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Systematic Literature Review of the Natural Environment of the Coromandel Peninsula, New Zealand, from a Conservation Perspective

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Abstract: This research presents a literature review of published scientific literature on the Coromandel Peninsula, a well-known region of the northern part of the North Island of New Zealand. It contains many biological, geological, and historical features and is well known for beautiful scenery, resulting from a volcanic rock-dominated terrestrial environment influenced by oceanic factors at the coast. All these factors have combined to make the Coromandel a popular tourism destination for New Zealanders and offshore visitors. In researching the current state of knowledge of the region, we searched three scientific databases to define the main ways of studying the region. The results demonstrated a high interest in biological and environmental factors, reflected in the type and scale of conservation measures applied to flora and fauna of the region. Additionally, specificity of geological evolution was a highly examined subject, in the context of hydrothermal alteration as related to gold and silver mineralization resulting in extensive exploration and mining. Meanwhile, indigenous cultural aspects of the land were not recognizable as expected within Western scientific literature, even though the region contains sites recognized as some of the earliest Māori habitations. Therefore, we suggest future studies to expand our understanding of scientific, cultural, and social aspects of the region as applied to the field of conservation in the region.

Keywords: geodiversity; geoheritage; geomorphology; geology; conservation; culture; Miocene; New Zealand

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1. Introduction

The Coromandel Peninsula is located on the Northeast side of New Zealand's North Island. This territory is widely known as a tourist hotspot [1–6], with a reputation for beautiful landscapes and a high diversity of biological and geological natural features [7–11]. Coastal areas of the Coromandel Peninsula have magnificent geological features resulting from interaction between volcanic and sedimentary (terrestrial and marine) processes (Figure 1). In addition, the land is covered with lush subtropical bush featuring a range of rare and not-so-rare native tree species, providing habitats for birds, mammals, and insects [12]. Moreover, this place was and still is important for the mining industry [13–18], with gold and silver epithermal deposits concentrated in areas of hydrothermal alteration due to past volcanic activities [19–22]. Today, we can find evidence of mining throughout the whole length of the peninsula, as a footprint of European culture together with architecture reflecting European colonization and settlement of the area. In addition, the area contains a large number of Māori archeological sites, as it was one of the first areas settled on a semi-permanent basis by Pacific colonists [23,24]. Hence, this area can be the subject of research in a wide range of disciplines, with a vast amount of information for different areas of research such as biology, geology, archeology, hydrology, social science, and others.

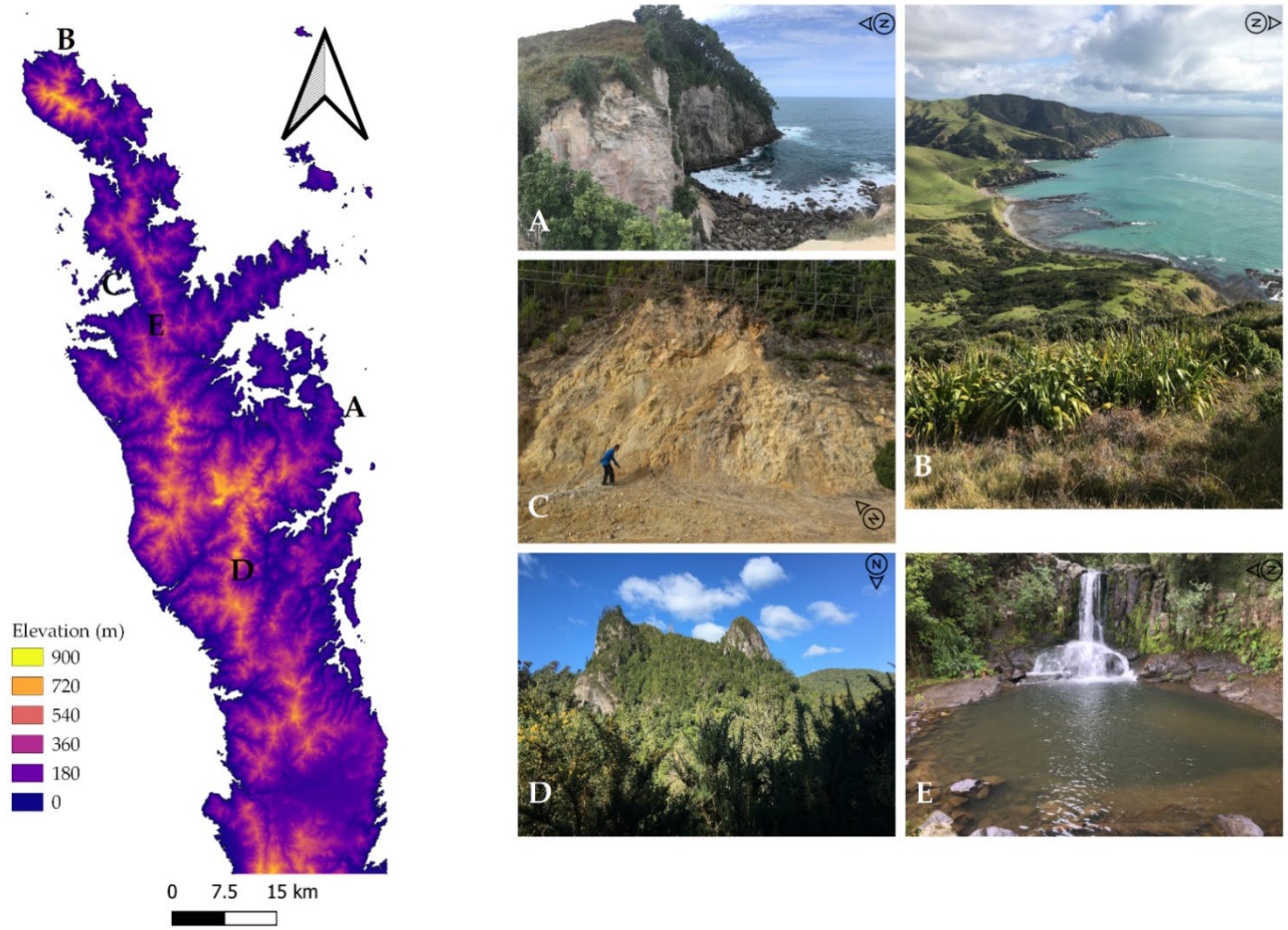

Figure 1. The elevation overview model of the Coromandel Peninsula. The model was created based on the LINZ Topo50 20 m contours (https://data.linz.govt.nz/layer/768 accessed on 9 September 2021) of topographic map (Moehau NZTopo-AZ34) (1:50,000 scale). (**A**)—Hehai (East cliff; Altered rhyolite lava dome). (**B**)—Fletcher Bay (Greywacke rolling hills with remnants of andesite volcano). (**C**)—Coromandel wharf (Altered intermediate volcanic rock). (**D**)—Nevesville (Rhyolite "Camel humps"). **E**—Waiau Falls (Andesite).

The method of our research was based on searching and analyzing the available information, accessible through the internet using scientific sites to collect manuscript databases. Hence, authors, topics, keywords, and abstracts were studied, thereby defining those scientific fields in which researchers have made significant contributions. Our research demonstrates a need for the abiotic nature (geology, climate, hydrology, geomorphology, and others) of this area to be developed and understood in an integrated manner with processes (human and biological influences), leading to a holistic approach to geodiversity and geoheritage as keys for planning geoeducation, geotourism, and geoconservation projects in the future. Our study defines the general trends in current research within geoconservation, using published scientific outputs as the basis of knowledge of abiotic aspects of the natural environment of the region [25–33]. We acknowledge some limitations in this approach as it does not include traditional, oral, or indigenous knowledge directly. This problem is acknowledged in discussion on this subject recently, as we remain far from a general consensus for a systematic methodology to integrate total scientific knowledge with other factors, thereby forming the basis of effective conservation strategies. Others argue that regardless of the lack of an integrated and holistic view, the scientific knowledge that is accepted through peer review and publication in global academic platforms reflects the current knowledge base of the environment. Hence, it can be used as the first proxy to identify the studied environment's scientific significance. In other words, we follow the idea that the current scientific value identified within the global net of scientific literature

and research platforms forms an absolute and main value framework while oral traditions, indigenous knowledge, and other culturally driven aspects that may be difficult to identify in written databases are key additional elements. Therefore, they will form a vital part of the total environment that we can aim for in the future characterization.

The main goal of this research was to define the type of scientific work undertaken and subjects studied in the Coromandel Peninsula region, through the history of recorded science in New Zealand. This research provides an objective and clear view on the types of study reaching a global scientific audience through publications within Western scientific media. Subject areas and research aims were defined and a threshold value quantified for the science to be visible within traditional and widely accepted global science media. We observed the contrast within published research outputs accessible globally for general popularity and common "*wisdom*" about the status and standing of Coromandel Peninsula within the conservation context. This work supports identification of key trends, knowledge, and/or information gaps in the network of conservation strategies, especially in its abiotic aspects.

2. Materials and Methods

Methodology

The object of this research was to screen the accessible literature from scientific databases, which are the most popular and accepted among researchers and which allow simple data mining within their resources. Our methodology was based on a standard collection of accessible scientific data for the studied region (the Coromandel Peninsula, New Zealand). For our search, we used three databases of peer-reviewed scientific publications (Table 1). We used the Scopus database and search platform, the Web of Science "All Databases", and the JSTOR database to define the scientific visibility of the Coromandel Peninsula. Our selection of these three databases was based on the level of access to keywords, subjects, and author searches within given time periods and easy, non-restricted downloads of the identified materials. Accessibility of the identified scientific outputs may be subscription dependent, but most major academic libraries have access to these databases. Most importantly, we used these databases as they are considered major scientific data repositories with a high number of globally scaled and tested entries. While it was tempting to explore Google Scholar as it is a truly open data source that is globally accessible for viewing and downloading data, it has numerous obstacles such as non-reliable bulk download methods associated with it. To explore Google Scholar would involve significant manual modifications that would increase the subjectivity of results. We used Google Scholar in our research for random cross-checks only. However, we were able to establish that Google Scholar follows similar trends of identified research outputs as Scopus or Web of Sciences with a broader sampling of the "gray literature" and lower accuracy of captured research outputs (e.g., multiple appearances of the same outputs) [34–37].

Scopus was used as the main source, as it contains enough available data about research (Authors, Titles, Keywords, and Abstracts) together with units' popularity, while Web of Science (WoS) was used as comparable and also containing data about field of research despite a lack of keyword functionality. JSTOR, as a third comparable database, was used to highlight additional literature, commonly referred to as "gray" (e.g., papers that appeared in local, regional, or non-mainstream publishers as well as books, chapters, or reports), because they have less relevance to the global science community, unlike WoS and Scopus. For calculating the number of keywords, Author's impact, abstract, and titles, we utilized Microsoft Office Excel.

In our analysis of the Scopus database, we utilized the words (phrases) "Coromandel Peninsula" and "New Zealand" as additional search words (Table 1). The search was through the Article title, Abstract, and Keywords. For WoS, we used the same phrases applied for "All Databases" within our searches to cover any entry captured by the site since the platform has been operating. Then, we searched through the JSTOR database, which offers more than 12 million academic journal articles, 85,000 books, and 2 million primary

source documents in 75 disciplines [https://about.jstor.org/mission-history/ (accessed on 14 September 2021)] as well as access to electronic resources in a far broader range than Scopus or WoS by providing publications not listed in other databases (e.g., commonly papers published in local or regional scientific magazines). The JSTOR book collection covers scientific reports of local and regional sources, which may not be published by the more mainstream publishers.

Table 1. The list of results of the search.

Sources	Scopus	Web of Science	JSTOR
Search types	Article, Title, Abstract, Keyword	Topic	Author, Item title, Abstract, Caption
The word/phrase of search	"Coromandel Peninsula" (As an additional "New Zealand")	"Coromandel Peninsula" (As an additional "New Zealand")	("Coromandel Peninsula") AND ("New Zealand")
Date of search	14 September 2021	14 September 2021	14 September 2021
Results	150 documents	180 documents	357 documents, 2 pictures
Exported information	Citation information (Full) and Abstract, Keywords (Full)	Author, Title, Source, and Abstract	Author, Title, Source, and Abstract
Additional data	The areas of research	The areas of research	The areas of research

3. Results

3.1. Scopus Database and Results of Assessment

As a result of our Scopus search, we received 150 documents from 1965 to 2020, where the most productive years were 2004 (12 articles), 2007 (eight articles), 2012, 2005, and 2003 (six articles each) (Figure 2). Meanwhile, Mauk J.L. wrote 13 articles about Coromandel Peninsula, followed by Nelson C.S. and Moore P.R. (eight articles each), then Bryan K.R. (seven), Simpson M.P., Rowan D., and Christie A.B. (six each), with this list being only those scientists who made the highest value on the study of this area. Hence, this territory seems to have become visible to the global science community through globally relevant research outputs since 1965, which is a reasonably long time. However, its database has only 150 documents from the different fields of importance through the region, while similar random tests for other geologically and geographically similar locations gave higher results. For example, the Carpathian Mountains in Eastern Europe (Miocene–Pliocene subduction-related bimodal volcanism [andesitic to dacitic/rhyolitic], greywacke basement, and thick flysch successions but colder, temperate climate, and more alpine morphology) consistently yielded research outputs nearly two orders larger than the number of research outputs for our studied area (The Coromandel Peninsula) [38–41].

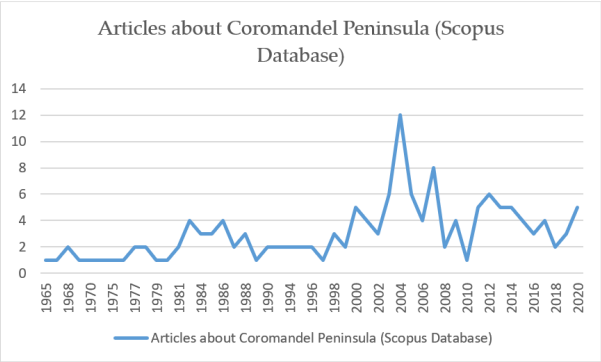

Figure 2. The number of articles written about Coromandel Peninsula each year from 1965 to 2020 (Scopus database).

For the studied areas, we directed our attention towards the authors' keywords mentioned in information about every manuscript. According to the result from authors' keywords (total number of 702 words or phrases) (Table 1), "Geochemistry" was the most popular and was mentioned five times, (except "New Zealand", 34; "Coromandel Peninsula", 14; and "Coromandel", seven times), then "Taxonomy", "Northland", "New Zealand Flora", "Miocene", "Ignimbrite", and "Great Barrier Island" were mentioned four times each. Meanwhile, index keywords compounded by Scopus (1985 words or phrases) contain "North Island" (59 keywords), Waikato (47), and Australasia (33) were the highest number of words (except "New Zealand" (107) and "Coromandel Peninsula" (54), which have not been included as they are search words), which are connected mostly to the location of the place without any connection to a specific scientific field. Then, "Asystasia gangetica" was mentioned for 20 articles, "Hydrothermal alteration" (11), and "Gold deposits" and "Forestry" (10 times each). More precise information is outlined in the table below, where author keywords are presented together with Index 1.

From Microsoft Office Excel calculations (Table 2), author keywords and index keywords were justified as the most relevant by researchers' topics around the Coromandel Peninsula region; however, the table contains the number of words, which can be used in any kind of research, such as names of locations. Hence, we used a color code for the table (Table 2) to highlight different fields of studies such as geology (red color), biology (green color), locations (light-green color), and periods (gray color).

Table 2. The comparison of author and index keywords. The information was taken from Scopus database on the search words "Coromandel Peninsula" and "New Zealand".

Author Keywords

34 New Zealand	3 Maori
14 Coromandel Peninsula	3 Hydrothermal alteration
7 Coromandel	3 Holocene
5 Geochemistry	3 Coromandel Volcanic Zone
4 Taxonomy	3 Aotearoa New Zealand
4 Northland	2 Waihi ash
4 New Zealand flora	2 Volcanism

Table 2. *Cont.*

4 Miocene	2 Tuhua tephra formation
4 Ignimbrite	2 Tsunami
4 Great Barrier Island	2 Tephrochronology
3 Whangamata ash	2 Tephra
3 Volcanic rocks	2 Tectonics
3 Riparian vegetation	2 Succineidae
3 Rhyolite	2 Succinea archeyi
3 Radiata pine	2 Structure
3 pXRF	2 Stream
3 Porifera	2 Stratigraphy
3 Palynology	2 Spongiidae
3 Obsidian	2 Spongia

Index Keywords

107 New Zealand	6 Volcanism
59 North Island	6 Tectonics
54 Coromandel Peninsula	6 Taxonomy
47 Waikato	6 South Island
33 Australasia	6 Silver
20 Asystasia gangetica	6 Pinus radiata
11 Hydrothermal alterations	6 Invertebrata
10 Gold deposits	6 Great Barrier Island
10 Forestry	5 Volcanoes
9 Gold	5 Vegetation
9 Epithermal deposit	5 Silver deposits
8 World	5 Sediments
8 Northland	5 Quartz vein
8 Miocene	5 Mineralization
8 Harvesting	5 Geology
8 Eastern Hemisphere	5 Bivalvia
8 Andesite	5 Auckland
7 Volcanic rocks	5 Article
7 Geochemistry	5 Aquaculture

Except for keywords, the Scopus database contained statistics about articles connected to different fields of research (Table 3). Hence, 71 articles were written about "Earth

and Planetary Sciences", then 54 for "Agriculture and Biological Sciences", and 43 for "Environmental science". After this, the number of articles dropped to 15 manuscripts in "Social Science" and eight and seven in "Arts and Humanities" and "Multidisciplinary", respectively, while other areas of studying were low in the Coromandel Peninsula.

Table 3. The number of articles according to the area of research (Scopus database).

Number of Articles	The Area of Research
71	Earth and Planetary Sciences
54	Agricultural and Biological Sciences
43	Environmental Science
15	Social Sciences
8	Arts and Humanities
7	Multidisciplinary
4	Engineering
3	Chemical Engineering
3	Medicine
2	Biochemistry, Genetics and Molecular Biology
2	Energy
1	Business, Management and Accounting
1	Chemistry
1	Computer Science
1	Mathematics
1	Nursing
1	Pharmacology, Toxicology and Pharmaceutics

In conclusion, the general information shown in Table 1 demonstrates that the Scopus database contained 150 articles about Coromandel Peninsula, and keywords (Table 2) show most of them were about geology and more specifically about volcanic activities, justified by keywords such as "Obsidian", "Volcanism", "Tephra", "Geochemistry", "Epithermal deposits" and others. Meanwhile, biological spheres were also studied in this region and words like "Vegetation", "Radiata Pine", "Asystasia gangetica", "New Zealand flora" and "Forestry" showed the interest in the Coromandel Flora. Additionally, words like "Spongiidae", "Spongia", "Invertebrate", and "Porifera" demonstrated the fauna part of the study of marine life, especially sponges, "Succineidae", and "Succinea archeyi" snails. Other keywords such as "Taxonomy", "Structure", and periods "Miocene" and "Pleistocene" were not related to any kind of specialization as they can be used in multiple fields, which have not been checked as they have no significant influence. The same trends for science priorities can be seen in areas of studying databases shown in Table 3, where geological, biological, and environmental research were dominant in comparison to other fields. Additionally, the number of research areas in the table of studying areas was higher than the number of documents, 180 and 150, respectively. Hence, some documents were included in two or more areas. This pattern, mostly visible between environmental science and agriculture and biological science, 21 documents, showed a strong connection in these areas. It was followed by collaboration between Earth and Planetary Sciences and Environmental science—12 documents. Meanwhile, seven documents mentioned multidisciplinary areas of studying related to geological, biological, and environmental subjects and related collaboration. In the next sections we demonstrate how information taken from other sources can further refine the overall picture based only on the Scopus data.

3.2. Web of Science Database and Results of Assessment

The Web of Science search through topics with the words "Coromandel Peninsula" and "New Zealand" in the results found 180 documents in the period from 1946 to 2020 (Figure 3). From the figure, the most productive years were 2003–2004, 2007, and 2020 as they included publication of eight and more manuscripts about Coromandel Peninsula. Ac-

cording to the authors' influences, Mauk J.L. was mentioned in eight articles, then Simpson M.P. (seven documents), Christie A.B (six), Quinn J.M. (five), and Bryan K.R. (four).

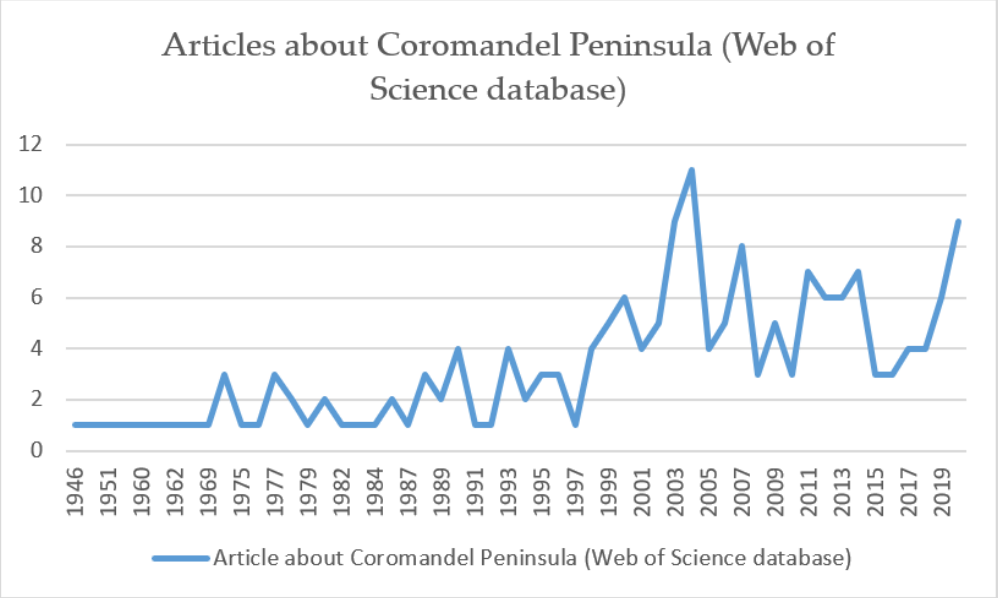

Figure 3. The number of articles written about Coromandel Peninsula each year from 1946 to 2020 (WoS database).

As previously mentioned, WoS does not provide a dedicated database about keywords like Scopus does, but it does include information about science fields (Table 4), where "Environmental Science Ecology" shows the highest number of articles (96), followed by "Zoology" (68), "Life Sciences Biomedicine Other Topics" (44), then "Biodiversity Conservation" and "Geology" (39 each).

Table 4. The number of articles according to the area of research (WoS database).

Number of Articles	The Area of Research
96	Environmental Sciences Ecology
68	Zoology
44	Life Sciences Biomedicine Other Topics
39	Biodiversity Conservation
39	Geology
35	Physical Sciences Other Topics
34	Plant Sciences
32	Marine Freshwater Biology
27	Forestry
23	Agriculture
20	Palaeontology
19	Geochemistry Geophysics
18	Anatomy Morphology
18	Meteorology Atmospheric Sciences
15	Oceanography
14	Geography
13	Nutrition Dietetics
12	Developmental Biology
12	Fisheries
12	Physiology
12	Science Technology Other Topics
11	Anthropology
11	Biochemistry Molecular Biology
10	Evolutionary Biology

In conclusion, we can state that analysis of our searches within WoS and Scopus yielded similar results for number of peaks of annual productivity for articles about the Coromandel Peninsula (Figures 2 and 3). For influence of authors, we saw that most of the manuscripts in both databases contained the same names, such as Mauk J.L., Simpson M.P., Christie A.B., Bryan K.R., and others. However, keyword analysis of Scopus results (Table 2) showed that the most significant field of research in the Coromandel was geology (specifically, volcanology and hydrothermal deposits), then flora and botany, and fauna presented by studies about marine sponges and snails, as shown in research areas outlined in Table 3. The WoS database about areas of research (Table 4) showed that topics like biology, biodiversity, environmental conservation, and zoology showed a higher ranking than geology, which did still remain at a relatively high position.

3.3. JSTOR Database and Results of Assessment

Results for JSTOR showed 784 documents and three pictures, with half of them showing no connection to Coromandel Peninsula and New Zealand at all. Therefore, we chose to concentrate specifically on the mentioned phrases. Using this option, our search showed 357 documents and two pictures (Table 1), which were published in the period from 1883 to 2019. From the period (Figure 4), 1980 was the most productive year on the topic connected to the Coromandel Peninsula (18 documents), then the next peak was in 1998 with 11 articles. For influence of authors, Hayward B.W. wrote 10 articles, then Morley M.S. (nine articles), Davidson J. (eight), Thrush S.F. (seven), and Healy T.R., Golson J., Furey L., Eagle M.K., and Bryan K.R. were mentioned in six different manuscripts.

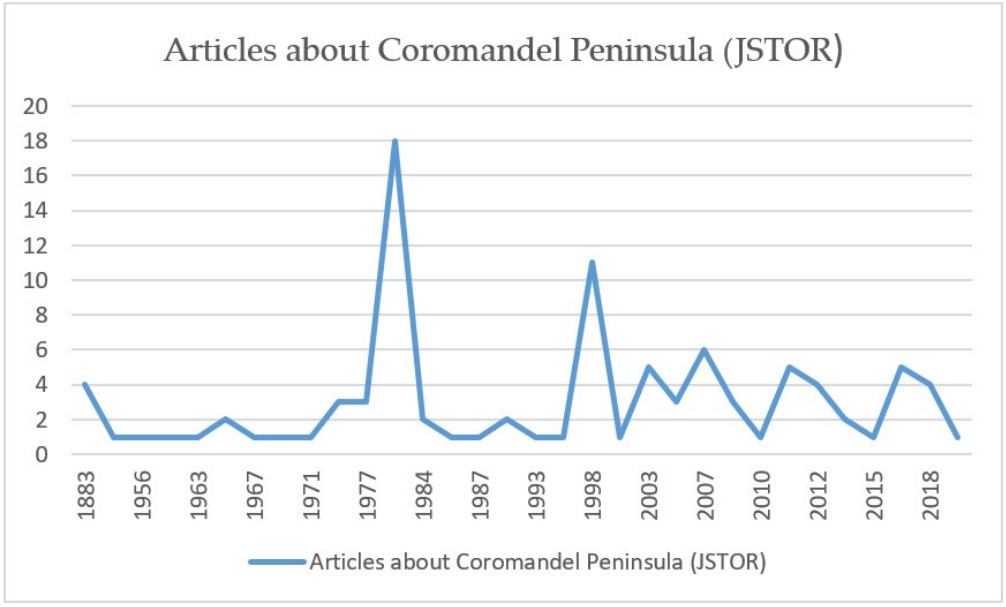

Figure 4. The number of articles written about Coromandel Peninsula each year from 1983 to 2019 (JSTOR database).

The JSTOR database is like WoS, in that it does not provide information about keywords, but it does contain a table, with different areas of research (Table 5). According to our search, 183 manuscripts were written on the subject of "Ecology and Evolutionary Biology", then 77 on "Biological Science", and 75 on Asian Studies. Continuing on, 58 and 48 articles were related to "Anthropology" and "Archeology", respectively. Meanwhile, on geological studies, only five were written for each "Geology" and "Paleontology". Other areas of study were shown to have much less impact on the Coromandel Peninsula.

Table 5. The number of articles according to the area of research (JSTOR database).

Number of Articles	The Area of Research
183	Ecology & Evolutionary Biology
77	Biological Sciences
75	Asian Studies
58	Anthropology
48	Archaeology
42	Aquatic Sciences
20	Botany & Plant Sciences
13	Geography
13	History
13	History of Science & Technology
12	Environmental Science
10	Zoology
5	Geology
5	Palaeontology
4	Education
3	Art & Art History
3	Business
3	Language & Literature
3	Political Science
2	Economics
2	Linguistics
2	Sociology

In conclusion, the JSTOR database showed different information compared to Scopus and WoS. Firstly, it provided two times more results than the other two studied databases. Additionally, within JSTOR searches, new authors tended to appear such as "Hayward B.W.", who also had the highest number of articles on the topic of "Coromandel Peninsula" according to the JSTOR database. This was despite his research outputs being barely noticed in Scopus and WoS. This might be a result of any of the following: The science media his publications appear in have not been captured properly; his publications date back to a time not captured by other databases; or research outputs were not specifically associated with Coromandel Peninsula at a level that would have been captured by Scopus or WoS.

On the other hand, JSTOR's fields of study (Table 5) provided similar outcomes to those found by searching through WoS (Table 4) in environmental and biological studies. In both cases, the highest amount of research occurred in geology in WoS, and completely opposite results were found in JSTOR compared to Scopus keywords (Table 2) and areas of research (Table 3) results, where most of them were around geological areas of science.

4. Discussion

This research demonstrated that using similar search terms about the location of study the "Coromandel Peninsula" through three databases yielded different results. The JSTOR database had the highest numbers for scientific literature, which were two times higher than others (WoS and Scopus). This can be justified by the time range presented in this system from the 19th century and older, as well as the wider types of documents based on regional and local studies with no interest or influence on world science. Moreover, the JSTOR database showed a low number for literature connected to geological spheres, unlike WoS and Scopus data searches, where these topics were the most common. However, biological and ecological studies were in the first place in all databases, which showed a high interest in the living nature of this region. In conclusion, Scopus and WoS showed similar results, with domination of geological studies in the former and biological–ecological in the searches of the latter, and high interest to Coromandel Peninsula especially in 2007. Meanwhile, JSTOR results showed the highest number of articles in the 1980s, with domi-

nance of biology, ecology, anthropology, and history, unlike the previous databases where social science was in the low position.

Additionally, we created a map (Figure 5) to show the number of articles that had a connection to some specific locations in the Coromandel Peninsula. (The information is based on the 150 documents found through the Scopus search.) It shows that the highest number of articles were written about the south part of the peninsula: 12 articles about Hauraki Goldfield and Whangamata each; on the east part, seven articles were about the Whitianga area and nine about east coast of the Coromandel Peninsula more generally. Meanwhile, the west coast was poorly studied (only three manuscripts), and the North coast was slightly better, with four articles. Such differences in the numbers of articles are connected to the most significant places of the region, where the south and southeast areas of the Peninsula are mining areas, while the central and eastern areas are considered the main tourist destinations. Meanwhile, the western part is a historic mining area and no longer subject to active mining. The northern part is the subject of some articles, also connected to the study of epithermal deposits; however, these places are remote and take considerable effort to reach. Hence, the Coromandel Peninsula has a lack of data about the North and the West part, which shows that these places should be subject to further research, thereby contributing to a fuller picture of the region.

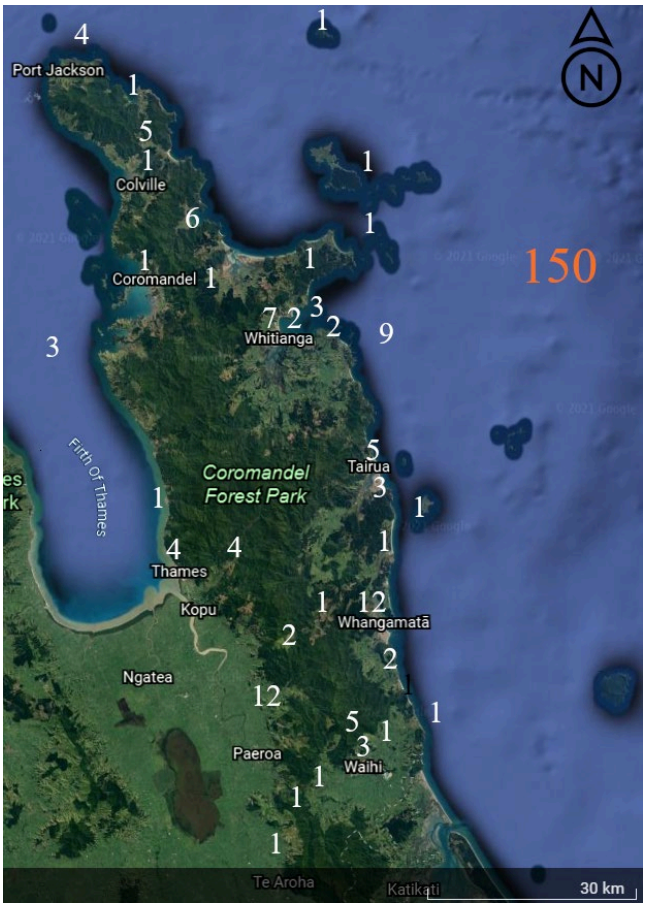

Figure 5. The number of articles written according to the specific location in the Coromandel Peninsula. The orange number showing the total number of manuscripts was taken from Scopus database. For the complete list of papers, please refer to the Supplementary Material associated with this article.

As our study was in the context of conservation of the region, we added "Conservation" to our Scopus search, thereby magnifying results towards our subject of interest. In conclusion, we completed a table, showing 10 documents related to conservation of the

Coromandel Peninsula (Table 6). From their titles, we saw most of them were related to fauna and flora protection as an important subject of study in the Coromandel Peninsula. Hence, it is apparent that the subject of geoconservation remains undeveloped in this area and a potential area of considerable research based on the knowledge of the region's geological, geomorphological, and environmental aspects.

Table 6. The number of articles according to the Conservation aspect of Coromandel Peninsula (Scopus database).

Authors	Title	Year
Hitchmough R.A., Nielsen S.V., Bauer A.M.	Earning your stripes: A second species of striped gecko in the New Zealand gecko genus Toropuku (Gekkota: Diplodactylidae)	2020
Dowding J.E.	Changes in the number and distribution of northern New Zealand dotterels (Charadrius obscurus aquilonius): results of four censuses undertaken between 1989 and 2011	2020
Gesing F.	The politics of artificial dunes: Sustainable coastal protection measures and contested socio-natural objects	2019
Feltrin L., Motta J.G., Al-Obeidat F., Marir F., Bertelli M.	Combining Weights of Evidence Analysis with Feature Extraction—A Case Study from the Hauraki Goldfield, New Zealand	2016
Ogden J., Dowding J.E.	Population estimates and conservation of the New Zealand dotterel (Charadrius obscurus) on Great Barrier Island, New Zealand	2013
Gardner-Gee R., Beggs J.R.	Challenges in Food-Web Restoration: An Assessment of the Restoration Requirements of a Honeydew-Gecko Trophic Interaction in the Auckland Region, New Zealand	2010
Steens M.I., Winter D.J., Morris R., McCartney J., Greenslade P.	New Zealand's giant Collembola: New information on distribution and morphology for Holacanthella Börner, 1906 (Neanuridae: Uchidanurinae)	2007
Schwarz A.-M., Morrison M., Hawes I., Halliday J.	Physical and biological characteristics of a rare marine habitat: Sub-tidal seagrass beds of offshore islands	2006
Neumann D.R., Orams M.B.	Behaviour and ecology of common dolphins (Delphinus delphis) and the impact of tourism in Mercury Bay, North Island, New Zealand	2005
Brook F.J.	Distribution and conservation status of the dune snail Succinea archeyi Powell (Stylommatophora: Succineidae) in northern New Zealand	1999

In a previous section we mentioned similarities between the Coromandel Peninsula and the Carpathian Mountains in the context of geological evolution, which directed us to compare these territories in analysis of differences in scientific development. For example, Scopus data contained 1132 results for the search "Carpathian Mountains". This raised new questions highlighted by differences between studies of the Coromandel Peninsula and the Carpathian Mountains. However, we acknowledge the Carpathian Mountains as being larger in area (1700 km long) than the Coromandel Peninsula (85 km long). Additionally, the Carpathian Mountains extend over the territory of 11 European countries, while the Coromandel Peninsula is in the North Island of New Zealand, thereby being subject to only one national identity. Hence, scientific interest in the Carpathian Mountains has been more influential through history. In contrast, the first Europeans came to New Zealand in the 18th century. "Modern" scientific data began from the 20th century [42,43]; therefore, old literature is rare in both regions. Moreover, in both cases, articles in Scopus displayed peaks in the 21st century. We recommend future study of the two territories in comparison as a way to highlight currently unrecognized scientific values in the Coromandel Peninsula. While the Coromandel Peninsula is recognized as a valuable conservation asset in a broad sense, we note that, in contrast, the Carpathian Mountains have 10 national parks (four of them recognized by UNESCO) located in Slovakia and six national parks (two of them recognized by UNESCO) in Poland. In addition, other countries also have a number of reserves, but with significant differences in levels of nature protection and conservation [44].

Our studies may be utilized by other researchers to understand the level of interest in the Coromandel Peninsula in a range of disciplines, which should uplift the more neglected fields of interest applied to the territory. For example, social sciences could be applied to this region to a higher degree. Initial investigations showed this area contains many sites of importance to indigenous traditions (*wahi tapu*). Facilitating and supporting recording and exploration of traditional knowledge in the context of *te ao Māori* (a world-view that acknowledges the interconnectedness and interrelationship of all living and non-living things) are suggested as ways of supporting recovery and protection in a framework shaped by geoheritage and geoconservation concepts [45,46]. Moreover, the high values placed on this area by Europeans provides a context in which to study the relationship between different types of societies and their influences on each other [47,48]. In our Scopus search, from 150 documents only six of them were related to Māori culture and they were found under the Arts and Humanities disciplines. Meanwhile, results also showed the Coromandel Peninsula is an area of high interest to researchers in Geology, Biology, Ecology, and Anthropology. All these fields can be studied through their links to and the influence of geodiversity, making explicit connections between the aforementioned scientific fields. The connection between abiotic and biotic elements of nature and the human societies that shape their environments, and are also shaped by those environments, provides a clear path for understanding and maintaining a healthy balance between society and the environment.

5. Conclusions

Scientific databases contain a limited amount of data about the Coromandel Peninsula, where biological, ecological, and geological spheres were represented the most. Meanwhile, the Peninsula has a low number of studies in the Sociological disciplines. More consideration needs to be given to these aspects, in the light of its high value as a well-known tourist destination, and the widely acknowledged heritage of human settlements dating from the earliest human arrivals through to thriving Māori settlements and, in time, important centers of European colonial settlement.

Even though nature-related data are extensive for the area, the available information is mostly connected to specific places. This does not allow for a clear region-wide holistic assessment and description, with a notable lack of information pertaining to the west and the north part of the region. Future geodiversity studies of the region must endeavor to collect more data through field observations and historic literature searches about different aspects of the Peninsula from geology and geomorphology to climate and social science.

The future study of this region can be compared alongside similar regions elsewhere in the world, which have higher amounts of data. For example, the Carpathian Mountains, which have the same geological evolution, can be used as a case study to demonstrate the kind of transdisciplinary studies that could be undertaken here to allow for a higher level of planning for geotourism, geoeducation, and geoconservation.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/conservation1040021/s1. Supplementary Material [Scopus search results for the search words: Coromandel Peninsula AND New Zealand].

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