

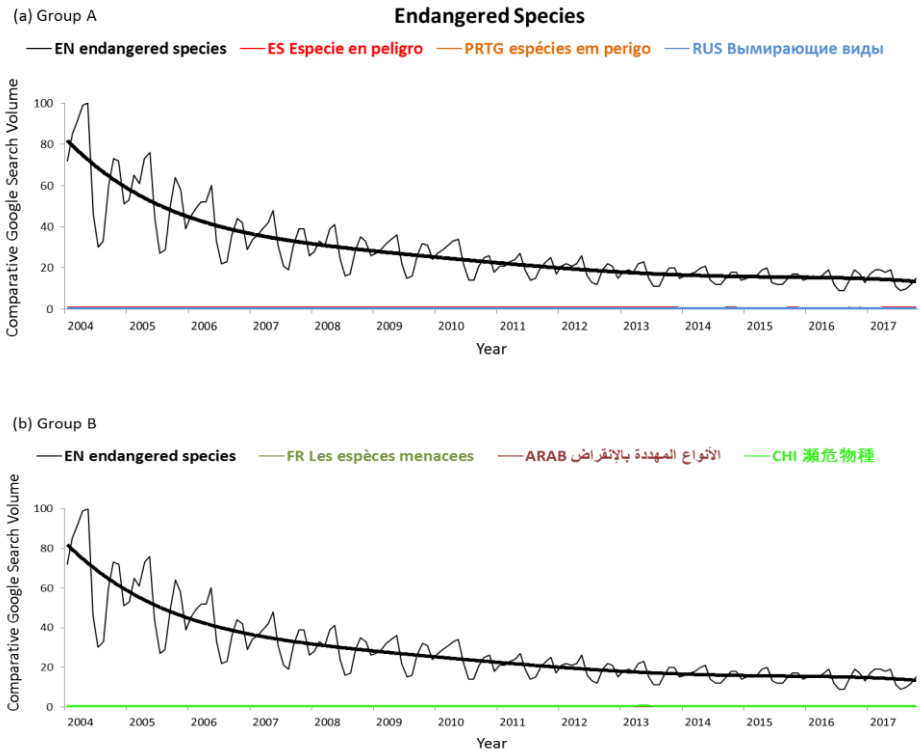
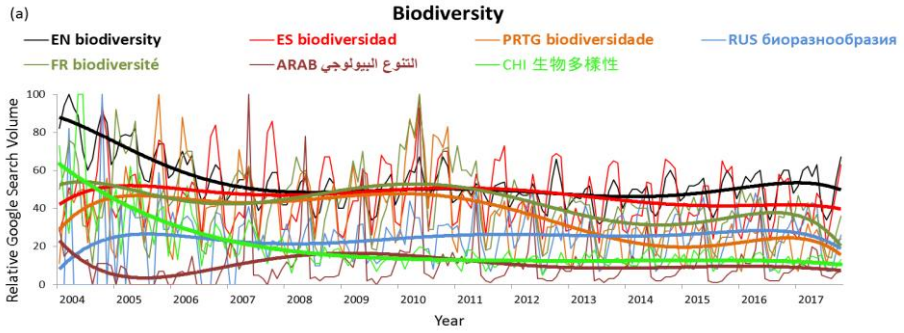


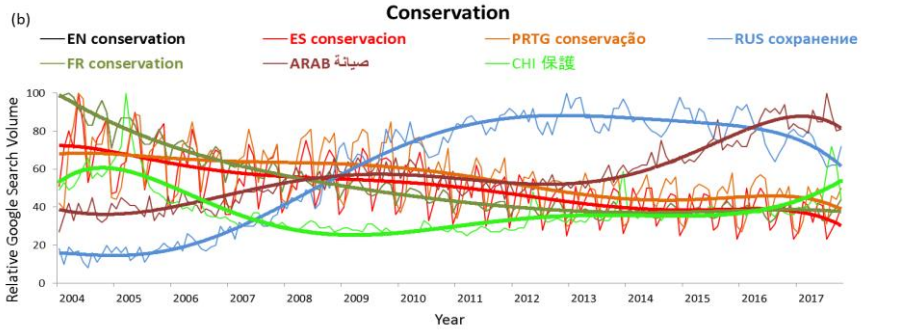
Figure 10. Comparative volumes and trends through worldwide searches using the term *"endangered species"* in English, Spanish, Portuguese, Russian, French, Arab and Chinese (traditional), obtained by *Google Trends* from 1st of January 2004 to 8th of October 2017. Languages separated into two groups: Group A and Group B. English language included in both groups. Trend lines correspond to 6th degree polynomial. It is indicated that except English all other languages had negligible (almost zero) absolute GTs volume.

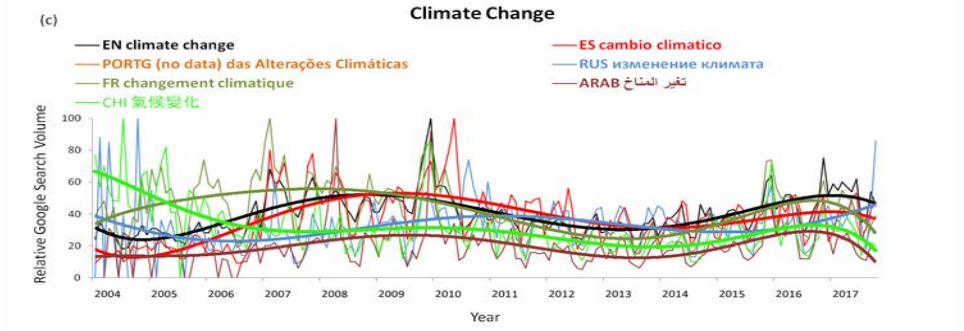
3.1.2 The relative GTs search

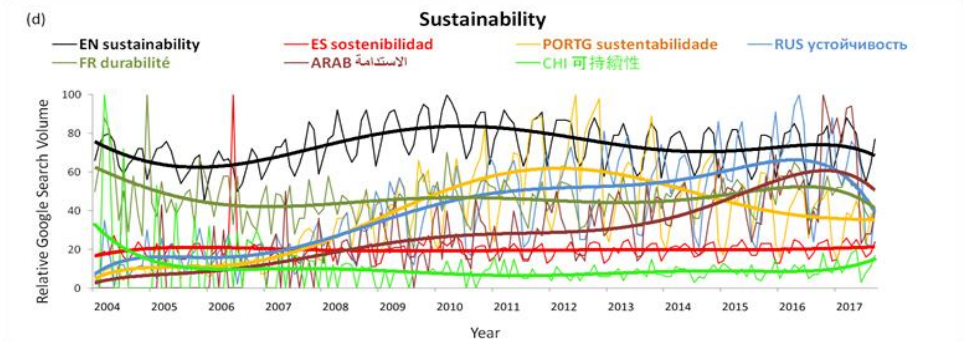
Queries for the term *"biodiversity"* in English language showed a declining trend from 2004 to 2008 and by year 2009 the trend line was almost flat with slight increase after 2014. In Spanish, Portuguese French and Arab language the trends were similar following a slight positive slope from 2004 to 2010 and a slight negative slope afterwards. In 2010, *"The Year of Biodiversity"* there was a distinct rising trend line for Portuguese and French. In Russian language there was continuous slight increasing trend overtime but in Chinese, queries showed a continuous slight declining trend overtime (figure 11a). For the term *"conservation"* queries showed a continuous

declining trend for English, Spanish, Portuguese and French, but on the contrary, in Russian, showed an increasing trend overtime with a steep decline by the year 2017. In Arab language, there was a slight positive slope from 2004 to 2009, a neutral slope from 2010 to 2013, a steep positive slope from 2014 to 2016 and a negative slope by the year 2017. For Chinese (traditional) there was a negative slope from 2005 to 2009 and a positive slope from 2010 to 2017 (figure 11b). For the term *"climate change"* the trend line of the relative search volume uncovered the existence of significant eight-year time scale cycles similar for all the languages except Chinese. There was a positive slope from 2004, a peak in 2009, a declining trend after 2010, a new peak in 2016 and a new declining trend in 2017. Russian language queries showed a two-year time lag in relation to the other European countries. In Chinese, there was a declining trend from 2004 to 2008 and afterwards it followed exactly the same trend as the European countries (figure 11c). Searches for the term *"sustainability"* followed a declining trend from 2004 to 2006 in English, French and Chinese and after 2007 there was a flat trend only in French and Chinese. In English, after 2007 there was a rising trend from 2006 to 2011 and then it started to decline until 2014. In Russian and Arab searches for *"sustainability"* had a continuous positive trend from 2004 to 2016 and a steep decline from 2017 onwards. In Portuguese there was a positive trend from 2004 to 2012 and a negative slope after 2013 (figure 11d). Searches for the term *"endangered species"* had almost flat trend for Chinese. In English and French it followed a continuous declining trend, and in Spanish a declined trend after 2011. For Portuguese and Arab, Google searches for *"endangered species"* returned no results (figure 11e).


(a)
Biodiversity
EN biodiversity
ES biodiversidad
PRTG biodiversidade
RUS биоразнообразия
FR biodiversité
ARAB التنوع البيولوجي
CHI 生物多樣性
Relative Google Search Volume
Year


(b)
Conservation
EN conservation
ES conservacion
PRTG conservação
RUS сохранение
FR conservation
ARAB صيانة
CHI 保護
Relative Google Search Volume
Year


(c)
Climate Change
EN climate change
ES cambio climatico
PORTG (no data) das Alterações Climáticas
RUS изменение климата
FR changement climatique
ARAB تغير المناخ
CHI 氣候變化
Relative Google Search Volume
Year


(d)
Sustainability
EN sustainability
ES sostenibilidad
PORTG sustentabilidade
RUS устойчивость
FR durabilité
ARAB الاستدامة
CHI 可持續性
Relative Google Search Volume
Year

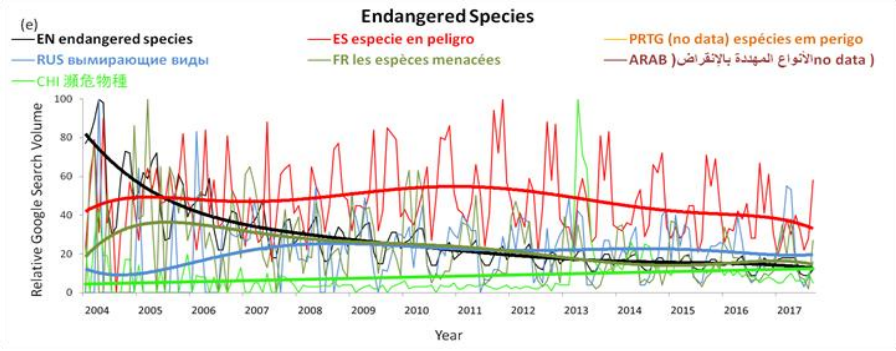


Figure 11. Relative volumes and trends through worldwide Google searches using environment-related terms *"Biodiversity", "Conservation", "Climate Change", "Sustainability"* and *"Endangered species"* in English, Spanish, Portuguese, Russian, French, Arabic and Chinese (traditional) language, obtained by *Google Trends* from 1st of January 2004 to 8th of October 2017.

3.2 The GTs' Ephemerality of public interest

3.2.1 Google Trends 2017 vs. McCallum & Bury (2013) published metrics

McCallum and Bury's (2013) 19 terms entered to the GTs searching bar. The time period defined from 2004 to 2010 as the initial analysis. Two of the terms i.e. *"Mammal conservation"* and *"Reptile conservation"* returned no data. Regarding these terms the application indicated that *"there not enough data for this term, insure that there are not any spelling mistakes or try a more broad term"*. It is sure that there were not any spelling mistakes, so obviously, the relative Google search volume for these terms had dropped too low in relation to the total of searches. A GTs rule is applied defining that if a term's scale ranked percentage fells under the 1% in relation to the most popular term's scale ranked percentage, its value defined as 0. However, it should be noticed that the "no data" GTs return differs from GTs = 0. "No data" reports a condition where search volume for a term is <50/week, (Zimmer 2010). For the other 17 terms the GTs search returned new volumes which differed from the initials (table 5). Therefore it is demonstrated sufficiently that there is no *"memory calendar"* on GTs but volumes and

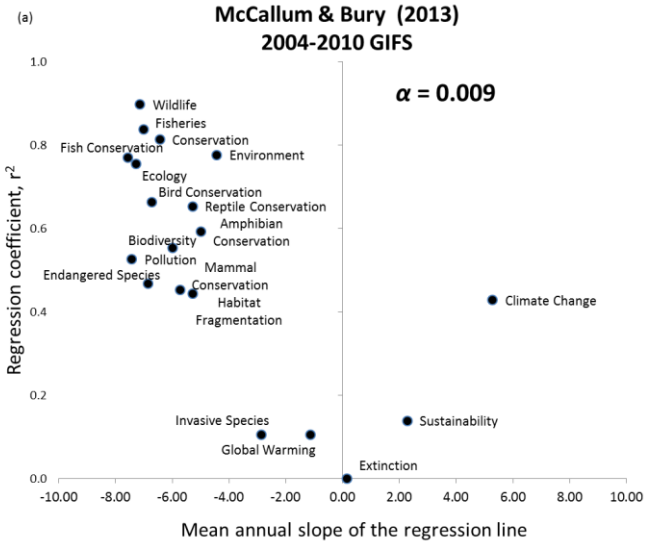
trends are changing continuously depending on the recent searches. After the regression analysis, new slope/yr and strength (r^2) values were calculated for each term in both time periods 2004- 2010 and 2004- 2017 (table 6). All results plotted in r^2/slope graphs (figures 12a,12b and 12c). Figure 12 presents the evolution of the entire McCallum & Bury's collection using coefficients of the parabolic fitted curve of GTs r^2/slope metrics. Both three coefficients, *α, b,* and *c* of the polynomial curve, showed variations suggesting a trend towards increasing conceptual coherence within the collection. For instance, coefficient *α*– i.e. the width of the curve- shows a systematic increase which suggests a "coiling" of concepts.

Table 5. Comparison of published McCallum & Bury (2013) GTs with recalculated GTs for 2004-2010 period (data retrieved on 17th of September 2017).

Terms	McCallum & Bury (2013) 2004-2010 GTs					Recalculated (17/9/2017) 2004-2010 GTs				
	2004	2010	Change	slope/yr	r^2	2004	2010	Change	slope/yr	r^2
Environment	70	39	-31	-4.428	0.776	90	49	-41	-5.857	0.866
Conservation	85	40	-45	-6.428	0.813	92	46	-46	-6.571	0.867
Ecology	81	30	-51	-7.285	0.755	87	38	-49	-7.000	0.821
Global warming	22	14	-8	-1.142	0.105	28	30	2	0.286	0.011
Climate change	26	63	37	5.285	0.428	30	44	14	2.000	0.378
Fish conservation	71	18	-53	-7.571	0.77	66	23	-43	-6.143	0.790
Sustainability	64	80	16	2.285	0.139	69	86	17	2.429	0.345
Extinction	20	21	1	0.142	0.001	27	13	-14	-2.000	0.107
Pollution	74	22	-52	-7.428	0.526	77	33	-44	-6.286	0.630
Fisheries	81	32	-49	-7.000	0.838	91	45	-46	-6.571	0.857
Wildlife	93	43	-50	-7.142	0.897	93	48	-45	-6.429	0.919
Invasive species	58	38	-20	-2.857	0.106	68	59	-9	-1.286	0.067
Biodiversity	78	36	-42	-6.000	0.553	83	57	-26	-3.714	0.412
Bird conservation	65	18	-47	-6.714	0.663	65	23	-42	-6.000	0.668
Endangered species	60	12	-48	-6.857	0.468	70	25	-45	-6.429	0.553
Mammal conservation	50	10	-40	-5.714	0.453	No data				
Habitat fragmentation	55	18	-37	-5.285	0.444	61	34	-27	-3.857	0.238
Invertebrate conservation			0	0		No data				
Amphibian conservation	53	18	-35	-5.000	0.592	62	28	-34	-4.857	0.206
Reptile conservation	52	15	-37	-5.285	0.653	No data				

Table 6. Comparison of published McCallum & Bury (2013) GTs with recalculated GTs for 2004-2017 period (data retrieved on 21th of September 2017).

Terms	McCallum & Bury (2013) 2004-2010 GTs					Recalculated (21/9/2017) 2004-2017 GTs				
	2004	2010	Change	slope/yr	r^2	2004	2017	Change	slope/yr	r^2
Environment	70	39	-31	-4.428	0.776	91	42	-49	-3.500	0.768
Conservation	85	40	-45	-6.428	0.813	89	37	-52	-3.714	0.762
Ecology	81	30	-51	-7.285	0.755	86	26	-60	-4.286	0.736
Global warming	22	14	-8	-1.142	0.105	28	15	-13	-0.929	0.348
Climate change	26	63	37	5.285	0.428	26	53	27	1.929	0.058
Fish conservation	71	18	-53	-7.571	0.770	76	16	-60	-4.286	0.766
Sustainability	64	80	16	2.285	0.139	70	76	6	0.429	0.033
Extinction	20	21	1	0.142	0.001	28	9	-19	-1.357	0.281
Pollution	74	22	-52	-7.428	0.526	78	38	-40	-2.857	0.426
Fisheries	81	32	-49	-7.000	0.838	92	31	-61	-4.357	0.837
Wildlife	93	43	-50	-7.142	0.897	92	36	-56	-4.000	0.825
Invasive species	58	38	-20	-2.857	0.106	65	62	-3	-0.214	0.000
Biodiversity	78	36	-42	-6.000	0.553	81	51	-30	-2.143	0.240
Bird conservation	65	18	-47	-6.714	0.663	71	15	-56	-4.000	0.710
Endangered species	60	12	-48	-6.857	0.468	68	15	-53	-3.786	0.603
Mammal conservation	50	10	-40	-5.714	0.453	No data				0.000
Habitat fragmentation	55	18	-37	-5.285	0.444	74	41	-33	-2.357	0.099
Invertebrate conservation			0	0.000		No data				0.000
Amphibian conservation	53	18	-35	-5.000	0.592	64	16	-48	-3.429	0.395
Reptile conservation	52	15	-37	-5.285	0.653	No data				



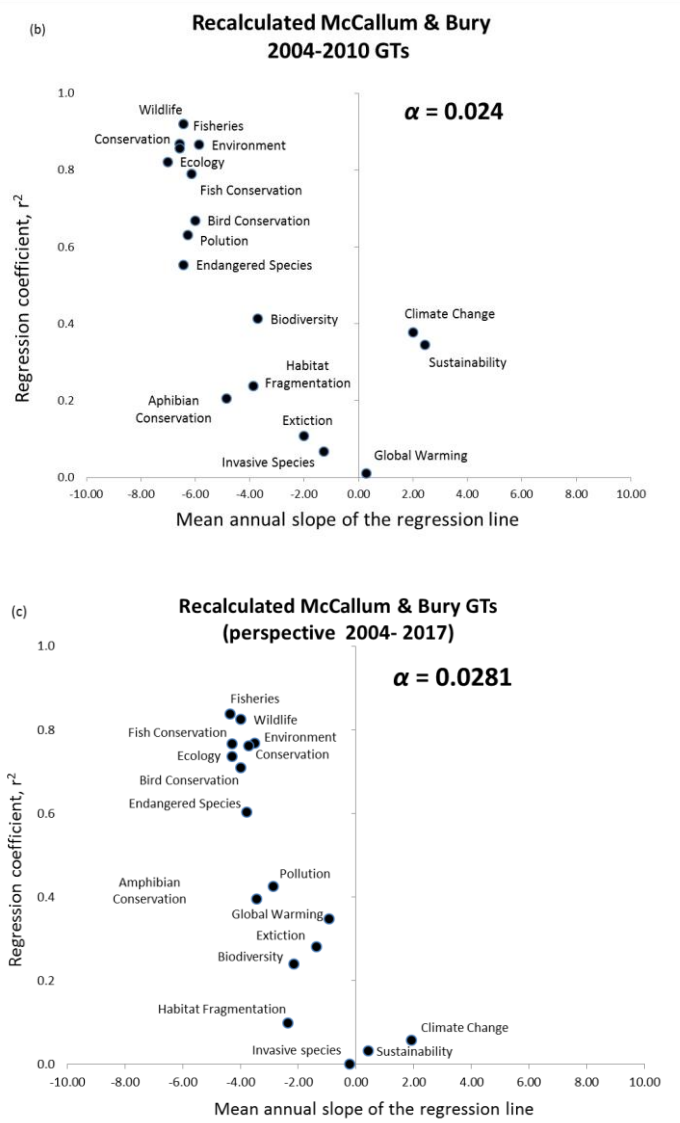
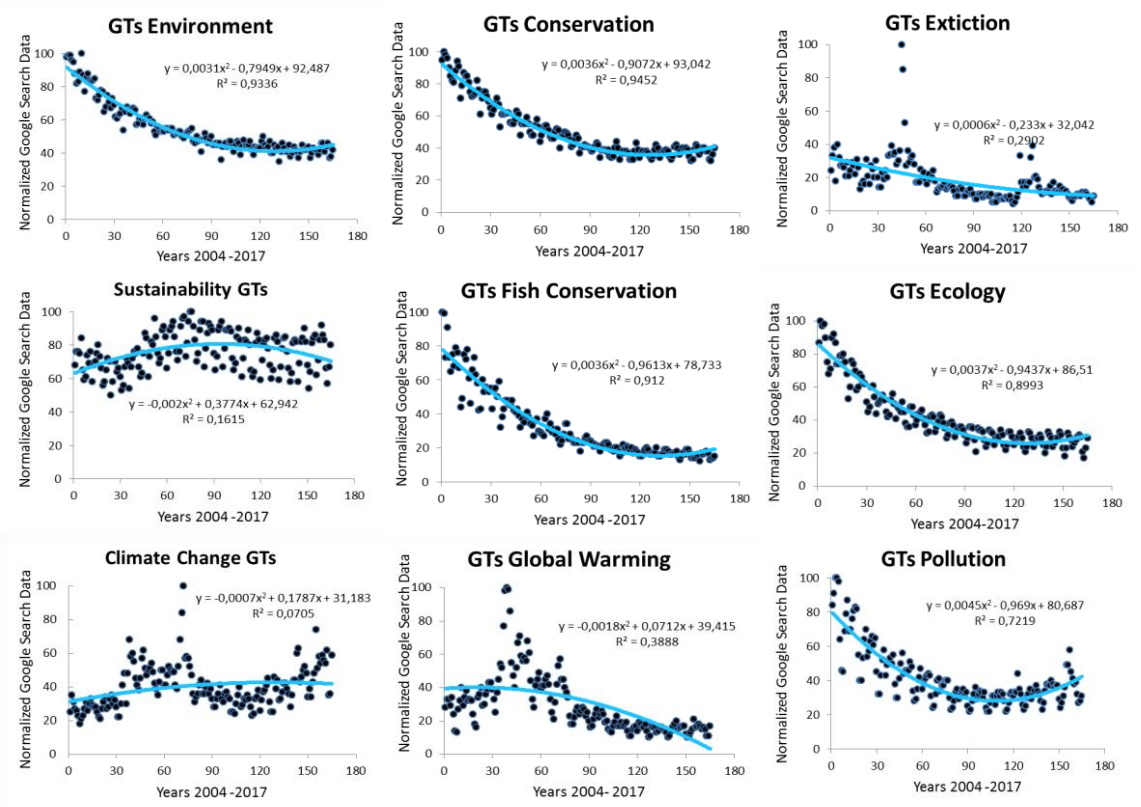


Figure 12. Comparative depiction of the strength and slope of regression analysis for flag environmental terms that queried using Google Trends. (a) McCallum and Bury (2013) published GIFS, (b) Recalculated GTs (data retrieved on 17th of September 2017) for time period 2004- 2010, (c) Recalculated GTs (data retrieved on 21st of September 2017) for time period 2004- 2017. On the last metric, terms tend to get closer to the y axis that means that public interest is getting more stable. Coefficient α is gradually increasing and this suggest a "coiling" of concepts.

As McCallum and Bury (2013) concluded, public interest in most of environmental terms declined during the study period 2004-2010 and this is sufficiently proved by the recalculated metrics which corresponded to the same time interval. However, it is noted that the slope of regression line for most terms became somehow milder in the

recalculated GTs, and that means that the decline of public interest in environmental terms presented more gently in relation to the initial GTs. In addition, public interest in *"climate change"* it is not located so high as the initial GTs showed (figure 12a and 12b). Regarding study period 2004 -2017 as depicted in the r^2/slope graph (figure 12c) all terms tend to get closer to the y axis that means that there is less fluctuation of public interest such as declining, as increasing. Coefficient α is increasing so there is a "coiling" of terms. This also confirmed by the 2nd degree polynomial trend lines in scatterplots below (figure 13). Except *"sustainability", "global warming", "climate change"* and *"extinction"* there was steep decline for all the other terms from 2004 to 2010 but most terms appeared to rebound thereinafter.



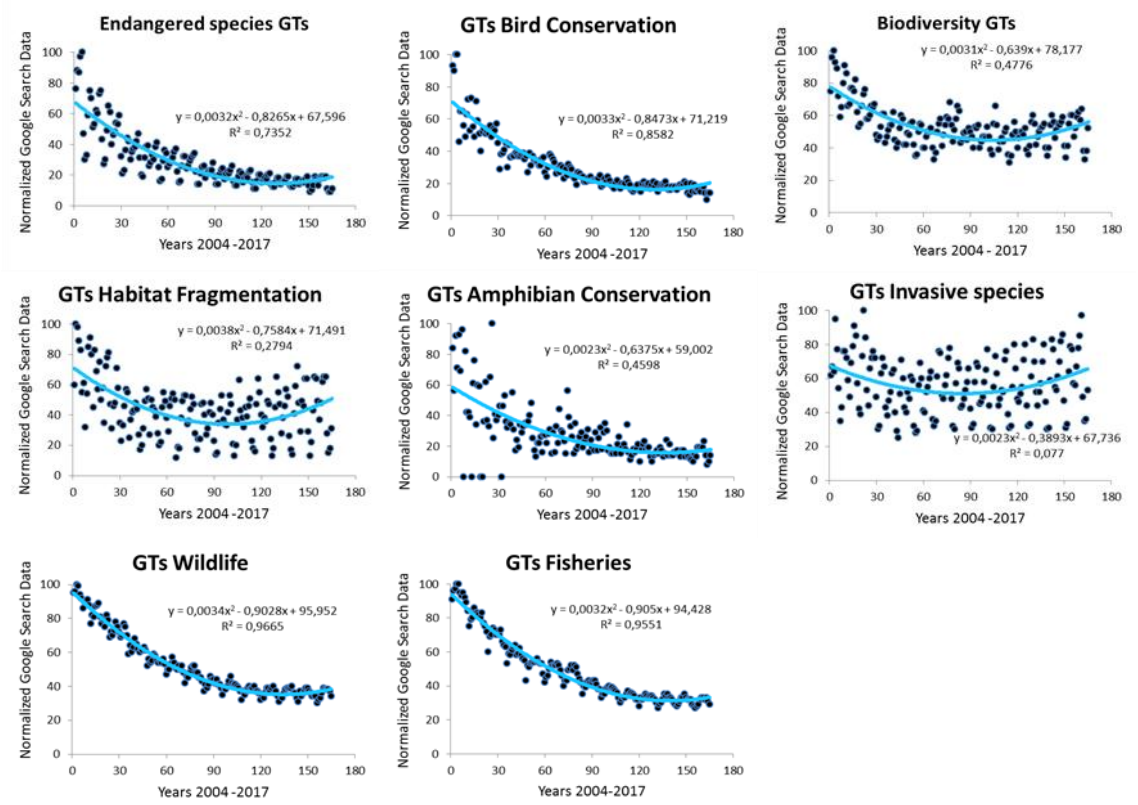


Figure 13. GTs scatterplots regarding flag environmental terms for the study period 2004-2017. Data retrieved on 17th of September 2017.

According to the ED (table 7) between the r^2/slope (2004-2010) values and the r^2/slope (2004-2017) values the terms were ranked in descending order (figure 14). In the ED /rank graph the movements of terms upwards or downwards were clearly depicted. GTs' volume variation between the different metrics was not the same for all terms. Terms ranked in first positions in the plot (1,2,3…) with high EDs were more ephemeral, on the contrary, terms ranked in "tail" positions with low EDs were more timeless. At time period 2004 -2010, terms "*Conservation", "Sustainability"* and *"Ecology"* were closer to the "initial" (McCallum and Bury 2013 defined as "initial" GTs for short) with less variation. Terms *"Climate change", "Biodiversity"* and *"Extinction"* were far enough from the "initial" GTs. However, during time period 2004 – 2017, the rank ordination was changed. Terms *"Global warming", "Environment"* and *"Extinction"* were

moving from their previous positions and tend to get closer to the "initial" GTs. *"Pollution"* increased its previous ED and got away even far from the "initial" GTs. The ED for *"Biodiversity"* and *"Climate change*" increased and remained far from the "initial" GTs. It is remarkable that public interest for biodiversity is increasing when for climate change declines. Other terms ranked in medium positions on both metrics. e.g. *"Fish conservation", "Habitat fragmentation", "Amphibian conservation", "Wildlife", "Bird conservation", "Endangered species"*.

Table 7. Flag environmental terms in descenting order according to ED between McCallum and Bury (2013) published GIFS and: (a) recalculated GTs for time period 2004- 2010 (data retrieved on 17th of September 2017) (b) recalculated GTs for time period 2004- 2017 (data retrieved on 21st of September 2017).

(a) Rank	Term	GTs ED 2004-2010	(b) Rank	Term	GTs ED 2004-2017
1	Climate change	3.2860	1	Pollution	4.5725
2	Biodiversity	2.2900	2	Biodiversity	3.8698
3	Extinction	2.1455	3	Climate change	3.3775
4	Invasive species	1.5718	4	Fish conservation	3.2857
5	Habitat fragmentation	1.4433	5	Wildlife	3.1437
6	Global warming	1.4316	6	Endangered species	3.0744
7	Environment	1.4313	7	Ecology	3.0001
8	Fish conservation	1.4287	8	Habitat fragmentation	2.9488
9	Pollution	1.1476	9	Conservation	2.7148
10	Wildlife	0.7146	10	Bird conservation	2.7147
11	Bird conservation	0.7143	11	Invasive species	2.6450
12	Endangered species	0.4370	12	Fisheries	2.6429
13	Fisheries	0.4289	13	Sustainability	1.8602
14	Amphibian conservation	0.4113	14	Amphibian conservation	1.5837
15	Ecology	0.2933	15	Extinction	1.5259
16	Sustainability	0.2513	16	Environment	0.9286
17	Conservation	0.1530	17	Global warming	0.3240

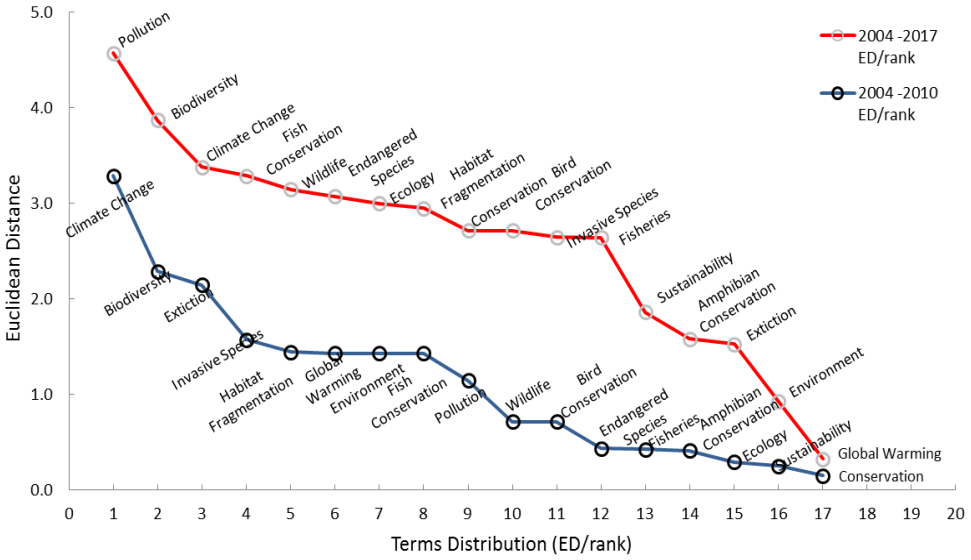
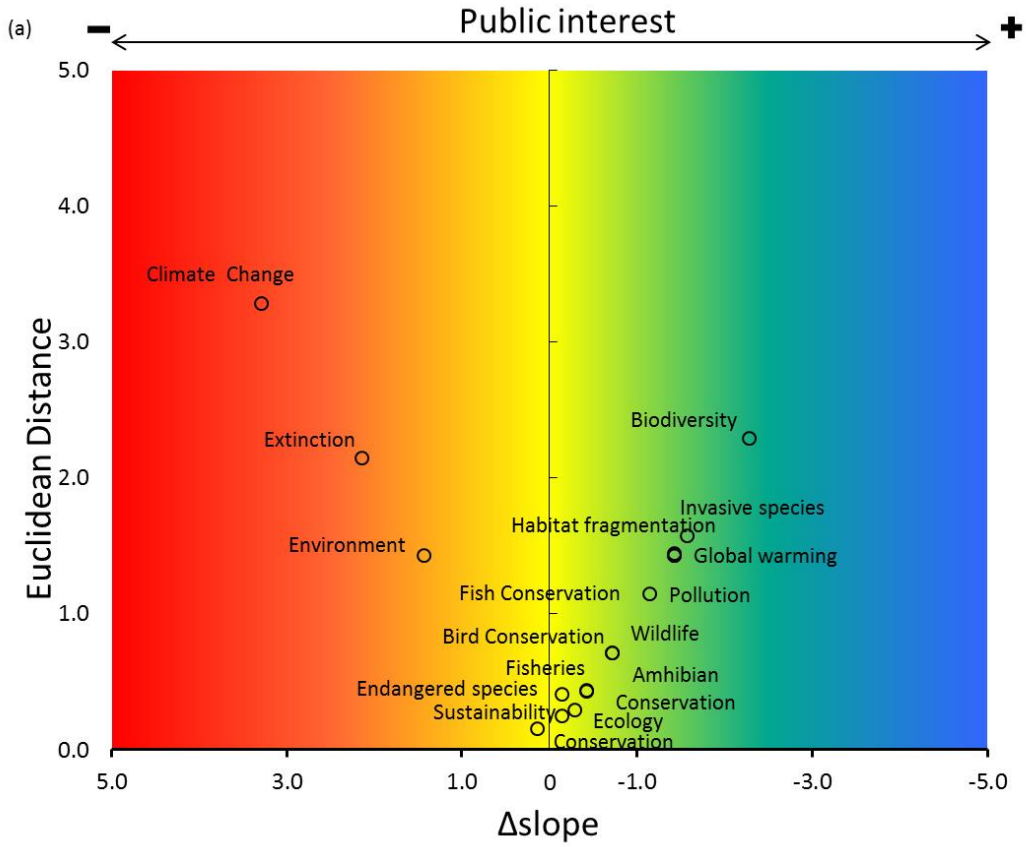


Figure 14. Rank scale ordination of environmental terms in both data series for the time periods 2004-2010 and 2004-2017 according to the ED between different metrics.

Figure 14 presents the rank scaled ordination according to ED values for each term between different metrics. However, ED gets only positive values, so it is not clear if the public interest is increasing or decreasing. ED shows only that public interest is changing more or less. The only indicator which demonstrates the increase or the decrease of public interest is the slope of the regression line, namely the *Δ*slope, which gives the difference of "initial" from new recalculated GTs (slope $_{initial}$ – slope $_{recalculated}$). As much ED increases the ephemerality is also increasing. Whether numerical *Δ*slope is negative (slope $_{initial}$ < slope $_{recalculated}$) the trend line turns upwards that means public interest is increasing, contrariwise, whether numerical *Δ*slope is positive (slope $_{initial}$ > slope $_{recalculated}$) public interest is declined. The ED plotted against the *Δ*slope in a ED/*Δ*slope graph depicting sufficient perceptions about the trend and the volume of change of public interest (figure 15). Towards the blue areas public interest for the flag environmental terms increases and towards the red areas decreases. In figure 15(a) (comparison of the "initial" 2004-2010 metrics to recalculated metrics 2004-2010)

terms with most "positive" ED were *"biodiversity", "invasive species", "habitat fragmentation", "global warming", "pollution"* and *"fish conservation"*. On the opposite side, *"climate change", "extinction" and "environment"* had "negative" ED. *"Bird conservation", "fisheries", "endangered species", "ecology", "sustainability"* and *"conservation"* had low ED, so they located much closer to McCallum and Bury (2013) data. In figure 15(b) (comparison of "initial" 2004-2010 metrics to recalculated metrics 2004-2017), *"climate change"* stays almost at the same point as previous metric holding the most "negative" ED. Public interest for *"sustainability"* reduced regarding previous metric and overcome *"extinction"*, occupying the second negative position to the decreasing public interest side in ED/*Δ*slope graph. All other terms located to the increasing public interest side with *"pollution"* and *"biodiversity"* at the highest positions.



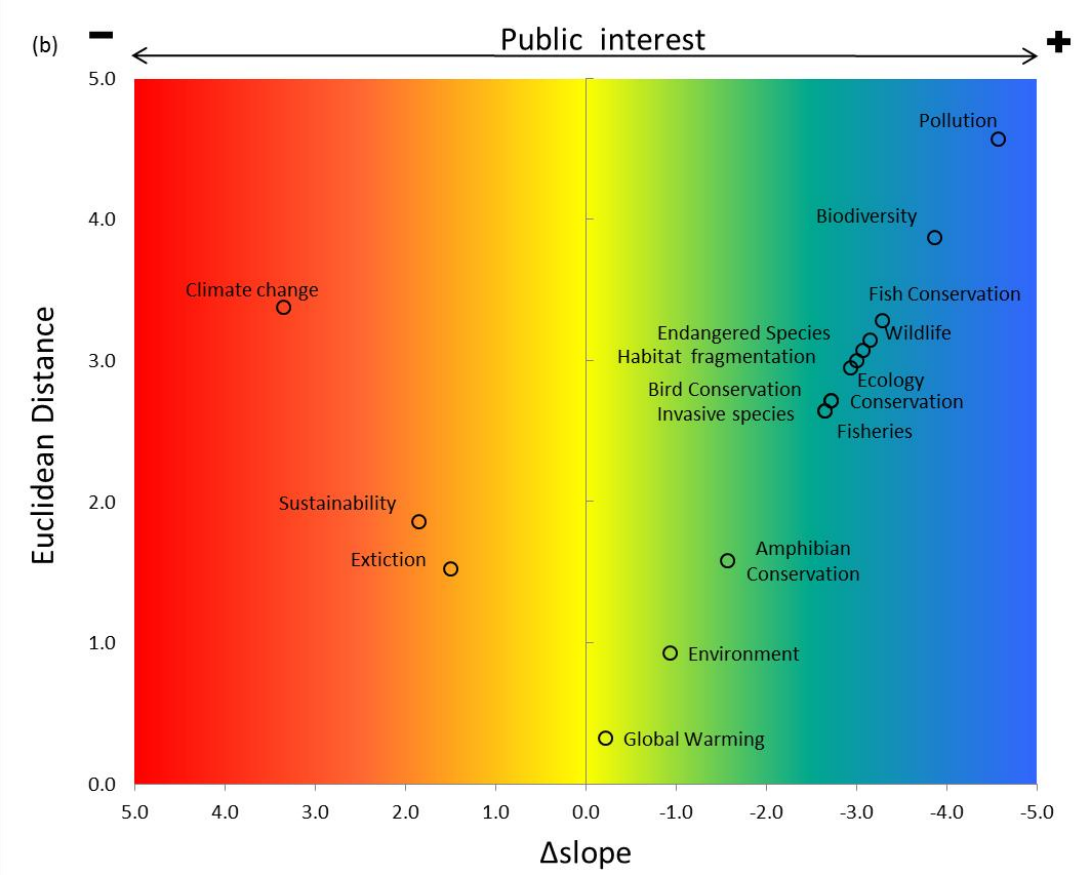


Figure 15. GTs variation between McCallum and Bury (2013) GTs and (a) recalculated (2017) GTs by the same reference time period (2004-2010), (b) recalculated (2017) GTs by reference time period (2004-2017). Terms ordination is according to the each metric's *Δ*slope of regression line and the r^2/slope values ED between different metrics. Towards the blue area the public interest is increasing, in the yellow area remains the same and towards the red area is decreasing. The zero point to the x axis corresponds to the initial metrics and as terms distributed further the ephemerality increases.

Applying equation (1) (see paragraph 2.2) to each term's *Δ*slope and ED values, term's ephemerality size (φ_T) can be calculated and φ_T values presented in table 8.

Table 8. Terms presentation regarding Δslope of different metrics, ED and φ_T.

		2004-2010 metrics			2004- 2010 vs. 2004-2017 metrics		
	Terms (1)	Δslope (2)	ED (3)	φ_T (4)	Δslope (5)	ED (6)	φ_T (7)
1	Environment	1.429	1.431393	2.02230	-0.929	0.928606	1.31322
2	Conservation	0.143	0.153017	0.20934	-2.714	2.714765	3.83892
3	Ecology	-0.286	0.293359	0.40950	-3.000	3.000006	4.24268
4	Global warming	-1.429	1.431647	2.02248	-0.214	0.323987	0.38844
5	Climate change	3.286	3.286089	4.64697	3.357	3.377471	4.76211
6	Fish conservation	-1.429	1.428717	2.02041	-3.286	3.285717	4.64670
7	Sustainability	-0.143	0.251362	0.28912	1.857	1.860165	2.62853
8	Extinction	2.143	2.145523	3.03234	1.500	1.525910	2.13972
9	Pollution	-1.143	1.147621	1.61962	-4.571	4.572522	6.46575
10	Fisheries	-0.429	0.429000	0.60639	-2.643	2.642857	3.73756
11	Wildlife	-0.714	0.714648	1.01041	-3.143	3.143682	4.44525
12	Invasive species	-1.571	1.571894	2.22266	-2.643	2.644982	3.73907
13	Biodiversity	-2.286	2.290011	3.23553	-3.857	3.869822	5.46380
14	Bird conservation	-0.714	0.714308	1.01017	-2.714	2.714693	3.83887
15	Endangered species	-0.429	0.437007	0.61209	-3.071	3.074394	4.34575
16	Habitat fragmentation	-1.429	1.443346	2.03078	-2.929	2.948823	1.31322
17	Amphibian conservation	-0.143	0.411302	0.43540	-1.571	1.583729	3.83892

The average ephemerality of each one of the different metrics i.e. Culturome ephemerality (φ_C) can be calculated applying equation (2) (see paragraph 2.2).

- Regarding the initial 2004 -2010 vs. recalculated 2004 -2010 metrics:

$$\varphi_{C\,\substack{2004-2010\\metrics}} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2 + \Delta slope_i{}^2}}{n} = {}^{27.43551}/_{17} = 1.61385$$

- Regarding the initial 2004-2010 vs. recalculated 2004- 2017 metrics:

$$\varphi_{C\ \ 2004-2010\ vs\ 2004-2017 metrics} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2 + \Delta slope_i{}^2}}{n} = {}^{62.38341}/_{17} = 3.66961$$

As sufficiently indicated, culturome ephemerality increased by time.

Another way to study different distributions (metrics) is to compare them to the *Zipf's distribution* and check each one's divergences. *Zipf's Law* (Zipf GK 1949) is a power law distribution which states that the most frequent word occurs approximately twice as often as the second most frequent word, three times as often as the third most frequent word, etc. Hence, word's frequency is inversely proportional to its rank in the frequency table. A naive model of a classic Zipf's distribution could be defined as follows:

$$f_i = \frac{1}{k_i^s}$$

where f_i = the frequency, of term i

k = the rank of term i and

s = the exponent value (for a classic version of Zipf's Law, s=1)

Assuming that the naive Zipf's distribution composed by 17 terms (as the studied distribution) and the maximum value is 1 the frequency of the next terms follow as: (1, 0.5, 0.333, 0.2500, 0.200,…,0.0625, 0.0588). Zipf's distribution log values, so as the ED log values (see table 7) are inserted to the table 9 in ascending order.

Table 9. Zipf's distribution and ED values of metrics 2004-2010 and 2004-2017.

	(1) Zipf's Distribution (log)	(2) Term	(3) ED (2004 -2010) (log)	(4) Term	(5) ED (2004 -2017) (log)
1	-1.2304	Conservation	-0.8153	Global warming	-0.4895
2	-1.2041	Sustainability	-0.5997	Environment	-0.0322
3	-1.1761	Ecology	-0.5326	Extinction	0.1835
4	-1.1461	Amphibian conservation	-0.3858	Amphibian conservation	0.1997
5	-1.1139	Fisheries	-0.3675	Sustainability	0.2696
6	-1.0792	Endangered species	-0.3595	Fisheries	0.4221
7	-1.0414	Bird conservation	-0.1461	Invasive species	0.4224
8	-1.0000	Wildlife	-0.1459	Bird conservation	0.4337
9	-0.9542	Pollution	0.0598	Conservation	0.4337
10	-0.9031	Fish conservation	0.1549	Habitat fragmentation	0.4696
11	-0.8451	Environment	0.1558	Ecology	0.4771
12	-0.7782	Global warming	0.1558	Endangered species	0.4878
13	-0.6990	Habitat fragmentation	0.1594	Wildlife	0.4974
14	-0.6021	Invasive species	0.1964	Fish conservation	0.5166
15	-0.4771	Extinction	0.3315	Climate change	0.5286
16	-0.3010	Biodiversity	0.3598	Biodiversity	0.5877
17	0.0000	Climate change	0.5167	Pollution	0.6602

In order to compare different ED/rank scaled ordinations (Figure 14), *Kolmogorov Smirnov test (*K-S test hereinafter*)* was applied (Kolmogorov A.N. 1933, Smirnov N.V. 1933). This test gives the maximum distance between two cumulative distributions. The ED log values of each one ordination were entered to the K-S test table using Microsoft® Excel as presented below (tables 10,11). The K-S test was repeated

individually for each Rank ED/Distribution i.e. initial "2004-2010" to recalculated "2004-2010" GTs and initial "2004-2010" to 2004-2017" GTs.

Table 10: Kolmogorov Smirnov test (K-S test statistic) for ED (log values) of 2004- 2010 GTs (initial) from recalculated 2004-2010 GTs. Column (1) is term's ED log value ranked in ascending order, column (2) is the cumulative count i.e. the rank number of terms, column (3) is the expected cumulative distribution function i.e. term's cumulative count divided by the number of terms (count), column (4) is the function (Rank -1)/number of terms, column (5) is the inverse of the standard normal cumulative distribution (NORM.S.INV), column (6) is term's actual cumulative distribution function that is the normal distribution (NORM.DIST) of ED (log), average ED (log) and sample standard deviation, column (7) is the absolute difference of the actual cumulative distribution function (column 6) from column (4) Source:Todd Grande. https://www.youtube.com/watch?v=cltWQsmBg0k [assessed 10th October 2017].

Term	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
Conservation	-0.8153	1	0.0588	0.0000	-1.5647	0.0257	0.0257
Sustainability	-0.5997	2	0.1176	0.0588	-1.1868	0.0837	0.0248
Ecology	-0.5326	3	0.1765	0.1176	-0.9289	0.1142	0.0035
Amphibian conservation	-0.3858	4	0.2353	0.1765	-0.7215	0.2064	0.0300
Fisheries	-0.3675	5	0.2941	0.2353	-0.5414	0.2204	0.0149
Endangered species	-0.3595	6	0.3529	0.2941	-0.3774	0.2267	0.0674
Bird conservation	-0.1461	7	0.4118	0.3529	-0.2230	0.4251	0.0722
Wildlife	-0.1459	8	0.4706	0.4118	-0.0738	0.4253	0.0136
Pollution	0.0598	9	0.5294	0.4706	0.0738	0.6377	0.1671
Fish conservation	**0.1549**	**10**	**0.5882**	**0.5294**	**0.2230**	**0.7265**	**0.1971**
Environment	0.1558	11	0.6471	0.5882	0.3774	0.7272	0.1390
Global warming	0.1558	12	0.7059	0.6471	0.5414	0.7273	0.0802
Habitat fragmentation	0.1594	13	0.7647	0.7059	0.7215	0.7304	0.0245
Invasive species	0.1964	14	0.8235	0.7647	0.9289	0.7616	0.0031
Extinction	0.3315	15	0.8824	0.8235	1.1868	0.8569	0.0334
Biodiversity	0.3598	16	0.9412	0.8824	1.5647	0.8730	0.0093
Climate change	0.5167	17	1.0000	0.9412		0.9398	0.0014
Average ED log	**-0.0743**						
						Max	**0.1971**
Sample St Dev	**0.38050**					**Actual K-S test statistic**	
Count	**17**						

Table 11: Kolmogorov Smirnov test (K-S test statistic) for ED (log values) of 2004- 2010 GTs (initial) from recalculated 2004-2017 GTs. (See table's 10 heading for details).

Term	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
Global warming	-0.4895	1	0.0588	0.0000	-1.5647	0.0011	0.0011
Environment	-0.0322	2	0.1176	0.0588	-1.1868	0.0789	0.0201
Extinction	0.1835	3	0.1765	0.1176	-0.9289	0.2645	0.1469
Amphibian conservation	0.1997	4	0.2353	0.1765	-0.7215	0.2841	0.1076
Sustainability	0.2696	5	0.2941	0.2353	-0.5414	0.3756	0.1403
Fisheries	**0.4221**	**6**	**0.3529**	**0.2941**	**-0.3774**	**0.5934**	**0.2993**
Invasive species	0.4224	7	0.4118	0.3529	-0.2230	0.5939	0.2410
Bird conservation	0.4337	8	0.4706	0.4118	-0.0738	0.6097	0.1980
Conservation	0.4337	9	0.5294	0.4706	0.0738	0.6098	0.1392
Habitat fragmentation	0.4696	10	0.5882	0.5294	0.2230	0.6587	0.1293
Ecology	0.4771	11	0.6471	0.5882	0.3774	0.6686	0.0804
Endangered species	0.4878	12	0.7059	0.6471	0.5414	0.6825	0.0355
Wildlife	0.4974	13	0.7647	0.7059	0.7215	0.6949	0.0110
Fish conservation	0.5166	14	0.8235	0.7647	0.9289	0.7189	0.0458
Climate change	0.5286	15	0.8824	0.8235	1.1868	0.7333	0.0902
Biodiversity	0.5877	16	0.9412	0.8824	1.5647	0.7988	0.0835
Pollution	0.6602	17	1.0000	0.9412		0.8644	0.0768
Average ED log	**0.3569**					**Max**	**0.2993**
Sample St Dev	**0.2755**					**Actual K-S test statistic**	
Count	**17**						

K-S test statistic calculates the maximum deviation of a cumulative distribution which could be identified as the maximum distance from a reference distribution i.e. the Zipf' s power law distribution. The two different classes ED log values were plotted together against a naive model of the Zipf's distribution and each curve's maximum distance point from the Zipf's distribution was detected by the K-S test statistic (figure 16). The maximum distance for curve 2004-2010 laid to the position of term *"Fish Conservation"* and the maximum distance for curve 2004-2017 laid to the position of term *"Fisheries"* (tables 10, 11).

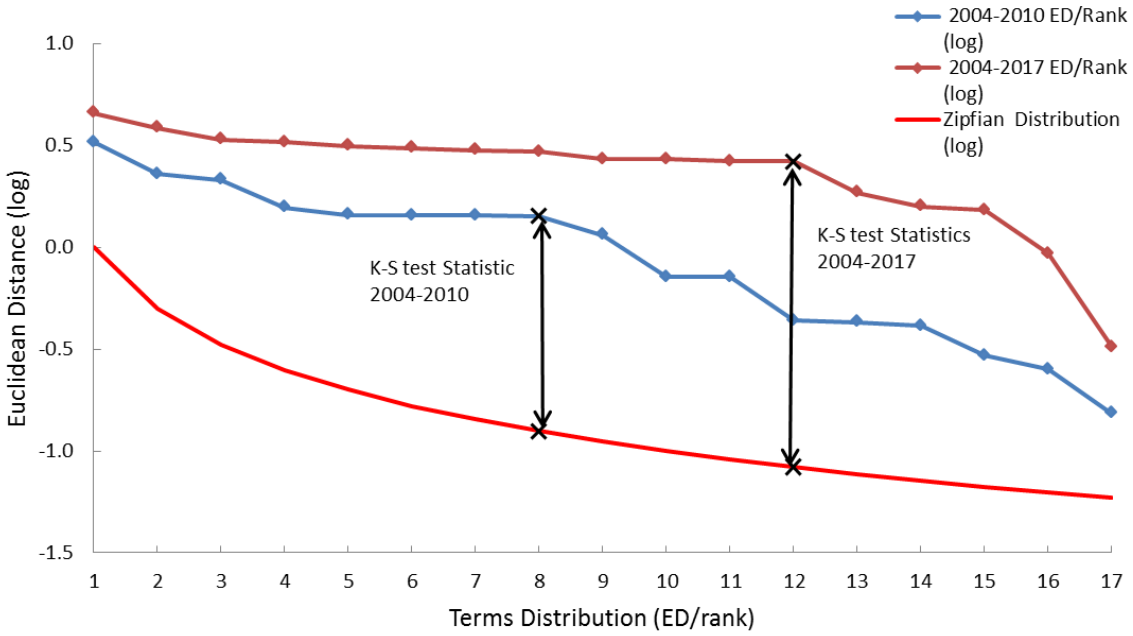


Figure 16. Comparative depiction of different ED (log) /ranks and a naive Zipf's distribution (log). Maximum distances detected by the K-S test statistic.

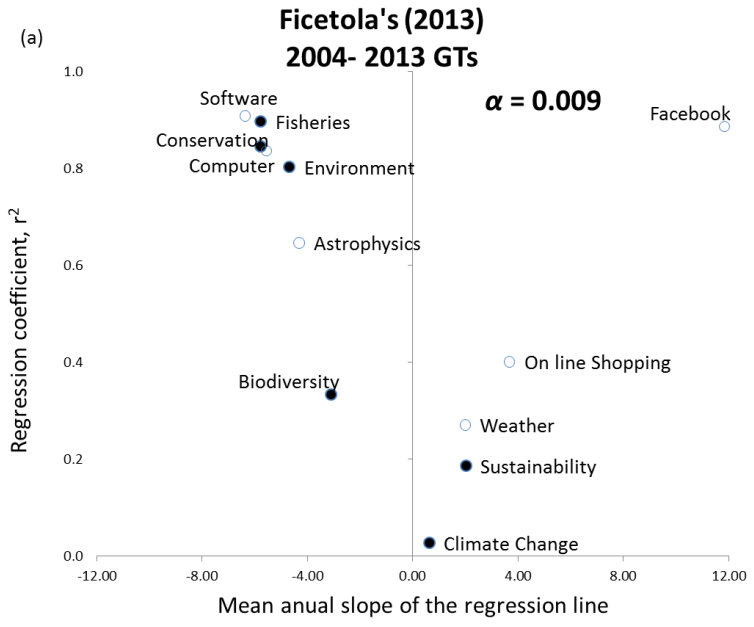
3.2.2 Google Trends 2017 vs. Ficetola 2013 published metrics

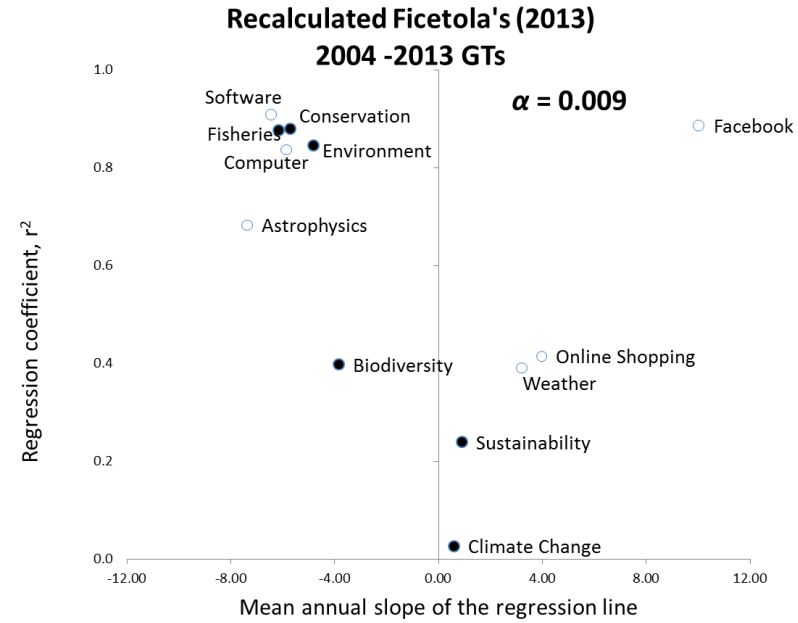
By the same way as above, Ficetola's (2013) published GTs metrics compared to new updated metrics (data retrieved on 23rd of September 2017). The same terms as Ficetola's were entered to the GTs searching bar and the reference time period defined from 2004 to 2013 (up to 8th of June) for the first search in order to estimate the GTs ephemerality and from 2004 to 2017 (up to 23rd of September) to estimate the nowadays trends and changes in ephemerality. The CSV files were downloaded and after the regression analysis, as it was expected, new different slope/yr and r^2 values emerged, but not so different from Ficetola's GTs (the "initial" hereafter for short). It is confirmed once again that there is no *"memory calendar"* on GTs (table 12). All results plotted in r^2/slope graphs (figures 17a,17b and 17c). According to the ED (table 13) between the r^2/slope (2004- 2013) values and the r^2/slope (2004-2017) values the terms

were ranked in descending order (figure 18). In the scaled ED/rank graph the movements of terms upwards or downwards were clearly depicted. As in previous case changes of GTs volumes between different metrics were not the same for all terms. Terms ranked in the first positions in the plot (1,2,3…) with high EDs were more ephemeral, on the contrary, terms ranked in the last positions with low EDs were more timeless. Regarding the first comparative metric ("initial" GTs vs. recalculated GTs 2004-2013) the unrelated to the environment terms *"facebook"*, *"astrophysics"* and *"weather"* presented more ephemeral than *"computer"*, *"software"* and *"online shopping"*. As for environmental related terms *"sustainability"*, *"fisheries"* and *"biodiversity"* were more ephemeral, *"climate change", "conservation"* and *"environment"* were more timeless. Regarding second comparative metric ("initial" GTs vs. recalculated GTs 2004-2017) for non-environmental terms *"facebook", "weather"* and *"astrophysics"* were more ephemeral and *"facebook"* had the highest ED far more than the others. As for the terms *"On line shopping", "computer"* and *"software"* the public interest was more stable. Regarding the flag environmental terms, *"conservation", "sustainability"* and *"fisheries"* were more ephemeral and *"biodiversity", "environment"* and *"climate change"* remained closer to Ficetola's (2013) GTs. Comparing both ranks (2004-2013 and 2004-2017) it is demonstrated that *"weather", "sustainability", "fisheries"* and *"environment"* remained almost at the same medium scaled positions. All the others were moving upwards and downwards in each distribution. *"Conservation"* and *"climate change"* were moving upwards i.e. they increased their ephemerality, on the contrary *"biodiversity"* is moving downwards that means that it is becoming more timeless.

Table 12. Comparison of published Ficetola (2013) GTs with recalculated GTs (data retrieved on 23rd of September 2017). Two time periods presented (2004- 2013 and 2004-2017).

	Ficetola's (2013) 2004 -2013 GTs		Recalculated (23/9/2017) 2004 - 2013 GTs		Recalculated (23/9/2017) 2004 -2017 GTs	
Terms	slope/yr	r^2	slope/yr	r^2	slope/yr	r^2
Biodiversity	-3.11	0.333	-3.84	0.398	-2.15	0.233
Climate Change	0.63	0.028	0.58	0.026	1.91	0.053
Conservation	-5.79	0.845	-5.70	0.879	-3.89	0.763
Environment	-4.68	0.802	-4.83	0.845	-3.44	0.765
Fisheries	-5.77	0.896	-6.15	0.877	-4.28	0.831
Sustainability	2.03	0.186	0.90	0.239	0.49	0.030
Computer	-5.55	0.836	-5.86	0.837	-4.57	0.837
Software	-6.36	0.908	-6.45	0.908	-5.25	0.171
Astrophysics	-4.32	0.646	-7.37	0.682	-2.78	0.656
Weather	2.00	0.271	3.21	0.391	3.74	0.634
Facebook	11.84	0.886	10.02	0.886	2.91	0.521
Online shopping	3.67	0.401	3.97	0.414	2.76	0.734





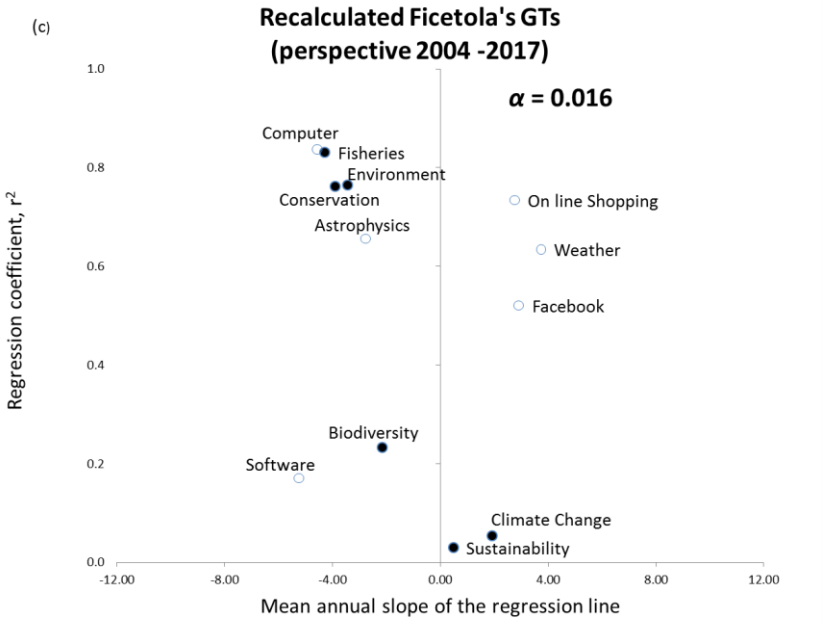


Figure 17. Comparative depiction of the strengh (r^2) and the mean annual slope of regression analysis for each term. Six flag environmental terms (black dots) and six unrelated to the environment terms (white dots) that queried using Google Trends. (a) Ficetola (2013) published GTs, (b) Recalculated GTs for time period 2004- 2013 (data retrieved on 23rd of September 2017), (c) Recalculated GTs for time period 2004- 2017 (data retrieved on 23rd of September 2017). Evolution of α coefficient of a 2nd degree polynomial curve fitting GTs series in r^2/slope planes also depicted.

Table 13. Ficetola's (2013) terms in descenting order according to the ED between published GTS and (a) recalculated GTs for time period 2004- 2013 (data retrieved on 23rd of September 2017) (b) recalculated GTs for the time period 2004- 2017 (data retrieved on 23rd of September 2017).

(a) Rank	Terms	GTs ED 2004-2013	(b) Rank	Terms	GTs ED 2004-2017
1	Astrophysics	3.0511	1	Facebook	8.9401
2	Facebook	1.8177	2	Conservation	1.9005
3	Weather	1.2141	3	Weather	1.7810
4	Sustainability	1.1298	4	Sustainability	1.5460
5	Biodiversity	0.7286	5	Astrophysics	1.5423
6	Fisheries	0.3817	6	Fisheries	1.4954
7	Computer	0.3096	7	Software	1.3310
8	Online shopping	0.2986	8	Climate Change	1.2835
9	Environment	0.1519	9	Environment	1.2367
10	Conservation	0.0961	10	Computer	0.9764
11	Software	0.0917	11	Online shopping	0.9675
12	Climate Change	0.0467	12	Biodiversity	0.9630

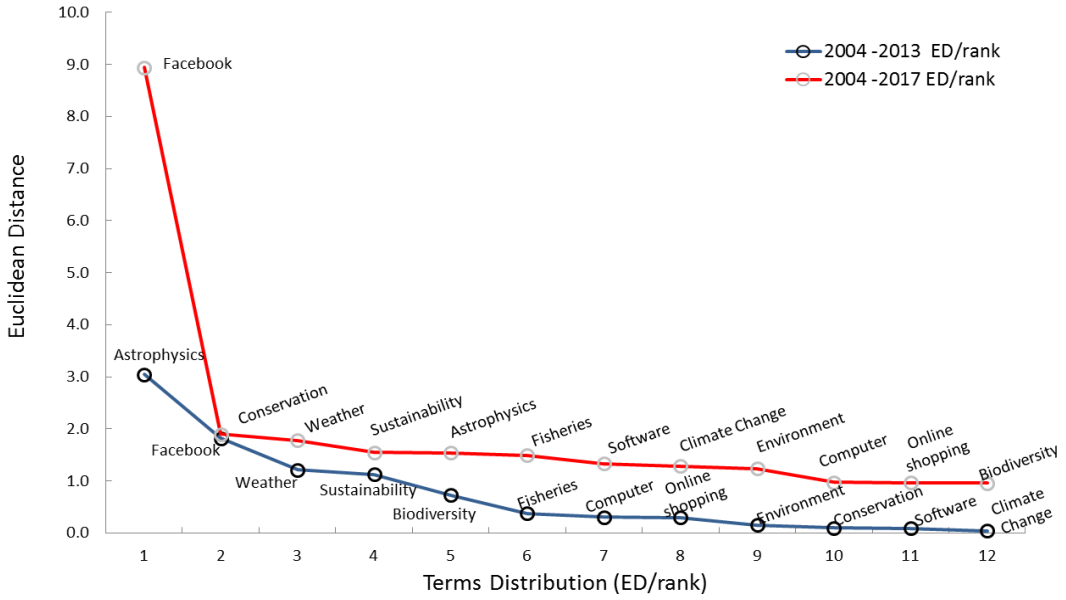
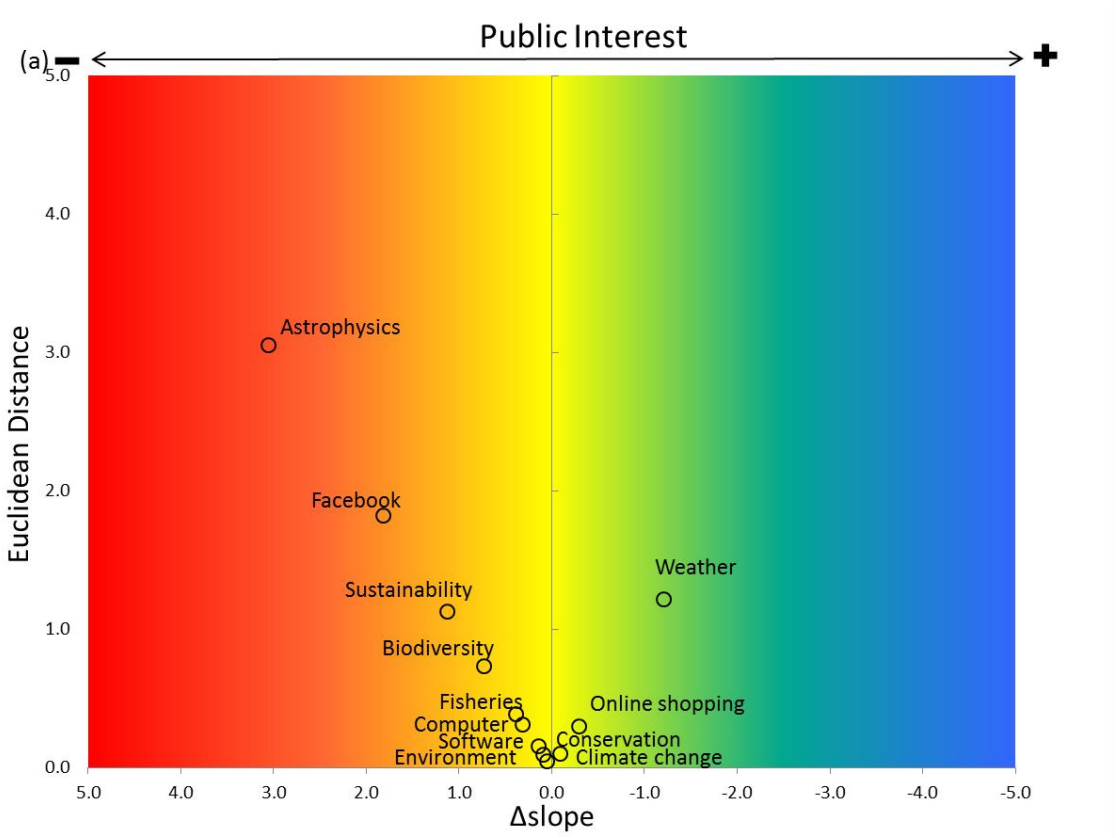


Figure 18. Rank scaled distribution of environmental and non-environmental terms in both data series for the time periods 2004-2013 and 2004-2017 according to the ED between different metrics.

In the *Δ*slope/ ED graphs figures 19(a) and 19(b) ED's "sign" is depicted, that is the increase or the decrease of public interest. Regarding first metric i.e. "initial" GTs compared to recalculated GTs for the time period 2004-2013, public interest for *"weather"* and *"on line shopping"* increased, on the contrary for *"astrophysics"*, *"facebook"* decreased. Similarly, public interest for the environmental terms *"conservation"* and *"climate change"* increased, on the contrary for *"sustainability"*, *"biodiversity"* and *"fisheries"* decreased. Term *"environment"* presented as the most timeless according to this metric. Regarding second metric i.e. "initial" GTs compared to recalculated GTs for the time period 2004-2017, public interest for *"weather"*, *"astrophysics"*, *"software"* and *"computer"* increased, on the contrary for *"astrophysics"*, *"facebook"* and *"on line shopping"* decreased. Public interest in the flag environmental terms increased for all terms except *"sustainability"*. Public concern for *"Conservation"* was the most increased according to the last metric.



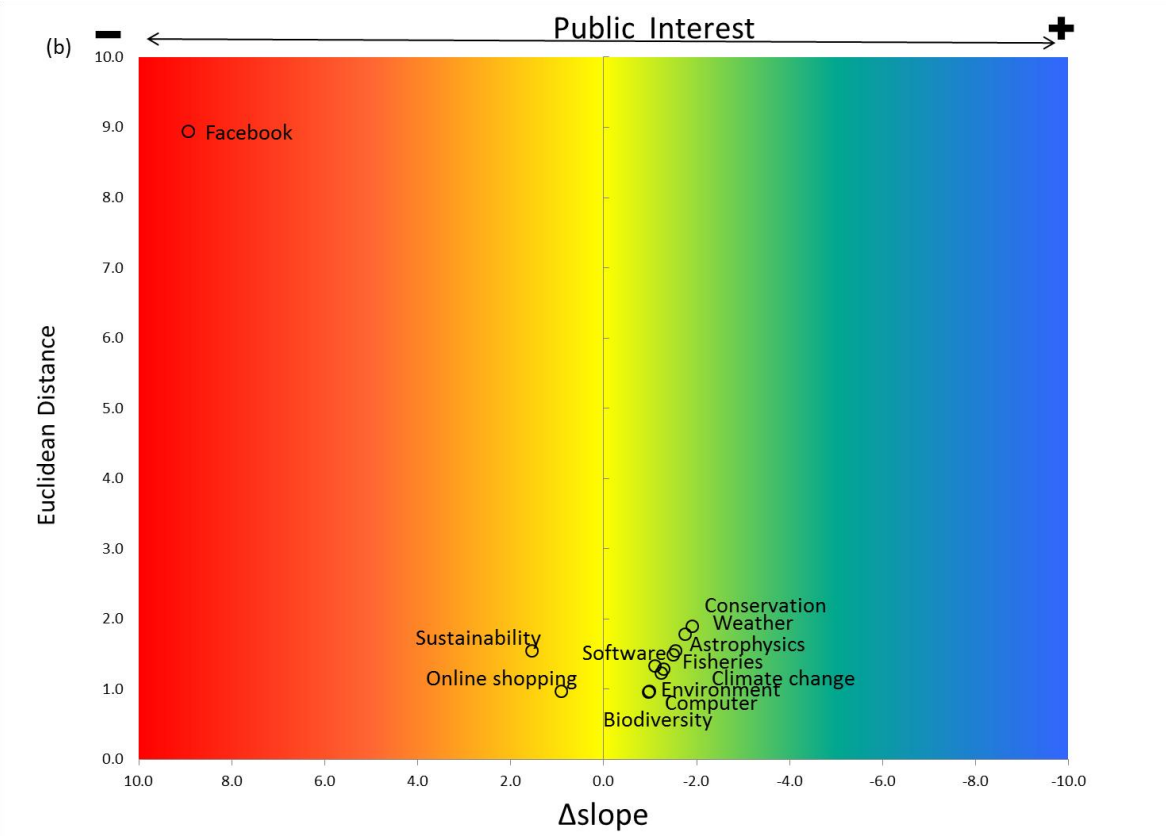


Figure 19. GTs variation between Ficetola (2013) metrics and (a) recalculated (2017) GTs by the same reference time period (2004-2013), (b) recalculated (2017) GTs by reference time period (2004-2017). In graph (b) the scale of both axis expanded to depict the high ED and *Δ*slope In graph (b) the scale of both axis expanded to depict the high ED and *Δ*slope value of the term *"Facebook"*. Terms ordination is according to the each metric's *Δ*slope of regression line and the r^2/slope values ED between different metrics. Towards the blue area the public interest is increasing, in the yellow area remains the same and towards the red area is decreasing. The zero point to the x axis corresponds to the initial metrics and as terms distributed further the ephemerality increases.

Applying equation (1) (see paragraph 2.2) to each term's *Δ*slope and ED values, term's ephemerality size (φ_T) can be calculated and φ_T values presented in table 14.

Table 14. Terms presentation regarding Δslope between different metrics, ED and φ_T.

		2004-2010 metrics			2004- 2010 vs. 2004-2017 metrics		
	Term (1)	Δslope (2)	ED (3)	φ_T (4)	Δslope (5)	ED (6)	φ_T (7)
1	Biodiversity	0.72568	0.72859	1.02833	-0.95783	0.96304	1.35827
2	Climate Change	0.04669	0.04672	0.06606	-1.28327	1.28351	1.81499
3	Conservation	-0.08950	0.09609	0.13132	-1.89868	1.90047	2.68640
4	Environment	0.14554	0.15194	0.21040	-1.23612	1.23667	1.74853
5	Fisheries	0.38124	0.38170	0.53947	-1.49400	1.49540	2.11383
6	Sustainability	1.12853	1.12979	1.59687	1.53802	1.54596	2.18071
7	Computer	0.30958	0.30958	0.43782	-0.97638	0.97639	1.38082
8	Software	0.09173	0.09173	0.12973	-1.10814	1.33097	1.73189
9	Astrophysics	3.05088	3.05110	4.31475	-1.54222	1.54225	2.18105
10	Weather	-1.20819	1.21414	1.71285	-1.74352	1.78098	2.49234
11	Facebook	1.81773	1.81773	2.57066	8.93265	8.94012	12.63796
12	Online shopping	-0.29825	0.29856	0.42201	0.90842	0.96754	1.32716

Culturome ephemerality (φ_C) for each metric can be calculated applying equation (2) (see paragraph 2.2) as below:

- Regarding the initial 2004 -2013 vs. recalculated 2004 -2013 metrics:

$$\varphi_{C\,\substack{2004-2013\\ metrics}} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2 + \Delta slope_i{}^2}}{n} = {}^{13.16025}/_{12} = 1.096688$$

- Regarding the initial 2004-2013 vs. recalculated 2004- 2017 metrics:

$$\varphi_{C\,\substack{2004-2013\\ vs\ 2004-2017 metrics}} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2 + \Delta slope_i{}^2}}{n} = {}^{33.65394}/_{12} = 2.804495$$

As founded Ficetola (2013) terms GTs culturome ephemerality increased by time like in previous case for McCallum and Bury terms.

The K-S test statistic was carried out for the two classes of data, as in the previous case and the results were obtained as below:

Table 15: Kolmogorov Smirnov test (K-S test statistic) for ED (log values) of 2004- 2010 GTs (initial) from recalculated 2004-2013 GTs. (See table's 10 heading for details).

Term	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
Climate Change	-1.3305	1	0.0833	0.00	-1.3830	0.0532	0.0532
Software	-1.0375	2	0.1667	0.08	-0.9674	0.1355	0.0521
Conservation	-1.0173	3	0.2500	0.17	-0.6745	0.1433	0.0234
Environment	-0.8183	4	0.3333	0.25	-0.4307	0.2368	0.0132
Online shopping	-0.5250	5	0.4167	0.33	-0.2104	0.4197	0.0864
Computer	-0.5092	6	0.5000	0.42	0.0000	0.4305	0.0139
Fisheries	-0.4183	7	0.5833	0.50	0.2104	0.4938	0.0062
Biodiversity	-0.1375	8	0.6667	0.58	0.4307	0.6831	0.0998
Sustainability	**0.0530**	**9**	**0.7500**	**0.67**	**0.6745**	**0.7911**	**0.1245**
Weather	0.0843	10	0.8333	0.75	0.9674	0.8065	0.0565
Facebook	0.2595	11	0.9167	0.83	1.3830	0.8795	0.0461
Astrophysics	0.4845	12	1.0000	0.92		0.9414	0.0247
Average ED log	**-0.4094**					**Max**	**0.1245**
Standard Deviation	**0.5706**					**Actual K-S test statistic**	
Count	**12**						

Table 16: Kolmogorov Smirnov test (K-S test statistic) for ED (log values) of 2004- 2010 GTs (initial) from recalculated 2004-2017 GTs. (See table's 10 heading for details).

Term	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
Biodiversity	**-0.0164**	**1**	**0.0833**	**0.00**	**-1.3830**	**0.2091**	**0.2091**
Online shopping	-0.0143	2	0.1667	0.08	-0.9674	0.2114	0.1281
Computer	-0.0104	3	0.2500	0.17	-0.6745	0.2158	0.0492
Environment	0.0923	4	0.3333	0.25	-0.4307	0.3484	0.0984
Climate Change	0.1084	5	0.4167	0.33	-0.2104	0.3718	0.0384
Software	0.1242	6	0.5000	0.42	0.0000	0.3950	0.0217
Fisheries	0.1748	7	0.5833	0.50	0.2104	0.4718	0.0282
Astrophysics	0.1882	8	0.6667	0.58	0.4307	0.4924	0.0909
Sustainability	0.1892	9	0.7500	0.67	0.6745	0.4940	0.1726
Weather	0.2507	10	0.8333	0.75	0.9674	0.5881	0.1619
Conservation	0.2789	11	0.9167	0.83	1.3830	0.6299	0.2034
Facebook	0.9513	12	1.0000	0.92		0.9983	0.0816
Average	**0.1931**					**Max**	**0.2091**
Standard Deviation	**0.2587**					**Actual K-S test statistic**	
Count	**12**						

As in previous case the two different classes ED (log) values plotted together against a naive model of the Zipf's distribution and each curve's maximum distance point from the Zipf's distribution was detected by the K-S test statistic. The maximum distance for curve 2004 -2010 laid to the position of term *"Sustainability"* and the maximum distance for curve 2004-2017 laid to the position of term *"Biodiversity"* (tables 15,16 and figure 20).

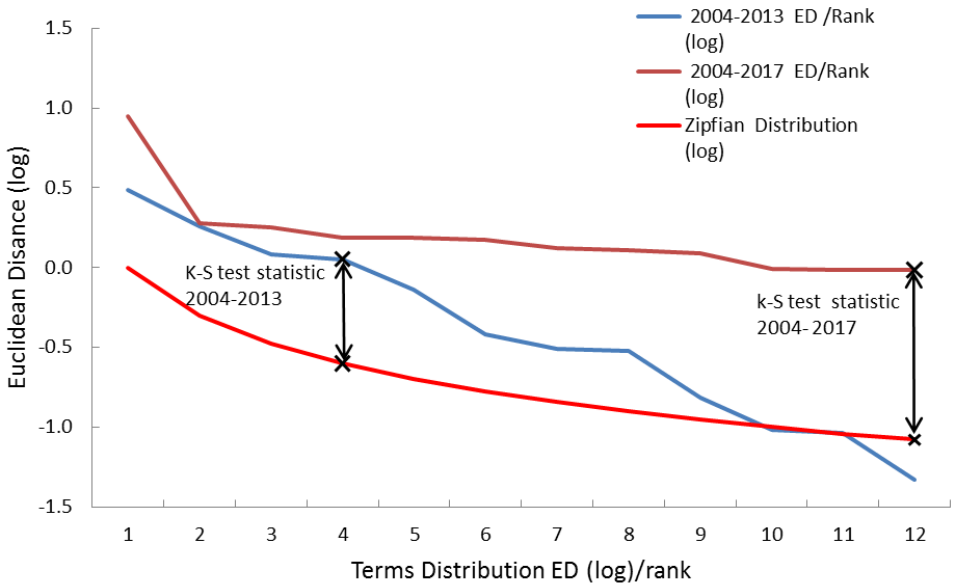


Figure 20. Comparative depiction of different ED (log) /rank curves with a naive Zipf's distribution (log). The maximum distances detected by the K-S test statistic.

3.2.3 Google Trends 2017 vs. Andrew et al. (2016) published metrics.

Andrew et al. (2016) contucted the most comprehensive analysis up today regarding GTs, assembling 338 carefully selected terms and phrases related to sustainability. The regression analysis results compared to new recalculated GTs on two metrics. First, the "initial" GTs were compared to recalculated GTs (2017) for exactly the same time period that defined from 2004 to 2013 and second, the "initial" GTs were compared to recalculated GTs for time period 2004-2017. As reference country on both metrics

defined the USA as it was on the initial metric. After CSV files' regression analysis, the counted r^2 and slope values were plotted in r^2/slope graphs (figure 21). On the first metric (recalculated GTs for time period 2004-2013) it was founded that there is a big difference between Andrew et al. GTs and recalculated regarding the slope of the regression line. On Andrew et al. (2016) metric most terms depicted near the y axis (figure 21a), however on the new metric it is noted a big widening of the parabolic U shaped trend line (2^{nd} degree polynomial) (figure 21b). On the second metric i.e. the recalculated GTs, from the perspective of 2017, it is noted that the parabolic trend line is closing again and recalculated GTs tend to meet Andrew et (2016) GTs (figure 21c). This fact means that there was a differentiation in public concern either positive neither negative from 2004- 2013 but recent trends tend to meet the initial (Andrew et al. 2016) values. However there was some reclassification in terms' distribution as depicted in ED/Δslope graphs below (figures 23a and 23b). In addition the comparison uncovered evolution in the coefficients of the polynomial fit of the r^2/slope distribution of GTs. For instance, c- and b- values of the polynomial f1 remain almost constant in the three snapshots; on the contrary, coefficient α shows a remarkable variation in time, indicating an "oscillation" in public interest. In figure 22 the comparative ranked scaled of terms was depicted according each term's ED between the different metrics, in descending order. As depicted 2004 -2017 curve lies below 2004 -2013 curve in most terms that means that ED form initial GTs declined. ED calculations and values presented in Annexes (Appendix VI). As above metrics, ED was plotted against the Δslope and such as the variation of public interest, as the GTs' ephemerality between the metrics was depicted (figure 23). Δslope calcultions and values presented in Annexes (Appendix V).

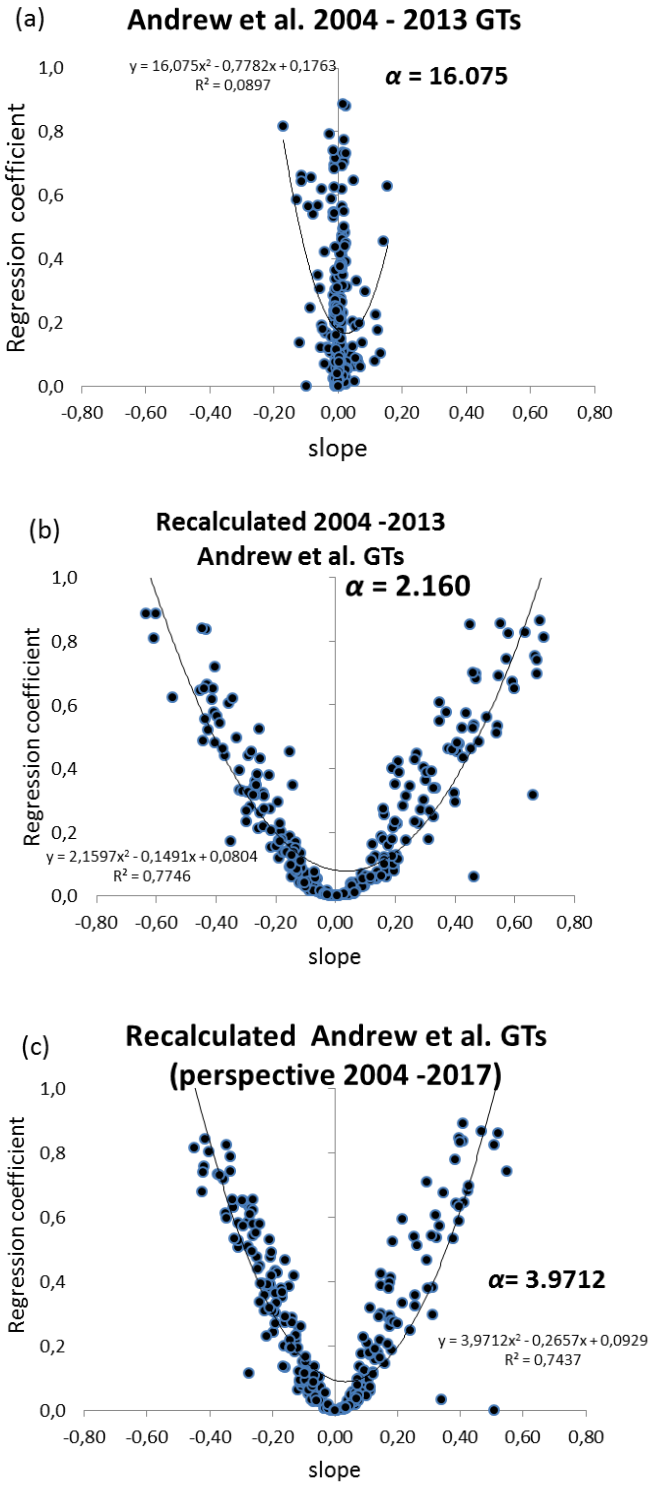


Figure 21. Comparative depiction of the strength and the slope of regression analysis of Andrew's et al. (2016) 277 (out of 291) terms related to *"Sustainability*" that queried using Google Trends. (a) Andrew et al. (2016) published GTs, (b) Recalculated GTs (data retrieved on 27th of September 2017) for the time period 2004- 2013, (c) Recalculated GTs (data retrieved on 29st of September 2017) for the time period 2004- 2017. The intense variation of coefficient α is depicted showing an oscilation in the U shaped trend line.

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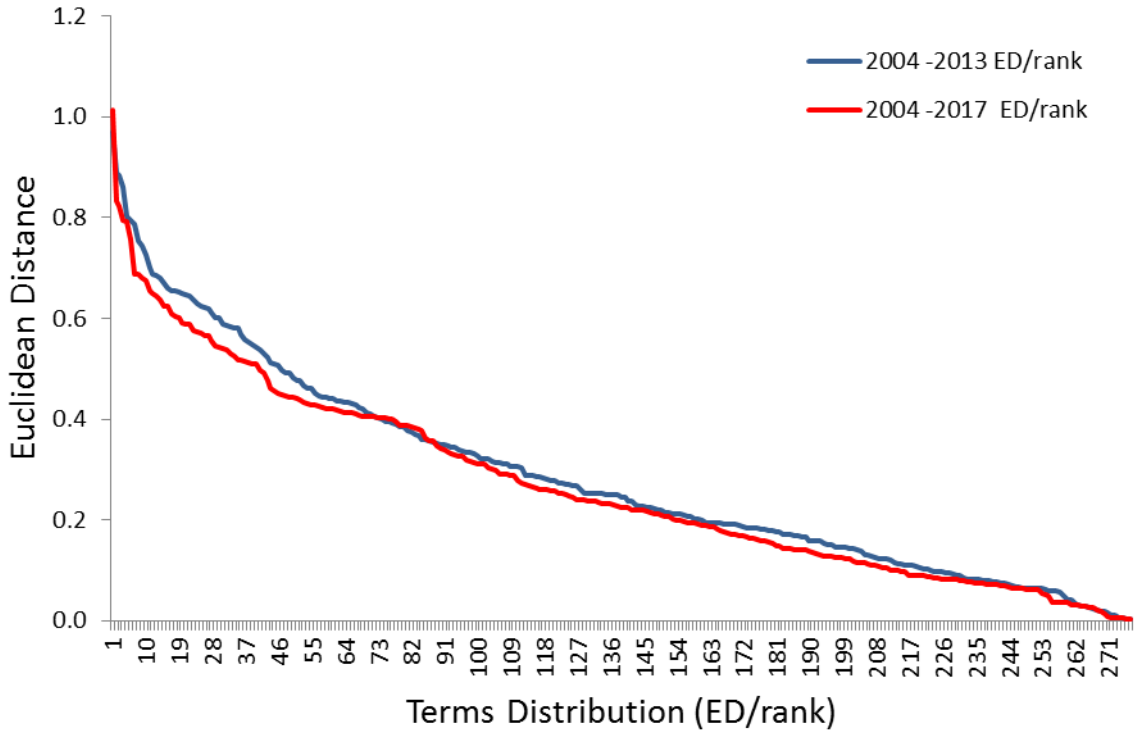
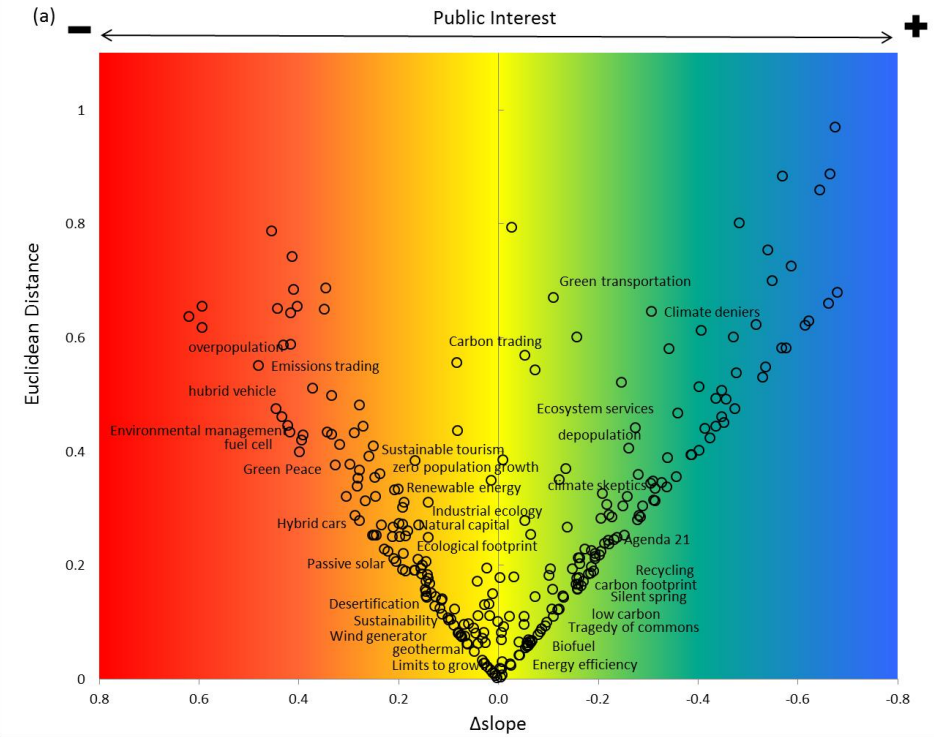


Figure 22. Rank scaled distribution of Andrew's et al. (2016) 277 (out of 291) terms in both data series for time periods 2004-2013 and 2004-2017 according to the ED between different metrics.



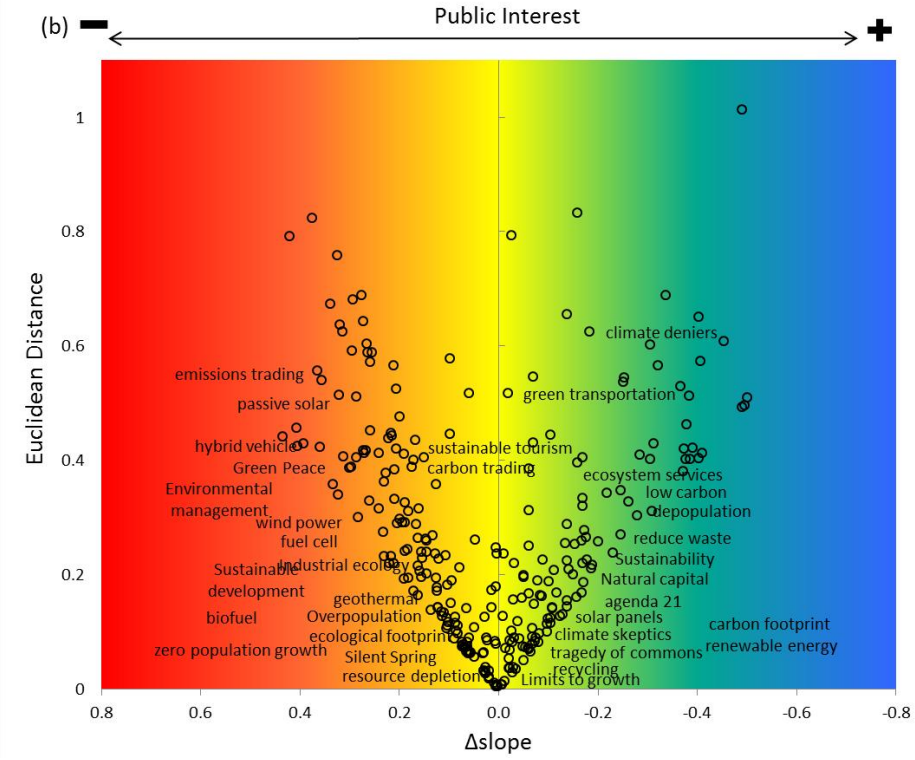


Figure 23. GTs variation between Andrew et al. (2016) GTs and recalculated (2017) GTs: (a) by the same reference time period (2004-2013) and (b) recalculated (2017) GTs for time period (2004-2017). Towards the blue area the public interest is increasing, in the yellow area remains the same and towards the red area is decreasing. Indicative names were entered where it was feasible. Data retrieved on 23rd and 29th of September 2017. The zero point to the x axis corresponds to the initial metrics and as terms distributed further the GTs ephemerality increases.

Applying equation (1) (see paragraph 2.2) to each term's *Δ*slope and ED values, term's ephemerality size (φ_T) can be calculated and φ_T values presented in Annexes (Appendix VII). Culturome ephemerality (φ_C) was calculated as below:

- Regarding the initial 2004 -2013 vs recalculated 2004 -2013 metrics:

$$\varphi_{C\,\substack{2004-2013\\metrics}} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2+\Delta slope_i{}^2}}{n} = {}^{101.3052}/_{277} = 0.365723$$

- Regarding the initial 2004-2013 vs recalculated 2004- 2017 metrics:

$$\varphi_{C\ \ 2004-2013}{}_{vs\ 2004-2017 metrics} = \frac{\sum_{i=1}^{n}\sqrt{ED_i{}^2+\Delta slope_i{}^2}}{n} = {}^{88.17989}/_{277} = 0.318339$$

Unlike previous metrics in this case culturome ephemerality (φ_C) was declined by time. Therefore it is noted that culturome ephemerality depends on internal conceptual constitution of the terms that entered to the GTs and not only on the time scale. On that last metric indicated that a rich collection of terms tends to "smooth" the values of the ephemerality index of a culturome (φ_C) unlike previous "poor" culturomes where ephemerality almost tripled at the same time interval.

Additionally, the K-S test statistic was carried out for each one of different distributions and the ED/rank curves plotted together against the Zipf's distribution and the maximum distant points depicted. The term *"human development"* had the actual K-S test statistic value for the curve 2004- 2013 and the term *"farmers market"* for the curve 2004 -2017 (figure 24). K-S test statistic values presented in Annexes (Appendixes VIII and IX)

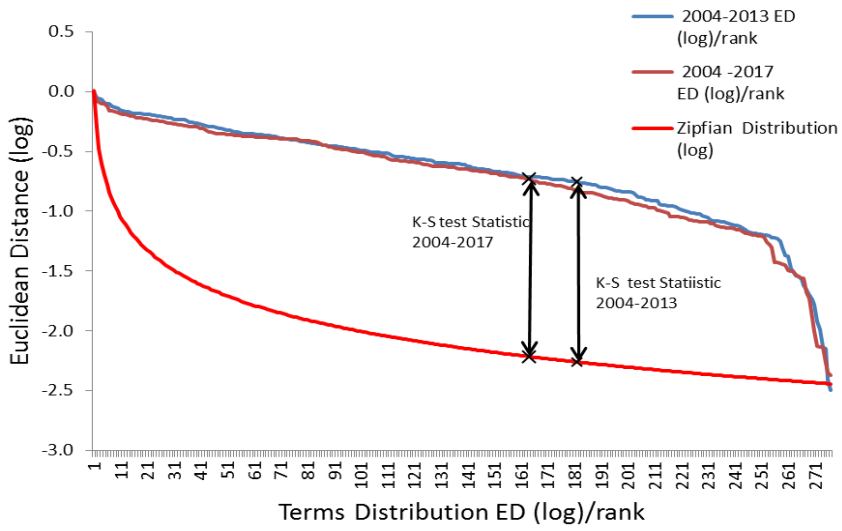


Figure 24. Comparative depiction of different ED (log) /ranks and a naive Zipf's distribution (log). Maximum distances detected by the K-S test statistic.

3.3 A new Conservation Culturome

All of the 244 CSV files were manipulated by regression analysis and it emerged that all categories had negative mean slope (table 17). The most negative mean slope had the category "*Economy*" and the less negative mean slope had the category "Organisms". Out of the 244 terms, 187 terms had negative slope and 57 terms had positive slope. In table 18 presented the number of the negative and positive slopes per category. The category "*Organisms*" included 37 terms with negative slopes and 13 terms with positive slopes. The category "*Ecosystems*" included 35 terms with negative slopes and 7 terms with positive slopes. The category "*Science*" included 15 negative slopes and 5 positive slopes. The category "Policy/ management" included 50 terms with negative slope and 20 terms with positive slope. The category "*Environment*" included 38 terms with negative slopes and 9 terms with positive slope. The category "*Economy*" included 12 terms with negative slopes and 3 terms with positive slopes (figure 25). All regression analysis results and categories distribution presented in Annexes (Appendixes I-IV).

Table 17. The r^2/slope ordination of a conservation culturome. Distribution of 244 terms into six conceptual categories representing the discursive corpus of ecological modernization. Categories are related to strategic conservation domains. Statistics refer to 2004-2017 GTs of the terms collection. Data retrieval: September 2017.

Category of terms	Number/ category	%/ categ.	Mean GTs slope (linear)/categ.	Mean r^2/ categ.	Terms with decreasing slope	Terms with increasing slope
Overall	244		-0.11355	0.338	187	57
Organisms	50	21	-0.08547	0.287	37	13
Ecosystems	42	17	-0.13827	0.363	35	7
Science	20	8	-0.12057	0.311	15	5
Policy/	70	28	-0.10720	0.359	50	20
Environment	47	19	-0.11287	0.307	38	9
Economy	15	7	-0.16027	0.469	12	3

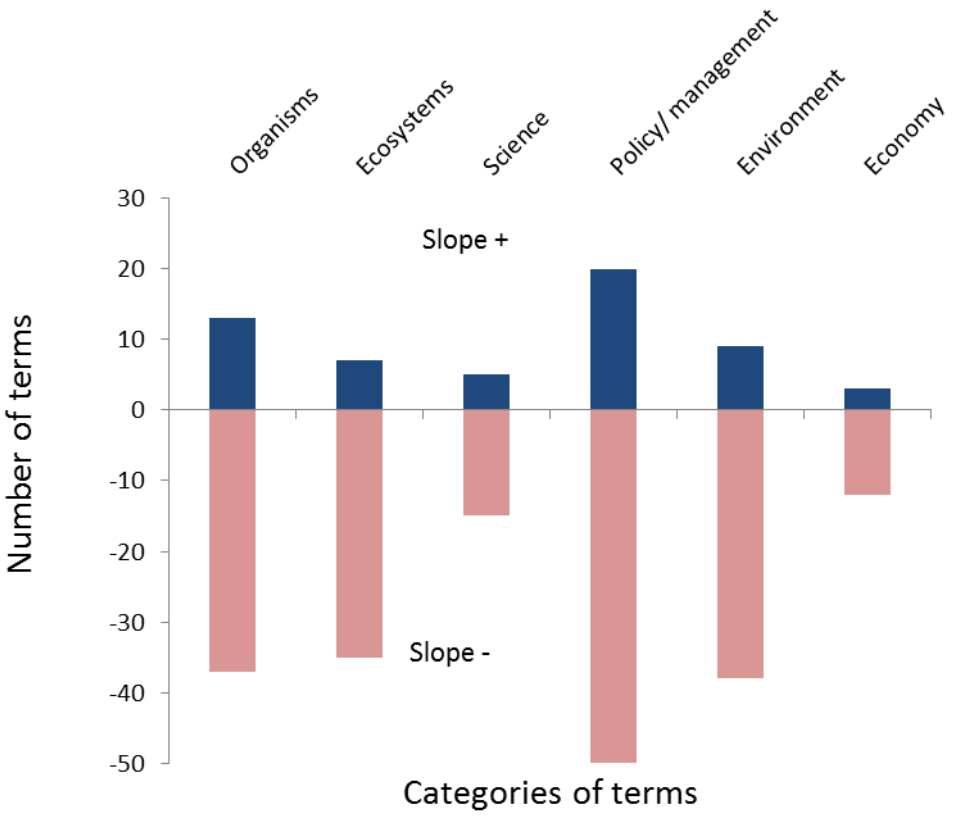


Figure 25. Terms' positive and negative slopes per category.

Figure 26A presents a disaggregation of results into 6 categories of GTs for relevant terms and concepts. This exercise uncovers that the evolution of public interest in separated conceptual categories of ecological modernization is not uniform. For instance, the coefficient α for the category "Environment" is much higher than the others this means that the values are closer to the y axis indicating that public interest in environmental issues has less variation between positive and negative trends. On the contrary, the category "Economy" has lower coefficient α and this means that public perceptions for economic issues varies. For instance, public interest for "circular economy" is strongly positive (slope = 0.37 and r^2 = 0.611) but for "transports", "fisheries" and "industrial ecology" is strongly negative (slope = -0.452; -0.361; -

0.3342; and r^2=0.89; 0.829; 0.71 respectively). Figure 26B presents 244 GTs metrics ordinated in a r^2/slope graph after regression analysis. All terms are located within a parabolic pattern as in Troumbis (2017a) and Andrew et al. (2016) analysis. In this case, the comparison of the two fitted parabolic models (f1,f2) shows that there is an increase of α, i.e. 5.13 vs. 6.209 or 21% between the f1 and f2 models respectively; of b, i.e. a horizontal displacement of 24% along the slope of regression axis; of c, i.e. a vertical displacement of 9,6% along the regression coefficient axis that tells about the change in the value of dependent variable corresponding to the unit change of linear slope of GTs. It is remarkable that three flag policy/management terms i.e. *"Natura 2000"*, *"CITES"* and *"UNEP"* showing a steep declined and strength slope < -0.36, r^2 > 0.82. This not so much expected result is very alarming for the future environmental policy. *"Transports"*, *"Wildlife"*, *"Fisheries"*, *"Fish conservation"*, *"Natural resources"* and *"Marine reserves"* are also in strength declining trend (slope < - 0.25 and r^2 > 0.74). On the contrary, public interest has increased a lot for newly emerged policy/management concepts i.e. *"food waste"*, *"zero waste"*, *"reuse"*, *"waste to energy"*, *"Aichi Targets"* and *"IPCC"*. *"Circular economy"*, *"ecosystem services"*, *"climate denial"* and *"CO"* had a strength increasing trend (slope > 0.37 and r^2> 0.61). This pattern may be due to the variation of experience and learning curves effect (Grant 2004). Other terms which follow a sufficient positive trend are *"Endemic species"*, *"Species populations"*, *"Critical endangered species"*, *"Grey wolf"*, *"African elephant"* and *"Weather"*.

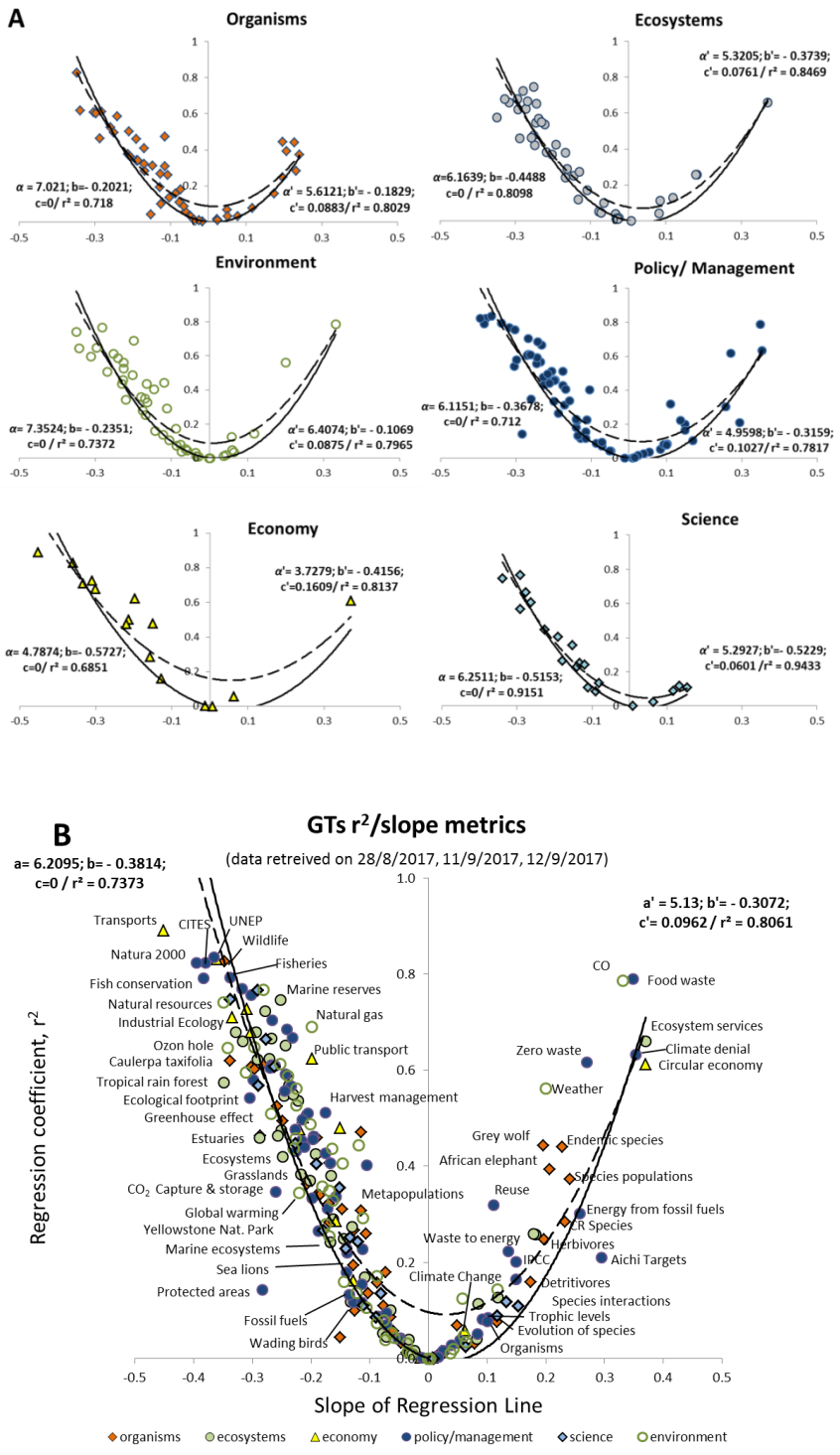


Figure 26. Comparative depiction of GTs metrics (slope and strength linear correlation) of regression analysis for search query volumes of 244 environmental related terms during 2004-2017. (A) Ordination of the 244-collection of terms and concepts in the r^2/slope plane of GTs per category. Observation period: 2004-2017; retrieval dates: September 2017. Lines show the 2nd order polynomial (α, b, c) curve fitting of each collection. (B) Analytical depiction of each term. Indicative names placed where is was feasible.

4. Conclusions

There are four major conclusions emerging from the results above. First, is the birth of a new science which belong to the sphere of social sciences and combines the biological diversity with the cultural diversity in "*biocultural"* diversity (Diaz et al. 2015) called *Conservation Culturomics*. We have already reached a period of increased social inequality and the effects are already visible with phenomena such as the migratory problem and the desertification of many areas of the developing countries. The unintentional or even the deliberate overrun of the predictions of natural "pure" science can lead to major disasters and social inequalities. As O'Brien (O' Brien 2010) referred, the UN Conference of the Parties (COP 15) held in Copenhagen in 2009 has highlighted that Climate Change was far more than a warmer time. It has to do with economics, politics, history, environmental justice, social movements, cultural change, urbanization, change in geography and much more. Understanding this complexity requires more than the biosphere processes elements because its feedback contributes to the increase of the greenhouse gases, effecting on global warming and also to the rapid changes in social and ecological systems. It is necessary to recognize the multiple perspectives of human-environment relationships, alternative economic paths, constellations of the centers of power, new policies and different ways to approach the future. The binary relationship between man and nature has played an important role in the way that environmental problems are addressed (Castree and Braun 2000, quoted in O'Brien 2010). Until today, a management logic had been promoting that focuses on addressing environmental problems through regulations, technological interventions, economic incentives and institutional reforms without taking into account wider social, economic and political relationships that contribute to them (Adger et al. 2001, quoted

in O'Brien 2010). The existence of this subjectivity in human-environment relationships results in different priorities often combined with competitive interests. This fact inevitably draws the attention of politicians, power centers, rulers, and prevailing frameworks. The complexity and uncertainty that stems from environmental changes are provocative and inevitably call for a new way of understanding human-environment relationships that are not justified by dominant beliefs and views at a global level (Jasanoff 2010, quoted in O'Brien 2010). *Culturomics* are moving to that direction. It is the foundation of a new science for global change, the redefinition of a new framework that, in addition to "global" interpretations, will include the links and interconnections of multiple processes, responses and results. Social sciences in general can help man to change forever the "*business as usual*" types of solutions and its priorities.

The second conclusion relates to the linguistic effect using Internet searches to evaluate the public interest. Two kind of GTs metrics were carried out. The comparative search and the relative search. Seven major languages reflecting the biggest part of the world population including developed and developing countries. By the comparative metric the searches were carried out for two groups of four languages simultaneously and the GTs volume normalized according to the prevailing language (English had the max volume 100 in all queries). It is noted that four languages are the most used for Google searching, i.e. English, Spanish, Portuguese and France which are the languages that had been dominating all over the world due to the colonial regimes. Searches in Russian, Chinese and Arab although they correspond to a very large population range, returned very low mean GTs volume compared to previous four languages. This fact probably related to the use of the particular internet searching machine i.e. Google, Bing, Baidu etc., or even to the internet penetration rate in those countries (Troumbis,

2017b). By the relative search where each term entered separately, each term was normalized to 100 maximum GTs value, there were remarkable differences between the trends of the terms, only for the Russian and the Arab languages and only for the terms *"Biodiversity"* and *"Sustainability"*.

Third critical conclusion relates to the GTs ephemerality. As proven by all the tested metrics, GTs are "*alive and changing*" continuously according to the recent queries. For instance, if people tomorrow start to enter queries about *"biodiversity"* all previous GTs volumes would change in order to normalized according to the new volumes. There is no *"memory calendar"* or a backup storage on GTs application, only if someone copies and keeps previous searches results in a storage medium. Thus, GTs could be a helpful tool to record trends of the past, to *predict the present* (Choi and Varian 2009) or even to predict the future (Mavragani A. and & Tsagarakis K. 2016). The ED/Δslope graphs are sufficiently depict the fluctuation of public interest and the GTs ephemerality between different culturomes.

Finally, the fourth also critical conclusion is that scientific community and politicians should be very concerned about last culturome's foundings. Some flag terms related to the environmental policy and environmental management which dominated the environmental discourse over the past two decades such as, *"Natura 2000", "UNEP", "CITES", "Fish Conservation", "Endangered Species", "Ecological footprint", "National Park", "Wetlands", "Natural Resources"* and *"Ecology"* lie now in the nadir of public interest according to GTs. On the other side, new emerged terms which are somehow more closely correlated to human life being and human activities, such as *"Circular Economy", "Ecosystem services", "Climate Denial", "Food Waste", "Aichi*

Targets", "Zero Waste", "IPBES", "IPCC" and *"Waste to Energy"* focus the public interest as founded from the GTs. However, one can contend that when individuals have already gained sufficient knowledge of "old" concepts/terms, their interesting diverted towards "new" concepts/terms. In anyway, *Culturomes* clearly show the shift that might lead the environmental discourse and environmental policy to a new roadmap towards a sustainable future (Wright R. 2005, 2011). May the inebriating sound of biodiversity will continue to echo in human ears delighting our hearts forever.

"Destroying species is like tearing pages out of an unread book, written in a language humans hardly know how to read, about the place where they live"

Holmes Rolston III Environmental Philosopher, quoted in Richard T. Wright. 2011, Environmental Science Toward a Sustainable Future 11th Edition, pp 137.

References

Adger W.N., Benjaminsen T.A., Brown K., and Svarstad H. (2001) Advancing a political ecology of global environmental discourses. Development and Change 32(4): 681–715.

Ahern J., Margerison-Zilko C., Hubbard A., Galea S. (2013) Alcohol outlets and binge drinking in urban neighborhoods: the implications of nonlinearity for intervention and policy. Am J Public Health 103(4):81–87

Anderson C. (2008) The end of theory: the data deluge makes the scientific method obsolete. Wired Magazine, June 23.https://www.wired.com/2008/06/pb-theory/

Andrew L., Arndt D., Beristain N., Cass T., Clow L., Colmenares B., Damm K., Hatcher R., Jackson N., Pasquesi W., Chamberlain-Pham N., Pryd J.A., Rund T., Russell G., Ryle C., Schmidt T., Sigan S., Sinkus K., Sneyd K., Strode J., Wallen C., McCallum M.L. (2016). Changes in United States' citizens' interest in sustainability. Life Excit Biol 4(3):138–164. doi:10.9784/LEB4(3)Andrew.01.

Armstrong J.S., Overton TS (1977) Estimating non response bias in mail surveys. J Mark Res 14:396–402.

Barrett C.B., Travis A.J. & Dasgupta P. (2011). On biodiversity conservation and poverty traps. PNAS, 108: 13907–13912.

Begon M.., Townsend R. C., Harper L. J. (2006), From Individuals to Ecosystems, Fourth Edition, Blackwell Publishing Ltd, pp. vii (preface)

Butchart S.H.M., Walpole M., Collen B. van Strien A., Scharlemann J.P.W., Almond R.E.A., Baillie J.E.M., Bomhard B., Brown C., Bruno J., Carpenter K.E., Carr G.M., Chanson J.,Chenery A.M., Csirke J., Davidson N.C., Dentener F., Foster M., Galli A., Galloway J.N.,Genovesi P., Gregory R.D., Hockings M., Kapos V., Lamarque J-F., Leverington F., Loh J.,McGeoch M.A., McRae L., Minasyan A., Hernández Morcillo M., Oldfield T.E.E., Pauly D.,Quader S., Revenga C., Sauer J.R., Skolnik B., Spear D., Stanwell-Smith D., Stuart S.N.,Symes A., Tierney M., Tyrrell T.D., Vié J-C. & Watson R. (2010). Global Biodiversity: Indicators of Recent Declines. Science, 328: 1164-1168.

Castree N. and Braun B. (2001) Social Nature: Theory, Practice and Politics. Oxford: Blackwell.

Clausen R., York R., (2007), Global biodiversity decline of marine and freshwater fish: A cross-national analysis of economic, demographic, and ecological influences, Social Science Research, 37 (2008) 1310–1320.

Choi H., Varian H. (2012) Predicting the present with google trends. Econ Rec 88:2–9.

Correia R.A., Jepson P.R., Malhado A.C.M., Ladle R.J., (2016). Familiarity breeds content: assessing bird species popularity with culturomics. Peerj 4, e1728.

Darwin Ch. (1859) The Origin of Species by Means of Natural Selection, 1st edn. John Murray, London.

Diaz S., Demissew S., Carabias J., Joly C., Lonsdale M., Ash N., Larigauderie A., Adhikari J.R., Arico S., Baldi A., Bartuska A., Baste I.A., Bilgin A., Brondizio E., Chan K.M.A., Figueroa V.E., Duraiappah A., Fischer M., Hill R., Koetz T., Leadley P., Lyver P., Mace GM.,

Martin-Lopez B., Okumura M., Pacheco D., Pascual U.,Perez E.S., Reyers B., Roth E., Saito O., Scholes R.J., Sharma N., Tallis H., Thaman R., Watson R., Yahara T.,Hamid Z.A., Akosim C., Al-Hafedh Y., Allahverdiyev R., Amankwah E., Asah S.T., Asfaw Z., Bartus G.,Brooks L.A., Caillaux J., Dalle G., Darnaedi D., Driver A., Erpul G., Escobar-Eyzaguirre P., Failler P., Fouda A.M.M., Fu B., Gundimeda H., Hashimoto S., Homer F., Lavorel S., Lichtenstein G., Mala W.A., Mandivenyi W., Matczak P., Mbizvo C., Mehrdadi M., Metzger J.P., Mikissa J.B., Moller H., Mooney H.A., Mumby P., Nagendra H., Nesshover C., Oteng-Yeboah A.A., Pataki G., Roue M., Rubis J., Schultz M.,Smith P., Sumaila R., Takeuchi K., Thomas S., Verma M., Yeo-Chang Y., Zlatanova D. (2015) The IPBES Conceptual Framework—connecting nature and people. Current Opinion in Environmental Sustainability, 14 (1): 1-16.

Dunlap R. E. (1991). Trends in public opinion toward environmental issues: 1965–1990. Society & Natural Resources.; 4(3):285–312. DOI: 10.1080/08941929109380761.

Embree B.G., Whitehead PC (1993) Validity and reliability of self-reported drinking behavior: dealing with the problem of response bias. J Stud Alcohol 54:334–344.

Flash Barometer (2007, 2010, 2013). Attitudes towards biodiversity. Report 219; 290; 379 http://ec.europa.eu/public_opinion/flash/pdf.

Ficetola G.F. (2013) Is interest toward the environment really declining? The complexity of analyzing trends using internet search data. Biodivers Conserv 22:2983–2988.

Fischer, A., Young, J.A., (2007). Understanding mental constructs of biodiversity: implications for biodiversity management and conservation. Biological Conservation, 136: 271-282.

Food and Agriculture Organization (FAO) of the United Nations, 2002. The State of the World Fisheries and Aquaculture. Food and Agriculture Organization, Rome.

Funk S.M., Rusowsky D. (2014) The importance of cultural knowledge and scale for analysing internet searchdata as a proxy for public interest toward the environment. Biodivers Conserv 23:3101–3112.

Google Ngram (2013) Google Ngram data download webpage. http://storage.googleapis.com/books/ngrams/books/datasetsv2.html . [Accessed 11 October 2017].

Google Search Statistics, n.d. *Internet Live Stats*. [Online] Available at: http://www.internetlivestats.com/google-search-statistics/ [Accessed 20th June 2017].

Grande Todd "Kolmogorov-Smirnov Test of Normality in Excel", https://www.youtube.com/watch?v=cltWQsmBg0k [assessed 10th October 2017].

Grant, R.M., (2004). Contemporary strategy analysis, U.S., UK, Australia, Germany: Blackwell publishing, ISBN 1-4051-1999-3.

Hample D. (1980), Purposes and effects of lying. South Speech Commun J 46:33–47.

Hofstede, G. (1984). The cultural relativity of the quality of life concept. Academy of Management Review, 9 (3): 389–398. doi:10.5465/amr.1984.4279653.

Hulme M (2009) Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity. Cambridge: Cambridge University Press.

Inglehart R. (1971), "The silent revolution in Europe: intergenerational change in post – industrial societies", The American Political Science Review, vol. 65, No 4 pp. 991-1017.

Inglehart R. (1995), "Public support for environmental protection: objective problems and subjective values in 43 Societies", PS : Political Science and Politics, vol. 28 No 1 pp. 57-72.

Internet World Stats (2016). Internet World users by language.
http://www.internetworldstats.com/ stats7.htm

IPCC, Geneva, Switzerland 2007, http://www.ipcc.ch/report/ar4/

Israel N., Wolf-Branigin M, (2011) Nonlinearity in social service evaluation: a primer on agent-based modeling. Soc Work Res 35(1):20–24

Jackson P, (1983) Principles and problems of participant observation. Geografiska Annaler: series B. Hum Geogr 65:39–46.

Jacobson C. K., Hughey K., Allen W., Rixecker & Carter R., (2009), Toward More Reflexive Use of Adaptive Management, Society & Natural Resources, 22:484–495, DOI: 10.1080/08941920902762321.

Jasanoff S, (2010) A new climate for society. Theory, Culture and Society 27: 233–253.

Kaizer F.G., Scheuthle H. (2003), "Two Challenges to a moral extension of the theory of planned behavior: moral norms ang just world beliefs in conservationism" Personality and Individual Differences, vol. 35, No 5, pp. 1033-1048.

Kaizer F.G., Hubner G., Bogmer F. (2005), "Constructing the theory of planned behavior with value- belief- norm model in explaining conservation behavior" Journal of Applied Social Psychology, vol. 35, No10 pp. 2150-2170.

Kaizer F.G. (2006), "A moral extension of the theory of planned behavior: norms and anticipated feelings of regret in conservationism", Personality and Individual Differences, vol 41, No 1 pp. 71-81.

Kolmogorov A, (1933). "Sulla determinazione empirica di una legge di distribuzione". G. Ist. Ital. Attuari. 4: 83–91.

Ladle R., Correia R, Do Yuno, Joo Gea-Jac, Malhado A., Proulx R, Roberge JM, Jepson P, (2016), Conservation culturomics, Front Ecol Environ, 14(5), 269–275, doi:10.1002/fee.1260.

Malcevschi S, Marchini A, Savini D, Facchinetti T (2012) Opportunities for Web-Based Indicators in Environmental Sciences. PLoS ONE7(8): e42128. https://doi.org/10.1371/journal.pone.0042128.

Mamadouh V. (1999), "Grid-group cultural theory: an introduction" Geojournal Vol 47 3 pp. 395-409.

Mavragani Amaryllis & Tsagarakis Konstantinos P., (2016). "YES or NO: Predicting the 2015 GReferendum results using Google Trends," Technological Forecasting and Social Change, Elsevier, vol. 109(C), pages 1-5.

McCallum M.L., & Bury G.W., (2013). Google search patterns suggest declining interest inthe environment. Biodiversity and Conservation, 22:1355–1367

McCallum M.L., & Bury G.W., (2014). Public interest in the environment is falling: aresponse to Ficetola (2013). Biodiversity and Conservation, 23:1057-1062.

McCallum M. L. (2015). Vertebrate biodiversity losses point to sixth mass extinction. Biodiversity and Conservation 24:2497 – 2519. DOI 10.1007/s10531-015-0940-6.

Messmer T.A., Reiter D., West B.C.(2001) Enhancing wildlife sciences' linkage to public policy: lessons from the predator-control pendulum. Wildlife Society Bulletin:1253–9.

Michel J.-B., Shen Y.K., Aiden A.P., Veres A., Gray M.K., Pickett J.P., Hoiberg D.,Clancy D., Norvig P., Orwant J., (2011). Quantitative analysis of culture using millions of digitized books. Science 331, 176–182.

NASA, Global Climate Change, https://climate.nasa.gov/ (accessed on 5th of July 2017).

NOAA (April 13, 2006). "NOAA Reviews Record-Setting 2005 Atlantic Hurricane Season".

Novacek, M.J., (2008). Engaging the public in biodiversity issues. PNAS, 105(1): 11571–983 11578.

O'Brien K.L., St Clair A.L., and Kristoffersen B. (2010). Towards a new science on climate change. In O'Brien K., St Clair A.L., and Kristoffersen B. (eds), Climate Change, Ethics, and Human Security. Cambridge University Press, 215–227.

O'Brien Karen (2010), Responding to environmental change: A new age for human geography? Progress in Human Geography 35(4), 542-549.

Perrings C., Naeem S., Ahrestani F., Bunker D.E., Burkill P., Canziani G., Elmqvist T.,Ferrati R., Fuhrman J., Jaksic F., Kawabata Z., Kinzig A., Mace G.M., Milano F., Mooney H., Prieur-Richard, A.-H., Tschirhart, J. & Weisser, W. (2010). Ecosystem Services for 2020. Science, 330: 323-324.

Rockstrom J., Steffen W., Noone K., Persson A., Chapin S., Lambin E.F., et al. (2009) A safe operating space for humanity. Nature 461(7263): 472–475.

Proulx R., Massicotte P., Pepino M. (2013) Googling trends in conservation biology. Conserv Biol. doi:10.1111/cobi.12131.

Scheitle C. (2011), Google's Insights for Search: A Note Evaluating the Use of Search Engine Data in Social Research, Social Science, 92: 285-295. DOI: 10.1111/j.1540-6237.2011.00768.x.

Secretariat of the Convention on Biological Diversity, Handbook of the Convention on Biological Diversity (Earthscan, London, 2003).

Smirnov N. (1948). "Table for estimating the goodness of fit of empirical distributions". Annals of Mathematical Statistics. 19: 279–281.

Stern C. P., Dietz T., Abel T., Guagnano G. and Kalof L. (1999) A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism, Human Ecology Review, Vol. 6, No. 2, pp. 81-97.

Troumbis Y. Andreas, (2017). Declining Google Trends of public interest in biodiversity: semantics, statistics or traceability of changing priorities? Biodiversity and Conservation, pp. 1495-1505, doi:10.1007/s10531-017-1294-z.

Troumbis Y.Andreas (2017). Google Trends and cycles of public interest in biodiversity: the animal spirits effect. Biodiversity and Conservation, pp. 1-23, doi:10.1007/s10531-017-1413-x.

Turner B.L. II, Clark W.C., Kates R.W., Richards J.F., Mathews J.T., and Meyer W.B.(1990) The Earth as Transformed by Human Action. Global and Regional Changes in the Biosphere over the Past 300 Years. Cambridge: Cambridge University Press, with Clark University.

United Nations, Sustainable Development Goals, http://www.un.org, assessed on 2nd of September 2017.

Van Liere K.D., Dunlap R.E. (1980) The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations and Empirical Evidence, The Public Opinion Quarterly, Vol 44, No 2 (Summer 1980), 181- 197.

Van Liere K.D., Dunlap R.E. (1981), Environmental Concern: does it make a difference how is measured?" Environment and Behavior, vol.13, No 6, pp. 651- 676.

Venetoulis, J., Chazan, D., & Gaudet, C. (2004). Ecological footprints of nations. Retrieved December 1, 2005, from http://www.redefiningprogress.org

Wilde G.R, Pope K.L. (2013).Worldwide trends in fishing interest indicated by internet search volume. Fish Manag Ecol 20:211–222.

Wilson E.O. 1988, BioDiversity, National Academy of Sciences, Washington, D.C. ISBN 0-309-03783-2. ISBN 0-309-03739-5.

Wray-Lake L., Flanagan C.A., Osgood D.W. (2010) Examining trends in adolescent environmental attitudes, beliefs, and behaviors across three decades. Environ Behav 42:61–85. doi:10.1177/0013916509335163.

Wright T. Richard (2005) "Environmental Science: toward a sustainable future", 9th Edition, Pearson Education, Inc. ISBN 0-13-127763-4.

Wright T. Richard (2011) "Environmental Science: toward a sustainable future", 11th Edition, Pearson Education, Inc. ISBN 0-321-70140-2.

World Wide Fund for Nature International (2010) Living Planet Report 2010: Biodiversity, Biocapacity and Development (WWF International Gland, Switzerland). Available at http://wwf.panda.org/about_our_earth/ all_publications/living_planet_report/2010_lpr.

York R., Rosa E.A., Dietz T., (2003a) Footprints on the Earth: the environmental consequences of modernity. American Sociological Review 68, 279–300

York R, Rosa E.A.,(2003). Key Challenges to Ecological Modernization Theory, Organization & Environment, Vol. 16 No. 3, September 2003 273-288 DOI: 10.1177/1086026603256299.

Zimmer M., (2010), 'But the data is already public': on the ethics of research in Facebook, Ethics Inf Technol (2010) 12:313–325 DOI 10.1007/s10676-010-9227-5.

Zimmerer K. (1994). Human Geography and the "New Ecology": The Prospect and Promise of Integration, Annals of the Association of American Geographers, 84:1,108-125, DOI: 10.1111/j.1467-8306.1994.tb01731.x.

Zipf GK (1949). Human Behavior and the Principle of Least Effort. Cambridge, Massachusetts: Addison-Wesley. p. 1

Annexes

Appendix I. A new Culturome of 244 terms queried on Google Trends on September 2017. Reference time period 2004-2017. (Appendixes I_1-I_6).

Table I_1. Category "Organisms" (50 terms).

a/a	Organisms	Slope	R^2	P- Value
1	african elephant	0.20664	0.39349	0.00000
2	algae	-0.10684	0.25965	0.00000
3	alligators	0.02246	0.01453	0.12416
4	amphibians	-0.16796	0.28299	0.00000
5	brown bear	0.04920	0.06841	0.00072
6	Carnivores	-0.07653	0.10923	0.00002
7	Caulerpa taxifolia	-0.33794	0.61877	0.00000
8	critically endangered species	0.23233	0.28427	0.00000
9	crustaceans	-0.10327	0.13512	0.00000
10	decomposers	0.07814	0.03117	0.02374
11	detritivores	0.17481	0.15855	0.00000
12	endangered species	-0.30220	0.60630	0.00000
13	endemic species	0.22757	0.44028	0.00000
14	fish	-0.11508	0.47129	0.00000
15	geese	-0.12661	0.26637	0.00000
16	giant panda	-0.25851	0.52425	0.00000
17	gizzly bear	-0.28664	0.46380	0.00000
18	grey wolf	0.19609	0.44226	0.00000
19	herbivores	0.19641	0.24826	0.00000
20	insects	-0.20925	0.50186	0.00000
21	introduced species	-0.21277	0.37587	0.00000
22	invasive species	-0.01503	0.00184	0.58510
23	invertebrates	-0.18892	0.34145	0.00000
24	key stone species	-0.04634	0.03190	0.02213
25	mangroves	-0.14679	0.31098	0.00000
26	marshes	-0.16867	0.40698	0.00000
27	metapopulations	-0.11454	0.30792	0.00000
28	migratory species	-0.28201	0.61165	0.00000
29	monk seal	-0.18848	0.34115	0.00000
30	organisms	0.11667	0.07541	0.00037
31	passenger pigeon	-0.02488	0.00781	0.26050
32	penguins	0.02477	0.00801	0.25456

a/a	Organisms	Slope	R^2	P- Value
33	phytoplankton	-0.18561	0.33977	0.00000
34	plants	0.05068	0.03117	0.02374
35	Posidonia oceanica	-0.24896	0.49381	0.00000
36	predation	-0.03693	0.01177	0.16668
37	sea birds	-0.19040	0.45944	0.00000
38	sea lions	-0.12807	0.19365	0.00000
39	sea turtle	-0.06036	0.05654	0.00217
40	sharks	-0.06423	0.08561	0.00014
41	shellfish	-0.08690	0.15716	0.00000
42	shrubs	-0.12519	0.09854	0.00004
43	snakes	-0.07269	0.17914	0.00000
44	species populations	0.24082	0.37344	0.00000
45	the spotted owl	-0.20643	0.36210	0.00000
46	threatened species	-0.29643	0.60207	0.00000
47	wading birds	-0.15094	0.04297	0.00774
48	whales	-0.24102	0.58649	0.00000
49	wildlife	-0.34704	0.82556	0.00000
50	zooplankton	-0.16947	0.32140	0.00000
	AVERAGE	**-0.08547**	**0.28725**	

Table I_{1a}. Category “Organisms” negative trends (37 terms).

a/a	Organisms-negative trends	Slope	R^2	P- Value
1	wildlife	-0.34704	0.82556	0.00000
2	Caulerpa taxifolia	-0.33794	0.61877	0.00000
3	endangered species	-0.30220	0.60629	0.00000
4	threatened species	-0.29643	0.60207	0.00000
5	gizzly bear	-0.28664	0.46380	0.00000
6	migratory species	-0.28201	0.61165	0.00000
7	giant panda	-0.25851	0.52425	0.00000
8	Posidonia oceanica	-0.24896	0.49381	0.00000
9	whales	-0.24102	0.58649	0.00000
10	introduced species	-0.21277	0.37587	0.00000
11	insects	-0.20925	0.50186	0.00000
12	the spotted owl	-0.20643	0.36210	0.00000
13	sea birds	-0.19040	0.45944	0.00000
14	invertebrates	-0.18892	0.34145	0.00000
15	monk seal	-0.18848	0.34115	0.00000
16	phytoplankton	-0.18561	0.33977	0.00000
17	zooplankton	-0.16947	0.32140	0.00000
18	marshes	-0.16867	0.40698	0.00000

a/a	Organisms-negative trends	Slope	R^2	P- Value
19	amphibians	-0.16796	0.28299	0.00000
20	wading birds	-0.15094	0.04297	0.00774
21	mangroves	-0.14679	0.31098	0.00000
22	sea lions	-0.12807	0.19365	0.00000
23	geese	-0.12661	0.26637	0.00000
24	shrubs	-0.12519	0.09854	0.00004
25	fish	-0.11508	0.47129	0.00000
26	metapopulations	-0.11454	0.30792	0.00000
27	algae	-0.10684	0.25965	0.00000
28	crustaceans	-0.10327	0.13512	0.00000
29	shellfish	-0.08690	0.15716	0.00000
30	Carnivores	-0.07653	0.10923	0.00002
31	snakes	-0.07269	0.17914	0.00000
32	sharks	-0.06423	0.08561	0.00014
33	sea turtle	-0.06036	0.05654	0.00217
34	key stone species	-0.04634	0.03190	0.02213
35	predation	-0.03693	0.01177	0.16668
36	passenger pigeon	-0.02488	0.00781	0.26050
37	invasive species	-0.01503	0.00184	0.58510

Table I_{1b}. Category “Organisms” positive trends (13 terms).

a/a	Organisms-positive trends	Slope	R^2	P- Value
1	alligators	0.02246	0.01453	0.12416
2	penguins	0.02477	0.00801	0.25456
3	brown bear	0.04920	0.06841	0.00072
4	plants	0.05068	0.03117	0.02374
5	decomposers	0.07814	0.03117	0.02374
6	organisms	0.11667	0.07541	0.00037
7	detritivores	0.17481	0.15855	0.00000
8	grey wolf	0.19609	0.44226	0.00000
9	herbivores	0.19641	0.24826	0.00000
10	african elephant	0.20664	0.39349	0.00000
11	endemic species	0.22757	0.44028	0.00000
12	critically endangered species	0.23233	0.28427	0.00000
13	species populations	0.24082	0.37344	0.00000

Table I_2. Category "Ecosystems" (42 terms).

a/a	Name	Slope	R^2	P- Value
1	aquatic systems	-0.24425	0.65120	0.00000
2	artic sea	-0.03312	0.03932	0.01067
3	biocapacity	0.18198	0.25812	0.00000
4	biodiversity hot spots	-0.16650	0.38061	0.00000
5	biological controls	-0.27131	0.62411	0.00000
6	biological invasions	-0.29196	0.62153	0.00000
7	biota	-0.06447	0.10081	0.00003
8	coastal ocean	-0.16289	0.28952	0.00000
9	communities and ecosystems	0.08208	0.04006	0.01018
10	coral colonies	-0.07809	0.05270	0.00311
11	coral reefs	-0.25070	0.47542	0.00000
12	ecosystem capital	-0.03265	0.01215	0.16002
13	ecosystem destruction	-0.14483	0.24967	0.00000
14	ecosystem management	-0.22170	0.53630	0.00000
15	ecosystem resources	0.11794	0.12686	0.00000
16	ecosystem restoration	-0.24573	0.54577	0.00000
17	ecosystem services	0.36969	0.66036	0.00000
18	ecosystem sustainability	0.00688	0.00034	0.81359
19	ecosystem values	-0.07160	0.04565	0.00586
20	ecosystems	-0.24858	0.41991	0.00000
21	erosion control	-0.27859	0.72221	0.00000
22	estuaries	-0.28779	0.45923	0.00000
23	forests	-0.31699	0.66021	0.00000
24	Galapagos	-0.13025	0.27452	0.00000
25	genetic resources	-0.29399	0.67919	0.00000
26	glaciers	-0.23720	0.56835	0.00000
27	grasslands	-0.21728	0.38304	0.00000
28	habitat change	0.17848	0.25860	0.00000
29	habitat conversion	-0.19242	0.42522	0.00000
30	habitat fragmentation	-0.13309	0.11850	0.00001
31	inland waters	-0.23016	0.55001	0.00000
32	lakes and ponds	-0.20242	0.36939	0.00000
33	marine ecosystems	-0.16669	0.24115	0.00000
34	marine reserves	-0.25178	0.74602	0.00000
35	ocean	-0.02420	0.01562	0.10970
36	savannas	-0.25654	0.46277	0.00000
37	seagrass meadows	-0.10902	0.16896	0.00000
38	terrestrial ecosystems	-0.02808	0.00904	0.22577
39	tropical rain forest	-0.34829	0.57395	0.00000
40	tundra	0.08458	0.11369	0.00001
41	wetlands	-0.32830	0.67909	0.00000
42	wilderness	-0.26743	0.66587	0.00000
	AVERAGE	**-0.13869**	**0.34526**	

Table I_{2a}. Category "Ecosystems" negative trends (35 terms).

a/a	Ecosystems-negative trends	Slope	R^2	P- Value
1	tropical rain forest	-0.34829	0.57395	0.00000
2	wetlands	-0.32830	0.67909	0.00000
3	forests	-0.31699	0.66021	0.00000
4	genetic resources	-0.29399	0.67919	0.00000
5	biological invasions	-0.29196	0.62153	0.00000
6	estuaries	-0.28779	0.45923	0.00000
7	erosion control	-0.27859	0.72221	0.00000
8	biological controls	-0.27131	0.62411	0.00000
9	wilderness	-0.26743	0.66587	0.00000
10	savannas	-0.25654	0.46277	0.00000
11	marine reserves	-0.25178	0.74602	0.00000
12	coral reefs	-0.25070	0.47542	0.00000
13	ecosystems	-0.24858	0.41991	0.00000
14	ecosystem restoration	-0.24573	0.54577	0.00000
15	aquatic systems	-0.24425	0.65120	0.00000
16	glaciers	-0.23720	0.56835	0.00000
17	inland waters	-0.23016	0.55001	0.00000
18	ecosystem management	-0.22170	0.53630	0.00000
19	grasslands	-0.21728	0.38304	0.00000
20	lakes and ponds	-0.20242	0.36939	0.00000
21	habitat conversion	-0.19242	0.42522	0.00000
22	marine ecosystems	-0.16669	0.24115	0.00000
23	biodiversity hot spots	-0.16650	0.38061	0.00000
24	coastal ocean	-0.16289	0.28952	0.00000
25	ecosystem destruction	-0.14483	0.24967	0.00000
26	habitat fragmentation	-0.13309	0.11850	0.00001
27	Galapagos	-0.13025	0.27452	0.00000
28	seagrass meadows	-0.10902	0.16896	0.00000
29	coral colonies	-0.07809	0.05270	0.00311
30	ecosystem values	-0.07160	0.04565	0.00586
31	biota	-0.06447	0.10081	0.00003
32	artic sea	-0.03312	0.03932	0.01067
33	ecosystem capital	-0.03265	0.01215	0.16002
34	terrestrial ecosystems	-0.02808	0.00904	0.22577
35	ocean	-0.02420	0.01562	0.10970

Table I_{2b}. Category "Ecosystems" positive trends (7 terms).

a/a	Ecosystems-positive trends	Slope	R^2	P- Value
1	ecosystem sustainability	0.00688	0.00034	0.81359
2	communities and ecosystems	0.08208	0.04006	0.01018
3	tundra	0.08458	0.11369	0.00001
4	ecosystem resources	0.11794	0.12686	0.00000
5	habitat change	0.17848	0.25860	0.00000
6	biocapacity	0.18198	0.25812	0.00000
7	ecosystem services	0.36969	0.66036	0.00000

Table I_3. Category "Science" (20 terms).

a/a	Science	Slope	R^2	P- Value
1	Aldo Leopold	-0.26275	0.60735	0.00000
2	animal ecology	-0.27693	0.66403	0.00000
3	applied ecology	-0.29101	0.76615	0.00000
4	biodiversity	-0.13395	0.25197	0.00000
5	biological mechanisms	-0.08129	0.13500	0.00000
6	Charles Darwin	-0.15204	0.35567	0.00000
7	ecological niche	0.00815	0.00052	0.77295
8	ecology	-0.33806	0.74796	0.00000
9	evolution of species	0.11712	0.08887	0.00011
10	food chain	-0.09015	0.08579	0.00014
11	food web	-0.17886	0.26658	0.00000
12	meteorology	-0.29082	0.56755	0.00000
13	natural selection	-0.14099	0.22935	0.00000
14	nutrient cycling	-0.19116	0.40545	0.00000
15	photosynthesis	0.06370	0.02415	0.04693
16	silent spring	-0.22647	0.44674	0.00000
17	species interactions	0.13274	0.11762	0.00001
18	the land ethic	-0.12044	0.24293	0.00000
19	tragedy of commons	-0.11100	0.11034	0.00001
20	trophic levels	0.15284	0.10894	0.00002
	AVERAGE	**-0.12057**	**0.31115**	

Table I_{3a}. Category "Science" negative trends (15 terms).

a/a	Science-negative trends	Slope	R^2	P- Value
1	ecology	-0.33806	0.74796	0.00000
2	applied ecology	-0.29101	0.76615	0.00000
3	meteorology	-0.29082	0.56755	0.00000
4	animal ecology	-0.27693	0.66403	0.00000
5	Aldo Leopold	-0.26275	0.60735	0.00000
6	silent spring	-0.22647	0.44674	0.00000
7	nutrient cycling	-0.19116	0.40545	0.00000
8	food web	-0.17886	0.26658	0.00000
9	Charles Darwin	-0.15204	0.35567	0.00000
10	natural selection	-0.14099	0.22935	0.00000
11	biodiversity	-0.13395	0.25197	0.00000
12	the land ethic	-0.12044	0.24293	0.00000
13	tragedy of commons	-0.11100	0.11034	0.00001
14	food chain	-0.09015	0.08579	0.00014
15	biological mechanisms	-0.08129	0.13500	0.00000

Table I_{3b}. Category "Science" positive trends (5 terms).

a/a	Science-negative trends	Slope	R^2	P- Value
1	ecological niche	0.00815	0.00052	0.77295
2	photosynthesis	0.06370	0.02415	0.04693
3	evolution of species	0.11712	0.08887	0.00011
4	species interactions	0.13274	0.11762	0.00001
5	trophic levels	0.15284	0.10894	0.00002

Table I_4. Category "Policy / Management" (70 terms).

a/a	Policy Management	Slope	R^2	P- Value
1	aesthetic value	0.05369	0.03750	0.01297
2	aichi targets	0.29491	0.21007	0.00001
3	amazonia national park	-0.11410	0.15406	0.00000
4	amphibian conservation	-0.19572	0.46171	0.00000
5	biofuel	-0.12758	0.11581	0.00001
6	bird conservation	-0.23185	0.66681	0.00000
7	carbon emissions	-0.13521	0.13237	0.00000
8	CITES	-0.37923	0.82322	0.00000
9	clean technology	-0.23445	0.56738	0.00000
10	cleaner production	-0.21579	0.45383	0.00000
11	climate denial	0.35319	0.63283	0.00000
12	CO2 capture and storage	-0.26030	0.34686	0.00000
13	combustion efficiency	-0.24521	0.55606	0.00000
14	conservation	-0.31760	0.76935	0.00000
15	conservation areas	-0.26727	0.60979	0.00000
16	consumption behavior	-0.08580	0.08721	0.00012
17	contaminated water	0.00920	0.00113	0.66789
18	contamination	-0.24360	0.59160	0.00000
19	convention on biological diversity	-0.26962	0.60520	0.00000
20	deforestation	-0.19831	0.33415	0.00000
21	depletion	-0.22688	0.47685	0.00000
22	ecological footprint	-0.30476	0.54189	0.00000
23	ecological park	-0.19697	0.45666	0.00000
24	energy conservation	-0.17152	0.31245	0.00000
25	energy consumption	-0.26649	0.70366	0.00000
26	energy from fossil fuels	0.25787	0.30132	0.00000
27	energy production	-0.17555	0.42708	0.00000
28	extinction	0.03972	0.02773	0.03307
29	fish conservation	-0.38392	0.79081	0.00000
30	fish stock	0.02440	0.01586	0.10812
31	food production	-0.04775	0.04194	0.00833
32	food waste	0.34902	0.78910	0.00000
33	forth assessment report	-0.07203	0.07032	0.00058
34	harvest management	-0.17561	0.51203	0.00000
35	IPBES	0.17041	0.10354	0.00073
36	IPCC	0.14930	0.20093	0.00000
37	IUCN	-0.24134	0.68461	0.00000
38	loss of biodiversity	0.14969	0.16497	0.00000
39	marine protected areas	-0.20505	0.51049	0.00000
40	national parks	-0.29804	0.57974	0.00000
41	Natura 2000	-0.39476	0.82272	0.00000

a/a	Policy Management	Slope	R^2	P- Value
42	natural services	-0.11228	0.22713	0.00000
43	overexploitation	0.08324	0.05058	0.00379
44	overfishing	-0.13987	0.17936	0.00000
45	overgrazing	0.10124	0.08443	0.00015
46	pest control	0.09208	0.08162	0.00021
47	pollution	-0.22568	0.43095	0.00000
48	preservation	-0.33840	0.79331	0.00000
49	protected areas	-0.28291	0.14287	0.00000
50	recreational value	-0.15724	0.33653	0.00000
51	recycling	-0.10492	0.40251	0.00000
52	red list	0.10051	0.07774	0.00030
53	renewable energy	-0.16784	0.40647	0.00000
54	resource efficiency	0.01393	0.00442	0.39623
55	resource scarcity	-0.01038	0.00106	0.67749
56	responsible consumption	0.01643	0.00337	0.45894
57	reuse	0.11115	0.31930	0.00000
58	Rio de Janeiro Earth Summit 1992	-0.11401	0.11636	0.00001
59	soil loss	-0.13898	0.22046	0.00000
60	species composition	-0.05122	0.04125	0.00910
61	Sustainable Consumption	-0.21129	0.44014	0.00000
62	sustainable harvest	-0.21500	0.49635	0.00000
63	sustainable production	-0.07197	0.09468	0.00006
64	UNEP	-0.36523	0.83528	0.00000
65	UNFCCC	-0.14008	0.22838	0.00000
66	waste reduction	-0.26195	0.60931	0.00000
67	waste to energy	0.13653	0.22246	0.00000
68	waste treatment	-0.30205	0.75653	0.00000
69	yellowstone national park	-0.18740	0.26568	0.00000
70	zero waste	0.27030	0.61704	0.00000
	AVERAGE	**-0.10720**	**0.35967**	

Table I_{4a}. Category "Policy/Management" negative trends (50 terms).

a/a	Policy Management-negative trends	Slope	R^2	P- Value
1	Natura 2000	-0.39476	0.82272	0.00000
2	fish conservation	-0.38392	0.79081	0.00000
3	CITES	-0.37923	0.82322	0.00000
4	UNEP	-0.36523	0.83528	0.00000
5	preservation	-0.33840	0.79331	0.00000
6	conservation	-0.31760	0.76935	0.00000
7	ecological footprint	-0.30476	0.54189	0.00000
8	waste treatment	-0.30205	0.75653	0.00000
9	national parks	-0.29804	0.57974	0.00000
10	protected areas	-0.28291	0.14287	0.00000
11	convention on biological diversity	-0.26962	0.60520	0.00000
12	conservation areas	-0.26727	0.60979	0.00000
13	energy consumption	-0.26649	0.70366	0.00000
14	waste reduction	-0.26195	0.60931	0.00000
15	CO2 capture and storage	-0.26030	0.34686	0.00000
16	combustion efficiency	-0.24521	0.55606	0.00000
17	contamination	-0.24360	0.59160	0.00000
18	IUCN	-0.24134	0.68461	0.00000
19	clean technology	-0.23445	0.56738	0.00000
20	bird conservation	-0.23185	0.66681	0.00000
21	depletion	-0.22688	0.47685	0.00000
22	pollution	-0.22568	0.43095	0.00000
23	cleaner production	-0.21579	0.45383	0.00000
24	sustainable harvest	-0.21500	0.49635	0.00000
25	Sustainable Consumption	-0.21129	0.44014	0.00000
26	marine protected areas	-0.20505	0.51049	0.00000
27	deforestation	-0.19831	0.33415	0.00000
28	ecological park	-0.19697	0.45666	0.00000
29	amphibian conservation	-0.19572	0.46171	0.00000
30	yellowstone national park	-0.18740	0.26568	0.00000
31	harvest management	-0.17561	0.51203	0.00000
32	energy production	-0.17555	0.42708	0.00000
33	energy conservation	-0.17152	0.31245	0.00000
34	renewable energy	-0.16784	0.40647	0.00000
35	recreational value	-0.15724	0.33653	0.00000
36	UNFCCC	-0.14008	0.22838	0.00000
37	overfishing	-0.13987	0.17936	0.00000
38	soil loss	-0.13898	0.22046	0.00000
39	carbon emissions	-0.13521	0.13237	0.00000
40	biofuel	-0.12758	0.11581	0.00001
41	amazonia national park	-0.11410	0.15406	0.00000

a/a	Policy Management-negative trends	Slope	R^2	P- Value
42	Rio de Janeiro Earth Summit 1992	-0.11401	0.11636	0.00001
43	natural services	-0.11228	0.22713	0.00000
44	recycling	-0.10492	0.40251	0.00000
45	consumption behavior	-0.08580	0.08721	0.00012
46	forth assessment report	-0.07203	0.07032	0.00058
47	sustainable production	-0.07197	0.09468	0.00006
48	species composition	-0.05122	0.04125	0.00910
49	food production	-0.04775	0.04194	0.00833
50	resource scarcity	-0.01038	0.00106	0.67749

Table A_{4b}. Category "Policy/Management" positive trends (20 terms).

a/a	Policy Management-negative trends	Slope	R^2	P-Value
1	contaminated water	0.00920	0.00113	0.66789
2	resource efficiency	0.01393	0.00442	0.39623
3	responsible consumption	0.01643	0.00337	0.45894
4	fish stock	0.02440	0.01586	0.10812
5	extinction	0.03972	0.02773	0.03307
6	aesthetic value	0.05369	0.03750	0.01297
7	overexploitation	0.08324	0.05058	0.00379
8	pest control	0.09208	0.08162	0.00021
9	red list	0.10051	0.07774	0.00030
10	overgrazing	0.10124	0.08443	0.00015
11	reuse	0.11115	0.31930	0.00000
12	waste to energy	0.13653	0.22246	0.00000
13	IPCC	0.14930	0.20093	0.00000
14	loss of biodiversity	0.14969	0.16497	0.00000
15	IPBES	0.17041	0.10354	0.00073
16	energy from fossil fuels	0.25787	0.30132	0.00000
17	zero waste	0.27030	0.61704	0.00000
18	aichi targets	0.29491	0.21007	0.00001
19	food waste	0.34902	0.78910	0.00000
20	climate denial	0.35319	0.63283	0.00000

Table I_5. Category "Environment" (47 terms).

a/a	Environment	Slope	R^2	P-Value
1	acid precipitation	-0.10617	0.10655	0.00002
2	atmosphere	-0.08840	0.17198	0.00000
3	bioenergy	-0.31228	0.59662	0.00000
4	C	0.00177	0.00038	0.80434
5	carbon dioxide	-0.12252	0.13670	0.00000
6	CFCs	-0.17023	0.34976	0.00000
7	climate	-0.22725	0.45932	0.00000
8	Climate Change	0.05936	0.04815	0.00475
9	climate regulation	-0.05880	0.04356	0.00714
10	CO	0.33077	0.78671	0.00000
11	CO_2	-0.03698	0.03172	0.02210
12	coal	-0.12010	0.44459	0.00000
13	el nino	-0.07637	0.07965	0.00024
14	emissions of	-0.16344	0.32857	0.00000
15	emissions of CO_2	-0.00164	0.00002	0.95056
16	environment	-0.28230	0.76787	0.00000
17	environmental impact	-0.20191	0.48875	0.00000
18	environmental variation	0.06349	0.03560	0.01554
19	extreme events	-0.11261	0.29230	0.00000
20	extreme natural events	-0.07373	0.03879	
21	fossil fuels	-0.14403	0.16059	0.00000
22	GHGs	-0.03613	0.01376	0.13346
23	global warming	-0.22091	0.34486	0.00000
24	Greenhouse effect	-0.26932	0.50944	0.00000
25	Greenhouse gases	-0.08804	0.07379	
26	halocarbons	-0.14686	0.40587	0.00000
27	hurricane	-0.00181	0.00009	0.90581
28	ice	-0.05699	0.12591	0.00000
29	methane	-0.22572	0.52734	0.00000
30	natural gas	-0.19979	0.69116	0.00000
31	natural resources	-0.34985	0.74238	0.00000
32	nitrous oxide	-0.24054	0.58874	0.00000
33	ocean warming	-0.16925	0.25506	0.00000
34	ozone	-0.25273	0.61365	0.00000
35	ozone hole	-0.34273	0.64692	0.00000
36	planetary albedo	-0.17563	0.27941	0.00000
37	pollination	-0.03003	0.01025	0.19560
38	raw materials	-0.06313	0.05358	0.00278
39	sea level rise	0.11639	0.14361	0.00000
40	sea surface temperature	-0.29772	0.64852	0.00000
41	soil formation	0.04209	0.02003	0.06980

a/a	Environment	Slope	R^2	P-Value
42	solar energy	-0.22635	0.56194	0.00000
43	stratosphere	-0.16544	0.43646	0.00000
44	thermohaline circulation	-0.23033	0.43712	0.00000
45	troposphere	0.03697	0.01203	0.16082
46	UV radiation	-0.18105	0.35860	0.00000
47	weather	0.19926	0.56187	0.00000
	AVERAGE	**-0.11287**	**0.30703**	

Table I_{5a}. Category "Environment" negative trends (38 terms).

a/a	Environment-negative trends	Slope	R^2	P-Value
1	acid precipitation	-0.10617	0.10655	0.00002
2	natural resources	-0.34985	0.74238	0.00000
3	ozone hole	-0.34273	0.64692	0.00000
4	bioenergy	-0.31228	0.59662	0.00000
5	sea surface temperature	-0.29772	0.64852	0.00000
6	environment	-0.28230	0.76787	0.00000
7	Greenhouse effect	-0.26932	0.50944	0.00000
8	ozone	-0.25273	0.61365	0.00000
9	nitrous oxide	-0.24054	0.58874	0.00000
10	thermohaline circulation	-0.23033	0.43712	0.00000
11	climate	-0.22725	0.45932	0.00000
12	solar energy	-0.22635	0.56194	0.00000
13	methane	-0.22572	0.52734	0.00000
14	global warming	-0.22091	0.34486	0.00000
15	environmental impact	-0.20191	0.48875	0.00000
16	natural gas	-0.19979	0.69116	0.00000
17	UV radiation	-0.18105	0.35860	0.00000
18	planetary albedo	-0.17563	0.27941	0.00000
19	CFCs	-0.17023	0.34976	0.00000
20	ocean warming	-0.16925	0.25506	0.00000
21	stratosphere	-0.16544	0.43646	0.00000
22	emissions of	-0.16344	0.32857	0.00000
23	halocarbons	-0.14686	0.40587	0.00000
24	fossil fuels	-0.14403	0.16059	0.00000
25	carbon dioxide	-0.12252	0.13670	0.00000
26	coal	-0.12010	0.44459	0.00000
27	extreme events	-0.11261	0.29230	0.00000
28	atmosphere	-0.08840	0.17198	0.00000

a/a	Environment-negative trends	Slope	R^2	P-Value
29	Greenhouse gases	-0.08804	0.07379	
30	el nino	-0.07637	0.07965	0.00024
31	extreme natural events	-0.07373	0.03879	
32	raw materials	-0.06313	0.05358	0.00278
33	climate regulation	-0.05880	0.04356	0.00714
34	CO2	-0.03698	0.03172	0.02210
35	GHGs	-0.03613	0.01376	0.13346
36	pollination	-0.03003	0.01025	0.19560
37	hurricane	-0.00181	0.00009	0.90581
38	emissions of CO2	-0.00164	0.00002	0.95056

Table I_{5b}. Category "Environment" positive trends (9 terms).

a/a	Environment-positive trends	Slope	R^2	P- Value
1	C	0.00177	0.00038	0.80434
2	troposphere	0.03697	0.01203	0.16082
3	soil formation	0.04209	0.02003	0.06980
4	ice	0.05699	0.12591	0.00000
5	Climate Change	0.05936	0.04815	0.00475
6	environmental variation	0.06349	0.03560	0.01554
7	sea level rise	0.11639	0.14361	0.00000
8	weather	0.19926	0.56187	0.00000
9	CO	0.33077	0.78671	0.00000

Table I_6. Category "Economy" (15 terms).

a/a	Economy	Slope	R^2	P- Value
1	agriculture	-0.21442	0.50156	0.00000
2	transports	-0.45197	0.89040	0.00000
3	fisheries	-0.36086	0.82989	0.00000
4	industrial ecology	-0.33419	0.71016	0.00000
5	industry	-0.30966	0.72728	0.00000
6	ecotourism	-0.30192	0.67854	0.00000
7	bioeconomics	-0.22037	0.47669	0.00000
8	public transport	-0.19867	0.62415	0.00000
9	industrial symbiosis	-0.15732	0.28494	0.00000
10	industrial park	-0.15114	0.47942	0.00000
11	industrial emissions	-0.12809	0.16112	0.00000
12	low carbon economy	-0.01373	0.00127	0.65000
13	livestock	0.00651	0.00096	0.69232

a/a	Economy	Slope	R^2	P- Value
14	natural capital	0.06179	0.05815	0.00181
15	circular economy	0.37004	0.61177	0.00000
	AVERAGE	**-0.16027**	**0.46909**	

Table I_{6a}. Category "Economy" negative trends (12 terms).

a/a	Economy- negative trends	Slope	R^2	P- Value
1	agriculture	-0.21442	0.50156	0.00000
2	transports	-0.45197	0.89040	0.00000
3	fisheries	-0.36086	0.82989	0.00000
4	industrial ecology	-0.33419	0.71016	0.00000
5	industry	-0.30966	0.72728	0.00000
6	ecotourism	-0.30192	0.67854	0.00000
7	bioeconomics	-0.22037	0.47669	0.00000
8	public transport	-0.19867	0.62415	0.00000
9	industrial symbiosis	-0.15732	0.28494	0.00000
10	industrial park	-0.15114	0.47942	0.00000
11	industrial emissions	-0.12809	0.16112	0.00000
12	low carbon economy	-0.01373	0.00127	0.65000

Table I_{6b}. Category "Economy" positive trends (3 terms).

a/a	Economy- negative trends	Slope	R^2	P- Value
1	livestock	0.00651	0.00096	0.69232
2	natural capital	0.06179	0.05815	0.00181
3	circular economy	0.37004	0.61177	0.00000

Appendix II. A new Culturome - terms with highest public interest decrease. Reference time period 2004-2017.

Appendix II	Term or phrase	slope	r^2	P-value
1	transports	-0.45197	0.89040	0.00000
2	Natura 2000	-0.39476	0.82272	0.00000
3	fish conservation	-0.38392	0.79081	0.00000
4	CITES	-0.37923	0.82322	0.00000
5	UNEP	-0.36523	0.83528	0.00000
6	fisheries	-0.36086	0.82989	0.00000
7	natural resources	-0.34985	0.74238	0.00000
8	tropical rain forest	-0.34829	0.57395	0.00000
9	wildlife	-0.34704	0.82556	0.00000
10	ozone hole	-0.34273	0.64692	0.00000
11	preservation	-0.33840	0.79331	0.00000
12	ecology	-0.33806	0.74796	0.00000
13	Caulerpa taxifolia	-0.33794	0.61877	0.00000
14	industrial ecology	-0.33419	0.71016	0.00000
15	wetlands	-0.32830	0.67909	0.00000
16	conservation	-0.31760	0.76935	0.00000
17	forests	-0.31699	0.66021	0.00000
18	bioenergy	-0.31228	0.59662	0.00000
19	industry	-0.30966	0.72728	0.00000
20	ecological footprint	-0.30476	0.54189	0.00000
21	endangered species	-0.30220	0.60629	0.00000
22	waste treatment	-0.30205	0.75653	0.00000
23	ecotourism	-0.30192	0.67854	0.00000
24	national parks	-0.29804	0.57974	0.00000
25	sea surface temperature	-0.29772	0.64852	0.00000
26	threatened species	-0.29643	0.60207	0.00000
27	genetic resources	-0.29399	0.67919	0.00000
28	biological invasions	-0.29196	0.62153	0.00000

Appendix II	Term or phrase	slope	r^2	P-value
29	applied ecology	-0.29101	0.76615	0.00000
30	meteorology	-0.29082	0.56755	0.00000
31	estuaries	-0.28779	0.45923	0.00000
32	gizzly bear	-0.28664	0.46380	0.00000
33	protected areas	-0.28291	0.14287	0.00000
34	environment	-0.28230	0.76787	0.00000
35	migratory species	-0.28201	0.61165	0.00000
36	erosion control	-0.27859	0.72221	0.00000
37	animal ecology	-0.27693	0.66403	0.00000
38	biological controls	-0.27131	0.62411	000000
39	convention on biological diversity	-0.26962	0.60520	0.00000
40	Greenhouse effect	-0.26932	0.50944	0.00000

Appendix III. A new Culturome - terms with highest public interest increase. Reference time period 2004-2017.

Appendix III	Term or phrase	slope	r^2	P-value
1	circular economy	0.37004	0.61177	0.00000
2	ecosystem services	0.36969	0.66036	0.00000
3	climate denial	0.35319	0.63283	0.00000
4	food waste	0.34902	0.78910	0.00000
5	CO	0.33077	0.78671	0.00000
6	aichi targets	0.29491	0.21007	0.00001
7	zero waste	0.27030	0.61704	0.00000
8	energy from fossil fuels	0.25787	0.30132	0.00000
9	species populations	0.24082	0.37344	0.00000
10	critically endangered species	0.23233	0.28427	0.00000
11	endemic species	0.22757	0.44028	0.00000
12	african elephant	0.20664	0.39349	0.00000

Appendix III	Term or phrase	slope	r^2	P-value
13	weather	0.19926	0.56187	0.00000
14	herbivores	0.19641	0.24826	0.00000
15	grey wolf	0.19609	0.44226	0.00000
16	biocapacity	0.18198	0.25812	0.00000
17	habitat change	0.17848	0.25860	0.00000
18	detritivores	0.17481	0.15855	0.00000
19	IPBES	0.17041	0.10354	0.00073
20	trophic levels	0.15284	0.10894	0.00002
21	loss of biodiversity	0.14969	0.16497	0.00000
22	IPCC	0.14930	0.20093	0.00000
23	waste to energy	0.13653	0.22246	0.00000
24	species interactions	0.13274	0.11762	0.00001
25	ecosystem resources	0.11794	0.12686	0.00000
26	evolution of species	0.11712	0.08887	0.00011
27	organisms	0.11667	0.07541	0.00037
28	sea level rise	0.11639	0.14361	0.00000
29	reuse	0.11115	0.31930	0.00000
30	overgrazing	0.10124	0.08443	0.00015
31	red list	0.10051	0.07774	0.00030
32	pest control	0.09208	0.08162	0.00021
33	tundra	0.08458	0.11369	0.00001
34	overexploitation	0.08324	0.05058	0.00379
35	communities and ecosystems	0.08208	0.04006	0.01018
36	decomposers	0.07814	0.03117	0.02374
37	photosynthesis	0.06370	0.02415	0.04693

Appendix III	Term or phrase	slope	r^2	P-value
38	environmental variation	0.06349	0.03560	0.01554
39	natural capital	0.06179	0.05815	0.00181
40	Climate Change	0.05936	0.04815	0.00475

Appendix IV. A new Culturome - the most timeless terms. Reference time period from 2004-2017.

Appendix IV	Term or phrase	slope	r^2	P-value
1	raw materials	-0.06313	0.05358	0.00278
2	sea turtle	-0.06036	0.05654	0.00217
3	climate regulation	-0.05880	0.04356	0.00714
4	species composition	-0.05122	0.04125	0.00910
5	food production	-0.04775	0.04194	0.00833
6	key stone species	-0.04634	0.03190	0.02213
7	CO_2	-0.03698	0.03172	0.02210
8	predation	-0.03693	0.01177	0.16668
9	GHGs	-0.03613	0.01376	0.13346
1	artic sea	-0.03312	0.03932	0.01067
2	ecosystem capital	-0.03265	0.01215	0.16002
3	pollination	-0.03003	0.01025	0.19560
4	terrestrial ecosystems	-0.02808	0.00904	0.22577
5	passenger pigeon	-0.02488	0.00781	0.26050
6	ocean	-0.02420	0.01562	0.10970
7	invasive species	-0.01503	0.00184	0.58510
8	low carbon economy	-0.01373	0.00127	0.65000
9	resource scarcity	-0.01038	0.00106	0.67749
10	hurricane	-0.00181	0.00009	0.90581
11	emissions of CO_2	-0.00164	0.00002	0.95056

Appendix IV	Term or phrase	slope	r^2	P-value
1	raw materials	-0.06313	0.05358	0.00278
2	sea turtle	-0.06036	0.05654	0.00217
12	C	0.00177	0.00038	0.80434
13	livestock	0.00651	0.00096	0.69232
14	ecosystem sustainability	0.00688	0.00034	0.81359
15	ecological niche	0.00815	0.00052	0.77295
16	contaminated water	0.00920	0.00113	0.66789
17	resource efficiency	0.01393	0.00442	0.39623
18	responsible consumpsion	0.01643	0.00337	0.45894
19	alligators	0.02246	0.01453	0.12416
20	fish stock	0.02440	0.01586	0.10812

Appendix V: Andrew et al. (2016) sustainability-related collection of terms *Δ*slope calculations.

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
1	acres magazine	0.00300	-0.26799	-0.14648	0.27099	0.14948
2	agenda 21	0.00523	0.19925	0.07683	-0.19402	-0.07160
3	agroecology	0.04581	-0.18285	-0.12452	0.22866	0.17033
4	alternative agriculture	-0.00771				
5	alternative energy	-0.00758	-0.25286	-0.27836	0.24528	0.27078
6	alternative fuel	-0.00807	-0.40340	-0.30768	0.39533	0.29961
7	apple picking	-0.00038	0.05911	0.03491	-0.05949	-0.03529
8	aquaponics	0.01650	0.54492	0.42573	-0.52842	-0.40923

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
9	back home magazine	-0.01050	-0.42749	-0.27390	0.41699	0.26340
10	back to the land	0.02290	0.37838	0.25391	-0.35548	-0.23101
11	back woods home magazine	-0.02640	0.00000	0.00000	-0.02640	-0.02640
12	biodegradable	0.04090	0.04590	0.03311	-0.00499	0.00780
13	biodynamic farming	0.05483	-0.09016	-0.20511	0.14499	0.25995
14	biofuel	0.00342	0.09638	-0.08473	-0.09296	0.08815
15	blue bag	0.01371	0.44861	-0.08473	-0.43491	0.09844
16	boer goats	-0.00314	-0.19258	-0.20882	0.18944	0.20568
17	canning	0.00475	0.16972	0.06659	-0.16497	-0.06184
18	canning fruit	-0.00528	-0.08637	-0.11861	0.08109	0.11333
19	canning meat	0.04607	0.29549	0.09451	-0.24942	-0.04844
20	canning vegetables	0.00541	-0.07041	-0.10477	0.07582	0.11018
21	carbon credit	-0.01503	0.05785	-0.07379	-0.07288	0.05876
22	carbon footprint	0.00309	0.17253	0.02455	-0.16944	-0.02146
23	carbon neutral	-0.08490	-0.02011	-0.02335	-0.06479	-0.06155
24	carbon trading	-0.02038	-0.10445	-0.19494	0.08407	0.17456
25	carefree city	-0.05025				
26	carpool	0.00300	0.00691	0.17262	-0.00391	-0.16962
27	certified organic	0.00464	-0.00674	0.17370	0.01138	-0.16906
28	cheesemaking	-0.00897	-0.15388	-0.32364	0.14491	0.31467
29	Chevy Volt	0.00508	0.45206	0.15792	-0.44698	-0.15284
30	chick hatchery	0.03470	0.00172	-0.06865	0.03298	0.10334
31	chicken coop	0.01382	0.43759	0.32265	-0.42377	-0.30883

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
32	chicken plucker	0.02853	0.50492	0.33386	-0.47639	-0.30533
33	climate deniers	0.15519	0.46185	0.33917	-0.30665	-0.18398
34	climate skeptics	-0.00876	0.20764	0.07343	-0.21640	-0.08219
35	community garden	0.00508	0.20764	0.07343	-0.20257	-0.06836
36	community gardens	0.00444	0.06493	-0.06885	-0.06049	0.07329
37	community supported agriculture	-0.00145	-0.44381	-0.42226	0.44236	0.42081
38	community sustainable agriculture	-0.00706	0.00000	0.00000	-0.00706	-0.00706
39	companion planting	0.01076	0.17314	0.11205	-0.16239	-0.10130
40	compost	0.00221	0.08113	0.03259	-0.07892	-0.03038
41	compost tea	0.01270	0.14751	0.07357	-0.13481	-0.06086
42	composting	-0.00134	-0.03412	-0.08919	0.03278	0.08785
43	composting toilet	0.00835	0.04965	0.26121	-0.04131	-0.25286
44	composting toilets	0.00384	-0.40733	-0.28939	0.41117	0.29322
45	conserve	0.00595	0.19266	0.14323	-0.18672	-0.13728
46	countryside magazine	0.00090	-0.41244	-0.37424	0.41333	0.37514
47	cradle to cradle design	0.05140	-0.15387	-0.13731	0.20527	0.18871
48	crop rotation	0.00991	-0.01311	0.09665	0.02302	-0.08674
49	deep ecology	-0.05016	-0.25024	-0.26940	0.20008	0.21924
50	dehydrating food	0.06665	0.13997	-0.01201	-0.07332	0.07867
51	depopulation	0.00995	0.27121	0.14753	-0.26126	-0.13758
52	desertification	0.00056	-0.14622	-0.01799	0.14677	0.01854
53	do it yourself solar	0.00190	-0.18902	-0.22520	0.19092	0.22710
54	E85	-0.00160	-0.08262	-0.03176	0.08102	0.03016

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	⊿slope (Original - Recalculated 2004-2013 GTs)	⊿slope (Original - Recalculated 2004-2017 GTs)
55	earth charter	0.01847	-0.39765	-0.27711	0.41612	0.29558
56	eat local	0.02197	0.63561	0.40819	-0.61364	-0.38622
57	eco friendly	-0.00958	0.32814	0.00000	-0.33772	-0.00958
58	eco friendly bag	-0.07733	0.16846	-0.00699	-0.24579	-0.07034
59	eco friendly clothing	-0.00958	0.20231	-0.01367	-0.21189	0.00409
60	eco friendly gifts	-0.03895	0.06170	-0.05275	-0.10065	0.01380
61	eco friendly homes	-0.05546	0.16515	0.00581	-0.22061	-0.06127
62	ecofriendly	-0.00958	0.19570	-0.02877	-0.20528	0.01919
63	ecological footprint	-0.00258	-0.21576	-0.10440	0.21318	0.10182
64	ecological services	0.01340	-0.15359	-0.15804	0.16699	0.17144
65	ecosystem services	0.13399	0.40773	0.29301	-0.27374	-0.15902
66	ecovillage	-0.00715	-0.35676	-0.33255	0.34961	0.32540
67	electric cars	0.00079	0.02493	-0.02558	-0.02414	0.02636
68	emissions trading	-0.06306	-0.54367	-0.41851	0.48061	0.35545
69	energy efficiency	0.00220	0.06999	-0.10194	-0.06779	0.10414
70	energy star	0.01729	0.00302	-0.14425	0.01426	0.16154
71	environmental enterprise	0.01729				
72	environmental finance	0.03206	-0.13714	-0.18883	0.16920	0.22089
73	Environmental Management	-0.01119	-0.43411	-0.34513	0.42292	0.33394
74	environmental metering	-0.00305				
75	environmental performance index	-0.00043	-0.00862	-0.00388	0.00819	0.00345
76	environmental quality	-0.00824	-0.60281	-0.41387	0.59457	0.40563
77	environmental security	0.00990	-0.27222	-0.17190	0.28212	0.18180

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	⊿slope (Original - Recalculated 2004-2013 GTs)	⊿slope (Original - Recalculated 2004-2017 GTs)
78	environmentalism	-0.00701	-0.28990	-0.20613	0.28289	0.19912
79	environmentally friendly	-0.00516	-0.19216	-0.21464	0.18700	0.20948
80	fairtrade	0.00085	-0.15131	-0.15946	0.15216	0.16031
81	family cow	0.01084	0.24776	0.09514	-0.23692	-0.08430
82	farmers market	0.14258	0.42716	0.31329	-0.28458	-0.17071
83	farmers markets	0.00623	0.19608	0.03495	-0.18985	-0.02872
84	feed-in tariff	-0.17012	0.31265	-0.01100	-0.48277	-0.15912
85	food COOP	0.00326	0.12493	-0.07820	-0.12167	0.08146
86	food cooperative	0.01080	-0.24206	-0.26153	0.25286	0.27233
87	food dehydrator	0.00809	0.26612	0.05858	-0.25804	-0.05049
88	food miles	0.02050	0.47155	0.39701	-0.45105	-0.37651
89	food preservation	0.00940	-0.13170	-0.11488	0.14111	0.12428
90	food race	0.00601	0.19906	0.11106	-0.19304	-0.10505
91	free range	0.00476	0.20923	0.11221	-0.20447	-0.10745
92	freezing fruit	0.02536	-0.05398	-0.03268	0.07935	0.05804
93	freezing vegetables	-0.00681	-0.10662	-0.09352	0.09981	0.08671
94	fruit trees	0.00250	0.05962	0.10703	-0.05712	-0.10452
95	fuel cell	-0.00964	-0.42841	-0.29181	0.41877	0.28217
96	garden seeds	0.00044	-0.06090	-0.07232	0.06134	0.07276
97	gardening	-0.00798	-0.28633	-0.22510	0.27835	0.21712
98	gardening books	0.00905	-0.23700	-0.24963	0.24605	0.25868
99	gardening magazines	-0.03622	-0.37118	-0.35621	0.33496	0.31999
100	geothermal	-0.00350	-0.09369	-0.16189	0.09019	0.15839

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	⊿slope (Original - Recalculated 2004-2013 GTs)	⊿slope (Original - Recalculated 2004-2017 GTs)
101	going green	0.00087	0.19388	-0.00059	-0.19301	0.00146
102	grass fed	0.02415	0.68484	0.51965	-0.66068	-0.49550
103	gray water systems	-0.09281	-0.17501	-0.21810	0.08220	0.12529
104	green accounting	0.01702	0.06743	0.04009	-0.05041	-0.02306
105	green building	-0.01043	-0.25989	-0.30769	0.24946	0.29726
106	green buildings	-0.09800	-0.29859	-0.30882	0.20059	0.21082
107	green business	-0.01331	0.12466	-0.05994	-0.13797	0.04663
108	green economy	-0.01063	0.20981	0.02053	-0.22044	-0.03116
109	green energy	0.01254	0.41477	0.08283	-0.40223	-0.07029
110	green homes	0.00540	0.13524	0.07808	-0.12984	-0.07269
111	green jobs	0.00640	0.33383	0.08408	-0.32742	-0.07767
112	green living	0.00537	0.22670	0.05289	-0.22133	-0.04752
113	green manure	0.05920	-0.13304	-0.12871	0.19223	0.18791
114	green mba	-0.06264	-0.01050	-0.15989	-0.05214	0.09725
115	Green Peace	-0.01022	-0.40951	-0.40231	0.39929	0.39209
116	green politics	-0.00887	-0.16483	-0.16483	0.15596	0.15596
117	green roof	-0.04670	-0.01574	-0.07446	-0.03096	0.02776
118	green space	0.00436	0.05616	0.10293	-0.05180	-0.09857
119	green technology	0.01000	0.11453	-0.11350	-0.10453	0.12350
120	green trading	0.00134	-0.00464	-0.06154	0.00598	0.06288
121	green transportation	-0.11339	-0.00318	-0.09364	-0.11021	-0.01975
122	grit magazine	0.11540	0.00112	-0.04606	0.11429	0.16146
123	grow your own	0.01050	0.36996	0.12675	-0.35947	-0.11626

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
124	growing vegetables	0.00764	0.13615	0.04587	-0.12851	-0.03823
125	hair sheep	0.02437	0.03329	0.17360	-0.00891	-0.14923
126	hatching eggs	0.00380	0.04527	0.07266	-0.04147	-0.06886
127	heritage breeds	0.01242	-0.06221	-0.04391	0.07463	0.05633
128	hobby farm	0.00640	0.15471	0.05615	-0.14831	-0.04975
129	hobby farms magazine	-0.00240	-0.32058	-0.26144	0.31818	0.25904
130	home dairy	0.01636	0.06887	0.14548	-0.05251	-0.12912
131	home grown	0.00180	0.16164	-0.02405	-0.15984	0.02585
132	home livestock	-0.02128				
133	home made	-0.00358	-0.09974	-0.16944	0.09616	0.16586
134	home vegetable garden	0.02590	0.08936	0.03878	-0.06346	-0.01288
135	homesteading	-0.02450	-0.07074	-0.08917	0.04624	0.06467
136	horticultural oil	-0.00176	-0.11931	-0.03173	0.11755	0.02997
137	how to butcher a chicken	-0.00588	0.39638	0.24026	-0.40226	-0.24614
138	human development index	0.00024	-0.14021	-0.11980	0.14045	0.12004
139	human population growth	0.01287	0.13389	0.18100	-0.12102	-0.16813
140	hybrid cars	-0.00660	-0.29377	-0.23929	0.28717	0.23269
141	hybrid vehicle	0.01028	-0.43534	-0.34890	0.44562	0.35919
142	hydrogen technologies	-0.02113	-0.06213	-0.04544	0.04100	0.02431
143	IFOAM	0.00366	-0.45172	-0.26186	0.45538	0.26552
144	incinolet	-0.01463	-0.26519	-0.18285	0.25056	0.16822
145	industrial agriculture	0.01355	-0.01419	0.11114	0.02774	-0.09759
146	industrial ecology	-0.08188	-0.22221	-0.26449	0.14033	0.18261

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	Δslope (Original - Recalculated 2004-2013 GTs)	Δslope (Original - Recalculated 2004-2017 GTs)
147	insecticidal soap	0.00927	0.01262	0.00434	-0.00334	0.00494
148	integrated pest management	-0.03965	-0.26083	-0.22980	0.22118	0.19015
149	intercropping	0.06256	-0.12915	-0.07277	0.19171	0.13533
150	IPM	-0.00493	-0.25354	-0.13008	0.24861	0.12515
151	LEED	0.00216	0.06684	-0.11219	-0.06468	0.11435
152	LEED certification	-0.00346	0.15495	-0.07524	-0.15841	0.07178
153	Leopold Center	0.01298	-0.17885	-0.19736	0.19184	0.21034
154	light rail	0.00397	0.18970	0.14612	-0.18573	-0.14215
155	limits to growth	0.00118	-0.01547	-0.00419	0.01664	0.00537
156	littering	0.00001	-0.04834	-0.02692	0.04835	0.02693
157	local farms	0.00511	0.57370	0.32542	-0.56859	-0.32032
158	local food	0.01318	0.58038	0.38439	-0.56720	-0.37120
159	local harvest	0.00153	0.54092	0.00597	-0.53939	-0.00444
160	locavore	0.00067	0.67519	0.31215	-0.67452	-0.31148
161	low carbon	0.00831	0.23528	0.17687	-0.22697	-0.16857
162	making cheese	-0.00141	0.05262	-0.06089	-0.05403	0.05948
163	meat goats	0.00457	-0.15102	-0.12324	0.15558	0.12781
164	milking a goat	0.11912	-0.04156	-0.02722	0.16068	0.14634
165	most fuel efficient vehicles	-0.03366	-0.09461	-0.09299	0.06095	0.05933
166	Mother Earth News	-0.00486	-0.11826	-0.29189	0.11340	0.28703
167	mulch	0.00277	0.06151	0.10033	-0.05875	-0.09757
168	mulching	-0.00148	-0.07534	0.02719	0.07386	-0.02867
169	National Organic Program	0.01519	-0.38771	-0.26071	0.40290	0.27590

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	Δslope (Original - Recalculated 2004-2013 GTs)	Δslope (Original - Recalculated 2004-2017 GTs)
170	National Sustainable Agriculture	0.06376				
171	natural capital	0.00989	0.16544	0.16775	-0.15556	-0.15787
172	natural food	0.00044	-0.00273	-0.03040	0.00317	0.03084
173	NEEM	0.00327	0.16438	0.17520	-0.16111	-0.17192
174	net metering	-0.00305	0.00265	0.21578	-0.00570	-0.21883
175	new urbanism	-0.01437	-0.60784	-0.42065	0.59347	0.40628
176	Nissan Leaf	0.00840	0.48121	0.25518	-0.47280	-0.24678
177	off the grid	0.01981	0.69805	0.50987	-0.67824	-0.49006
178	organic agriculture	0.00211	-0.34427	-0.27038	0.34638	0.27248
179	organic beef	-0.00054	-0.07007	-0.04983	0.06953	0.04929
180	organic certification	0.00053	-0.16131	-0.18961	0.16184	0.19014
181	organic cheese	0.01575	0.29388	0.21568	-0.27813	-0.19993
182	organic chicken	0.01552	0.47110	0.39988	-0.45557	-0.38435
183	organic dairy	-0.00420	-0.18578	-0.13724	0.18158	0.13304
184	organic eating	0.01435	0.30339	0.18167	-0.28905	-0.16732
185	organic farming	-0.00806	0.30509	-0.29476	-0.31315	0.28670
186	organic flour	0.00828	0.34925	0.34569	-0.34098	-0.33741
187	organic food	-0.00073	-0.02853	-0.06582	0.02780	0.06509
188	organic foods	-0.00248	-0.06602	-0.10865	0.06354	0.10617
189	organic fruit	0.00514	0.08864	0.13972	-0.08350	-0.13459
190	Organic Gardening	-0.00857	0.30509	-0.32013	-0.31366	0.31156
191	organic gardening magazine	-0.00905	-0.21818	-0.34737	0.20913	0.33832
192	organic grain	0.00345	0.17638	0.17252	-0.17293	-0.16907

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
193	organic juice	0.01218	0.45955	0.46655	-0.44737	-0.45438
194	organic milk	0.00847	0.34651	0.29259	-0.33805	-0.28412
195	organic pork	0.02922	-0.00054	0.05066	0.02976	-0.02145
196	organic poultry	0.01249	-0.32235	-0.20369	0.33484	0.21618
197	organic produce	-0.00058	-0.11329	-0.10400	0.11271	0.10342
198	organic sustainable agriculture	-0.05319				
199	organic vegetables	0.00647	0.10250	0.06598	-0.09603	-0.05951
200	overpopulation	-0.00730	-0.31240	-0.18896	0.30510	0.18166
201	Park and Ride	0.00274	0.12062	0.11117	-0.11788	-0.10844
202	passive solar	-0.00802	-0.43988	-0.32837	0.43186	0.32035
203	permaculture	0.00499	0.21338	0.07303	-0.20839	-0.06804
204	pick your own	0.00155	0.04393	-0.00719	-0.04238	0.00875
205	public ecology	0.02626				
206	Pyrethrum	0.00517	-0.14896	-0.11647	0.15412	0.12164
207	rain garden	0.00763	0.11605	0.03788	-0.10841	-0.03024
208	rainwater harvesting	0.00015	0.27957	0.07594	-0.27942	-0.07580
209	raise your own	-0.00562				
210	recycling	0.00379	0.16094	0.08333	-0.15715	-0.07954
211	reduce waste	0.01032	0.19010	0.18726	-0.17978	-0.17693
212	renewable energy	-0.00067	-0.01252	-0.06360	0.01185	0.06293
213	Resilience	0.01670	0.55179	0.40739	-0.53509	-0.39069
214	resource depletion	0.02368	-0.24315	-0.08083	0.26683	0.10451
215	RFDTV	-0.00378	-0.28232	-0.20330	0.27854	0.19952

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	Δslope (Original - Recalculated 2004-2013 GTs)	Δslope (Original - Recalculated 2004-2017 GTs)
216	Rodale Institute	-0.02872	-0.04632	-0.09426	0.01760	0.06554
217	rooftop gardens	0.00784	0.03075	-0.01898	-0.02291	0.02682
218	Rotenone -fish	0.00289				
219	rototiller	0.00339	0.01015	0.02542	-0.00676	-0.02204
220	save gas	0.00305	0.08978	0.01782	-0.08673	-0.01477
221	save the planet	0.00025	-0.12602	-0.14400	0.12627	0.14425
222	saving water	0.00748	-0.03560	-0.00642	0.04308	0.01390
223	seed catalog	-0.00078	-0.28973	-0.21473	0.28895	0.21395
224	seed catalogs	-0.00078	-0.19906	-0.18923	0.19828	0.18845
225	self reliance	0.00762	0.11747	0.06114	-0.10985	-0.05352
226	self sufficiency	-0.00344	0.05412	0.10794	-0.05756	-0.11138
227	self-sufficient	0.00015	0.16265	0.13730	-0.16250	-0.13715
228	Sheep	-0.00292	-0.14141	-0.00747	0.13849	0.00455
229	sheet mulching	0.12424	-0.11128	-0.02966	0.23552	0.15390
230	shelterbelt	0.02123	-0.19061	-0.18740	0.21184	0.20863
231	Silent Spring	-0.00056	-0.18710	-0.09682	0.18654	0.09626
232	Simple Living	-0.00705	-0.35041	-0.27342	0.34336	0.26637
233	Small Farm	0.00143	0.00717	0.09038	-0.00573	-0.08894
234	Smart Growth	-0.01343	-0.63428	-0.44780	0.62085	0.43437
235	solar panels	0.00510	0.18998	0.12825	-0.18488	-0.12315
236	solar shingle	0.00014	-0.29722	-0.24022	0.29735	0.24036
237	Solar Shingles	0.00071	-0.13377	-0.08460	0.13447	0.08531
238	solar water heater	0.00096	-0.02116	-0.14430	0.02212	0.14526

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	⊿slope (Original - Recalculated 2004-2013 GTs)	⊿slope (Original - Recalculated 2004-2017 GTs)
239	Spinosad	0.01867	0.32779	0.29749	-0.30912	-0.27883
240	starting seeds	0.06880	0.04235	0.03890	0.02645	0.02990
241	storing vegetables	0.01665	-0.12943	-0.06503	0.14608	0.08169
242	survivalism	-0.00153	-0.05163	-0.07200	0.05010	0.07047
243	sustainability	0.01045	0.42365	0.19965	-0.41320	-0.18920
244	sustainable	-0.00466	-0.13300	-0.16688	0.12834	0.16222
245	sustainable agriculture definition	-0.12068	-0.09865	0.06667	-0.02203	-0.18735
246	sustainable agriculture education	0.08428				
247	sustainable aquaculture	0.05247	-0.11538	-0.06916	0.16785	0.12164
248	sustainable architechture	-0.00369				
249	sustainable communities	-0.00522	0.00455	-0.19968	-0.00977	0.19446
250	sustainable design	-0.00333	-0.33059	-0.36795	0.32726	0.36462
251	Sustainable Development	-0.01058	-0.40233	-0.24041	0.39175	0.22983
252	Sustainable Energy	0.00434	-0.03726	-0.14136	0.04160	0.14570
253	sustainable farming	0.01108	-0.00822	0.01960	0.01930	-0.00852
254	sustainable food	0.01763	0.32193	0.12204	-0.30430	-0.10441
255	sustainable food systems	-0.04246	0.06456	-0.02034	-0.10702	-0.02212
256	sustainable infrastructure	-0.12973	0.02729	0.12232	-0.15702	-0.25205
257	sustainable living	0.00267	-0.13929	-0.25216	0.14196	0.25483
258	sustainable practice	0.07741			0.07741	0.07741
259	sustainable seafood	0.01447	0.26619	0.07629	-0.25172	-0.06181
260	sustainable tourism	-0.00926	-0.26904	-0.21457	0.25978	0.20531
261	sustainable yield	0.05558	-0.03319	0.03351	0.08877	0.02206

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	⊿slope (Original - Recalculated 2004-2013 GTs)	⊿slope (Original - Recalculated 2004-2017 GTs)
262	Tesla Model	0.00679	0.39372	0.18510	-0.38694	-0.17831
263	tesla model s	0.00667	0.39220	0.38579	-0.38553	-0.37912
264	tesla motors	0.00426	0.28503	0.14239	-0.28077	-0.13813
265	Tesla Roadster	0.00638	0.31670	0.05767	-0.31032	-0.05129
266	the human farm	0.02441				
267	The Nature Conservancy	-0.01104	-0.44500	-0.33395	0.43396	0.32291
268	time banking	0.00274	0.40831	0.30765	-0.40558	-0.30491
269	tiny houses	0.00493	0.59083	0.41214	-0.58590	-0.40721
270	tragedy of the commons	0.00417	0.16272	0.04599	-0.15855	-0.04182
271	transition towns	-0.11438	0.40097	0.02307	-0.51535	-0.13745
272	tripple bottom line	-0.00144	-0.10252	-0.05047	0.10108	0.04903
273	upcycling	0.04779	0.66887	0.54792	-0.62108	-0.50013
274	upick	0.00685	0.00504	0.03360	0.00181	-0.02675
275	urban farming	0.01123	0.67470	0.37830	-0.66347	-0.36708
276	urban oasis	0.00373	0.16268	0.06756	-0.15895	-0.06383
277	urban sprawl	-0.00588	-0.37792	-0.20985	0.37204	0.20397
278	Vegetable Seeds	0.00238	0.00457	-0.05845	-0.00220	0.06083
279	vertical farming	-0.00911	0.53962	0.39480	-0.54873	-0.40391
280	victory garden	-0.00477	-0.14796	-0.16025	0.14319	0.15548
281	walkability	-0.00605	0.46414	0.25526	-0.47019	-0.26131
282	What is Sustainability	0.02400	0.60014	0.42650	-0.57614	-0.40251
283	what is sustainable	0.02282	0.45867	0.39673	-0.43585	-0.37391
284	wind generator	-0.00496	-0.15074	-0.23527	0.14578	0.23031

	Andrew et al. (2016) Terms	Andrew et al. original GTs slope	Recalculated 2004-2013 GTs slope	Recalculated 2004-2017 GTs slope	*Δ*slope (Original - Recalculated 2004-2013 GTs)	*Δ*slope (Original - Recalculated 2004-2017 GTs)
285	wind power	-0.00653	-0.21648	-0.24747	0.20995	0.24094
286	wind turbine	0.00439	0.23596	0.03508	-0.23157	-0.03069
287	windmill	-0.00140	-0.06896	-0.02132	0.06756	0.01992
288	wood heat	0.00048	-0.02835	-0.00393	0.02883	0.00441
289	xeriscaping	0.00509	-0.27433	0.00000	0.27942	0.00509
290	You Pick	0.01732	0.66058	0.50732	-0.64327	-0.49001
291	zero population growth	0.00025	-0.23700	-0.09410	0.23725	0.09435

Appendix VI . Andrew et al. (2016) sustainability-related collection of terms**.** ED calculations.

$$ED = \sqrt{\Delta slope^2 + (\Delta r^2)^2}$$

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δr_1^2 initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	Δr_2^2 initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs
1	acres magazine	0.27099	-0.35230	0.14948	-0.37636	0.44446	0.40496
2	agenda 21	-0.19402	-0.08465	-0.07160	0.13002	0.21168	0.14843
3	agroecology	0.22866	0.00172	0.17033	-0.01237	0.22867	0.17078
4	alternative agriculture						
5	alternative energy	0.24528	-0.06467	0.27078	-0.31121	0.25366	0.41252
6	alternative fuel	0.39533	-0.14228	0.29961	-0.24465	0.42016	0.38681
7	apple picking	-0.05949	-0.00576	-0.03529	-0.00371	0.05977	0.03548
8	aquaponics	-0.52842	0.04269	-0.40923	0.05460	0.53014	0.41286
9	back home magazine	0.41699	-0.41463	0.26340	-0.52686	0.58805	0.58903
10	back to the land	-0.35548	0.02244	-0.23101	-0.05411	0.35618	0.23726
11	back woods home magazine	-0.02640	0.79300	-0.02640	0.79300	0.79344	0.79344
12	biodegradable	-0.00499	0.08284	0.00780	0.08275	0.08299	0.08312
13	biodynamic farming	0.14499	0.14739	0.25995	-0.20149	0.20675	0.32889
14	biofuel	-0.09296	0.01696	0.08815	-0.00137	0.09449	0.08816
15	blue bag	-0.43491	-0.23226	0.09844	0.56863	0.49304	0.57708
16	boer goats	0.18944	-0.24661	0.20568	-0.48187	0.31097	0.52394
17	canning	-0.16497	-0.00889	-0.06184	0.03238	0.16521	0.06981
18	canning fruit	0.08109	-0.01391	0.11333	-0.05959	0.08227	0.12805
19	canning meat	-0.24942	-0.17581	-0.04844	0.05620	0.30516	0.07419
20	canning vegetables	0.07582	-0.01351	0.11018	-0.07432	0.07701	0.13290

a/a	Andrew et al. (2016) Terms	$\Delta slope_1$ initial-recalculated 2004-2013 GTs	Δr_1^2 initial-recalculated 2004-2013 GTs	$\Delta slope_2$ initial-recalculated 2004-2017 GTs	Δr_2^2 initial-recalculated 2004-2017 GTs	ED_1 initial-recalculated 2004-2013 GTs	ED_2 initial-recalculated 2004-2017 GTs
21	carbon credit	-0.07288	0.53910	0.05876	0.51350	0.54400	0.51685
22	carbon footprint	-0.16944	-0.03327	-0.02146	0.04772	0.17268	0.05233
23	carbon neutral	-0.06479	0.24559	-0.06155	0.24280	0.25400	0.25048
24	carbon trading	0.08407	0.55064	0.17456	0.34618	0.55702	0.38770
25	carefree city						
26	carpool	-0.00391	-0.00008	-0.16962	-0.28726	0.00391	0.33360
27	certified organic	0.01138	0.15059	-0.16906	-0.14079	0.15102	0.22000
28	cheesemaking	0.14491	-0.09391	0.31467	-0.53892	0.17267	0.62406
29	Chevy Volt	-0.44698	-0.11396	-0.15284	0.20205	0.46128	0.25335
30	chick hatchery	0.03298	0.06399	0.10334	0.03884	0.07199	0.11040
31	chicken coop	-0.42377	-0.00611	-0.30883	-0.03888	0.42381	0.31127
32	chicken plucker	-0.47639	-0.25073	-0.30533	-0.26092	0.53834	0.40163
33	climate deniers	-0.30665	0.56963	-0.18398	0.59772	0.64693	0.62539
34	climate skeptics	-0.21640	-0.21735	-0.08219	-0.05261	0.30671	0.09759
35	community garden	-0.20257	-0.08335	-0.06836	0.08139	0.21905	0.10629
36	community gardens	-0.06049	0.03556	0.07329	0.00828	0.07017	0.07376
37	community supported agriculture	0.44236	-0.47857	0.42081	-0.67023	0.65170	0.79138
38	community sustainable agriculture	-0.00706	0.00200	-0.00706	0.00200	0.00734	0.00734
39	companion planting	-0.16239	0.13944	-0.10130	0.15767	0.21404	0.18740
40	compost	-0.07892	0.00329	-0.03038	0.02125	0.07899	0.03708
41	compost tea	-0.13481	0.34505	-0.06086	0.38037	0.37045	0.38521

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δr_1^2 initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	Δr_2^2 initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs
42	composting	0.03278	0.00496	0.08785	-0.09098	0.03316	0.12647
43	composting toilet	-0.04131	0.01177	-0.25286	-0.48157	0.04295	0.54392
44	composting toilets	0.41117	-0.54710	0.29322	-0.61456	0.68438	0.68093
45	conserve	-0.18671	-0.06787	-0.13728	-0.07034	0.19867	0.15425
46	countryside magazine	0.41333	-0.61695	0.37514	-0.73282	0.74261	0.82326
47	cradle to cradle design	0.20527	-0.02321	0.18871	-0.22159	0.20658	0.29106
48	crop rotation	0.02302	0.19350	-0.08674	0.13741	0.19486	0.16250
49	deep ecology	0.20008	0.18699	0.21924	-0.00736	0.27386	0.21936
50	dehydrating food	-0.07332	0.12557	0.07866	0.19767	0.14540	0.21275
51	depopulation	-0.26126	-0.31062	-0.13758	-0.25257	0.40588	0.28761
52	desertification	0.14677	-0.05758	0.01854	-0.00064	0.15766	0.01855
53	do it yourself solar	0.19092	-0.11097	0.22710	-0.30131	0.22083	0.37731
54	E85	0.08102	-0.00962	0.03016	0.01145	0.08159	0.03226
55	earth charter	0.41612	-0.49180	0.29558	-0.51281	0.64422	0.59190
56	eat local	-0.61364	-0.10189	-0.38622	-0.11148	0.62204	0.40198
57	eco friendly	-0.33772	-0.01235	-0.00958	0.23700	0.33795	0.23719
58	eco friendly bag	-0.24579	0.45999	-0.07034	0.54160	0.52154	0.54615
59	eco friendly clothing	-0.21189	0.10962	0.00409	0.23571	0.23856	0.23574
60	eco friendly gifts	-0.10065	0.15243	0.01380	0.14177	0.18267	0.14244
61	eco friendly homes	-0.22061	0.18758	-0.06127	0.30574	0.28958	0.31182
62	ecofriendly	-0.20528	-0.09254	0.01919	-0.00887	0.22518	0.02114
63	ecological footprint	0.21317	-0.13207	0.10182	-0.05592	0.25077	0.11617
64	ecological services	0.16699	-0.34637	0.17144	-0.36201	0.38453	0.40055

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δr_1^2 initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	Δr_2^2 initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs
65	ecosystem services	-0.27374	-0.34637	-0.15902	-0.36201	0.44148	0.39540
66	ecovillage	0.34961	-0.54810	0.32540	-0.68438	0.65011	0.75780
67	electric cars	-0.02414	0.00009	0.02636	-0.00761	0.02414	0.02744
68	emissions trading	0.48061	-0.27113	0.35545	-0.40642	0.55181	0.53993
69	energy efficiency	-0.06779	-0.00196	0.10414	-0.06901	0.06782	0.12493
70	energy star	0.01426	0.34894	0.16154	0.14170	0.34924	0.21488
71	environmental enterprise						
72	environmental finance	0.16920	-0.08863	0.22089	-0.37830	0.19101	0.43807
73	Environmental Management	0.42292	-0.14218	0.33394	-0.13029	0.44618	0.35846
74	environmental metering						
75	environmental performance index	0.00819	0.00623	0.00345	0.00665	0.01029	0.00749
76	environmental quality	0.59457	-0.17088	0.40563	-0.12655	0.61864	0.42491
77	environmental security	0.28212	-0.21219	0.18180	-0.25145	0.35301	0.31028
78	environmentalism	0.28289	-0.18663	0.19912	-0.22129	0.33890	0.29769
79	environmentally friendly	0.18700	-0.03812	0.20948	-0.25830	0.19084	0.33257
80	fairtrade	0.15216	-0.13154	0.16031	-0.27096	0.20113	0.31484
81	family cow	-0.23692	-0.07826	-0.08430	0.14118	0.24952	0.16443
82	farmers market	-0.28458	0.02154	-0.17071	0.07655	0.28540	0.18708
83	farmers markets	-0.18985	0.00271	-0.02872	0.07659	0.18987	0.08180
84	feed-in tariff	-0.48277	0.63930	-0.15912	0.81650	0.80110	0.83186
85	food COOP	-0.12167	-0.02312	0.08146	0.05258	0.12384	0.09696
86	food cooperative	0.25286	-0.01817	0.27233	-0.31569	0.25351	0.41692

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87	food dehydrator	-0.25804	-0.19122	-0.05049	0.19257	0.32117	0.19908
88	food miles	-0.45105	0.00869	-0.37651	-0.14102	0.45113	0.40206
89	food preservation	0.14111	0.20533	0.12428	0.11773	0.24914	0.17119
90	food race	-0.19304	-0.10826	-0.10505	-0.04749	0.22133	0.11528
91	free range	-0.20447	-0.19574	-0.10745	-0.09074	0.28306	0.14064
92	freezing fruit	0.07934	0.01461	0.05804	0.02192	0.08068	0.06204
93	freezing vegetables	0.09981	-0.02936	0.08671	-0.07492	0.10404	0.11459
94	fruit trees	-0.05712	0.01321	-0.10452	-0.06676	0.05863	0.12402
95	fuel cell	0.41877	-0.11648	0.28217	-0.10397	0.43466	0.30071
96	garden seeds	0.06134	-0.01203	0.07276	-0.03733	0.06251	0.08177
97	gardening	0.27835	-0.00686	0.21712	-0.08275	0.27843	0.23235
98	gardening books	0.24605	-0.20602	0.25868	-0.37075	0.32091	0.45208
99	gardening magazines	0.33496	-0.27104	0.31999	-0.55044	0.43088	0.63669
100	geothermal	0.09019	0.02869	0.15839	-0.13285	0.09464	0.20672
101	going green	-0.19301	-0.09619	0.00146	0.00400	0.21566	0.00426
102	grass fed	-0.66068	0.01578	-0.49550	0.02075	0.66087	0.49593
103	gray water systems	0.08220	0.42861	0.12529	0.33529	0.43642	0.35793
104	green accounting	-0.05041	0.08262	-0.02306	0.08111	0.09679	0.08433
105	green building	0.24946	0.04533	0.29726	-0.24890	0.25355	0.38770
106	green buildings	0.20059	-0.26723	0.21082	-0.52508	0.33413	0.56582
107	green business	-0.13797	0.22860	0.04663	0.25674	0.26701	0.26094
108	green economy	-0.22044	0.10573	-0.03116	0.21832	0.24449	0.22053
109	green energy	-0.40222	-0.00320	-0.07029	0.42537	0.40224	0.43114

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110	green homes	-0.12984	-0.06379	-0.07269	-0.03976	0.14467	0.08285
111	green jobs	-0.32742	-0.11031	-0.07767	0.17236	0.34550	0.18905
112	green living	-0.22133	-0.08843	-0.04752	0.15139	0.23834	0.15868
113	green manure	0.19223	0.23371	0.18791	0.15108	0.30261	0.24111
114	green mba	-0.05214	0.56667	0.09725	0.43532	0.56906	0.44606
115	Green Peace	0.39929	-0.02543	0.39209	-0.17574	0.40010	0.42967
116	green politics	0.15596	-0.11742	0.15596	-0.11742	0.19522	0.19522
117	green roof	-0.03096	0.17781	0.02776	0.12239	0.18049	0.12550
118	green space	-0.05180	0.09755	-0.09857	-0.07218	0.11045	0.12217
119	green technology	-0.10453	0.16353	0.12350	0.12768	0.19408	0.17764
120	green trading	0.00598	0.00382	0.06288	-0.05208	0.00710	0.08165
121	green transportation	-0.11021	0.66192	-0.01975	0.51614	0.67104	0.51652
122	grit magazine	0.11429	0.07899	0.16146	0.02950	0.13893	0.16413
123	grow your own	-0.35947	-0.29866	-0.11626	0.12133	0.46735	0.16804
124	growing vegetables	-0.12851	0.07167	-0.03823	0.11153	0.14714	0.11790
125	hair sheep	-0.00891	0.38501	-0.14923	0.13339	0.38511	0.20016
126	hatching eggs	-0.04147	0.05102	-0.06886	-0.03863	0.06575	0.07895
127	heritage breeds	0.07463	-0.01763	0.05633	-0.02846	0.07669	0.06311
128	hobby farm	-0.14831	-0.12539	-0.04975	0.00390	0.19422	0.04991
129	hobby farms magazine	0.31818	-0.26350	0.25904	-0.50906	0.41312	0.57118
130	home dairy	-0.05251	0.27383	-0.12912	0.01711	0.27882	0.13025
131	home grown	-0.15984	-0.14122	0.02585	0.02741	0.21329	0.03767
132	home livestock						

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133	home made	0.09616	0.04312	0.16586	-0.23564	0.10539	0.28815
134	home vegetable garden	-0.06346	-0.02148	-0.01288	-0.00076	0.06700	0.01290
135	homesteading	0.04624	0.06663	0.06467	-0.00956	0.08111	0.06537
136	horticultural oil	0.11755	-0.04111	0.02997	-0.01045	0.12454	0.03174
137	how to butcher a chicken	-0.40226	-0.31929	-0.24614	-0.24575	0.51357	0.34782
138	human development index	0.14045	-0.10763	0.12004	-0.19322	0.17695	0.22748
139	human population growth	-0.12102	0.32917	-0.16813	0.19803	0.35072	0.25978
140	hybrid cars	0.28717	-0.02267	0.23269	-0.14409	0.28807	0.27369
141	hybrid vehicle	0.44562	-0.16626	0.35918	-0.22455	0.47563	0.42360
142	hydrogen technologies	0.04100	0.10453	0.02431	0.08616	0.11228	0.08952
143	IFOAM	0.45538	-0.64278	0.26552	-0.54174	0.78774	0.60331
144	incinolet	0.25056	-0.32380	0.16822	-0.40073	0.40942	0.43460
145	industrial agriculture	0.02774	0.12772	-0.09759	0.05771	0.13070	0.11338
146	industrial ecology	0.14033	0.27703	0.18261	0.16199	0.31054	0.24411
147	insecticidal soap	-0.00334	0.17867	0.00494	0.17891	0.17870	0.17897
148	integrated pest management	0.22118	0.03807	0.19015	0.02775	0.22443	0.19217
149	intercropping	0.19171	-0.02144	0.13533	0.02441	0.19290	0.13751
150	IPM	0.24861	-0.25362	0.12515	-0.14730	0.35514	0.19329
151	LEED	-0.06468	0.00496	0.11435	-0.07226	0.06487	0.13527
152	LEED certification	-0.15841	-0.00421	0.07178	0.02737	0.15846	0.07682
153	Leopold Center	0.19184	0.19314	0.21034	0.06232	0.27222	0.21938
154	light rail	-0.18573	-0.12949	-0.14215	-0.15311	0.22642	0.20892
155	limits to growth	0.01664	-0.00099	0.00537	-0.00028	0.01667	0.00538

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156	littering	0.04835	-0.01032	0.02693	-0.00607	0.04944	0.02760
157	local farms	-0.56859	-0.67601	-0.32032	-0.46590	0.88333	0.56539
158	local food	-0.56720	-0.13301	-0.37120	-0.08681	0.58259	0.38122
159	local harvest	-0.53939	-0.52745	-0.00444	0.00588	0.75441	0.00736
160	locavore	-0.67452	-0.69772	-0.31148	-0.29412	0.97046	0.42840
161	low carbon	-0.22697	-0.17276	-0.16857	-0.27221	0.28524	0.32017
162	making cheese	-0.05403	-0.01502	0.05948	-0.06767	0.05608	0.09009
163	meat goats	0.15558	-0.11864	0.12780	-0.19988	0.19566	0.23725
164	milking a goat	0.16068	0.21880	0.14634	0.21701	0.27146	0.26174
165	most fuel efficient vehicles	0.06095	0.07719	0.05932	0.02863	0.09835	0.06587
166	Mother Earth News	0.11340	0.01629	0.28703	-0.42272	0.11457	0.51096
167	mulch	-0.05875	0.01336	-0.09757	-0.02320	0.06025	0.10029
168	mulching	0.07386	-0.01287	-0.02866	0.00070	0.07497	0.02867
169	National Organic Program	0.40290	-0.51747	0.27590	-0.63081	0.65582	0.68851
170	National Sustainable Agriculture						
171	natural capital	-0.15556	0.06130	-0.15787	-0.02564	0.16720	0.15993
172	natural food	0.00317	-0.00008	0.03084	-0.05375	0.00317	0.06197
173	NEEM	-0.16111	-0.07629	-0.17192	-0.21761	0.17826	0.27733
174	net metering	-0.00570	0.06996	-0.21882	-0.26355	0.07019	0.34256
175	new urbanism	0.59347	-0.27739	0.40628	-0.20855	0.65509	0.45668
176	Nissan Leaf	-0.47280	-0.05177	-0.24677	0.10834	0.47563	0.26951
177	off the grid	-0.67824	-0.03872	-0.49006	-0.05057	0.67934	0.49266
178	organic agriculture	0.34638	-0.59354	0.27248	-0.58306	0.68721	0.64358

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179	organic beef	0.06953	-0.06774	0.04929	-0.09592	0.09708	0.10784
180	organic certification	0.16184	-0.13437	0.19014	-0.36345	0.21035	0.41018
181	organic cheese	-0.27812	0.02930	-0.19993	-0.16256	0.27966	0.25768
182	organic chicken	-0.45557	-0.18790	-0.38435	-0.33863	0.49280	0.51225
183	organic dairy	0.18158	-0.18803	0.13304	-0.23377	0.26139	0.26898
184	organic eating	-0.28904	-0.09807	-0.16732	-0.01403	0.30523	0.16791
185	organic farming	-0.31315	-0.02388	0.28670	-0.28592	0.31406	0.40490
186	organic flour	-0.34098	-0.47074	-0.33741	-0.59965	0.58125	0.68806
187	organic food	0.02780	-0.00568	0.06509	-0.12577	0.02837	0.14162
188	organic foods	0.06354	-0.00415	0.10616	-0.20779	0.06368	0.23334
189	organic fruit	-0.08350	0.00794	-0.13459	-0.21544	0.08387	0.25403
190	Organic Gardening	-0.31366	-0.11788	0.31156	-0.26115	0.33508	0.40653
191	organic gardening magazine	0.20912	-0.25915	0.33832	-0.58287	0.33300	0.67394
192	organic grain	-0.17293	-0.14998	-0.16906	-0.36830	0.22891	0.40525
193	organic juice	-0.44737	-0.23868	-0.45438	-0.40379	0.50706	0.60787
194	organic milk	-0.33805	-0.19296	-0.28412	-0.29419	0.38924	0.40899
195	organic pork	0.02976	0.07700	-0.02145	0.02998	0.08255	0.03686
196	organic poultry	0.33484	-0.36870	0.21618	-0.39237	0.49805	0.44798
197	organic produce	0.11271	-0.08614	0.10342	-0.14998	0.14185	0.18218
198	organic sustainable agriculture						
199	organic vegetables	-0.09603	0.02792	-0.05951	0.03787	0.10001	0.07053
200	overpopulation	0.30510	-0.09921	0.18166	-0.07028	0.32083	0.19478
201	Park and Ride	-0.11788	-0.03034	-0.10844	-0.09228	0.12172	0.14239

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202	passive solar	0.43186	-0.39734	0.32035	-0.40153	0.58684	0.51367
203	permaculture	-0.20839	-0.25168	-0.06804	0.05937	0.32675	0.09030
204	pick your own	-0.04238	0.00182	0.00874	0.00483	0.04242	0.00999
205	public ecology						
206	Pyrethrum	0.15412	0.10293	0.12164	0.07292	0.18533	0.14182
207	rain garden	-0.10841	0.11574	-0.03024	0.15245	0.15859	0.15542
208	rainwater harvesting	-0.27942	-0.22741	-0.07580	-0.04839	0.36027	0.08993
209	raise your own						
210	recycling	-0.15715	-0.08334	-0.07954	0.01644	0.17788	0.08123
211	reduce waste	-0.17978	-0.04509	-0.17693	-0.19771	0.18534	0.26532
212	renewable energy	0.01184	0.00116	0.06293	-0.03972	0.01190	0.07441
213	Resilience	-0.53509	-0.12130	-0.39068	-0.15915	0.54866	0.42186
214	resource depletion	0.26683	-0.16457	0.10451	-0.01909	0.31350	0.10623
215	RFDTV	0.27854	-0.39247	0.19952	-0.43255	0.48127	0.47634
216	Rodale Institute	0.01760	0.11109	0.06554	-0.03201	0.11248	0.07294
217	rooftop gardens	-0.02291	0.01399	0.02682	0.01278	0.02684	0.02971
218	Rotenone -fish						
219	rototiller	-0.00676	0.03075	-0.02204	0.02841	0.03149	0.03596
220	save gas	-0.08673	0.02130	-0.01477	0.07012	0.08931	0.07166
221	save the planet	0.12627	-0.07202	0.14425	-0.21514	0.14537	0.25902
222	saving water	0.04308	0.16659	0.01390	0.17250	0.17207	0.17306
223	seed catalog	0.28895	-0.32297	0.21395	-0.38799	0.43336	0.44307
224	seed catalogs	0.19828	-0.15360	0.18845	-0.26652	0.25081	0.32642

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225	self reliance	-0.10985	0.01669	-0.05352	0.04932	0.11111	0.07278
226	self sufficiency	-0.05755	-0.02949	-0.11138	-0.17502	0.06467	0.20745
227	self-sufficient	-0.16250	-0.12141	-0.13715	-0.17766	0.20285	0.22443
228	Sheep	0.13849	-0.09703	0.00455	0.24660	0.16910	0.24664
229	sheet mulching	0.23552	0.13532	0.15390	0.17038	0.27163	0.22960
230	shelterbelt	0.21184	-0.16336	0.20863	-0.32140	0.26751	0.38318
231	Silent Spring	0.18654	-0.16904	0.09626	-0.11436	0.25174	0.14948
232	Simple Living	0.34336	0.26696	0.26637	0.32164	0.43493	0.41762
233	Small Farm	-0.00573	0.01732	-0.08894	-0.20735	0.01825	0.22563
234	Smart Growth	0.62085	-0.14580	0.43437	-0.07378	0.63774	0.44059
235	solar panels	-0.18488	-0.02359	-0.12315	-0.03454	0.18638	0.12790
236	solar shingle	0.29735	-0.23315	0.24036	-0.33531	0.37786	0.41256
237	Solar Shingles	0.13447	-0.07112	0.08531	-0.05472	0.15212	0.10135
238	solar water heater	0.02212	0.00058	0.14526	-0.19012	0.02213	0.23926
239	Spinosad	-0.30912	0.16049	-0.27883	0.12039	0.34830	0.30371
240	starting seeds	0.02645	0.05848	0.02990	0.05604	0.06419	0.06352
241	storing vegetables	0.14608	-0.05167	0.08168	-0.07411	0.15495	0.11029
242	survivalism	0.05010	0.07430	0.07047	0.01508	0.08961	0.07207
243	sustainability	-0.41320	-0.15494	-0.18920	0.10438	0.44129	0.21608
244	sustainable	0.12834	0.00743	0.16222	-0.20860	0.12855	0.26425
245	sustainable agriculture definition	-0.02203	0.10875	-0.18735	0.09718	0.11096	0.21106
246	sustainable agriculture education						

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247	sustainable aquaculture	0.16785	-0.09364	0.12164	-0.07325	0.19220	0.14199
248	sustainable architechture						
249	sustainable communities	-0.00977	0.09187	0.19446	-0.21572	0.09239	0.29044
250	sustainable design	0.32726	-0.18544	0.36462	-0.42018	0.37615	0.55632
251	Sustainable Development	0.39175	-0.17657	0.22983	-0.03538	0.42970	0.23254
252	Sustainable Energy	0.04160	0.04810	0.14570	-0.13846	0.06359	0.20099
253	sustainable farming	0.01930	0.13066	-0.00852	0.12686	0.13208	0.12715
254	sustainable food	-0.30430	0.16084	-0.10441	0.43219	0.34419	0.44462
255	sustainable food systems	-0.10702	0.06064	-0.02212	0.06427	0.12300	0.06797
256	sustainable infrastructure	-0.15702	0.57996	-0.25205	0.47463	0.60084	0.53740
257	sustainable living	0.14196	-0.11719	0.25483	-0.53051	0.18408	0.58854
258	sustainable practice						
259	sustainable seafood	-0.25172	-0.03172	-0.06181	0.15465	0.25371	0.16654
260	sustainable tourism	0.25978	-0.29368	0.20531	-0.36687	0.39209	0.42041
261	sustainable yield	0.08877	0.08566	0.02206	0.08154	0.12336	0.08447
262	Tesla Model	-0.38694	-0.07635	-0.17831	-0.13919	0.39440	0.22621
263	tesla model s	-0.38553	-0.08211	-0.37912	-0.26530	0.39417	0.46273
264	tesla motors	-0.28077	-0.06389	-0.13813	0.04231	0.28795	0.14446
265	Tesla Roadster	-0.31032	-0.05646	-0.05129	0.18935	0.31542	0.19617
266	the human farm						
267	The Nature Conservancy	0.43396	-0.15700	0.32291	-0.10294	0.46148	0.33892
268	time banking	-0.40558	-0.45883	-0.30491	-0.51944	0.61239	0.60232
269	tiny houses	-0.58590	-0.42848	-0.40721	-0.40316	0.72586	0.57303

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δr_1^2 initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	Δr_2^2 initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs
270	tragedy of the commons	-0.15855	-0.01891	-0.04182	0.07691	0.15967	0.08755
271	transition towns	-0.51535	0.35010	-0.13745	0.64100	0.62302	0.65557
272	tripple bottom line	0.10108	-0.03806	0.04903	-0.02628	0.10801	0.05563
273	upcycling	-0.62108	-0.10567	-0.50013	-0.09575	0.63000	0.50921
274	upick	0.00181	0.10194	-0.02675	0.09787	0.10196	0.10146
275	urban farming	-0.66347	-0.59012	-0.36707	-0.38177	0.88794	0.52961
276	urban oasis	-0.15895	-0.05358	-0.06383	0.01137	0.16774	0.06484
277	urban sprawl	0.37204	-0.35036	0.20397	-0.20590	0.51105	0.28982
278	Vegetable Seeds	-0.00219	0.01991	0.06083	-0.00992	0.02003	0.06163
279	vertical farming	-0.54873	-0.43479	-0.40391	-0.51052	0.70011	0.65097
280	victory garden	0.14319	-0.01763	0.15548	-0.18202	0.14427	0.23939
281	walkability	-0.47019	-0.37392	-0.26131	-0.19650	0.60075	0.32695
282	What is Sustainability	-0.57614	0.08040	-0.40251	0.03516	0.58172	0.40404
283	what is sustainable	-0.43585	-0.08648	-0.37391	-0.19119	0.44435	0.41995
284	wind generator	0.14578	0.01827	0.23031	-0.27971	0.14692	0.36233
285	wind power	0.20995	0.03236	0.24094	-0.20330	0.21243	0.31525
286	wind turbine	-0.23157	-0.08218	-0.03069	0.08344	0.24572	0.08891
287	windmill	0.06756	-0.03511	0.01992	0.02454	0.07614	0.03161
288	wood heat	0.02883	-0.00233	0.00441	0.00085	0.02893	0.00449
289	xeriscaping	0.27942	-0.23800	0.00509	0.07800	0.36704	0.07817
290	You Pick	-0.64327	0.57100	-0.49001	0.88700	0.86014	1.01335
291	zero population growth	0.23725	-0.27184	0.09435	-0.16493	0.36081	0.19001

Appendix VII. Andrew et al. (2016) sustainability-related collection of terms. Ephemerality calculations.

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
1	acres magazine	0.27099	0.14948	0.44446	0.40496	0.52056	0.43166
2	agenda 21	-0.19402	-0.07160	0.21168	0.14843	0.28715	0.16480
3	agroecology	0.22866	0.17033	0.22867	0.17078	0.32338	0.24120
4	alternative agriculture						
5	alternative energy	0.24528	0.27078	0.25366	0.41252	0.35285	0.49345
6	alternative fuel	0.39533	0.29961	0.42016	0.38681	0.57691	0.48928
7	apple picking	-0.05949	-0.03529	0.05977	0.03548	0.08433	0.05004
8	aquaponics	-0.52842	-0.40923	0.53014	0.41286	0.74852	0.58131
9	back home magazine	0.41699	0.26340	0.58805	0.58903	0.72089	0.64524
10	back to the land	-0.35548	-0.23101	0.35618	0.23726	0.50322	0.33115
11	back woods home magazine	-0.02640	-0.02640	0.79344	0.79344	0.79388	0.79388
12	biodegradable	-0.00499	0.00780	0.08299	0.08312	0.08314	0.08348
13	biodynamic farming	0.14499	0.25995	0.20675	0.32889	0.25252	0.41921
14	biofuel	-0.09296	0.08815	0.09449	0.08816	0.13255	0.12467
15	blue bag	-0.43491	0.09844	0.49304	0.57708	0.65745	0.58542
16	boer goats	0.18944	0.20568	0.31097	0.52394	0.36413	0.56286
17	canning	-0.16497	-0.06184	0.16521	0.06981	0.23347	0.09326
18	canning fruit	0.08109	0.11333	0.08227	0.12805	0.11552	0.17100
19	canning meat	-0.24942	-0.04844	0.30516	0.07419	0.39412	0.08860
20	canning vegetables	0.07582	0.11018	0.07701	0.13290	0.10807	0.17264
21	carbon credit	-0.07288	0.05876	0.54400	0.51685	0.54886	0.52018

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
22	carbon footprint	-0.16944	-0.02146	0.17268	0.05233	0.24192	0.05656
23	carbon neutral	-0.06479	-0.06155	0.25400	0.25048	0.26213	0.25793
24	carbon trading	0.08407	0.17456	0.55702	0.38770	0.56333	0.42518
25	carefree city						
26	carpool	-0.00391	-0.16962	0.00391	0.33360	0.00553	0.37425
27	certified organic	0.01138	-0.16906	0.15102	0.22000	0.15144	0.27746
28	cheesemaking	0.14491	0.31467	0.17267	0.62406	0.22542	0.69890
29	Chevy Volt	-0.44698	-0.15284	0.46128	0.25335	0.64232	0.29588
30	chick hatchery	0.03298	0.10334	0.07199	0.11040	0.07919	0.15122
31	chicken coop	-0.42377	-0.30883	0.42381	0.31127	0.59933	0.43848
32	chicken plucker	-0.47639	-0.30533	0.53834	0.40163	0.71886	0.50451
33	climate deniers	-0.30665	-0.18398	0.64693	0.62539	0.71593	0.65189
34	climate skeptics	-0.21640	-0.08219	0.30671	0.09759	0.37537	0.12759
35	community garden	-0.20257	-0.06836	0.21905	0.10629	0.29835	0.12637
36	community gardens	-0.06049	0.07329	0.07017	0.07376	0.09264	0.10398
37	community supported agriculture	0.44236	0.42081	0.65170	0.79138	0.78765	0.89630
38	community sustainable agriculture	-0.00706	-0.00706	0.00734	0.00734	0.01018	0.01018
39	companion planting	-0.16239	-0.10130	0.21404	0.18740	0.26867	0.21303
40	compost	-0.07892	-0.03038	0.07899	0.03708	0.11166	0.04793
41	compost tea	-0.13481	-0.06086	0.37045	0.38521	0.39422	0.38999
42	composting	0.03278	0.08785	0.03316	0.12647	0.04663	0.15398

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
43	composting toilet	-0.04131	-0.25286	0.04295	0.54392	0.05959	0.59982
44	composting toilets	0.41117	0.29322	0.68438	0.68093	0.79840	0.74138
45	conserve	-0.18671	-0.13728	0.19867	0.15425	0.27264	0.20649
46	countryside magazine	0.41333	0.37514	0.74261	0.82326	0.84989	0.90470
47	cradle to cradle design	0.20527	0.18871	0.20658	0.29106	0.29122	0.34688
48	crop rotation	0.02302	-0.08674	0.19486	0.16250	0.19622	0.18420
49	deep ecology	0.20008	0.21924	0.27386	0.21936	0.33916	0.31014
50	dehydrating food	-0.07332	0.07866	0.14540	0.21275	0.16284	0.22683
51	depopulation	-0.26126	-0.13758	0.40588	0.28761	0.48270	0.31883
52	desertification	0.14677	0.01854	0.15766	0.01855	0.21541	0.02623
53	do it yourself solar	0.19092	0.22710	0.22083	0.37731	0.29192	0.44038
54	E85	0.08102	0.03016	0.08159	0.03226	0.11498	0.04416
55	earth charter	0.41612	0.29558	0.64422	0.59190	0.76693	0.66160
56	eat local	-0.61364	-0.38622	0.62204	0.40198	0.87378	0.55745
57	eco friendly	-0.33772	-0.00958	0.33795	0.23719	0.47777	0.23739
58	eco friendly bag	-0.24579	-0.07034	0.52154	0.54615	0.57656	0.55066
59	eco friendly clothing	-0.21189	0.00409	0.23856	0.23574	0.31907	0.23578
60	eco friendly gifts	-0.10065	0.01380	0.18267	0.14244	0.20856	0.14310
61	eco friendly homes	-0.22061	-0.06127	0.28958	0.31182	0.36404	0.31778
62	ecofriendly	-0.20528	0.01919	0.22518	0.02114	0.30470	0.02855
63	ecological footprint	0.21317	0.10182	0.25077	0.11617	0.32913	0.15447
64	ecological services	0.16699	0.17144	0.38453	0.40055	0.41922	0.43570
65	ecosystem services	-0.27374	-0.15902	0.44148	0.39540	0.51946	0.42618

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
66	ecovillage	0.34961	0.32540	0.65011	0.75780	0.73815	0.82471
67	electric cars	-0.02414	0.02636	0.02414	0.02744	0.03414	0.03805
68	emissions trading	0.48061	0.35545	0.55181	0.53993	0.73176	0.64643
69	energy efficiency	-0.06779	0.10414	0.06782	0.12493	0.09589	0.16265
70	energy star	0.01426	0.16154	0.34924	0.21488	0.34953	0.26882
71	environmental enterprise						
72	environmental finance	0.16920	0.22089	0.19101	0.43807	0.25517	0.49061
73	Environmental Management	0.42292	0.33394	0.44618	0.35846	0.61477	0.48991
74	environmental metering						
75	environmental performance index	0.00819	0.00345	0.01029	0.00749	0.01315	0.00824
76	environmental quality	0.59457	0.40563	0.61864	0.42491	0.85804	0.58744
77	environmental security	0.28212	0.18180	0.35301	0.31028	0.45189	0.35962
78	environmentalism	0.28289	0.19912	0.33890	0.29769	0.44145	0.35815
79	environmentally friendly	0.18700	0.20948	0.19084	0.33257	0.26718	0.39305
80	fairtrade	0.15216	0.16031	0.20113	0.31484	0.25220	0.35330
81	family cow	-0.23692	-0.08430	0.24952	0.16443	0.34408	0.18478
82	farmers market	-0.28458	-0.17071	0.28540	0.18708	0.40304	0.25326
83	farmers markets	-0.18985	-0.02872	0.18987	0.08180	0.26850	0.08670
84	feed-in tariff	-0.48277	-0.15912	0.80110	0.83186	0.93532	0.84694
85	food COOP	-0.12167	0.08146	0.12384	0.09696	0.17361	0.12664
86	food cooperative	0.25286	0.27233	0.25351	0.41692	0.35806	0.49798
87	food dehydrator	-0.25804	-0.05049	0.32117	0.19908	0.41198	0.20539

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
88	food miles	-0.45105	-0.37651	0.45113	0.40206	0.63794	0.55083
89	food preservation	0.14111	0.12428	0.24914	0.17119	0.28632	0.21155
90	food race	-0.19304	-0.10505	0.22133	0.11528	0.29368	0.15597
91	free range	-0.20447	-0.10745	0.28306	0.14064	0.34918	0.17699
92	freezing fruit	0.07934	0.05804	0.08068	0.06204	0.11316	0.08496
93	freezing vegetables	0.09981	0.08671	0.10404	0.11459	0.14418	0.14371
94	fruit trees	-0.05712	-0.10452	0.05863	0.12402	0.08185	0.16219
95	fuel cell	0.41877	0.28217	0.43466	0.30071	0.60357	0.41237
96	garden seeds	0.06134	0.07276	0.06251	0.08177	0.08758	0.10946
97	gardening	0.27835	0.21712	0.27843	0.23235	0.39370	0.31801
98	gardening books	0.24605	0.25868	0.32091	0.45208	0.40438	0.52085
99	gardening magazines	0.33496	0.31999	0.43088	0.63669	0.54577	0.71258
100	geothermal	0.09019	0.15839	0.09464	0.20672	0.13074	0.26043
101	going green	-0.19301	0.00146	0.21566	0.00426	0.28942	0.00450
102	grass fed	-0.66068	-0.49550	0.66087	0.49593	0.93448	0.70105
103	gray water systems	0.08220	0.12529	0.43642	0.35793	0.44409	0.37923
104	green accounting	-0.05041	-0.02306	0.09679	0.08433	0.10913	0.08743
105	green building	0.24946	0.29726	0.25355	0.38770	0.35569	0.48854
106	green buildings	0.20059	0.21082	0.33413	0.56582	0.38972	0.60382
107	green business	-0.13797	0.04663	0.26701	0.26094	0.30055	0.26507
108	green economy	-0.22044	-0.03116	0.24449	0.22053	0.32920	0.22273
109	green energy	-0.40222	-0.07029	0.40224	0.43114	0.56884	0.43683
110	green homes	-0.12984	-0.07269	0.14467	0.08285	0.19439	0.11021

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
111	green jobs	-0.32742	-0.07767	0.34550	0.18905	0.47600	0.20438
112	green living	-0.22133	-0.04752	0.23834	0.15868	0.32526	0.16564
113	green manure	0.19223	0.18791	0.30261	0.24111	0.35851	0.30569
114	green mba	-0.05214	0.09725	0.56906	0.44606	0.57144	0.45653
115	Green Peace	0.39929	0.39209	0.40010	0.42967	0.56525	0.58168
116	green politics	0.15596	0.15596	0.19522	0.19522	0.24987	0.24987
117	green roof	-0.03096	0.02776	0.18049	0.12550	0.18312	0.12853
118	green space	-0.05180	-0.09857	0.11045	0.12217	0.12199	0.15698
119	green technology	-0.10453	0.12350	0.19408	0.17764	0.22044	0.21635
120	green trading	0.00598	0.06288	0.00710	0.08165	0.00928	0.10306
121	green transportation	-0.11021	-0.01975	0.67104	0.51652	0.68003	0.51689
122	grit magazine	0.11429	0.16146	0.13893	0.16413	0.17989	0.23024
123	grow your own	-0.35947	-0.11626	0.46735	0.16804	0.58960	0.20434
124	growing vegetables	-0.12851	-0.03823	0.14714	0.11790	0.19536	0.12395
125	hair sheep	-0.00891	-0.14923	0.38511	0.20016	0.38521	0.24966
126	hatching eggs	-0.04147	-0.06886	0.06575	0.07895	0.07774	0.10476
127	heritage breeds	0.07463	0.05633	0.07669	0.06311	0.10701	0.08459
128	hobby farm	-0.14831	-0.04975	0.19422	0.04991	0.24437	0.07047
129	hobby farms magazine	0.31818	0.25904	0.41312	0.57118	0.52145	0.62717
130	home dairy	-0.05251	-0.12912	0.27882	0.13025	0.28372	0.18340
131	home grown	-0.15984	0.02585	0.21329	0.03767	0.26653	0.04569
132	home livestock						
133	home made	0.09616	0.16586	0.10539	0.28815	0.14267	0.33248

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
134	home vegetable garden	-0.06346	-0.01288	0.06700	0.01290	0.09228	0.01823
135	homesteading	0.04624	0.06467	0.08111	0.06537	0.09337	0.09195
136	horticultural oil	0.11755	0.02997	0.12454	0.03174	0.17125	0.04365
137	how to butcher a chicken	-0.40226	-0.24614	0.51357	0.34782	0.65236	0.42610
138	human development index	0.14045	0.12004	0.17695	0.22748	0.22591	0.25721
139	human population growth	-0.12102	-0.16813	0.35072	0.25978	0.37101	0.30944
140	hybrid cars	0.28717	0.23269	0.28807	0.27369	0.40676	0.35924
141	hybrid vehicle	0.44562	0.35918	0.47563	0.42360	0.65177	0.55538
142	hydrogen technologies	0.04100	0.02431	0.11228	0.08952	0.11954	0.09277
143	IFOAM	0.45538	0.26552	0.78774	0.60331	0.90989	0.65915
144	incinolet	0.25056	0.16822	0.40942	0.43460	0.48000	0.46602
145	industrial agriculture	0.02774	-0.09759	0.13070	0.11338	0.13361	0.14960
146	industrial ecology	0.14033	0.18261	0.31054	0.24411	0.34078	0.30485
147	insecticidal soap	-0.00334	0.00494	0.17870	0.17897	0.17873	0.17904
148	integrated pest management	0.22118	0.19015	0.22443	0.19217	0.31511	0.27034
149	intercropping	0.19171	0.13533	0.19290	0.13751	0.27196	0.19293
150	IPM	0.24861	0.12515	0.35514	0.19329	0.43351	0.23027
151	LEED	-0.06468	0.11435	0.06487	0.13527	0.09160	0.17712
152	LEED certification	-0.15841	0.07178	0.15846	0.07682	0.22406	0.10513
153	Leopold Center	0.19184	0.21034	0.27222	0.21938	0.33302	0.30393
154	light rail	-0.18573	-0.14215	0.22642	0.20892	0.29285	0.25269
155	limits to growth	0.01664	0.00537	0.01667	0.00538	0.02356	0.00760
156	littering	0.04835	0.02693	0.04944	0.02760	0.06915	0.03856

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
157	local farms	-0.56859	-0.32032	0.88333	0.56539	1.05051	0.64982
158	local food	-0.56720	-0.37120	0.58259	0.38122	0.81309	0.53209
159	local harvest	-0.53939	-0.00444	0.75441	0.00736	0.92740	0.00860
160	locavore	-0.67452	-0.31148	0.97046	0.42840	1.18185	0.52967
161	low carbon	-0.22697	-0.16857	0.28524	0.32017	0.36453	0.36184
162	making cheese	-0.05403	0.05948	0.05608	0.09009	0.07788	0.10795
163	meat goats	0.15558	0.12780	0.19566	0.23725	0.24998	0.26948
164	milking a goat	0.16068	0.14634	0.27146	0.26174	0.31545	0.29987
165	most fuel efficient vehicles	0.06095	0.05932	0.09835	0.06587	0.11571	0.08865
166	Mother Earth News	0.11340	0.28703	0.11457	0.51096	0.16120	0.58606
167	mulch	-0.05875	-0.09757	0.06025	0.10029	0.08415	0.13992
168	mulching	0.07386	-0.02866	0.07497	0.02867	0.10525	0.04054
169	National Organic Program	0.40290	0.27590	0.65582	0.68851	0.76970	0.74173
170	National Sustainable Agriculture						0.00000
171	natural capital	-0.15556	-0.15787	0.16720	0.15993	0.22837	0.22472
172	natural food	0.00317	0.03084	0.00317	0.06197	0.00448	0.06922
173	NEEM	-0.16111	-0.17192	0.17826	0.27733	0.24028	0.32630
174	net metering	-0.00570	-0.21882	0.07019	0.34256	0.07043	0.40648
175	new urbanism	0.59347	0.40628	0.65509	0.45668	0.88394	0.61125
176	Nissan Leaf	-0.47280	-0.24677	0.47563	0.26951	0.67065	0.36542
177	off the grid	-0.67824	-0.49006	0.67934	0.49266	0.95996	0.69489
178	organic agriculture	0.34638	0.27248	0.68721	0.64358	0.76957	0.69889
179	organic beef	0.06953	0.04929	0.09708	0.10784	0.11941	0.11857

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
180	organic certification	0.16184	0.19014	0.21035	0.41018	0.26540	0.45210
181	organic cheese	-0.27812	-0.19993	0.27966	0.25768	0.39442	0.32614
182	organic chicken	-0.45557	-0.38435	0.49280	0.51225	0.67111	0.64041
183	organic dairy	0.18158	0.13304	0.26139	0.26898	0.31827	0.30009
184	organic eating	-0.28904	-0.16732	0.30523	0.16791	0.42037	0.23704
185	organic farming	-0.31315	0.28670	0.31406	0.40490	0.44351	0.49612
186	organic flour	-0.34098	-0.33741	0.58125	0.68806	0.67389	0.76634
187	organic food	0.02780	0.06509	0.02837	0.14162	0.03972	0.15586
188	organic foods	0.06354	0.10616	0.06368	0.23334	0.08996	0.25635
189	organic fruit	-0.08350	-0.13459	0.08387	0.25403	0.11835	0.28748
190	Organic Gardening	-0.31366	0.31156	0.33508	0.40653	0.45898	0.51219
191	organic gardening magazine	0.20912	0.33832	0.33300	0.67394	0.39322	0.75409
192	organic grain	-0.17293	-0.16906	0.22891	0.40525	0.28689	0.43910
193	organic juice	-0.44737	-0.45438	0.50706	0.60787	0.67620	0.75892
194	organic milk	-0.33805	-0.28412	0.38924	0.40899	0.51554	0.49799
195	organic pork	0.02976	-0.02145	0.08255	0.03686	0.08775	0.04264
196	organic poultry	0.33484	0.21618	0.49805	0.44798	0.60014	0.49741
197	organic produce	0.11271	0.10342	0.14185	0.18218	0.18118	0.20949
198	organic sustainable agriculture						
199	organic vegetables	-0.09603	-0.05951	0.10001	0.07053	0.13865	0.09228
200	overpopulation	0.30510	0.18166	0.32083	0.19478	0.44274	0.26634
201	Park and Ride	-0.11788	-0.10844	0.12172	0.14239	0.16945	0.17898
202	passive solar	0.43186	0.32035	0.58684	0.51367	0.72862	0.60537

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
203	permaculture	-0.20839	-0.06804	0.32675	0.09030	0.38755	0.11306
204	pick your own	-0.04238	0.00874	0.04242	0.00999	0.05996	0.01328
205	public ecology					0.00000	0.00000
206	Pyrethrum	0.15412	0.12164	0.18533	0.14182	0.24104	0.18684
207	rain garden	-0.10841	-0.03024	0.15859	0.15542	0.19210	0.15833
208	rainwater harvesting	-0.27942	-0.07580	0.36027	0.08993	0.45592	0.11761
209	raise your own					0.00000	0.00000
210	recycling	-0.15715	-0.07954	0.17788	0.08123	0.23735	0.11369
211	reduce waste	-0.17978	-0.17693	0.18534	0.26532	0.25821	0.31890
212	renewable energy	0.01184	0.06293	0.01190	0.07441	0.01679	0.09745
213	Resilience	-0.53509	-0.39068	0.54866	0.42186	0.76639	0.57498
214	resource depletion	0.26683	0.10451	0.31350	0.10623	0.41168	0.14902
215	RFDTV	0.27854	0.19952	0.48127	0.47634	0.55606	0.51644
216	Rodale Institute	0.01760	0.06554	0.11248	0.07294	0.11385	0.09806
217	rooftop gardens	-0.02291	0.02682	0.02684	0.02971	0.03529	0.04002
218	Rotenone -fish						0.00000
219	rototiller	-0.00676	-0.02204	0.03149	0.03596	0.03221	0.04217
220	save gas	-0.08673	-0.01477	0.08931	0.07166	0.12449	0.07316
221	save the planet	0.12627	0.14425	0.14537	0.25902	0.19255	0.29648
222	saving water	0.04308	0.01390	0.17207	0.17306	0.17738	0.17361
223	seed catalog	0.28895	0.21395	0.43336	0.44307	0.52086	0.49202
224	seed catalogs	0.19828	0.18845	0.25081	0.32642	0.31972	0.37691
225	self reliance	-0.10985	-0.05352	0.11111	0.07278	0.15625	0.09034

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
226	self sufficiency	-0.05755	-0.11138	0.06467	0.20745	0.08657	0.23546
227	self-sufficient	-0.16250	-0.13715	0.20285	0.22443	0.25991	0.26302
228	Sheep	0.13849	0.00455	0.16910	0.24664	0.21857	0.24668
229	sheet mulching	0.23552	0.15390	0.27163	0.22960	0.35951	0.27641
230	shelterbelt	0.21184	0.20863	0.26751	0.38318	0.34123	0.43629
231	Silent Spring	0.18654	0.09626	0.25174	0.14948	0.31332	0.17779
232	Simple Living	0.34336	0.26637	0.43493	0.41762	0.55413	0.49534
233	Small Farm	-0.00573	-0.08894	0.01825	0.22563	0.01913	0.24252
234	Smart Growth	0.62085	0.43437	0.63774	0.44059	0.89004	0.61870
235	solar panels	-0.18488	-0.12315	0.18638	0.12790	0.26252	0.17755
236	solar shingle	0.29735	0.24036	0.37786	0.41256	0.48083	0.47748
237	Solar Shingles	0.13447	0.08531	0.15212	0.10135	0.20304	0.13248
238	solar water heater	0.02212	0.14526	0.02213	0.23926	0.03129	0.27991
239	Spinosad	-0.30912	-0.27883	0.34830	0.30371	0.46569	0.41229
240	starting seeds	0.02645	0.02990	0.06419	0.06352	0.06942	0.07020
241	storing vegetables	0.14608	0.08168	0.15495	0.11029	0.21296	0.13725
242	survivalism	0.05010	0.07047	0.08961	0.07207	0.10266	0.10080
243	sustainability	-0.41320	-0.18920	0.44129	0.21608	0.60454	0.28721
244	sustainable	0.12834	0.16222	0.12855	0.26425	0.18165	0.31007
245	sustainable agriculture definition	-0.02203	-0.18735	0.11096	0.21106	0.11312	0.28222
246	sustainable agriculture education						
247	sustainable aquaculture	0.16785	0.12164	0.19220	0.14199	0.25518	0.18697

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248	sustainable architechture						0.00000
249	sustainable communities	-0.00977	0.19446	0.09239	0.29044	0.09290	0.34953
250	sustainable design	0.32726	0.36462	0.37615	0.55632	0.49858	0.66516
251	Sustainable Development	0.39175	0.22983	0.42970	0.23254	0.58147	0.32695
252	Sustainable Energy	0.04160	0.14570	0.06359	0.20099	0.07599	0.24825
253	sustainable farming	0.01930	-0.00852	0.13208	0.12715	0.13348	0.12743
254	sustainable food	-0.30430	-0.10441	0.34419	0.44462	0.45942	0.45672
255	sustainable food systems	-0.10702	-0.02212	0.12300	0.06797	0.16304	0.07148
256	sustainable infrastructure	-0.15702	-0.25205	0.60084	0.53740	0.62102	0.59358
257	sustainable living	0.14196	0.25483	0.18408	0.58854	0.23246	0.64134
258	sustainable practice						
259	sustainable seafood	-0.25172	-0.06181	0.25371	0.16654	0.35739	0.17764
260	sustainable tourism	0.25978	0.20531	0.39209	0.42041	0.47034	0.46787
261	sustainable yield	0.08877	0.02206	0.12336	0.08447	0.15198	0.08730
262	Tesla Model	-0.38694	-0.17831	0.39440	0.22621	0.55251	0.28804
263	tesla model s	-0.38553	-0.37912	0.39417	0.46273	0.55137	0.59821
264	tesla motors	-0.28077	-0.13813	0.28795	0.14446	0.40217	0.19987
265	Tesla Roadster	-0.31032	-0.05129	0.31542	0.19617	0.44248	0.20276
266	the human farm						
267	The Nature Conservancy	0.43396	0.32291	0.46148	0.33892	0.63347	0.46812
268	time banking	-0.40558	-0.30491	0.61239	0.60232	0.73451	0.67510
269	tiny houses	-0.58590	-0.40721	0.72586	0.57303	0.93282	0.70298
270	tragedy of the commons	-0.15855	-0.04182	0.15967	0.08755	0.22502	0.09702

a/a	Andrew et al. (2016) Terms	Δslope$_1$ initial-recalculated 2004-2013 GTs	Δslope$_2$ initial-recalculated 2004-2017 GTs	ED$_1$ initial-recalculated 2004-2013 GTs	ED$_2$ initial-recalculated 2004-2017 GTs	φ_T1 initial-recalculated 2004-2013 GTs	φ_T2 initial-recalculated 2004-2017 GTs
271	transition towns	-0.51535	-0.13745	0.62302	0.65557	0.80854	0.66983
272	tripple bottom line	0.10108	0.04903	0.10801	0.05563	0.14793	0.07415
273	upcycling	-0.62108	-0.50013	0.63000	0.50921	0.88467	0.71374
274	upick	0.00181	-0.02675	0.10196	0.10146	0.10197	0.10493
275	urban farming	-0.66347	-0.36707	0.88794	0.52961	1.10844	0.64439
276	urban oasis	-0.15895	-0.06383	0.16774	0.06484	0.23109	0.09099
277	urban sprawl	0.37204	0.20397	0.51105	0.28982	0.63213	0.35440
278	Vegetable Seeds	-0.00219	0.06083	0.02003	0.06163	0.02015	0.08659
279	vertical farming	-0.54873	-0.40391	0.70011	0.65097	0.88953	0.76610
280	victory garden	0.14319	0.15548	0.14427	0.23939	0.20326	0.28545
281	walkability	-0.47019	-0.26131	0.60075	0.32695	0.76288	0.41854
282	What is Sustainability	-0.57614	-0.40251	0.58172	0.40404	0.81874	0.57032
283	what is sustainable	-0.43585	-0.37391	0.44435	0.41995	0.62243	0.56229
284	wind generator	0.14578	0.23031	0.14692	0.36233	0.20697	0.42933
285	wind power	0.20995	0.24094	0.21243	0.31525	0.29867	0.39678
286	wind turbine	-0.23157	-0.03069	0.24572	0.08891	0.33764	0.09405
287	windmill	0.06756	0.01992	0.07614	0.03161	0.10179	0.03737
288	wood heat	0.02883	0.00441	0.02893	0.00449	0.04084	0.00629
289	xeriscaping	0.27942	0.00509	0.36704	0.07817	0.46130	0.07833
290	You Pick	-0.64327	-0.49001	0.86014	1.01335	1.07407	1.12560
291	zero population growth	0.23725	0.09435	0.36081	0.19001	0.43183	0.21214

Appendix VIII. Kolmogorov Smirnov test (K-S test) for the ED values between the metrics 2004- 2013 (initial GTs) and the recalculated metrics 2004-2013. (See table's 10 heading for details)

	Andrew's et al. Terms K-S test statistic initial vs.2004-2013 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
1	natural food	-2.4989	1	0.00	0.00	-2.68651	0.00001	0.00001
2	carpool	-2.4081	2	0.01	0.00	-2.44612	0.00002	0.00359
3	green trading	-2.1490	3	0.01	0.01	-2.29627	0.00027	0.00695
4	community sustainable agriculture	-2.1344	4	0.01	0.01	-2.18511	0.00031	0.01052
5	environmental performance index	-1.9877	5	0.02	0.01	-2.09579	0.00104	0.01340
6	renewable energy	-1.9244	6	0.02	0.02	-2.02060	0.00170	0.01635
7	limits to growth	-1.7780	7	0.03	0.02	-1.95535	0.00491	0.01675
8	Small Farm	-1.7388	8	0.03	0.03	-1.89750	0.00639	0.01888
9	Vegetable Seeds	-1.6983	9	0.03	0.03	-1.84538	0.00834	0.02054
10	solar water heater	-1.6550	10	0.04	0.03	-1.79784	0.01097	0.02152
11	electric cars	-1.6172	11	0.04	0.04	-1.75405	0.01384	0.02226
12	rooftop gardens	-1.5712	12	0.04	0.04	-1.71338	0.01818	0.02153
13	organic food	-1.5471	13	0.05	0.04	-1.67536	0.02088	0.02244
14	wood heat	-1.5387	14	0.05	0.05	-1.63963	0.02190	0.02503
15	rototiller	-1.5018	15	0.05	0.05	-1.60587	0.02688	0.02366
16	composting	-1.4794	16	0.06	0.05	-1.57384	0.03035	0.02380
17	pick your own	-1.3725	17	0.06	0.06	-1.54336	0.05234	0.00543
18	composting toilet	-1.3671	18	0.06	0.06	-1.51424	0.05372	0.00765
19	littering	-1.3059	19	0.07	0.06	-1.48636	0.07145	0.00646
20	making cheese	-1.2512	20	0.07	0.07	-1.45958	0.09084	0.02225
21	fruit trees	-1.2319	21	0.08	0.07	-1.43382	0.09852	0.02632

	Andrew's et al. Terms K-S test statistic initial vs.2004-2013 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
22	apple picking	-1.2235	22	0.08	0.08	-1.40897	0.10201	0.02620
23	mulch	-1.2201	23	0.08	0.08	-1.38496	0.10348	0.02405
24	garden seeds	-1.2041	24	0.09	0.08	-1.36172	0.11046	0.02743
25	Sustainable Energy	-1.1966	25	0.09	0.09	-1.33920	0.11383	0.02719
26	organic foods	-1.1960	26	0.09	0.09	-1.31734	0.11409	0.02384
27	starting seeds	-1.1926	27	0.10	0.09	-1.29609	0.11568	0.02182
28	self sufficiency	-1.1893	28	0.10	0.10	-1.27540	0.11719	0.01972
29	LEED	-1.1880	29	0.10	0.10	-1.25525	0.11780	0.01672
30	hatching eggs	-1.1821	30	0.11	0.10	-1.23560	0.12057	0.01588
31	home vegetable garden	-1.1740	31	0.11	0.11	-1.21642	0.12449	0.01619
32	energy efficiency	-1.1687	32	0.12	0.11	-1.19767	0.12707	0.01516
33	community gardens	-1.1539	33	0.12	0.12	-1.17933	0.13452	0.01899
34	net metering	-1.1537	34	0.12	0.12	-1.16138	0.13460	0.01547
35	chick hatchery	-1.1427	35	0.13	0.12	-1.14380	0.14031	0.01757
36	mulching	-1.1251	36	0.13	0.13	-1.12656	0.14983	0.02347
37	windmill	-1.1184	37	0.13	0.13	-1.10965	0.15354	0.02358
38	heritage breeds	-1.1153	38	0.14	0.13	-1.09306	0.15530	0.02172
39	canning vegetables	-1.1135	39	0.14	0.14	-1.07676	0.15633	0.01914
40	compost	-1.1024	40	0.14	0.14	-1.06074	0.16266	0.02187
41	freezing fruit	-1.0932	41	0.15	0.14	-1.04499	0.16807	0.02366
42	homesteading	-1.0909	42	0.15	0.15	-1.02949	0.16944	0.02143
43	E85	-1.0884	43	0.16	0.15	-1.01424	0.17097	0.01935
44	canning fruit	-1.0848	44	0.16	0.16	-0.99922	0.17316	0.01793
45	organic pork	-1.0833	45	0.16	0.16	-0.98442	0.17405	0.01520
46	biodegradable	-1.0810	46	0.17	0.16	-0.96983	0.17545	0.01299

	Andrew's et al. Terms K-S test statistic initial vs.2004-2013 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
47	organic fruit	-1.0764	47	0.17	0.17	-0.95545	0.17829	0.01222
48	save gas	-1.0491	48	0.17	0.17	-0.94126	0.19561	0.02594
49	survivalism	-1.0476	49	0.18	0.17	-0.92726	0.19658	0.02329
50	sustainable communities	-1.0344	50	0.18	0.18	-0.91344	0.20538	0.02848
51	biofuel	-1.0246	51	0.18	0.18	-0.89979	0.21202	0.03152
52	geothermal	-1.0239	52	0.19	0.18	-0.88631	0.21251	0.02839
53	green accounting	-1.0142	53	0.19	0.19	-0.87298	0.21925	0.03153
54	organic beef	-1.0129	54	0.19	0.19	-0.85981	0.22016	0.02882
55	most fuel efficient vehicles	-1.0072	55	0.20	0.19	-0.84679	0.22414	0.02919
56	organic vegetables	-1.0000	56	0.20	0.20	-0.83391	0.22931	0.03076
57	upick	-0.9916	57	0.21	0.20	-0.82116	0.23537	0.03320
58	freezing vegetables	-0.9828	58	0.21	0.21	-0.80855	0.24182	0.03604
59	home made	-0.9772	59	0.21	0.21	-0.79607	0.24596	0.03657
60	tripple bottom line	-0.9665	60	0.22	0.21	-0.78371	0.25398	0.04099
61	green space	-0.9568	61	0.22	0.22	-0.77146	0.26139	0.04479
62	sustainable agriculture definition	-0.9549	62	0.22	0.22	-0.75933	0.26293	0.04271
63	self reliance	-0.9542	63	0.23	0.22	-0.74731	0.26341	0.03958
64	hydrogen technologies	-0.9497	64	0.23	0.23	-0.73540	0.26693	0.03950
65	Rodale Institute	-0.9489	65	0.23	0.23	-0.72360	0.26752	0.03647
66	Mother Earth News	-0.9410	66	0.24	0.23	-0.71189	0.27377	0.03911
67	Park and Ride	-0.9146	67	0.24	0.24	-0.70028	0.29489	0.05662
68	sustainable food systems	-0.9101	68	0.25	0.24	-0.68876	0.29861	0.05673
69	sustainable yield	-0.9088	69	0.25	0.25	-0.67733	0.29964	0.05415
70	food COOP	-0.9071	70	0.25	0.25	-0.66599	0.30104	0.05194
71	horticultural oil	-0.9047	71	0.26	0.25	-0.65474	0.30304	0.05033

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72	sustainable	-0.8909	72	0.26	0.26	-0.64357	0.31452	0.05820
73	industrial agriculture	-0.8837	73	0.26	0.26	-0.63248	0.32060	0.06067
74	sustainable farming	-0.8792	74	0.27	0.26	-0.62146	0.32447	0.06093
75	grit magazine	-0.8572	75	0.27	0.27	-0.61052	0.34337	0.07622
76	organic produce	-0.8482	76	0.27	0.27	-0.59965	0.35128	0.08052
77	victory garden	-0.8408	77	0.28	0.27	-0.58886	0.35773	0.08337
78	green homes	-0.8396	78	0.28	0.28	-0.57813	0.35879	0.08082
79	save the planet	-0.8375	79	0.29	0.28	-0.56747	0.36064	0.07906
80	dehydrating food	-0.8374	80	0.29	0.29	-0.55687	0.36075	0.07555
81	wind generator	-0.8329	81	0.29	0.29	-0.54633	0.36474	0.07594
82	growing vegetables	-0.8323	82	0.30	0.29	-0.53586	0.36533	0.07291
83	certified organic	-0.8210	83	0.30	0.30	-0.52544	0.37541	0.07938
84	Solar Shingles	-0.8178	84	0.30	0.30	-0.51508	0.37827	0.07863
85	storing vegetables	-0.8098	85	0.31	0.30	-0.50477	0.38549	0.08224
86	desertification	-0.8023	86	0.31	0.31	-0.49452	0.39232	0.08546
87	LEED certification	-0.8001	87	0.31	0.31	-0.48432	0.39432	0.08385
88	rain garden	-0.7997	88	0.32	0.31	-0.47417	0.39462	0.08055
89	tragedy of the commons	-0.7968	89	0.32	0.32	-0.46407	0.39733	0.07964
90	canning	-0.7820	90	0.32	0.32	-0.45401	0.41089	0.08959
91	natural capital	-0.7768	91	0.33	0.32	-0.44400	0.41569	0.09078
92	urban oasis	-0.7754	92	0.33	0.33	-0.43404	0.41699	0.08847
93	Sheep	-0.7719	93	0.34	0.33	-0.42412	0.42023	0.08810
94	saving water	-0.7643	94	0.34	0.34	-0.41424	0.42723	0.09149
95	cheesemaking	-0.7628	95	0.34	0.34	-0.40440	0.42866	0.08931
96	carbon footprint	-0.7628	96	0.35	0.34	-0.39460	0.42866	0.08570

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97	**human development index**	**-0.7522**	**97**	**0.35**	**0.35**	**-0.38483**	**0.43854**	**0.09197**
98	recycling	-0.7499	98	0.35	0.35	-0.37511	0.44067	0.09049
99	NEEM	-0.7490	99	0.36	0.35	-0.36542	0.44153	0.08774
100	insecticidal soap	-0.7479	100	0.36	0.36	-0.35576	0.44254	0.08514
101	green roof	-0.7436	101	0.36	0.36	-0.34613	0.44658	0.08557
102	eco friendly gifts	-0.7383	102	0.37	0.36	-0.33654	0.45145	0.08683
103	sustainable living	-0.7350	103	0.37	0.37	-0.32698	0.45459	0.08636
104	Pyrethrum	-0.7321	104	0.38	0.37	-0.31745	0.45735	0.08551
105	reduce waste	-0.7320	105	0.38	0.38	-0.30795	0.45738	0.08193
106	solar panels	-0.7296	106	0.38	0.38	-0.29847	0.45965	0.08059
107	farmers markets	-0.7216	107	0.39	0.38	-0.28902	0.46722	0.08455
108	environmentally friendly	-0.7193	108	0.39	0.39	-0.27960	0.46931	0.08303
109	environmental finance	-0.7190	109	0.39	0.39	-0.27020	0.46967	0.07978
110	sustainable aquaculture	-0.7162	110	0.40	0.39	-0.26083	0.47222	0.07872
111	intercropping	-0.7147	111	0.40	0.40	-0.25148	0.47370	0.07659
112	green technology	-0.7120	112	0.40	0.40	-0.24215	0.47621	0.07548
113	hobby farm	-0.7117	113	0.41	0.40	-0.23284	0.47649	0.07216
114	crop rotation	-0.7103	114	0.41	0.41	-0.22355	0.47785	0.06990
115	green politics	-0.7095	115	0.42	0.41	-0.21428	0.47860	0.06705
116	meat goats	-0.7085	116	0.42	0.42	-0.20503	0.47951	0.06434
117	conserve	-0.7019	117	0.42	0.42	-0.19580	0.48577	0.06700
118	fairtrade	-0.6965	118	0.43	0.42	-0.18659	0.49083	0.06844
119	self-sufficient	-0.6928	119	0.43	0.43	-0.17739	0.49430	0.06831
120	cradle to cradle design	-0.6849	120	0.43	0.43	-0.16820	0.50178	0.07217
121	biodynamic farming	-0.6846	121	0.44	0.43	-0.15903	0.50211	0.06889

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122	organic certification	-0.6771	122	0.44	0.44	-0.14987	0.50919	0.07236
123	agenda 21	-0.6743	123	0.44	0.44	-0.14073	0.51178	0.07135
124	wind power	-0.6728	124	0.45	0.44	-0.13159	0.51322	0.06917
125	home grown	-0.6710	125	0.45	0.45	-0.12247	0.51487	0.06721
126	companion planting	-0.6695	126	0.45	0.45	-0.11336	0.51632	0.06506
127	going green	-0.6662	127	0.46	0.45	-0.10425	0.51939	0.06452
128	community garden	-0.6595	128	0.46	0.46	-0.09516	0.52578	0.06729
129	do it yourself solar	-0.6559	129	0.47	0.46	-0.08607	0.52910	0.06701
130	food race	-0.6550	130	0.47	0.47	-0.07699	0.53002	0.06432
131	integrated pest management	-0.6489	131	0.47	0.47	-0.06792	0.53571	0.06640
132	ecofriendly	-0.6475	132	0.48	0.47	-0.05885	0.53706	0.06414
133	light rail	-0.6451	133	0.48	0.48	-0.04979	0.53931	0.06277
134	agroecology	-0.6408	134	0.48	0.48	-0.04073	0.54334	0.06320
135	organic grain	-0.6403	135	0.49	0.48	-0.03168	0.54377	0.06002
136	green living	-0.6228	136	0.49	0.49	-0.02262	0.56018	0.07282
137	eco friendly clothing	-0.6224	137	0.49	0.49	-0.01357	0.56056	0.06958
138	green economy	-0.6117	138	0.50	0.49	-0.00452	0.57048	0.07590
139	wind turbine	-0.6096	139	0.50	0.50	0.00452	0.57250	0.07430
140	food preservation	-0.6036	140	0.51	0.50	0.01357	0.57807	0.07627
141	family cow	-0.6029	141	0.51	0.51	0.02262	0.57868	0.07327
142	ecological footprint	-0.6007	142	0.51	0.51	0.03168	0.58070	0.07167
143	seed catalogs	-0.6007	143	0.52	0.51	0.04073	0.58076	0.06813
144	Silent Spring	-0.5990	144	0.52	0.52	0.04979	0.58225	0.06601
145	food cooperative	-0.5960	145	0.52	0.52	0.05885	0.58506	0.06520
146	green building	-0.5959	146	0.53	0.52	0.06792	0.58511	0.06165

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147	alternative energy	-0.5958	147	0.53	0.53	0.07699	0.58529	0.05821
148	sustainable seafood	-0.5957	148	0.53	0.53	0.08607	0.58537	0.05469
149	carbon neutral	-0.5952	149	0.54	0.53	0.09516	0.58582	0.05153
150	organic dairy	-0.5827	150	0.54	0.54	0.10425	0.59728	0.05937
151	green business	-0.5735	151	0.55	0.54	0.11336	0.60571	0.06419
152	shelterbelt	-0.5727	152	0.55	0.55	0.12247	0.60646	0.06134
153	milking a goat	-0.5663	153	0.55	0.55	0.13159	0.61223	0.06349
154	sheet mulching	-0.5660	154	0.56	0.55	0.14073	0.61247	0.06013
155	Leopold Center	-0.5651	155	0.56	0.56	0.14987	0.61334	0.05738
156	deep ecology	-0.5625	156	0.56	0.56	0.15903	0.61569	0.05612
157	gardening	-0.5553	157	0.57	0.56	0.16820	0.62218	0.05900
158	home dairy	-0.5547	158	0.57	0.57	0.17739	0.62272	0.05593
159	organic cheese	-0.5534	159	0.57	0.57	0.18659	0.62391	0.05351
160	free range	-0.5481	160	0.58	0.57	0.19580	0.62859	0.05459
161	low carbon	-0.5448	161	0.58	0.58	0.20503	0.63159	0.05397
162	farmers market	-0.5446	162	0.58	0.58	0.21428	0.63179	0.05057
163	tesla motors	-0.5407	163	0.59	0.58	0.22355	0.63523	0.05039
164	hybrid cars	-0.5405	164	0.59	0.59	0.23284	0.63539	0.04694
165	eco friendly homes	-0.5382	165	0.60	0.59	0.24215	0.63742	0.04536
166	green manure	-0.5191	166	0.60	0.60	0.25148	0.65425	0.05858
167	canning meat	-0.5155	167	0.60	0.60	0.26083	0.65741	0.05813
168	organic eating	-0.5154	168	0.61	0.60	0.27020	0.65750	0.05462
169	climate skeptics	-0.5133	169	0.61	0.61	0.27960	0.65933	0.05283
170	industrial ecology	-0.5079	170	0.61	0.61	0.28902	0.66399	0.05388
171	boer goats	-0.5073	171	0.62	0.61	0.29847	0.66451	0.05079

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172	resource depletion	-0.5038	172	0.62	0.62	0.30795	0.66754	0.05021
173	organic farming	-0.5030	173	0.62	0.62	0.31745	0.66821	0.04727
174	Tesla Roadster	-0.5011	174	0.63	0.62	0.32698	0.66982	0.04527
175	overpopulation	-0.4937	175	0.63	0.63	0.33654	0.67612	0.04796
176	gardening books	-0.4936	176	0.64	0.63	0.34613	0.67622	0.04445
177	food dehydrator	-0.4933	177	0.64	0.64	0.35576	0.67651	0.04113
178	permaculture	-0.4858	178	0.64	0.64	0.36542	0.68285	0.04386
179	organic gardening magazine	-0.4776	179	0.65	0.64	0.37511	0.68976	0.04716
180	green buildings	-0.4761	180	0.65	0.65	0.38483	0.69098	0.04477
181	Organic Gardening	-0.4749	181	0.65	0.65	0.39460	0.69201	0.04219
182	eco friendly	-0.4712	182	0.66	0.65	0.40440	0.69508	0.04165
183	environmentalism	-0.4699	183	0.66	0.66	0.41424	0.69610	0.03906
184	sustainable food	-0.4632	184	0.66	0.66	0.42412	0.70164	0.04099
185	green jobs	-0.4616	185	0.67	0.66	0.43404	0.70299	0.03873
186	Spinosad	-0.4581	186	0.67	0.67	0.44400	0.70585	0.03798
187	energy star	-0.4569	187	0.68	0.67	0.45401	0.70680	0.03532
188	human population growth	-0.4551	188	0.68	0.68	0.46407	0.70829	0.03320
189	environmental security	-0.4522	189	0.68	0.68	0.47417	0.71059	0.03189
190	IPM	-0.4496	190	0.69	0.68	0.48432	0.71271	0.03040
191	back to the land	-0.4483	191	0.69	0.69	0.49452	0.71373	0.02781
192	rainwater harvesting	-0.4434	192	0.69	0.69	0.50477	0.71770	0.02817
193	zero population growth	-0.4427	193	0.70	0.69	0.51508	0.71823	0.02509
194	xeriscaping	-0.4353	194	0.70	0.70	0.52544	0.72414	0.02739
195	compost tea	-0.4313	195	0.70	0.70	0.53586	0.72731	0.02695
196	sustainable design	-0.4246	196	0.71	0.70	0.54633	0.73249	0.02852

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197	solar shingle	-0.4227	197	0.71	0.71	0.55687	0.73402	0.02644
198	ecological services	-0.4151	198	0.71	0.71	0.56747	0.73989	0.02870
199	hair sheep	-0.4144	199	0.72	0.71	0.57813	0.74039	0.02559
200	organic milk	-0.4098	200	0.72	0.72	0.58886	0.74394	0.02553
201	sustainable tourism	-0.4066	201	0.73	0.72	0.59965	0.74634	0.02432
202	tesla model s	-0.4043	202	0.73	0.73	0.61052	0.74808	0.02245
203	Tesla Model	-0.4041	203	0.73	0.73	0.62146	0.74827	0.01902
204	Green Peace	-0.3978	204	0.74	0.73	0.63248	0.75294	0.02009
205	green energy	-0.3955	205	0.74	0.74	0.64357	0.75468	0.01821
206	depopulation	-0.3916	206	0.74	0.74	0.65474	0.75758	0.01751
207	incinolet	-0.3878	207	0.75	0.74	0.66599	0.76036	0.01668
208	hobby farms magazine	-0.3839	208	0.75	0.75	0.67733	0.76323	0.01594
209	alternative fuel	-0.3766	209	0.75	0.75	0.68876	0.76855	0.01765
210	chicken coop	-0.3728	210	0.76	0.75	0.70028	0.77125	0.01674
211	Sustainable Development	-0.3668	211	0.76	0.76	0.71189	0.77552	0.01740
212	gardening magazines	-0.3656	212	0.77	0.76	0.72360	0.77637	0.01464
213	seed catalog	-0.3632	213	0.77	0.77	0.73540	0.77813	0.01278
214	fuel cell	-0.3619	214	0.77	0.77	0.74731	0.77904	0.01009
215	Simple Living	-0.3616	215	0.78	0.77	0.75933	0.77923	0.00667
216	gray water systems	-0.3601	216	0.78	0.78	0.77146	0.78027	0.00409
217	sustainability	-0.3553	217	0.78	0.78	0.78371	0.78363	0.00385
218	ecosystem services	-0.3551	218	0.79	0.78	0.79607	0.78376	0.00037
219	what is sustainable	-0.3523	219	0.79	0.79	0.80855	0.78570	0.00130
220	acres magazine	-0.3522	220	0.79	0.79	0.82116	0.78579	0.00483
221	Environmental Management	-0.3505	221	0.80	0.79	0.83391	0.78694	0.00729

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222	food miles	-0.3457	222	0.80	0.80	0.84679	0.79022	0.00761
223	Chevy Volt	-0.3360	223	0.81	0.80	0.85981	0.79674	0.00470
224	The Nature Conservancy	-0.3358	224	0.81	0.81	0.87298	0.79687	0.00818
225	grow your own	-0.3304	225	0.81	0.81	0.88631	0.80052	0.00815
226	hybrid vehicle	-0.3227	226	0.82	0.81	0.89979	0.80553	0.00675
227	Nissan Leaf	-0.3227	227	0.82	0.82	0.91344	0.80553	0.01036
228	RFDTV	-0.3176	228	0.82	0.82	0.92726	0.80884	0.01065
229	organic chicken	-0.3073	229	0.83	0.82	0.94126	0.81540	0.00770
230	blue bag	-0.3071	230	0.83	0.83	0.95545	0.81553	0.01118
231	organic poultry	-0.3027	231	0.83	0.83	0.96983	0.81829	0.01204
232	organic juice	-0.2949	232	0.84	0.83	0.98442	0.82311	0.01082
233	urban sprawl	-0.2915	233	0.84	0.84	0.99922	0.82519	0.01235
234	how to butcher a chicken	-0.2894	234	0.84	0.84	1.01424	0.82649	0.01466
235	eco friendly bag	-0.2827	235	0.85	0.84	1.02949	0.83052	0.01424
236	aquaponics	-0.2756	236	0.85	0.85	1.04499	0.83473	0.01364
237	chicken plucker	-0.2689	237	0.86	0.85	1.06074	0.83862	0.01336
238	carbon credit	-0.2644	238	0.86	0.86	1.07676	0.84124	0.01436
239	Resilience	-0.2607	239	0.86	0.86	1.09306	0.84336	0.01585
240	emissions trading	-0.2582	240	0.87	0.86	1.10965	0.84476	0.01806
241	carbon trading	-0.2541	241	0.87	0.87	1.12656	0.84705	0.01938
242	green mba	-0.2448	242	0.87	0.87	1.14380	0.85219	0.01785
243	organic flour	-0.2356	243	0.88	0.87	1.16138	0.85716	0.01649
244	What is Sustainability	-0.2353	244	0.88	0.88	1.17933	0.85735	0.01991
245	local food	-0.2346	245	0.88	0.88	1.19767	0.85769	0.02318
246	passive solar	-0.2315	246	0.89	0.88	1.21642	0.85936	0.02511

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247	back home magazine	-0.2306	247	0.89	0.89	1.23560	0.85983	0.02825
248	walkability	-0.2213	248	0.90	0.89	1.25525	0.86467	0.02703
249	sustainable infrastructure	-0.2212	249	0.90	0.90	1.27540	0.86470	0.03060
250	time banking	-0.2130	250	0.90	0.90	1.29609	0.86891	0.03000
251	environmental quality	-0.2086	251	0.91	0.90	1.31734	0.87112	0.03141
252	eat local	-0.2062	252	0.91	0.91	1.33920	0.87230	0.03384
253	transition towns	-0.2055	253	0.91	0.91	1.36172	0.87264	0.03711
254	upcycling	-0.2007	254	0.92	0.91	1.38496	0.87501	0.03835
255	Smart Growth	-0.1954	255	0.92	0.92	1.40897	0.87758	0.03939
256	earth charter	-0.1910	256	0.92	0.92	1.43382	0.87967	0.04090
257	climate deniers	-0.1892	257	0.93	0.92	1.45958	0.88053	0.04366
258	ecovillage	-0.1870	258	0.93	0.93	1.48636	0.88154	0.04626
259	community supported agriculture	-0.1860	259	0.94	0.93	1.51424	0.88203	0.04938
260	new urbanism	-0.1837	260	0.94	0.94	1.54336	0.88308	0.05194
261	National Organic Program	-0.1832	261	0.94	0.94	1.57384	0.88331	0.05532
262	grass fed	-0.1799	262	0.95	0.94	1.60587	0.88485	0.05739
263	green transportation	-0.1733	263	0.95	0.95	1.63963	0.88787	0.05798
264	off the grid	-0.1679	264	0.95	0.95	1.67536	0.89026	0.05920
265	composting toilets	-0.1647	265	0.96	0.95	1.71338	0.89168	0.06139
266	organic agriculture	-0.1629	266	0.96	0.96	1.75405	0.89246	0.06422
267	vertical farming	-0.1548	267	0.96	0.96	1.79784	0.89596	0.06433
268	tiny houses	-0.1392	268	0.97	0.96	1.84538	0.90251	0.06139
269	countryside magazine	-0.1292	269	0.97	0.97	1.89750	0.90648	0.06102
270	local harvest	-0.1224	270	0.97	0.97	1.95535	0.90916	0.06196
271	IFOAM	-0.1036	271	0.98	0.97	2.02060	0.91621	0.05852

	Andrew's et al. Terms K-S test statistic initial vs.2004-2013 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
272	back woods home magazine	-0.1005	272	0.98	0.98	2.09579	0.91735	0.06099
273	feed-in tariff	-0.0963	273	0.99	0.98	2.18511	0.91884	0.06311
274	You Pick	-0.0654	274	0.99	0.99	2.29627	0.92928	0.05628
275	local farms	-0.0539	275	0.99	0.99	2.44612	0.93290	0.05627
276	urban farming	-0.0516	276	1.00	0.99	2.68651	0.93359	0.05919
277	locavore	-0.0130	277	1.00	1.00		0.94458	0.05181

Count 277

Mean -0,6868

SD 0,422575927

Maximum 0,091971488 Actual K-S test statistic

Appendix IX. Kolmogorov Smirnov test (K-S test) for the ED values between the metrics 2004- 2013 (initial GTs) and the recalculated metrics 2004-2017. (See table's 10 heading for details)

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
1	going green	-2.3710	1	0.00	0.00	-2.68651	0.00007	0.00007
2	wood heat	-2.3476	2	0.01	0.00	-2.44612	0.00009	0.00352
3	limits to growth	-2.2695	3	0.01	0.01	-2.29627	0.00018	0.00704
4	community sustainable agriculture	-2.1344	4	0.01	0.01	-2.18511	0.00056	0.01027
5	local harvest	-2.1329	5	0.02	0.01	-2.09579	0.00056	0.01388
6	environmental performance index	-2.1257	6	0.02	0.02	-2.02060	0.00060	0.01745
7	pick your own	-2.0004	7	0.03	0.02	-1.95535	0.00159	0.02007
8	home vegetable garden	-1.8893	8	0.03	0.03	-1.89750	0.00354	0.02173
9	desertification	-1.7316	9	0.03	0.03	-1.84538	0.00994	0.01894
10	ecofriendly	-1.6748	10	0.04	0.03	-1.79784	0.01399	0.01850
11	electric cars	-1.5616	11	0.04	0.04	-1.75405	0.02644	0.00966
12	littering	-1.5590	12	0.04	0.04	-1.71338	0.02682	0.01290
13	mulching	-1.5425	13	0.05	0.04	-1.67536	0.02927	0.01406
14	rooftop gardens	-1.5271	14	0.05	0.05	-1.63963	0.03172	0.01521
15	windmill	-1.5002	15	0.05	0.05	-1.60587	0.03642	0.01412
16	horticultural oil	-1.4984	16	0.06	0.05	-1.57384	0.03674	0.01741
17	E85	-1.4914	17	0.06	0.06	-1.54336	0.03807	0.01969
18	apple picking	-1.4500	18	0.06	0.06	-1.51424	0.04668	0.01469

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
19	rototiller	-1.4442	19	0.07	0.06	-1.48636	0.04800	0.01698
20	organic pork	-1.4335	20	0.07	0.07	-1.45958	0.05054	0.01805
21	compost	-1.4309	21	0.08	0.07	-1.43382	0.05116	0.02105
22	home grown	-1.4240	22	0.08	0.08	-1.40897	0.05287	0.02294
23	hobby farm	-1.3018	23	0.08	0.08	-1.38496	0.09087	0.01145
24	carbon footprint	-1.2813	24	0.09	0.08	-1.36172	0.09889	0.01586
25	tripple bottom line	-1.2547	25	0.09	0.09	-1.33920	0.11000	0.02336
26	Vegetable Seeds	-1.2102	26	0.09	0.09	-1.31734	0.13059	0.04033
27	natural food	-1.2078	27	0.10	0.09	-1.29609	0.13175	0.03789
28	freezing fruit	-1.2073	28	0.10	0.10	-1.27540	0.13200	0.03453
29	heritage breeds	-1.1999	29	0.10	0.10	-1.25525	0.13570	0.03462
30	starting seeds	-1.1971	30	0.11	0.10	-1.23560	0.13712	0.03243
31	urban oasis	-1.1882	31	0.11	0.11	-1.21642	0.14170	0.03340
32	homesteading	-1.1846	32	0.12	0.11	-1.19767	0.14355	0.03164
33	most fuel efficient vehicles	-1.1813	33	0.12	0.12	-1.17933	0.14530	0.02978
34	sustainable food systems	-1.1677	34	0.12	0.12	-1.16138	0.15260	0.03347
35	canning	-1.1561	35	0.13	0.12	-1.14380	0.15900	0.03625
36	organic vegetables	-1.1516	36	0.13	0.13	-1.12656	0.16154	0.03518
37	save gas	-1.1447	37	0.13	0.13	-1.10965	0.16545	0.03548
38	survivalism	-1.1423	38	0.14	0.13	-1.09306	0.16688	0.03330
39	self reliance	-1.1380	39	0.14	0.14	-1.07676	0.16935	0.03217
40	Rodale Institute	-1.1370	40	0.14	0.14	-1.06074	0.16992	0.02913
41	community gardens	-1.1322	41	0.15	0.14	-1.04499	0.17276	0.02836
42	canning meat	-1.1297	42	0.15	0.15	-1.02949	0.17426	0.02625
43	renewable energy	-1.1284	43	0.16	0.15	-1.01424	0.17504	0.02341

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
44	LEED certification	-1.1145	44	0.16	0.16	-0.99922	0.18339	0.02816
45	xeriscaping	-1.1070	45	0.16	0.16	-0.98442	0.18807	0.02922
46	hatching eggs	-1.1026	46	0.17	0.16	-0.96983	0.19079	0.02834
47	recycling	-1.0903	47	0.17	0.17	-0.95545	0.19864	0.03257
48	green trading	-1.0881	48	0.17	0.17	-0.94126	0.20009	0.03042
49	garden seeds	-1.0874	49	0.18	0.17	-0.92726	0.20053	0.02724
50	farmers markets	-1.0873	50	0.18	0.18	-0.91344	0.20061	0.02372
51	green homes	-1.0817	51	0.18	0.18	-0.89979	0.20422	0.02372
52	biodegradable	-1.0803	52	0.19	0.18	-0.88631	0.20514	0.02103
53	green accounting	-1.0740	53	0.19	0.19	-0.87298	0.20929	0.02157
54	sustainable yield	-1.0733	54	0.19	0.19	-0.85981	0.20978	0.01844
55	tragedy of the commons	-1.0578	55	0.20	0.19	-0.84679	0.22027	0.02532
56	biofuel	-1.0547	56	0.20	0.20	-0.83391	0.22236	0.02381
57	wind turbine	-1.0511	57	0.21	0.20	-0.82116	0.22488	0.02272
58	hydrogen technologies	-1.0481	58	0.21	0.21	-0.80855	0.22697	0.02119
59	rainwater harvesting	-1.0461	59	0.21	0.21	-0.79607	0.22833	0.01894
60	making cheese	-1.0453	60	0.22	0.21	-0.78371	0.22889	0.01589
61	permaculture	-1.0443	61	0.22	0.22	-0.77146	0.22959	0.01298
62	food COOP	-1.0134	62	0.22	0.22	-0.75933	0.25182	0.03160
63	climate skeptics	-1.0106	63	0.23	0.22	-0.74731	0.25390	0.03007
64	mulch	-0.9987	64	0.23	0.23	-0.73540	0.26275	0.03531
65	Solar Shingles	-0.9942	65	0.23	0.23	-0.72360	0.26622	0.03517
66	upick	-0.9937	66	0.24	0.23	-0.71189	0.26656	0.03190
67	resource depletion	-0.9737	67	0.24	0.24	-0.70028	0.28195	0.04368
68	community garden	-0.9735	68	0.25	0.24	-0.68876	0.28211	0.04024

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
69	organic beef	-0.9672	69	0.25	0.25	-0.67733	0.28707	0.04158
70	storing vegetables	-0.9575	70	0.25	0.25	-0.66599	0.29479	0.04569
71	chick hatchery	-0.9570	71	0.26	0.25	-0.65474	0.29513	0.04242
72	industrial agriculture	-0.9455	72	0.26	0.26	-0.64357	0.30442	0.04810
73	freezing vegetables	-0.9408	73	0.26	0.26	-0.63248	0.30817	0.04825
74	food race	-0.9382	74	0.27	0.26	-0.62146	0.31029	0.04675
75	ecological footprint	-0.9349	75	0.27	0.27	-0.61052	0.31300	0.04585
76	growing vegetables	-0.9285	76	0.27	0.27	-0.59965	0.31829	0.04754
77	green space	-0.9130	77	0.28	0.27	-0.58886	0.33114	0.05678
78	fruit trees	-0.9065	78	0.28	0.28	-0.57813	0.33663	0.05866
79	energy efficiency	-0.9033	79	0.29	0.28	-0.56747	0.33932	0.05773
80	green roof	-0.9014	80	0.29	0.29	-0.55687	0.34097	0.05577
81	composting	-0.8980	81	0.29	0.29	-0.54633	0.34381	0.05500
82	sustainable farming	-0.8957	82	0.30	0.29	-0.53586	0.34580	0.05338
83	solar panels	-0.8931	83	0.30	0.30	-0.52544	0.34799	0.05196
84	canning fruit	-0.8926	84	0.30	0.30	-0.51508	0.34840	0.04877
85	home dairy	-0.8852	85	0.31	0.30	-0.50477	0.35476	0.05151
86	canning vegetables	-0.8765	86	0.31	0.31	-0.49452	0.36232	0.05546
87	LEED	-0.8688	87	0.31	0.31	-0.48432	0.36898	0.05851
88	intercropping	-0.8617	88	0.32	0.31	-0.47417	0.37523	0.06115
89	free range	-0.8519	89	0.32	0.32	-0.46407	0.38383	0.06614
90	organic food	-0.8489	90	0.32	0.32	-0.45401	0.38649	0.06519
91	Pyrethrum	-0.8483	91	0.33	0.32	-0.44400	0.38703	0.06212
92	sustainable aquaculture	-0.8477	92	0.33	0.33	-0.43404	0.38749	0.05897
93	Park and Ride	-0.8465	93	0.34	0.33	-0.42412	0.38857	0.05644

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
94	eco friendly gifts	-0.8464	94	0.34	0.34	-0.41424	0.38870	0.05295
95	tesla motors	-0.8402	95	0.34	0.34	-0.40440	0.39414	0.05479
96	agenda 21	-0.8285	96	0.35	0.34	-0.39460	0.40464	0.06168
97	Silent Spring	-0.8254	97	0.35	0.35	-0.38483	0.40738	0.06081
98	conserve	-0.8118	98	0.35	0.35	-0.37511	0.41967	0.06949
99	rain garden	-0.8085	99	0.36	0.35	-0.36542	0.42263	0.06884
100	green living	-0.7995	100	0.36	0.36	-0.35576	0.43080	0.07340
101	natural capital	-0.7961	101	0.36	0.36	-0.34613	0.43391	0.07290
102	crop rotation	-0.7892	102	0.37	0.36	-0.33654	0.44020	0.07558
103	grit magazine	-0.7848	103	0.37	0.37	-0.32698	0.44417	0.07594
104	family cow	-0.7840	104	0.38	0.37	-0.31745	0.44489	0.07305
105	sustainable seafood	-0.7785	105	0.38	0.38	-0.30795	0.44996	0.07451
106	organic eating	-0.7749	106	0.38	0.38	-0.29847	0.45320	0.07414
107	grow your own	-0.7746	107	0.39	0.38	-0.28902	0.45352	0.07085
108	agroecology	-0.7676	108	0.39	0.39	-0.27960	0.45995	0.07367
109	food preservation	-0.7665	109	0.39	0.39	-0.27020	0.46091	0.07102
110	saving water	-0.7618	110	0.40	0.39	-0.26083	0.46523	0.07173
111	green technology	-0.7505	111	0.40	0.40	-0.25148	0.47566	0.07855
112	insecticidal soap	-0.7472	112	0.40	0.40	-0.24215	0.47866	0.07794
113	organic produce	-0.7395	113	0.41	0.40	-0.23284	0.48577	0.08144
114	**farmers market**	**-0.7280**	**114**	**0.41**	**0.41**	**-0.22355**	**0.49639**	**0.08845**
115	companion planting	-0.7272	115	0.42	0.41	-0.21428	0.49708	0.08553
116	green jobs	-0.7234	116	0.42	0.42	-0.20503	0.50058	0.08542
117	zero population growth	-0.7212	117	0.42	0.42	-0.19580	0.50261	0.08383
118	integrated pest management	-0.7163	118	0.43	0.42	-0.18659	0.50713	0.08475

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
119	IPM	-0.7138	119	0.43	0.43	-0.17739	0.50947	0.08347
120	overpopulation	-0.7105	120	0.43	0.43	-0.16820	0.51254	0.08293
121	green politics	-0.7095	121	0.44	0.43	-0.15903	0.51344	0.08023
122	Tesla Roadster	-0.7074	122	0.44	0.44	-0.14987	0.51538	0.07856
123	food dehydrator	-0.7010	123	0.44	0.44	-0.14073	0.52128	0.08085
124	hair sheep	-0.6986	124	0.45	0.44	-0.13159	0.52343	0.07939
125	Sustainable Energy	-0.6968	125	0.45	0.45	-0.12247	0.52510	0.07745
126	geothermal	-0.6846	126	0.45	0.45	-0.11336	0.53632	0.08506
127	self sufficiency	-0.6831	127	0.46	0.45	-0.10425	0.53772	0.08285
128	light rail	-0.6800	128	0.46	0.46	-0.09516	0.54053	0.08205
129	sustainable agriculture definition	-0.6756	129	0.47	0.46	-0.08607	0.54459	0.08250
130	dehydrating food	-0.6721	130	0.47	0.47	-0.07699	0.54777	0.08206
131	energy star	-0.6678	131	0.47	0.47	-0.06792	0.55172	0.08240
132	sustainability	-0.6654	132	0.48	0.47	-0.05885	0.55394	0.08101
133	deep ecology	-0.6588	133	0.48	0.48	-0.04979	0.55991	0.08338
134	Leopold Center	-0.6588	134	0.48	0.48	-0.04073	0.55994	0.07980
135	certified organic	-0.6576	135	0.49	0.48	-0.03168	0.56107	0.07731
136	green economy	-0.6565	136	0.49	0.49	-0.02262	0.56202	0.07465
137	self-sufficient	-0.6489	137	0.49	0.49	-0.01357	0.56894	0.07797
138	Small Farm	-0.6466	138	0.50	0.49	-0.00452	0.57103	0.07644
139	Tesla Model	-0.6455	139	0.50	0.50	0.00452	0.57205	0.07385
140	human development index	-0.6431	140	0.51	0.50	0.01357	0.57425	0.07244
141	sheet mulching	-0.6390	141	0.51	0.51	0.02262	0.57789	0.07248
142	gardening	-0.6338	142	0.51	0.51	0.03168	0.58258	0.07355
143	Sustainable Development	-0.6335	143	0.52	0.51	0.04073	0.58288	0.07025

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
144	organic foods	-0.6320	144	0.52	0.52	0.04979	0.58423	0.06798
145	eco friendly clothing	-0.6276	145	0.52	0.52	0.05885	0.58824	0.06838
146	eco friendly	-0.6249	146	0.53	0.52	0.06792	0.59064	0.06717
147	meat goats	-0.6248	147	0.53	0.53	0.07699	0.59072	0.06365
148	back to the land	-0.6248	148	0.53	0.53	0.08607	0.59075	0.06007
149	solar water heater	-0.6211	149	0.54	0.53	0.09516	0.59402	0.05972
150	victory garden	-0.6209	150	0.54	0.54	0.10425	0.59423	0.05632
151	green manure	-0.6178	151	0.55	0.54	0.11336	0.59702	0.05550
152	industrial ecology	-0.6124	152	0.55	0.55	0.12247	0.60180	0.05668
153	Sheep	-0.6079	153	0.55	0.55	0.13159	0.60580	0.05706
154	carbon neutral	-0.6012	154	0.56	0.55	0.14073	0.61175	0.05941
155	Chevy Volt	-0.5963	155	0.56	0.56	0.14987	0.61613	0.06017
156	organic fruit	-0.5951	156	0.56	0.56	0.15903	0.61715	0.05758
157	organic cheese	-0.5889	157	0.57	0.56	0.16820	0.62260	0.05943
158	save the planet	-0.5867	158	0.57	0.57	0.17739	0.62459	0.05780
159	human population growth	-0.5854	159	0.57	0.57	0.18659	0.62570	0.05530
160	green business	-0.5835	160	0.58	0.57	0.19580	0.62739	0.05339
161	milking a goat	-0.5821	161	0.58	0.58	0.20503	0.62855	0.05093
162	sustainable	-0.5780	162	0.58	0.58	0.21428	0.63217	0.05095
163	reduce waste	-0.5762	163	0.59	0.58	0.22355	0.63370	0.04886
164	organic dairy	-0.5703	164	0.59	0.59	0.23284	0.63886	0.05042
165	Nissan Leaf	-0.5694	165	0.60	0.59	0.24215	0.63960	0.04754
166	hybrid cars	-0.5627	166	0.60	0.60	0.25148	0.64537	0.04970
167	NEEM	-0.5570	167	0.60	0.60	0.26083	0.65029	0.05101
168	depopulation	-0.5412	168	0.61	0.60	0.27020	0.66373	0.06084

	Andrew's et al. Terms K-S test statistic initial vs.2004-2017 metric	(1) ED (log)	(2) Cumulative count	(3) Expected CDF	(4) (Rank-1) /n	(5) NORM. S.INV	(6) Actual NORM.DIST	(7) Difference
169	home made	-0.5404	169	0.61	0.61	0.27960	0.66441	0.05791
170	urban sprawl	-0.5379	170	0.61	0.61	0.28902	0.66652	0.05642
171	sustainable communities	-0.5370	171	0.62	0.61	0.29847	0.66729	0.05357
172	cradle to cradle design	-0.5360	172	0.62	0.62	0.30795	0.66807	0.05074
173	environmentalism	-0.5262	173	0.62	0.62	0.31745	0.67624	0.05530
174	fuel cell	-0.5218	174	0.63	0.62	0.32698	0.67988	0.05533
175	Spinosad	-0.5175	175	0.63	0.63	0.33654	0.68343	0.05527
176	environmental security	-0.5082	176	0.64	0.63	0.34613	0.69104	0.05927
177	chicken coop	-0.5069	177	0.64	0.64	0.35576	0.69216	0.05678
178	eco friendly homes	-0.5061	178	0.64	0.64	0.36542	0.69278	0.05379
179	fairtrade	-0.5019	179	0.65	0.64	0.37511	0.69617	0.05357
180	wind power	-0.5013	180	0.65	0.65	0.38483	0.69664	0.05043
181	low carbon	-0.4946	181	0.65	0.65	0.39460	0.70205	0.05223
182	seed catalogs	-0.4862	182	0.66	0.65	0.40440	0.70873	0.05530
183	walkability	-0.4855	183	0.66	0.66	0.41424	0.70929	0.05225
184	biodynamic farming	-0.4829	184	0.66	0.66	0.42412	0.71133	0.05068
185	environmentally friendly	-0.4781	185	0.67	0.66	0.43404	0.71513	0.05087
186	carpool	-0.4768	186	0.67	0.67	0.44400	0.71618	0.04831
187	The Nature Conservancy	-0.4699	187	0.68	0.67	0.45401	0.72154	0.05006
188	net metering	-0.4653	188	0.68	0.68	0.46407	0.72512	0.05003
189	how to butcher a chicken	-0.4586	189	0.68	0.68	0.47417	0.73021	0.05151
190	gray water systems	-0.4462	190	0.69	0.68	0.48432	0.73963	0.05732
191	Environmental Management	-0.4456	191	0.69	0.69	0.49452	0.74011	0.05419
192	wind generator	-0.4409	192	0.69	0.69	0.50477	0.74359	0.05406
193	do it yourself solar	-0.4233	193	0.70	0.69	0.51508	0.75651	0.06337

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194	local food	-0.4188	194	0.70	0.70	0.52544	0.75974	0.06299
195	shelterbelt	-0.4166	195	0.70	0.70	0.53586	0.76134	0.06098
196	compost tea	-0.4143	196	0.71	0.70	0.54633	0.76298	0.05901
197	alternative fuel	-0.4125	197	0.71	0.71	0.55687	0.76426	0.05668
198	carbon trading	-0.4115	198	0.71	0.71	0.56747	0.76497	0.05378
199	green building	-0.4115	199	0.72	0.71	0.57813	0.76497	0.05017
200	ecosystem services	-0.4030	200	0.72	0.72	0.58886	0.77099	0.05258
201	ecological services	-0.3973	201	0.73	0.72	0.59965	0.77491	0.05289
202	chicken plucker	-0.3962	202	0.73	0.73	0.61052	0.77572	0.05009
203	eat local	-0.3958	203	0.73	0.73	0.62146	0.77599	0.04674
204	food miles	-0.3957	204	0.74	0.73	0.63248	0.77604	0.04319
205	What is Sustainability	-0.3936	205	0.74	0.74	0.64357	0.77751	0.04105
206	organic farming	-0.3927	206	0.74	0.74	0.65474	0.77815	0.03808
207	acres magazine	-0.3926	207	0.75	0.74	0.66599	0.77819	0.03451
208	organic grain	-0.3923	208	0.75	0.75	0.67733	0.77841	0.03111
209	Organic Gardening	-0.3909	209	0.75	0.75	0.68876	0.77935	0.02845
210	organic milk	-0.3883	210	0.76	0.75	0.70028	0.78114	0.02663
211	organic certification	-0.3870	211	0.76	0.76	0.71189	0.78200	0.02388
212	alternative energy	-0.3846	212	0.77	0.76	0.72360	0.78368	0.02195
213	solar shingle	-0.3845	213	0.77	0.77	0.73540	0.78371	0.01837
214	aquaponics	-0.3842	214	0.77	0.77	0.74731	0.78392	0.01497
215	food cooperative	-0.3799	215	0.78	0.77	0.75933	0.78679	0.01423
216	Simple Living	-0.3792	216	0.78	0.78	0.77146	0.78728	0.01110
217	what is sustainable	-0.3768	217	0.78	0.78	0.78371	0.78890	0.00911
218	sustainable tourism	-0.3763	218	0.79	0.78	0.79607	0.78922	0.00582

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219	Resilience	-0.3748	219	0.79	0.79	0.80855	0.79021	0.00320
220	hybrid vehicle	-0.3730	220	0.79	0.79	0.82116	0.79140	0.00078
221	environmental quality	-0.3717	221	0.80	0.79	0.83391	0.79229	0.00194
222	locavore	-0.3682	222	0.80	0.80	0.84679	0.79463	0.00321
223	Green Peace	-0.3669	223	0.81	0.80	0.85981	0.79548	0.00597
224	green energy	-0.3654	224	0.81	0.81	0.87298	0.79644	0.00861
225	incinolet	-0.3619	225	0.81	0.81	0.88631	0.79871	0.00996
226	environmental finance	-0.3585	226	0.82	0.81	0.89979	0.80094	0.01133
227	Smart Growth	-0.3560	227	0.82	0.82	0.91344	0.80255	0.01334
228	seed catalog	-0.3535	228	0.82	0.82	0.92726	0.80411	0.01539
229	sustainable food	-0.3520	229	0.83	0.82	0.94126	0.80508	0.01803
230	green mba	-0.3506	230	0.83	0.83	0.95545	0.80597	0.02075
231	organic poultry	-0.3487	231	0.83	0.83	0.96983	0.80715	0.02317
232	gardening books	-0.3448	232	0.84	0.83	0.98442	0.80964	0.02429
233	new urbanism	-0.3404	233	0.84	0.84	0.99922	0.81240	0.02515
234	tesla model s	-0.3347	234	0.84	0.84	1.01424	0.81593	0.02523
235	RFDTV	-0.3221	235	0.85	0.84	1.02949	0.82357	0.02119
236	off the grid	-0.3075	236	0.85	0.85	1.04499	0.83220	0.01618
237	grass fed	-0.3046	237	0.86	0.85	1.06074	0.83386	0.01813
238	upcycling	-0.2931	238	0.86	0.86	1.07676	0.84039	0.01521
239	Mother Earth News	-0.2916	239	0.86	0.86	1.09306	0.84122	0.01799
240	organic chicken	-0.2905	240	0.87	0.86	1.10965	0.84183	0.02098
241	passive solar	-0.2893	241	0.87	0.87	1.12656	0.84250	0.02392
242	green transportation	-0.2869	242	0.87	0.87	1.14380	0.84383	0.02620
243	carbon credit	-0.2866	243	0.88	0.87	1.16138	0.84399	0.02966

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244	boer goats	-0.2807	244	0.88	0.88	1.17933	0.84724	0.03002
245	urban farming	-0.2760	245	0.88	0.88	1.19767	0.84978	0.03109
246	sustainable infrastructure	-0.2697	246	0.89	0.88	1.21642	0.85317	0.03130
247	emissions trading	-0.2677	247	0.89	0.89	1.23560	0.85425	0.03384
248	composting toilet	-0.2645	248	0.90	0.89	1.25525	0.85593	0.03576
249	eco friendly bag	-0.2627	249	0.90	0.90	1.27540	0.85687	0.03844
250	sustainable design	-0.2547	250	0.90	0.90	1.29609	0.86101	0.03791
251	local farms	-0.2477	251	0.91	0.90	1.31734	0.86457	0.03796
252	green buildings	-0.2473	252	0.91	0.91	1.33920	0.86474	0.04140
253	hobby farms magazine	-0.2432	253	0.91	0.91	1.36172	0.86678	0.04296
254	tiny houses	-0.2418	254	0.92	0.91	1.38496	0.86748	0.04588
255	blue bag	-0.2388	255	0.92	0.92	1.40897	0.86899	0.04798
256	sustainable living	-0.2302	256	0.92	0.92	1.43382	0.87314	0.04743
257	back home magazine	-0.2299	257	0.93	0.92	1.45958	0.87332	0.05087
258	earth charter	-0.2278	258	0.93	0.93	1.48636	0.87433	0.05347
259	time banking	-0.2202	259	0.94	0.93	1.51424	0.87791	0.05350
260	IFOAM	-0.2195	260	0.94	0.94	1.54336	0.87824	0.05677
261	organic juice	-0.2162	261	0.94	0.94	1.57384	0.87976	0.05886
262	cheesemaking	-0.2048	262	0.95	0.94	1.60587	0.88497	0.05727
263	climate deniers	-0.2038	263	0.95	0.95	1.63963	0.88538	0.06047
264	gardening magazines	-0.1961	264	0.95	0.95	1.67536	0.88883	0.06063
265	organic agriculture	-0.1914	265	0.96	0.95	1.71338	0.89086	0.06221
266	vertical farming	-0.1864	266	0.96	0.96	1.75405	0.89299	0.06369
267	transition towns	-0.1834	267	0.96	0.96	1.79784	0.89429	0.06600
268	organic gardening magazine	-0.1714	268	0.97	0.96	1.84538	0.89927	0.06463

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269	composting toilets	-0.1669	269	0.97	0.97	1.89750	0.90108	0.06643
270	organic flour	-0.1624	270	0.97	0.97	1.95535	0.90289	0.06823
271	National Organic Program	-0.1621	271	0.98	0.97	2.02060	0.90300	0.07173
272	ecovillage	-0.1204	272	0.98	0.98	2.09579	0.91851	0.05983
273	community supported agriculture	-0.1016	273	0.99	0.98	2.18511	0.92487	0.05708
274	back woods home magazine	-0.1005	274	0.99	0.99	2.29627	0.92524	0.06032
275	countryside magazine	-0.0845	275	0.99	0.99	2.44612	0.93033	0.05884
276	feed-in tariff	-0.0799	276	1.00	0.99	2.68651	0.93172	0.06106
277	You Pick	0.0058	277	1.00	1.00		0.95418	0.04221

Count 277

Mean -0,7241

SD 0,43266465

Maximum 0,08845063 Actual K-S test statistic