

## Trends and Patterns in Sustainable Tourism Research: A 25-Year Bibliometric Analysis

### Abstract

In the quarter of a century since the release of the 1987 Brundtland Report, sustainable tourism has emerged as the dominant paradigm in tourism development. However, the debate, discourse and criticism of this sub-field of tourism research continues. To address such concerns the purpose of this paper is to explore trends and patterns in sustainable tourism research over the past 25 years. A 25 year bibliometric analysis was conducted for the four highest ranked journals in the tourism field. Results indicate that the growth in sustainable tourism research has been remarkable, with 492 papers published in these four journals and almost half of these in the last two years of the analysis. The largest proportion of papers published on sustainable tourism was case studies, empirical studies and critical reviews. This study found that while the theoretical and methodological approaches appear to have matured over time, the subjects and themes in sustainable tourism research, with some exceptions, have remained constant. However, the field is clearly maturing with a move away from definitional and conceptual papers to papers focused on testing and applying theory through empirical research.

Keywords: Sustainable tourism, research, content analysis, bibliometric

## Introduction

The notion of ‘sustainable tourism’ has, arguably, emerged to have one of the most noteworthy impacts on the field of tourism studies and scholarship (Bramwell & Lane, 2011). Sustainable tourism evolved by drawing on the ideology of sustainable development that was popularised following the publication of the World Commission on Environment and Development’s (WCED) *Our Common Future* in 1987. Widely referred to as the Brundtland report, its release sought multilateral support for enhancing awareness, cooperation and a more balanced approach to development (Dowling, 1993) “that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p.43). This soon resonated in a tourism context, where ‘sustainable tourism’ began to appear in the vernacular of governments, tourism related industries, and tourism researchers to generally represent a more balanced approach to redressing the cumulative negative impacts of tourism activity that had manifest over the previous decades (Bramwell & Lane, 2012; Saarien, 2006).

Sustainable tourism developed alongside, but separate to, its parent paradigm of sustainable development. As sustainable tourism gained traction in the literature, some have vehemently opposed the ‘tourism-ification’ (Hunter, 1995) of the concept, claiming that it ignores the broader tenets of sustainable development, or the conceptualisation of sustainable tourism as simply synonymous with eco or environmentally responsible tourism (Lu & Nepal, 2009; Weaver, 2014). Further, numerous authors have criticized the scholarship of sustainable tourism research, with some commenting on the lack of progress in this subfield of tourism research (Bramwell & Lane, 2005; Loulanski & Loulanski, 2011), the ongoing and circular definitional debates (Gössling, Hall & Weaver, 2009), the unresolved and inherent contradiction in the phrase ‘sustainable tourism’ (Torres-Delgado & Palomeque, 2012) and the fact that the concept has still, to a large extent, not been adopted in practice 25 years post-Brundtland (Lane, 2009; Holden, 2009). While sustainable tourism has been widely embraced by the academic and scientific community, these debates, discourses and criticisms have been a consistent feature of the literature.

It has been estimated that there are in excess of 5,000 published works on sustainable tourism (Buckley, 2012), a figure that, if judged by quantity, confirms that sustainable tourism has been a highly influential focus of tourism research. Given both the sheer volume of sustainable tourism scholarship, coupled with the ongoing and unresolved debates and criticism about the validity and contribution of the sustainable tourism research paradigm, a comprehensive and systematic analysis and review of published research on sustainable tourism is long overdue. Such a study is timely as 2012 marked the 25 year milestone of the release of the Brundtland report.

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2 State-of-the-art reviews are a common feature of academic work and, reflecting the maturation of  
3 tourism as an area of study, such articles are increasingly common in the field's leading journals.  
4 Indeed, it is recognised that systematic quantitative analyses of a body of literature in a particular field  
5 of study provides the means to definitively identify knowledge outcomes and paradigm shifts (Xiao &  
6 Smith, 2006a, 2007). For instance, Xiao and Smith (2006a) undertook a content analysis of the subject  
7 index of *Annals of Tourism Research* (ATR) (1973–2003), identifying major subject areas and  
8 discussing patterns in the growth of tourism research as published in a single journal. Similar studies  
9 have been undertaken by Kim (1998), who examined the subject categories in ATR and *Journal of*  
10 *Travel Research* (JTR), while Swain, Brent, and Long (1998) also reported on key themes across time  
11 and by geographic region in ATR. Other reviews in a tourism context have included analysis of  
12 authorship (Sheldon, 1991), citations (Xiao & Smith, 2006b), perceptions of journal quality by  
13 authors (McKercher, Law & Lamb 2006; Pechlaner, Zehrer, Matzler & Abfalter 2004; Sheldon 1990),  
14 methodologies (Reid & Andereck 1989; Riley & Love 2000; Xiao & Smith 2006c), disciplines  
15 (Darbellay & Stock 2012; Echtner & Jamal 1997; Leiper, 1981, 2000; Tribe, 1997, 2000), the impact  
16 of tourism scholarship (Xiao & Smith 2008), doctoral level research (Botterill, Haven & Gale 2002;  
17 Hall 1991; Huang, 2011; Jafari & Aaser 1988; Meyer-Arendt & Justice 2002; Weiler, Moyle &  
18 McLennan 2012) and changes in subject areas over a defined time period (Swain et al., 1998; Xiao &  
19 Smith 2006a).

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Despite the importance and proliferation of sustainable tourism there have been few rigorous  
bibliometric analyses of sustainable tourism research. Bibliometric analysis is the systematic  
quantitative analysis of academic literature to measure scientific progress (Ramos-Rodriguez & Ruiz-  
Navarro, 2004; Van Raan, 2004), commonly undertaken using techniques such as citation analysis,  
co-citation analysis and content analysis (Shilbury, 2011; Ramos-Rodriguez & Ruiz-Navarro, 2004).  
Early on, Butler (1999) provided a summary of the work that had been conducted in the realm of  
sustainable tourism over the decade following the Brundtland report. Later, Lu and Nepal (2009)  
undertook a content analysis of all articles published in the *Journal of Sustainable Tourism* (JOST)  
from 1993 to 2007. As JOST is the only journal in the field dedicated to sustainable tourism, the  
authors used the analysis to draw conclusions about the growth and trends in sustainable tourism  
research more generally. More recently, Buckley (2012) undertook a review of the scope, focus and  
outcomes of academic research in sustainable tourism. While the methodological approach employed  
was not explicit, Buckley (2012) focused on sustainable tourism research that has been conducted on  
social and environmental impacts, responses, and indicators, based on the categories of population,  
peace, prosperity, pollution and protection.

A detailed and longitudinal bibliometric-based analysis of sustainable tourism research fills a key gap  
in rigorously, systematically and objectively examining how sustainable tourism research has changed

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over time. Given this context, and based on approaches applied to other tourism bibliometric-based reviews (Lu & Nepal 2009; Weiler et al., 2012; Xiao & Smith 2006a), this paper undertakes a longitudinal analysis of sustainable tourism research as published in the four leading journals in the tourism field: *Annals of Tourism Research* (ATR), *Journal of Sustainable Tourism* (JOST), *Journal of Travel Research* (JTR) and *Tourism Management* (TM) (McKercher, Law & Lam 2006; Lu & Nepal, 2009; Ryan 2005) over the 25 year period since the release of the Brundtland report (1987-2012). The aim of the study is to identify trends and patterns in sustainable tourism research and scholarship.

The study's ambitious scope and rigorous methods – a bibliometric analysis of 492 papers – make the findings important and timely, and provide indicators of, and insights as to, how this subfield of tourism research has developed over time. This is achieved through meeting the following objectives: 1) to identify the theoretical and methodological approaches used in sustainable tourism research; 2) to classify the major subjects and contextual themes in sustainable tourism research; 3) to identify the perspectives/approaches applied to the study of sustainable tourism; and, 4) to identify geographic/locational patterns in sustainable tourism research. The correlations between dimensions within and across each of these objectives are examined, as well as the correlation to journals. From the study's findings, conclusions are drawn about trends and patterns in a quarter of a century of sustainable tourism research that has occurred since Brundtland, which in turn provides insights into the opportunities and directions for the coming decades of research in this particular subfield of tourism studies.

### **Sustainable Tourism Research**

Notwithstanding Lu and Nepal's (2009) analysis of 15 years of JOST publications, there has been no comprehensive, multi-journal bibliometric analysis of sustainable tourism research. However, there have been a number of literature reviews and commentary pieces on the state of sustainable tourism research (Bramwell & Lane, 1993, 2008, 2012; Gössling, Hall & Weaver, 2008; Hardy, Beeton & Pearson, 2002; Ko, 2001; Scott, 2011; Torres-Delgado & Palomegue, 2012). While it is not the objective of this particular paper to again traverse this well documented space, it is fitting to summarise the macro themes and trends these authors have highlighted to provide context to the findings and discussions of the current study.

Much of the early work focused on defining sustainable tourism, proposing and revising concepts and debating the theoretical, practical and philosophical nuances of the topic. Indeed, some authors have been highly critical of the academy's 'navel gazing' and for not advancing the concept beyond the theoretical to explore, among other things, how the concept can be legitimately applied in practice (Sharpley, 2000). Yet the literature has clearly shifted in some respects; published research has moved from the conceptual to empirical, with researchers moving to test earlier theoretical propositions (Lu

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2 & Nepal, 2009). The maturity of this subfield is also evident with research generally moving beyond  
3 myopic views of environmental issues to addressing sustainable tourism in a more holistic fashion  
4 that recognises the socio-cultural, economic and political aspects of the concept (Bramwell, 2007),  
5 which is more in keeping with the tenets of sustainable development.  
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10 A strong theme within sustainable tourism research, particularly through the 1990s, has been research  
11 focused on eco, nature-based and alternative forms of tourism. Recognising that it is highly  
12 contestable whether such tourism genres are synonymous with sustainable tourism, tourism  
13 researchers have focused extensively on this particular area of sustainable tourism research. Indeed,  
14 Lu and Nepal (2009) found that 58% of the papers published in JOST between 1993 and 1997 focused  
15 on eco or nature-based tourism. Much of the literature during this period advocated small-scale  
16 tourism, thus creating synergies with eco and nature based tourism. Some saw the impacts of mass  
17 tourism as so abhorrent that all 'small-scale' tourism activities were also (again whether rightly or  
18 wrongly) placed under the umbrella of sustainable tourism and seen to be largely synonymous with  
19 the concept (Collins, 1999; Singh & Singh, 1999).  
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27 By the turn of the century, perhaps recognising that sustainable tourism had diverged too far from its  
28 parent paradigm, more holistic standpoints on sustainable tourism were pervading the research,  
29 shifting the focus back to the triple bottom line (economic, social and environmental). By the end of  
30 the first decade of the 21<sup>st</sup> century there was also recognition of the importance of social responsibility  
31 and ethics within the sustainable tourism paradigm, concomitantly research into the genre of pro-poor  
32 tourism became more prevalent (Berke, 2002; Bramwell, 2007). Notably, sustainable tourism was no  
33 longer focused on developing a specific type of tourism product or reducing environmental impacts,  
34 rather it had advanced to become an overarching paradigm or goal that could be applied in a range of  
35 contexts (Lu & Nepal, 2009). In recognizing that sustainable tourism was about more than eco and  
36 niche tourism, the pendulum swung back to critically exploring mass tourism under a sustainable  
37 tourism perspective (Weaver, 2012).  
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45 More recently, climate change has emerged as a major issue for the global political and economic  
46 agenda, as well as for the tourism industry (Bramwell & Lane, 2012; Scott & Becken, 2010; Scott,  
47 2011), and it has led to a considerable increase in climate related tourism research (Gössling & Hall,  
48 2006; Gössling & Peeters, 2007). Some see climate change as pushing sustainable tourism back onto  
49 the global political agenda (Scott, 2011; Weaver, 2011); certainly it has renewed the focus on the  
50 environmental aspects of tourism development. For instance, Bramwell and Lane (2008) note that the  
51 recent emphasis on the impact of tourism on the environment, which has been generated by the  
52 climate change debate, is similar to the early focus of research on sustainable tourism.  
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In the two published reviews of sustainable tourism research, Buckley (2012) and Lu and Nepal (2009) both suggest there are several subject areas within sustainable tourism research that have remained consistently popular over their periods of analysis. In their review of JOST articles, Lu and Nepal identify five subject areas: tourism impact; sustainability assessment; development; visitor behaviour and attitude; and planning. While sustainability assessment is explicitly associated with sustainable tourism, the other four themes are aligned with the topic areas most researched in general tourism research (Xiao & Smith, 2006a). They draw the conclusion that sustainable tourism research has generally mirrored trends in tourism research generally. In contrast, Buckley (2012) concludes that the four most popular subject areas in sustainable tourism are ecotourism, responsible tourism, community tourism and conservation tourism. These are, of course, tourism study contexts rather than subject areas. Contributing to the body of work on state-of-the-art reviews (Butler, 1998; Buckley, 2012) and extending the only bibliometric-based analysis of the sustainable tourism literature (Lu & Nepal 2009), the present study builds on these approaches to undertake a comprehensive and longitudinal review and analysis of sustainable tourism research.

### Study Methods

As noted earlier, bibliometric studies are characterised by their use of statistics to analyse academic literature. Key bibliometric indicators include the number of articles, the number of authors, authors' productivity, and the productivity of countries or journals, while there are also standard bibliometric laws, including Price's, Lotka's and Bradford's laws (Guilera, Barrios & Gómez-Benito, 2013; Barrios, Borrego, Vilagínés, Ollé & Somoza, 2008). Price's Law argues that scientific production occurs exponentially (Guilera et al., 2013), while Lotka's law considers the relationship between the number of authors and the number of articles, suggesting a small number of authors publish a large number of articles (Pao, 1985). Bradford's law describes how the articles in a field are spread across journals, postulating that the majority of articles in a field are centred in a certain number of core journals, with decreasing information density in the more peripheral journals (Barrios et al., 2008). Importantly, bibliometric studies provide indicators of research production in a field over time and allow scholars to study science as a knowledge creation system (Van Raan, 2005).

Bibliometric studies have previously been applied in a tourism context (Benckendorff & Zehrer, 2013; Weiler et al., 2012), and there are many commonalities in the methodological approaches that have been used. Studies have applied content analysis techniques to scrutinise the subject indices of the journal as a means of identifying key subject areas and patterns (Swain et al., 1998; Xiao & Smith, 2006b), and several studies have assessed titles, abstracts and keywords to cumulatively identify subject categories or themes (Lu & Nepal, 2009; Kim, 1998; Xiao & Smith, 2006a; Weiler et al., 2012), while others have sampled entire articles to identify subject themes (Ballantyne, Packer & Axelsen, 2009). Some studies have conducted analyses of single journals (Lu & Nepal, 2009; Swain



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2 et al., 1998; Xiao & Smith, 2006a), while others have assessed multiple publication sources  
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4 (Ballantyne et al., 2009; Kim, 1998; Sheldon, 1991; Xiao & Smith 2006b).  
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7 In the present study, the four highest-ranked journals in the field of tourism were selected for analysis.  
8 Assessments have consistently ranked ATR, JOST, TM and JTR, or a combination of these, as the  
9 leading journals in the field of tourism research (Ballantyne et al., 2009; McKercher, 2005;  
10 McKercher, Law & Lamb, 2006; Pechlaner, Zehrer, Matzler & Abfalter, 2004; Ryan, 2005), with  
11 these journals having a 2012 impact factor of 3.683, 3.000, 2.571, and 1.899 respectively (Thomson  
12 Reuters, 2013). While acknowledging the subjectivity and dissidence associated with journal  
13 rankings, and not discounting the quality of other journals which periodically have been ranked highly  
14 in the field (Frechtling, 2004), for the purposes of identifying a clearly delineated sampling  
15 framework for this study, the selection of the current four leading journals was deemed appropriate  
16 and is consistent with other bibliometric studies conducted in tourism. It is acknowledged that  
17 research on sustainable tourism is published in many other journals within and outside tourism related  
18 journals (Buckley, 2012). However, the four journals selected can be argued to sufficiently capture the  
19 scholarly breadth and depth of sustainable tourism research so as to address the study's aim and  
20 objectives.  
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30 The sampling framework was based on a 25 year period (1987 to 2012 inclusive). As noted  
31 previously, this selection was made to coincide with the 25 year milestone of the Brundtland report  
32 and the resulting permeation of the sustainable tourism concept into research and scholarship. It is of  
33 course acknowledged that sustainability has a history that predates Brundtland. To create the dataset  
34 for analysis, the four journals were searched for published research papers that focused on  
35 'sustainable tourism' or 'sustainable development' over the 25 year period of analysis. To ensure that  
36 any relevant paper was not omitted the search terms included variations such as 'sustainability',  
37 'sustainable' and 'sustain'. Only full research articles were included in the analysis, thereby excluding  
38 editorials, research or practitioner notes, and conference reports (Xiao & Smith, 2006a). Papers were  
39 entered into an Excel spreadsheet for further analysis. Key bibliometric details recorded in the Excel  
40 database included the journal title, publication date, author details (name/s and location/s), article title,  
41 keywords, and abstract.  
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49 Once collected, the dataset was refined through a careful review of each paper's abstract to determine  
50 whether the aims, objectives or outcomes of the paper were in fact focused on sustainable tourism or a  
51 derivative of this. It was found that approximately 5% of papers in the dataset were not focused on  
52 sustainability and these were discarded from the dataset before analysis. The refined and final dataset  
53 contained 492 papers focused on sustainable tourism. At this stage, analysis of the entire article was  
54 undertaken via manual open binary coding. This round of analysis focused on addressing: the  
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theoretical and methodological approaches and constructs of the paper (i.e. developing or testing theory/model, a case study, a conceptual review) (Objective 1); the major subjects and contextual themes of the paper (i.e. ecotourism, rural tourism) (Objective 2); the perspective/approach of the paper (i.e. behavioural studies, policy studies) (Objective 3); and the geographic/locational patterns of the research (Objective 4).

Initially, bibliometric analysis for the current study considered Price's law, that is, whether growth had been exponential, with the Bradford and Lotka laws being deemed beyond the scope of the current research. Next, the binary coding of the different approaches, themes, perspectives and locations were analysed for significant differences using pair-wise correlations and chi-square tests in STATA v.12. Following Lu and Nepal (2009), the data were initially grouped into six 5-year periods. However, this restricted the analysis as the sample size was too small to undertake statistical tests comparing the time periods, particularly in the earlier years. As previous authors had used descriptive analyses only, they had not previously encountered this problem. Therefore, to enable the use of statistical tests, the groups were collapsed into the following time periods: 1988-1997 (65 articles), 1998-2007 (207 articles) and 2008-2012 (220 articles). The first two periods each span 10 years and while the third period covers only five years it has the largest sample of publications given the considerable growth in recent years.

### **Trends and Patterns in Sustainable Tourism Research**

A total of 492 papers was collected and coded across the four journals over the 25 year time span (Figure 1). Over half of the papers (56%) were published in the dedicated sustainable tourism outlet JOST, followed by TM (25%), ATR (13%) and JTR (6%). Considering Price's Law, the sustainable tourism papers follow a second-order polynomial trend ( $y=0.0644x^2 + 0.3998x$ ;  $R^2=0.8633$ ), reflecting the slow growth prior to 1993. However, plotting the growth from 1993 onwards shows exponential growth in the number of papers published relating to sustainable tourism ( $y=5.578e^{0.0858x}$ ;  $R^2=0.8855$ ), with rapid growth in the latter years; notably the increase of 51% between 2011 and 2012 (from 47 to 71 articles) (see Figure 1). The first publication appeared in 1989 in TM, with one each in ATR and TM in 1991. With the launch of JOST in 1993, a further nine papers were published across the journals. From here, as can be seen in Figure 1, the trajectory begins to increase considerably. Notably, there was no significant difference ( $p=0.300$ ) in the growth of sustainable tourism research between the four journals over the three analysed time period groupings, indicating that the rapid growth was general and not the result of any one journal. Regardless, the slight softening in the publication rate between 2003 and 2009 was primarily associated with ATR and TM, with JOST and JTR publications continuing to grow during the period.

Insert Figure 1 Growth in sustainable tourism research in the four leading tourism journals, 1987-2012



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4 ***Objective 1: Theoretical and methodological approaches in sustainable tourism research***

5 The leading journals in the field each have a strong emphasis on theoretical, conceptual, empirical and  
6 methodological development, with papers published in the journals generally judged on their capacity  
7 to contribute in one or more of these aspects. Therefore, each of the papers identified in the dataset  
8 were assessed for their primary theoretical or methodological approach (see Table 1 for codes and  
9 code descriptors used). The largest proportion of papers published on sustainable tourism over the  
10 period of analysis were case studies (35%), followed by empirical studies (17%) and critical reviews  
11 (16%) (Table 1). There were significant differences in the theoretical and methodological approach of  
12 papers published in the four journals ( $p < 0.001$ ). In particular, the journals varied in terms of their  
13 focus on case studies ( $p < 0.001$ ) with TM and JOST being more likely to include case studies than  
14 ATR and JTR. In contrast, JTR and ATR were more likely to focus on theory (methodology)  
15 development ( $p < 0.001$ ) than JOST and TM. Considering changes over the past 25 years, case studies  
16 ( $p < 0.002$ ) and literature reviews ( $p < 0.001$ ) have significantly declined, while empirical studies have  
17 gradually increased ( $p < 0.001$ ).  
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27 Insert Table 1 Theoretical and methodological approaches in sustainable tourism research  
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30 ***Objective 2: Subjects and contextual themes in sustainable tourism research***

31 The subject areas of sustainable tourism research were analysed, that is, the focus or contextual theme  
32 of each paper. As explained in the methods section, this was achieved through a coder reviewing the  
33 entire article, and together with the article keywords, coding the paper on the basis of its overall focus  
34 or theme (see Table 2 for the codes and descriptors used). The analysed articles predominantly  
35 focused on sustainable tourism practice as a general construct (19%) (i.e. conceptually driven papers  
36 focused on processes, practices, theories or trends), sustainable tourism development (10%) (i.e.  
37 developing tourism in a sustainable manner), nature-based tourism (7%) (i.e. general and/or wildlife  
38 based experiences in natural settings), protected areas (7%), small island destinations (7%) and  
39 ecotourism (6%). All four of the journals had a strong focus on the more generalist sustainable  
40 tourism practice and sustainable tourism development subject themes, with considerable variation in  
41 their inclusion of the more specific sustainability themes ( $p = 0.044$ ) (Table 2). Notably, TM was found  
42 to have a significantly greater focus on nature-based tourism (14% of all articles) than the other three  
43 journals ( $p = 0.012$ ), while JOST and ATR were significantly more likely to publish sustainability  
44 articles on heritage tourism than TM and JTR ( $p = 0.006$ ). Notably, JOST was significantly more likely  
45 to publish sustainability articles on climate change than TM, ATR and JTR ( $p = 0.037$ ).  
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55 The subject areas in sustainable tourism research have significantly changed over the 25 year period  
56 of analysis. For instance, there has been a significant decline ( $p = 0.001$ ) in the proportion of articles  
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that are focused on sustainable tourism development (down from 23% in 1988-1997 to just 7% in 2008-2012). There has also been a significant ( $p=0.025$ ) growth in protected areas research (up from 3% 1988-1997 to 10% in 2008-2012). Several of the subject areas have appeared more recently in the journals, with climate change and event tourism for instance, only appearing in the articles since 1997. Subject areas such as event tourism ( $p=0.024$ ) and sustainable tourists/behaviour ( $p=0.013$ ) have had significant growth since 2008.

In assessing the correlation between subject of the research and the theoretical or methodological approach employed in the paper, it was found that the nature-based tourism theme was significantly positively correlated with case studies ( $p=0.007$ ), while sustainable tourism practice was significantly positively correlated with critical reviews ( $p<0.001$ ) and framework building ( $p=0.048$ ). The climate change theme was significantly correlated with critical reviews ( $p=0.049$ ), while accommodation was positively correlated with empirical studies ( $p=0.027$ ) and research on tourists was positively correlated with empirical studies ( $p=0.001$ ) and index/scale building ( $p<0.001$ ).

Insert Table 2 Subjects and contextual themes in sustainable tourism research

***Objective 3: Perspectives/approaches to sustainable tourism research***

The perspective or approach underpinning the article was examined, again by the coder reviewing the entire article to determine the primary perspective/approach taken in the paper. This differs from the analysis of the subject/theme of the paper as, for instance, a paper may examine an ecotourism issue using behaviour change theory or a climate change problem from a policy studies perspective (see Table 3 for the coding descriptor used). The analysed articles drew on a variety of perspectives and approaches, notably planning (19%), behavioural studies (12%), perception studies (11%), tourism research theories/methods (10%), indicators and measurement tools (9%), policy studies (9%) and stakeholders (9%).

There were some notable differences between the four journals in terms of the perspective/approach of the articles published over the period. Firstly, ATR was significantly more likely to publish articles that used a policy studies perspective, with JOST and JTR significantly less likely to publish policy studies ( $p=0.041$ ). ATR and JOST were significantly more likely to publish tourism research theory/methods (i.e. definitional debates, methodologies, discussions on ontology, methodology, paradigms) than JTR and particularly TM ( $p=0.003$ ).

In terms of changes over time, there was only significant growth in perception studies (up from 3% in 1988-1997 to 13% in 2008-2012) ( $p=0.022$ ), with other perspectives/approaches remaining relatively stable as a proportion of all articles in the time periods. Considering the correlation between the

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2 articles' subject/theme (Table 2) and the perspective/approach applied in the paper (Table 3), it was  
3 found that studies underpinned by a planning perspective were positively correlated with the subject  
4 of sustainable tourism in developing countries ( $p=0.016$ ) and sustainable tourism development  
5 generally ( $p=0.043$ ). Papers on sustainable tourism practice were instead positively correlated with  
6 general tourism research approaches ( $p<0.001$ ), perception studies ( $p=0.025$ ) and indicators and  
7 measurement tools ( $p<0.001$ ).  
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12 Behavioural studies, as the paper's underpinning perspective/approach, were significantly positively  
13 correlated with alternative tourism ( $p<0.001$ ) nature-based tourism ( $p<0.001$ ) and sustainable  
14 tourists/behaviour ( $p=0.002$ ), whereas policy studies were positively correlated with research on  
15 coastal destinations ( $p=0.004$ ). Stakeholder perspectives were positively correlated with studies of  
16 cultural tourism ( $p<0.001$ ), impact studies positively correlated with event tourism ( $p=0.027$ ) and  
17 visitor management positively correlated with nature-based tourism ( $p<0.001$ ), outdoor  
18 recreation/sport tourism ( $p=0.004$ ) and protected areas ( $p=0.016$ ). Marketing was positively correlated  
19 with heritage tourism ( $p=0.001$ ) and sustainable tourists/behaviour ( $p<0.001$ ). Papers underpinned by  
20 climate change studies were positively correlated with transport ( $p=0.005$ ).  
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28 Looking at the correlations between the research perspective/approach and the theoretical or  
29 methodological approach employed in the paper, behavioural studies were significantly positively  
30 correlated with empirical studies ( $p=0.031$ ), economic studies were significantly positively correlated  
31 with methodology development ( $p=0.001$ ), and stakeholder research was significantly positively  
32 correlated with concept development ( $p=0.025$ ). In addition, perception studies were found to be  
33 positively correlated with empirical studies ( $p=0.015$ ) and planning was positively correlated with  
34 case studies ( $p=0.019$ ). Tourism research theory and methods was significantly positively correlated  
35 with literature reviews ( $p=0.004$ ), concept development ( $p=0.004$ ) and philosophical development  
36 ( $p=0.027$ ). Impact studies were positively correlated with index/scale building ( $p=0.002$ ). Finally,  
37 visitor management was positively correlated with case studies ( $p=0.033$ ).  
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45 Insert Table 3 Perspectives/approaches to sustainable tourism research  
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#### 48 ***Objective 4: Geographic/locational patterns in sustainable tourism research***

49 The geographical location of authors, both by region and individual country, was coded based on the  
50 lead author's institutional affiliation at the time of publication. The majority of the papers during the  
51 period were from authors in the United Kingdom (119 papers or 24%), Australia (98 papers or 20%),  
52 the USA (76 papers or 15%), Canada (33 papers or 7%), New Zealand (23 papers or 5%), Spain (18  
53 papers or 4%) and the Netherlands (12 papers or 2%). Authors from the top five countries together  
54 accounted for 71% of all the papers published over the period.  
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4 Analysis was also performed on the research location, that is, the particular region or country where  
5 the study took place. Approximately 19% of the papers (n=93) are general conceptual or theoretical  
6 discussions and do not make reference to a particular locale. Consistent with the location of the  
7 authors above, most studies were undertaken in the regions of North-West Europe (16%), followed by  
8 Oceania (16%), North America (11%), South and Eastern Europe (11%), Sub-Saharan Africa (6%)  
9 and North-East Asia (5%). Regions that were under researched included Southern and Central Asia,  
10 South-East Asia, North Africa and the Middle East, South America, Antarctica and the Arctic. There  
11 was a significant difference between the four journals and the region in which the study was  
12 undertaken ( $p < 0.001$ ), with ATR papers being more likely not to make reference to a particular  
13 location, JTR being more likely to include American focused case studies, and JOST and TM being  
14 more likely to publish studies focused on Oceania and North-West Europe. There was also a  
15 significant change over time with the earlier articles (i.e. those published between 1989-1997 and  
16 1998-2007) being more likely to focus on no particular locale or North-West European case studies,  
17 while more recent articles (i.e. those published between 2008-2012) being more likely to focus on  
18 case study localities in the Americas and Oceania. At the country level, studies were focused in  
19 Australia (53), the UK (51), USA (36), Spain (19), Canada (19), New Zealand (15), China (13) and  
20 Turkey (10).  
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### 31 **Discussion**

32 By sheer quantity alone, the growth in sustainable tourism research over the past 25 years is  
33 noteworthy. From slow beginnings the trajectory is exponential; a 51% increase in the last two years  
34 of the analysis is remarkable and directly counters the claims by some that sustainable tourism  
35 research has peaked and is in decline (Scott, 2011; Sharpley, 2009; Weaver, 2011). This exponential  
36 growth was not due to an increase in output in this area of research by any one of the journals, with all  
37 four journals experiencing similar growth. The growth in sustainable tourism does reflect to some  
38 degree the exponential growth that has occurred in tourism research more generally (Weiler et al.,  
39 2012). Other explanations for the growth include the entrance of JOST in 1993, and journals  
40 (including JOST) increasing their number of published issues per year.  
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48 Returning to some of the criticisms of sustainable tourism research outlined in the introduction to this  
49 paper (Bramwell & Lane, 2005; Holden, 2009; Lane, 2009; Loulanski & Loulanski, 2011), the  
50 research findings indicate that there has been considerable progress in sustainable tourism research.  
51 The analysis undertaken here points to a clear maturation in the study of sustainable tourism from the  
52 early generalist papers that focused more broadly on definitional and conceptual debates, and the  
53 development of frameworks and models to explain the sustainability construct. Such papers were  
54 arguably crucial in embedding the sustainability paradigm within a tourism context.  
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4 The criticism that sustainable tourism research is characterised by ongoing and circular definitional  
5 debates (Gössling, Hall & Weaver, 2009) is less relevant in more recent years with a clear move away  
6 from definitional and conceptual papers to papers focused on testing and applying theory through  
7 empirical research. For instance, literature review papers on the topic have largely disappeared (15%  
8 in the period 1988-1997 to 2% in 2008-2012) with a clear shift towards empirically driven research;  
9 in 1988-1997 only 3% of analysed papers were coded as empirical but by 2008-2012 this had  
10 increased considerably to 25% of all papers. Consistent with this trend towards empirically based  
11 studies, case studies, which had been the dominant approach utilised in sustainable tourism research  
12 (35% of all articles) have declined over time (43% in the period 1988-1997 to 27% in the period  
13 2008-2012). This finding updates that of Lu and Nepal (2009), who at the time of their analysis  
14 identified case studies as the most common method employed in the study of sustainable tourism. The  
15 current bibliometric analysis, also influenced by the broader scope of journals sampled, does show  
16 that the field is maturing in terms of the shift from case study to empirical research using sophisticated  
17 quantitative and qualitative analysis. This is congruent with Xiao and Smith's (2006a, p.503) assertion  
18 that, "the growth of knowledge around methodology and theoretical constructs is indicative of the  
19 efforts of a young field to achieve rigor and to be recognized as a 'serious' field of enquiry". Other  
20 reasons for this change may include researchers self-adjusting in response to the criticisms of  
21 sustainable tourism research and attempting to break out of the cyclical debates that were necessary  
22 while 'bedding down' the underpinning tenets of sustainable tourism as a subfield of tourism research.  
23 Alternatively, this may simply be a reflection of the times and the increasing sophistication of the  
24 study area where the more applied and basic case study approaches are no longer considered  
25 sufficiently 'academically rigorous' to warrant publication in the leading journals in the field.  
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39 When compared to the changes in the field from a theoretical and methodological perspective, the  
40 subjects and contextual themes of sustainable research have remained more stable, with certain  
41 themes remaining relatively constant across the 25 year period. Examples include nature based  
42 tourism (9% in the period 1988-1997 and 7% in the period 2008-2012) and ecotourism (5% in both  
43 the periods of 1988-1997 and 2008-2012). Again returning to the criticisms of sustainable tourism  
44 research outlined in the introduction to this paper, the assertion that sustainable tourism is often seen  
45 as synonymous with ecotourism and nature based tourism (Lu & Nepal, 2009; Weaver, 2014) is  
46 probably a correct one. The cumulative proportion of papers focused on nature-based, ecotourism and  
47 protected area tourism (20%), shows this to be an important subject or context of sustainable tourism  
48 research over the 25 year period. As such, it is not surprising that inferences are made that sustainable  
49 tourism and ecotourism are synonymous, or in fact that sustainable tourism is disproportionately  
50 focused on the environmental aspects of tourism as compared to the broader triple bottom line  
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2 expectations of sustainable development, where for instance social/cultural studies (6%) have  
3 received comparatively far less attention in the literature.  
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6 Again indicative of the maturation of this sub-field of tourism research the proportion of papers  
7 focused on the more general constructs of sustainable tourism and sustainable tourism development  
8 have declined from 23% to 7% over the period of analysis. As the field moves away from the cyclical  
9 debates and discourse around the conceptual basis of sustainable tourism other areas of focus are  
10 moving to the fore. For instance, looking towards the emerging research themes in sustainable  
11 tourism, there have been modest increases in research focused on new thematic areas over the periods  
12 of analysis including climate change (0 in the period 1988-1997, 3% in the period 1998-2007 and 5%  
13 in 2008-2012) and events (0 in the period 1988-1997, 2% in the period 1998-2007 and 5% in 2008-  
14 2012). It is likely that there will be continued increases in the numbers of papers focused on climate  
15 change over the coming decades coupled with related topics such as behavioural change, risk,  
16 resilience, resource scarcity and transportation. This concurs with the findings of policy based studies  
17 of sustainable tourism which have found that Australian tourism strategic planning documents have  
18 evolved from a focus on nature-based, social and triple-bottom-line concepts towards a focus on  
19 climate change, responsibility, resilience, adaption and transformation (Moyle et al., 2013).  
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23 Separate to the subject and contextual themes within which sustainable tourism research is set, an  
24 analysis of the perspective/approach of the paper provides valuable indications of trends and patterns  
25 within this sub-field of research. Planning/management/strategy have been the dominant approaches  
26 to the study of sustainable tourism to date and, while there has been an overall decline, the approach  
27 has remained relatively constant over the periods of analysis (25% in the period 1988-1997, 20% in  
28 the period 1998-2007 and 17% in 2008-2012). This focus on the management aspects of sustainable  
29 tourism aligns with tourism research trends more generally where from the 1980s onwards  
30 management was a key focus of research (Xiao & Smith, 2006a); a trend that could be attributable to  
31 the positioning, in many parts of the world, of university level tourism studies (and thus researchers)  
32 within business and management faculties. Further, the prevalence of supply side research is  
33 consistent with the inherent assumptions that governments have a role to play in facilitating and/or  
34 driving sustainable development within destinations.  
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38 Comparatively less attention has been given to the demand side aspects of sustainable tourism.  
39 Behavioural studies (12% in the period 1988-1997, 11% in the period 1998-2007 and 14% in 2008-  
40 2012) and perception studies (3% in the period 1988-1997, 10% in the period 1998-2007 and 13% in  
41 2008-2012) have been a constant feature of sustainable tourism research specifically and are  
42 congruent (although less markedly) with the broader focus in tourism research on consumer behaviour  
43 and psychology (Xiao & Smith, 2006a) While not momentous increases, research focused on  
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2 indicators and measurement tools has grown (5% in the period 1988-1997 and 10% respectively in the  
3 periods 1998-2007 and 2008-2012), reflecting again the growing maturity of the field in terms of the  
4 move away from case studies to empirically driven theory development (Table 1) as well as the  
5 increasing use of software that facilitates more complicated statistical analysis.  
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10 Several of the correlations uncovered in the analysis are expected, for example, between visitor  
11 management, protected areas and the use of case studies; and between marketing and tourist  
12 behaviour. In addition, the correlation between economic studies and methodology development is  
13 unsurprising with many of the economic studies using econometric techniques. Some of the nuances  
14 in terms of correlations between variables may reflect disciplinary traditions in fields such as  
15 planning, where researchers frequently engage in case study approaches and focus on issues in  
16 developing countries.  
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22 Most sustainable tourism research was undertaken in the regions of North-West Europe, Oceania and  
23 North America, with little research on Central and Southern Asia, North Africa and the Middle East,  
24 South and Central America, and the Arctic and Antarctica. While there has been some growth in the  
25 number of studies conducted in these latter regions, as a proportion of all studies, these remain under-  
26 represented. However, more recent articles have shown a trend towards focusing on the Americas and  
27 Oceania, with a shift away from European based studies. Again, this is a trend that could be indicative  
28 of the growth of tourism degree programs outside of Europe, and the movement of academics to  
29 institutions in Asia, Australia and New Zealand. For instance, authors from the UK, Australia, USA,  
30 Canada and NZ together account for 71% of all papers published over the period, a finding consistent  
31 with other authorship studies in tourism research (Lu & Nepal, 2009; Weiler et al., 2012).  
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39 The large number of studies focused on Australia and the UK correlates with the authors' region of  
40 residence. There are clear correlations between the location of the author/s and the geographical focus  
41 of the published research. This finding is not unexpected given researchers personal networks and  
42 contacts are likely to be more limited to those in their 'home' country and research funding (albeit  
43 declining in many parts of the world) is often tied to national research priorities or local contextual  
44 issues. However, changes to the status quo are evident with the number of country level studies  
45 growing over the period in countries such as China, where there were no studies prior to 1997, but 13  
46 between 1998 and 2012.  
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53 Contrasting the current findings with previous reviews of the sustainable tourism literature, these  
54 findings concur to some extent with Buckley's (2012) assertions that the research contexts noteworthy  
55 for sustainable tourism were identified several decades ago and have changed little. Yet the  
56 objectiveness of the bibliometric approach has provided a more rigorous assessment of the state of the  
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2 field. For instance, while Buckley similarly notes the growth of climate change, his assessment omits  
3 the emergence, for example, of events within the sustainable tourism literature. Similarly, on the one  
4 hand the current findings concur with Lu and Nepal's assessment of the published articles in JOST  
5 with regards to the continued importance of topics such as ecotourism and nature based tourism.  
6 However, the wider scope of the present research has highlighted that in fact early sustainable tourism  
7 research was largely concerned with generalist definitional and conceptual papers, with a later wave  
8 of papers focused on empirically driven theory testing and building. The present study also reveals  
9 that, unlike Lu and Nepal's (2009) findings, case study research is no longer the dominant approach  
10 of sustainable tourism research, replaced by empirical studies underpinned by quantitative and  
11 qualitative analyses.  
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### 18 19 **Conclusion**

20 Given the volume of sustainable tourism studies as a sub-field of tourism research, this paper sought  
21 to explore the trends and patterns evident in sustainable tourism research since the release of the  
22 Brundtland report in 1987, a milestone event which is generally acknowledged as mainstreaming  
23 sustainable development and similarly provided the impetus for the concept to be adapted into a  
24 tourism context. Even 25 years on from Brundtland and despite the prevalence of the concept, debate  
25 and critique continues, with authors noting a raft of shortcomings (Bramwell & Lane, 2013; Buckley,  
26 2012; Gössling, Hall, Ekstrom, Engeset & Aall, 2012). It was against this background that a  
27 bibliometric analysis of the four leading tourism journals was undertaken to quantify if there have in  
28 fact been discernable patterns and shifts in theoretical/methodological approaches, the  
29 subjects/themes, the perspectives/approaches employed, and the geographic focus of sustainable  
30 tourism over the past 25 years.  
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39 The results indicate that there has been evolution in the theoretical and methodological approaches, as  
40 well as the subjects and themes employed in the subfield of sustainable tourism research. Reflecting  
41 the maturation of this sub-field of research there has been a clear move away from definitional and  
42 conceptual reviews to empirically driven theory testing and building. In terms of the focus of the  
43 research some themes have remained a constant feature, namely the ecotourism and environmental  
44 aspects, while new areas of focus such as climate change have emerged since 1997 when the first  
45 article on the subject was published.  
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51 Both in terms of depth (content analysis of papers) and breadth (assessment of four journals over a 25  
52 year period) the findings of this study provide a comprehensive state of the art review of sustainable  
53 tourism research for use by researchers, students and practitioners alike. The paper has also added to  
54 the growing body of bibliometric studies in tourism (Hall, 2011; Lu & Nepal 2009; Weiler et al.,  
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2 2012; Xiao & Smith 2006a) and state of the art reviews of tourism research generally (Kim, 1998;  
3 Swain et al., 1998; Xiao & Smith, 2006b).  
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7 One of the clear contributions of this study is that of “looking back in order to progress” (Butler,  
8 1999). Having assessed where the field has traversed over the last two and a half decades attention  
9 can turn to considering what the emerging areas in sustainable tourism research will be over the next  
10 several decades. As noted, the focus on climate change will likely continue; one might ask whether  
11 climate change will become the new sustainable tourism with some already arguing that “addressing  
12 climate change is considered a prerequisite to sustainable development and therefore germane to  
13 advancing sustainable tourism research” (Scott, 2011, p.17).  
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19 There are other areas that may well emerge as foci for sustainable tourism research. Although  
20 acknowledged as an important aspect of sustainable tourism (Caton, 2012; Tribe, 2002), the influence  
21 of ethics has yet to fully emerge, and areas identified by Buckley (2012) such as prosperity, peace and  
22 so forth were not elicited through an objective measure of progress in the field. The degree to which  
23 such themes are likely to feature in sustainable tourism research in the future is, of course, a matter for  
24 another study. In addition, arising from the literature, there is a need to explore whether the  
25 recommendations, implications and future research highlighted by the sustainable tourism articles  
26 have been recursive. Such a study will provide key insights into the nature of academic sustainable  
27 tourism research and point towards the possible future progress of the field. Finally, there is  
28 considerable scope to explore the factors or agents within the publishing community that have  
29 influenced the proliferation of sustainable tourism research.  
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For Peer Review

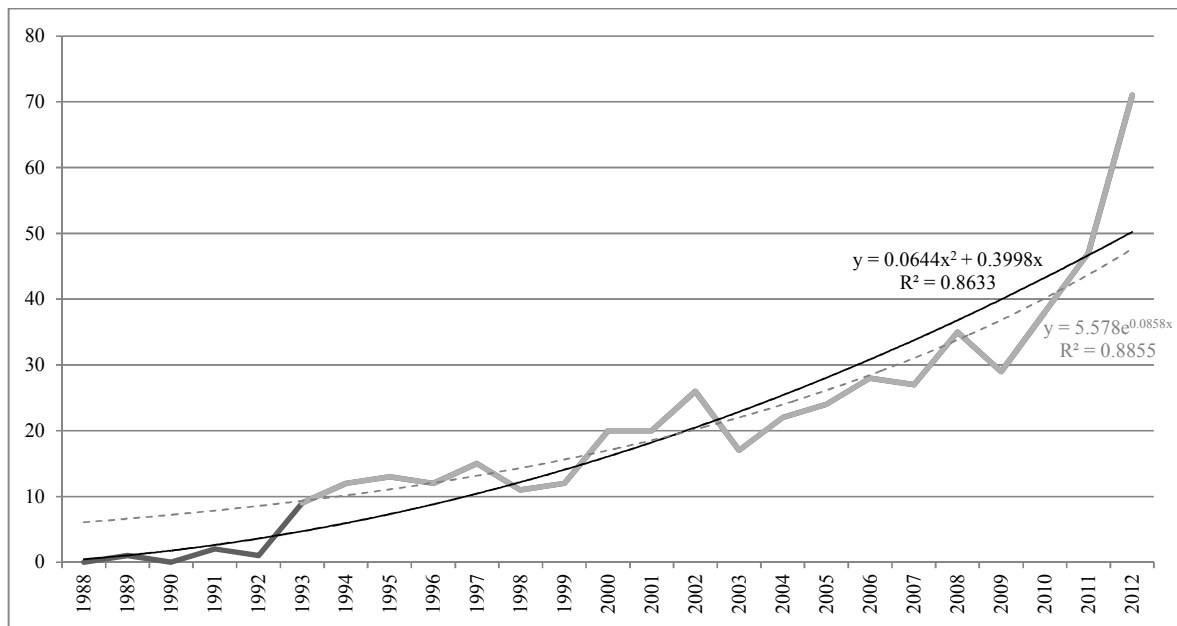


Figure 1. Growth in sustainable tourism research in the four leading tourism journals, 1987-2012

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**Table 1. Theoretical and methodological approaches in sustainable tourism research**

Approach	Coding Descriptor	Count (n)	% articles
Case study	Descriptive or explanatory analysis of a single place/event/issue	172	35%
Empirical study	Contributes to theory development through direct observation/testing, analysed qualitatively or quantitatively	83	17%
Critical review	Review/analysis of theory/concept, often using theory/literature from other disciplines, to analyse a tourism related issue	81	16%
Theory (model) building	Development or adaption of a model/typology to describe/understand tourism processes	34	7%
Comparative case study	Compares two or more cases	29	6%
Literature review	Critical reviews of the literature on a particular topic/s	26	5%
Theory (framework) building	Development or adaption of a framework that can be used to address an issue (or range of issues) in tourism	19	4%
Theory (methodology) development	Development of methodological techniques/tools to enhance the analysis of a certain issue in tourism research	13	3%
Theory (concept) development	Re-conceptualisation of a tourism concept through application of theory from other disciplines to tourism	11	2%
Historical perspective	Analyses of past events/occurrences to make recommendations for the future	11	2%

**Table 2. Subjects and contextual themes in sustainable tourism research**

Subject/theme	Coding Descriptor	Count <i>N</i>	% articles
Sustainable tourism practice	General processes, practices, theories, trends	95	19%
Sustainable tourism development	General development theory or practice	50	10%
Nature-based tourism	Experiences in natural settings i.e. diving, wildlife tourism	36	7%
Protected areas	World Heritage sites, national parks, marine parks and reserves	35	7%
Island destinations	Small Island Developing States, offshore islands	32	7%
Ecotourism	Ecotourists, ecotourism businesses, general theory and practices	28	6%
Developing countries	Developing or least developed country contexts	27	5%
Rural tourism	Rural, farm, woodland tourism	22	4%
Accommodation	Hotels, resorts, other accommodation	20	4%
Sports/recreation	Leisure, recreation, sport tourism, adventure tourism	18	4%
Climate change	Climate change as a study context	18	4%
Heritage	Archaeological sites, heritage sites excl. world heritage	16	3%
Cultural tourism	Cultural experiences and behaviour, Aboriginal, ethnic peoples	16	3%
Tourists	Tourist activity, behaviours, motivations	16	3%
Events	Events, festivals, conferences, meetings	15	3%
Transport/travel	Transportation modes, travel patterns	15	3%

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**Table 3. Perspectives/approaches to sustainable tourism research**

<b>Perspective/approach</b>	<b>Coding Descriptor</b>	<b>Count <i>n</i></b>	<b>% articles</b>
Planning	Management, strategy, implementation and assessments	95	19%
Behavioural	Tourist/resident/business behaviour, change, motivations	60	12%
Perception	Tourist, resident, community and business perception and attitude studies	52	11%
Tourism research theory/methods	Methodological approaches including ontology, paradigms, definitions, approaches to research on sustainable tourism	50	10%
Indicators and measurement	Tools and approaches to sustainability assessments, indicators, limits to growth, GIS	44	9%
Policy	Policy, governance and politics	44	9%
Stakeholders	Collaboration, stakeholder and network theories, partnerships, communities participation	42	9%
Impact studies	Environmental, economic, social, cultural impacts of tourism	31	6%
Visitor management	Interpretation, tourist/visitor education	19	4%
Marketing	General marketing studies, market segmentation	18	4%
Climate change studies	Measurement, management, adaptation/mitigation, impacts	23	4%
Economics	Tourist spending, taxation	11	2%