

GEOG309: Research Methods in Geography

**OPERATIONAL FEASIBILITY OF THE TAYLOR'S MISTAKE AND GODLEY REGION
OF THE PROPOSED HOROMAKA GEOPARK**

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EXECUTIVE SUMMARY

The Horomaka Geopark initiative is designed to promote the significant geologic, cultural and ecological heritage of the Banks Peninsula. In order to assess the operational feasibility of the Horomaka Geopark on a smaller scale, the following research question was developed:

‘How would a GeoPark look and work in the Taylors Mistake and Godley Head region of the proposed Horomaka GeoPark?’

The aims and objectives of the research were to:

- Put existing data (tracks, signs and infrastructure) for the Awaroa/Godley Head Geosite into ArcMap;
- Add new data from field work and site surveys to propose and assess the need for additional infrastructure ;
- Produce a contextual map of the area;
- Establish walking times and length of tracks.

Both qualitative and quantitative data was collected:

- Desk study of existing geopark operations;
- Intercept surveys of visitors to the region;
- GPS mapping of the proposed Geopark area.

Numerous geosites were identified in the region, along with sites of ecological, historical and cultural significance. These include scoria cones and shore platforms, native bush rehabilitation and marine life, historic batches and WWII gun emplacements.

Survey findings identified the following infrastructural needs:

- Informative signs, including information on significant sites and walking distances;
- Drinking fountains to be included along the main tracks;
- Road signs indicating access to the area.

This research has been subject to the following limitations:

- Survey sample size;
- Research timeframe;
- Geosite area limiting volume of research.

Further research needs to be undertaken on the needs of visitors to the GeoSite, what kinds of facilities and infrastructure they would expect from a GeoPark, how to manage the GeoSite and the GeoPark as a whole, and how to provide continuity to the visitor experience across the entire Horomaka GeoPark.

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1.0 INTRODUCTION

Sustainable tourism is growing globally as consumer's motivations increasingly reflect the quality of the environment. The following report covers research conducted by Canterbury University students on a potential GeoPark in the Bank Peninsula region of Canterbury New Zealand. This report has been compiled in order to inform anyone whom it may concern on how a GeoPark would likely look and be run in the Godley Head region. The Horomaka Geopark initiative is designed to promote the significant geologic, cultural and ecological heritage of the Banks Peninsula. The aim of our research is to work in conjunction with our community partner in order to gauge how a Geopark would look and function on Banks Peninsula and display the findings. By focussing on the Taylors Mistake/Godley Head region it will be possible to assess the feasibility of the wider Horomaka Geopark.

Work began on 20/07/2013, after a meeting with our community partner Sam Hampton, who presented the research questions he wanted, answered and the most appropriate methods to achieve them. Methods for the research displayed in the report include, GPS mapping of the region in order to establish if current infrastructure is adequate and where new infrastructure could potentially be placed in order for the park to be of maximum advantage to users. Survey questions to the public were conducted to gain their view and ideas on what the region needed and maybe did not need. Finally critical literature reviews were completed as some information could not be attained from field investigations for example the running of the GeoPark once established. The results presented in the following report have been aided with, maps, graphs and diagrams where required.

The GeoPark concept was introduced in 1991 as a means to protect and promote geological heritage and sustainable local development through a global network of regions of outstanding geological value. UNESCO established the Global Geoparks Network in 1998 to meet this aim, as well as encourage the sustainable research and development by the concerned communities. As of September 2013 there are 100 Geoparks in 29 countries; however none are currently established in the southern hemisphere.

The task of producing a research question was slightly harder than first thought this was due to a number of reasons. The question had to be re-worded three times until the final question was decided upon. The issues that were encountered while trying to produce a suitable question include, the question being too long and therefore too broad for the research at hand and the time limit we had to complete the research in. As a result the second attempt was shortened and made more precise to help focus the research that needed to be conducted in the Geopark. This was however in need of a second change due to our meeting with Sam Hampton in which he informed the group about exactly what he wanted from our research; unfortunately this did not comply with our current re worded question. Three weeks later and three questions later the team arrived at the final question that reads, "How would a GeoPark look and work in the Taylors Mistake and Godley head region of the proposed Horomaka GeoPark?"

Our task for this assignment was to first gather the existing place data that was present in the area. This included roads, tourism operation, and tracks for both walkers and mountain bikers. The idea behind this was to maximise efficiency, so that when we went out into the field existing place data did not have to be collected again. Following from this new data had to be collected using GPS devices in order to create a database of areas of significance to the geopark. New data that had to be collected in the field included geological, ecological cultural and historical sites that would become geoints for the Geopark. Finally a contextual map needed to be produced of the Geosite using ArcGIS. The

contextual map is to show the features of not only the infrastructure but also the sites of significance to the Geosite.

Proposed GeoPoints and facilities are displayed on a map we have developed and recommendations for ongoing development are presented in this report. Also included are recommendations for marketing and management at the GeoSite, as well as applications to Horomaka GeoPark and suggestions for further research and investigations.

2.0 BACKGROUND

2.1 Literature Review

A literature review for the GeoPark was conducted in order to critically assess existing research and apply the most appropriate data to the Horomaka GeoPark. This gave us the opportunity to access information that could not have been collected in the field, relating to how GeoParks are currently managed and run. Due to there being no parks in the southern hemisphere, a literature review was the only way forward. It also made it possible to gain information that would not have been possible to obtain in the time frame of our project, which was about 12 weeks.

Geoconservation is a relatively new area of study based on the conservation of geological sites of high value. Henriques et al. (2011) defines high value as exceptional scientific, educational, touristic or cultural value. An alternative definition describes it as having bio-ecological and geomorphological features that are “worthy” of conservation, or diversity in landscape form and process of “outstanding” scientific value (Maurizio et al. 2011).

Geotourism is governed by five key principles: it is geologically based, sustainable, educative, is locally beneficial, and generates tourist satisfaction (Dowling, 2011). Geotourism attracts a spectrum of visitors, categorised by Dowling (2011) as general ‘visitors’ or ‘geo’ tourists who want to interact with the Earth environment. To ensure that the experience exceeds visitor expectations, tourist infrastructure is required. Dowling (2011) identifies infrastructure as transport and access, accommodation and services, trained staff, and planning and management.

When geotourism and geoconservation are combined to form the basis of sustainable development, the territory in question can be anointed with a geopark label. Dowling (2011) defines the goals of sustainable development (as it applies to geotourism, and in turn, geoparks) as: understanding the contribution geotourism can make to the environment, communities and the economy, promotion of equity, improved quality of life for locals, provision of a high-quality geologic experience, and maintenance of the integrity and value of geosites.

Discussions at the 30th international geological Congress in Beijing led to the concept of geoparks. It was imagined on the bases of promotion of Europe’s geological heritage and sustainable local economic development. The Global Geoparks Network (GGN) is a UNESCO activity established in 1998. According to UNESCO, for a Geopark to apply to be included in the GGN, it needs to:

- Have a management plan designed to foster socio-economic development that is sustainable based on geotourism
- Demonstrate methods for conserving and enhancing geological heritage and provide means for teaching geoscientific disciplines and broader environmental issues

- Have joint proposals submitted by public authorities, local communities and private interests acting together, which demonstrate the best practices with respect to Earth heritage conservation and its integration into sustainable development strategies.

The paper by Farsani et al. (2010) sheds light on the idea of a Geopark providing economically sustainable tourism, especially to smaller rural communities. While the proposed area for the Horomaka Geopark is rural it is likely that most of the visiting tourists will be based in Christchurch city which would limit the benefits to smaller rural towns within the region. However some economic benefit could be seen in rural towns further away from the city such as Akaroa, (not in the Godley Head region), which would be a likely place to host potential tourists as the commute is about 2hours from the city.

2.2 Horomaka GeoPark Project

The Horomaka GeoPark Project is a community-driven project with the intention of assessing the feasibility of creating New Zealand's first UNESCO GeoPark. The Horomaka Geopark is a community-driven project with the intentions of assessing the feasibility of creating New Zealand's first Geopark.

Preliminary research has focused on identifying Geopark regions based on geographic locations and accessibility with regard to roading, tourism operations, tracks, walkways, and public access. Following this, Geosites within these regions were determined enabling a database of geological, ecological, archaeological, cultural, and community significances (Hampton, 2013).

The research has exposed the wealth Banks Peninsula has to offer in a range of aspects. The landscape is globally unique, bordered by spectacular coastal sections. Distinctive flora and fauna is found throughout the Peninsula, including the world's smallest Dolphin and Penguin species. Anthropological use of the Peninsula tells fascinating stories ranging from Maori land-use to European colonisation. Today communities thrive in the region as sustainable farmers, artists and tourist operators with a significant emphasis on conservation (Hampton, 2013).

2.3 Awaroa/Godley Head GeoSite

The Awaroa/ Godley Head Geosite is a unique and diverse area that has many attractions encompassing geology, history, and ecology. Geologically, the area is host to great features such as lava flows and dikes providing an interesting environment for users of the Geosite to explore. The area also has a lot of historical heritage as it was a military camp location during World War II with a lot of the infrastructure still in place. The ecology provides another unique attraction to the area including native birds and native flora. The area is home to a lot of birds that can only be found in the Horomaka Geopark such as the white flippered penguin and grey herons. Community projects have played a vital role in the rehabilitation of the native flora by creating small plantations around the geosite to restore the area to its original state. This geosite has a very close proximity to Christchurch making it ideal for locals and tourists to make daytrips into the geopark without having to set aside several days, which would otherwise deter people from visiting the geopark.

3.0 DATA COLLECTION METHODS

3.1 GPS (Global Positioning System)

The primary data collection method used throughout this research was GPS. A Trimble Juno GPS was used; with an accuracy of $\pm 2\text{m}$. Point, line and polygon data was collected at points of interest within the Awaroa/Godley Head GeoSite. These points of interest can be classified into four different categories:

- Existing Signage
- Existing Facilities
- Proposed Signage
- Proposed Facilities

Existing signage consists primarily of WWII related information on the historically significant gun emplacements, battery compound and tunnels. Points for proposed signs were recorded using GPS at locations providing views of significant geological, ecological and historical sites. Existing facilities including main walking tracks, car parking and toilets were also mapped using GPS.

This data was then combined with the existing digitised NZTopo50 map from Land Information New Zealand (LINZ, 2011) and Google Earth satellite imagery (Google Inc., 2013). The purpose of this mapping exercise was to create a conceptual map of the Awaroa/Godley Head GeoSite to identify spatial needs for additional GeoPark infrastructure.

3.2 Intercept Survey

A survey was developed as a secondary data source for the research, containing ten questions. These questions were intended to collect a combination of qualitative and quantitative data to assess:

- The demographics of visitors to the area;
- The purpose of visiting the area;
- Current knowledge about the area;
- What users would like to know more about when visiting; and
- What facilities or infrastructure users thought was missing.

Quantitative data was analysed statistically using Microsoft Excel. Qualitative data was analysed in the context of our research question. Results were used to inform provisions for infrastructure within the Awaroa/Godley Head region of the proposed GeoPark.

4.0 RESULTS

4.1 Awaroa/Godley Head GeoSite Map

The resulting conceptual map of the Awaroa/Godley Head is shown in Appendix A. Of particular importance in this map are the locations of existing and proposed infrastructure and facilities. The map was designed with the user of Godley Head in mind, and so important facilities and features are shown in a graphic manner. Roads and tracks are easy to see, as are closed areas, areas of rockfall danger and toilet facilities.

Reasons for Visiting Godley head

4.2 Survey Results

4.2.1 Quantitative

To recommend the most appropriate way forward, analysis of the geotourism potential, through the analysis of its current use, was necessary (Figure 1). Unfortunately, the low sample number will result in a fair amount of uncertainty. Consequently, only those findings that are felt to be of some validity are reported on.

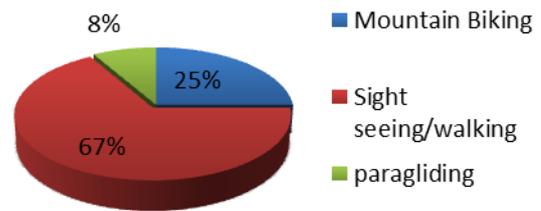


Figure 1 - Survey results showing visitor motivations for visiting the GeoSite

The majority of visitors were recreational walkers, indicating promise for the appreciation of any educational signage (bikers and paragliders would likely be focused on their task). By helping the area to become more appreciated (by increasing appeal through education) it will hopefully be seen as a superior option over other popular and convenient walks such as Hagley Park or the Ōtukaikino walk.

User's current awareness of the area was gauged with varying results (Figure 2). The high percentage of historical awareness can likely be attributed to the existing signage. Geological knowledge was entirely associated with people local to Christchurch. Not one of the foreign visitors, or those from elsewhere in New Zealand, were aware of the volcanic history. The lack of ecological knowledge encourages an emphasis toward eradicating the current "barren grassland" view, to expose visitors to the hidden wildlife. This could potentially begin to foster empathy toward the vanishing ecological diversity.

Context In Which User's Are Aware of the Area

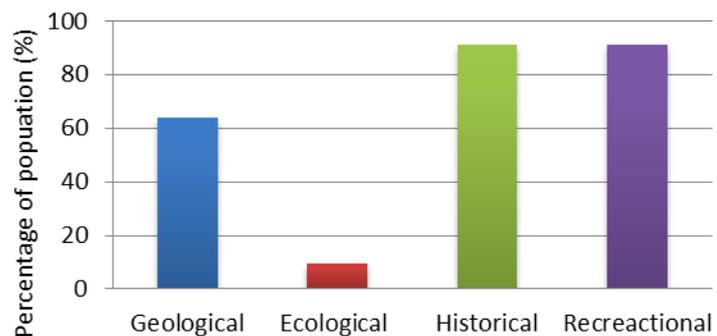


Figure 2 - Survey results showing visitors' contextual awareness of the GeoSite

4.2.2 Qualitative

The purpose of the qualitative questions were primarily used to get an indication of what users, especially those who often use the area, think would be a good addition to the park; in the hope that something that we had not thought of might be suggested.

The top three suggestions are listed below:

1. More Drinking Fountains
2. Distance Signs
3. Educational signs (Particularly Geology)

Drinking fountains were the top request for track users, it is important to note that the survey did not allude to any particular suggestions or give any options for this question. On that account, the consistent recommendation of drinking fountains was completely unbiased. Distance/directional signs were something previously determined as an issue. New visitors to the area were fairly consistent with their lack in knowledge for how long the walk was, or whether it was a round trip. A clear map at each car park coupled with an indication of paths and times along the track would likely clear some confusion and give a more ‘official’ vibe to the walk. Educational signs were the third most popular request; the appearance of this in the top three may have been subject to some bias, as previous questions likely got them thinking about that aspect of the area. Nevertheless, educational signs are an essential part of the Geopark.

Further recommendations included clearer signposting for access from the city. Post-quake remediation may have had a part to play in the difficulty experienced by some:

“We just followed the road most logical, but ended up taking numerous wrong turns. And we have been here before!” – Australian bird watchers.

“I came across some Para gliders who got lost more than once trying to get here” – Long-time park visitor.

This is easily fixed by introducing signs from the eastern extent of Moorhouse Avenue, with direction to the Geosite. Additionally, some concern was raised by a few about the gradient of the cliffs right next to the track and the suggestion for more safety fences. This we have largely disregarded due to the visual pollution threat, cost and some few existing fences already cover the most dangerous sections.

5.0 RECOMMENDATIONS

5.1 Infrastructure and facilities

Shown on the map in Appendix A are proposed walking distance and direction signs. Naturally these points have been chosen for where more than one route is available. These are shown on the map by arrow markers. A piece of infrastructure recommended by survey respondents was provision of drinking fountains along the main tracks. Six drinking fountain locations have been proposed at intervals around Godley Head, however it is noted that this may be limited to far fewer due to plumbing costs. These are shown as the water drops on the map. Cliff edges are also shown on the map.

The numbered information marker points indicate locations of existing and proposed signage. During GPS data collection, GeoPoints, as well as sites of ecological, cultural and historical significance, were located and subsequently projected in ArcMap. Using the data collected about the route of the main walking track, locations for informative signs about each GeoPoint were chosen.

Proposed signage for each numbered location is shown in Appendix B.

5.2 Signage

A conceptual sign has been produced as an example of what will be found at important GeoPoints, and is shown in Appendix C. Signs will outline a GeoPoints’ significance and formation along with any other site specific relevant information. For example, a sign regarding a Grey Heron will include

a map of global abundance and information of breeding habits. This enables the visitor a chance to gain an in-depth knowledge of the attractions found throughout a geosite.

5.3 Marketing

To market the GeoPark successfully to current and prospective visitors effectively, we suggest a facebook page. Members of the public would have the ability to ‘like’ this page in order to be updated regularly. These updates would be managed by a moderator, and would include ‘happenings’ in the park such as events, tours and times of biological interest such as hatching and flowering. Facebook is a free tool to use, and would be the most effective way to reach a large number of people both a local and global scale. As geoparks have a fundamental aim of sustaining the local community, marketing would begin at a local scale. This could include flyers in local businesses, small tours of the geosite and a real focus on word-of-mouth promotion. Word of mouth promotion will encourage visitors to the area to talk about their visit with others. Using information signs to encourage people to tell others about the area and promote the facebook page will be one of the strongest marketing tools for the geosite. A good New Zealand example of marketing is Destination Great Lake Taupo. Using facebook, brochures and a website, they market activities and attractions in the area. A similar course of action would effectively promote not only the Awaroa/Godley Head GeoSite, but the entire Horomaka GeoPark.

A brochure of the Awaroa/Godley Head Region was produced as an example of what a geopark tourist will be supplied with upon arrival to a particular geosite (Appendix D). The brochures will include a map which illustrates geoint suggested stops, carparks, walkways, toilets, shops, lookouts and any other site specific information required. Pictures of attractions are correlated to the map giving the visitor an insight which will help them to choose a route which caters for their specific desires.

5.4 Management

Figure 3 shows the management structure for the whole of Bank’s Peninsula that has been put together by the Horomaka Geopark Project. Surrounded in black are the key stakeholders in the area, minus the public and landowners. Environment

Canterbury, the Department of Conservation, the Christchurch City Council and Ngai Tahu will all play a role in the successful management of the geopark. Operations in the geopark fall into three categories: ECan, DoC and CCC specific operations, specific geopark operations and common geopark activities. It has been proposed that a geopark manager and a management unit will oversee all these operations underneath a joint operational committee.

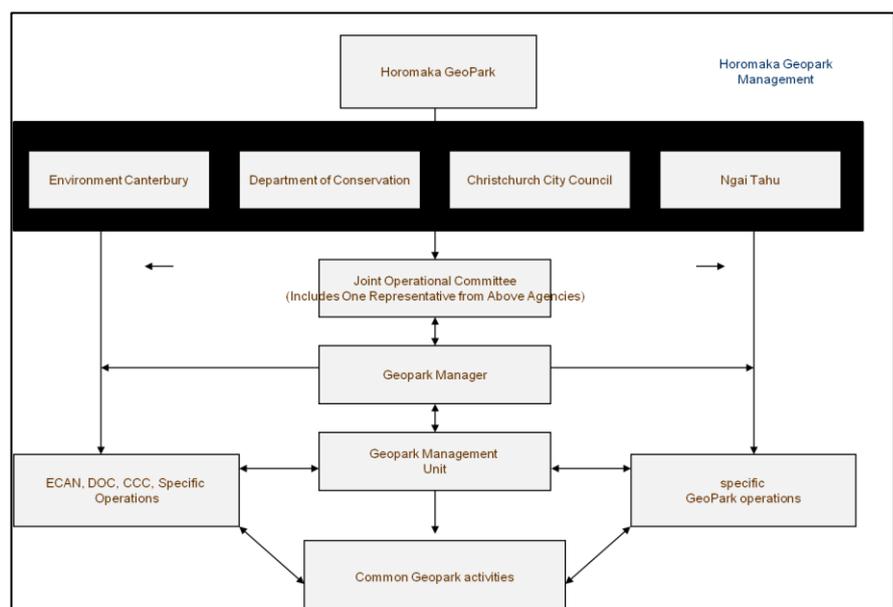


Figure 3 - Proposed management structure of the Horomaka GeoPark

5.5 Application to Horomaka GeoPark

The proposed management structure previously discussed is for the entire Horomaka geopark, however it is easily applied to the Awaroa/Godley Head site. Godley Head has particular need for consent from farmers and landowners, as much of the site lies on private land. This has proved to be a touchy subject that we have found to be best left to team from the Horomaka Geopark Project. Since the Christchurch earthquakes, communication with the Department of Conservation has been difficult. Though they have not been difficult to get hold off, a lack of clear answers about potential management of the geosite has made it difficult to establish who is in charge of what. This is mainly due to a current period of transition for the department, with associated job uncertainty and apathy toward the project.

6.0 LIMITATIONS

Over the duration of this project we have encountered a number of limitations. The first was not being able to meet with our community partner at the Living Springs workshop. Although our community partner had sent someone to fill his place we could only get a limited amount of information from him. This created a very difficult starting point as we didn't have a clear understanding of what was wanted and expected from us. Upon meeting with our community partner, Sam Hampton, we were informed that the Geopark area to be examined was far smaller than first thought limiting the volume of research that could be carried out. During the first half of the semester finding time for group meetings and discussions was found to be a very difficult task. The difficulty of holding regular meetings came from conflicting timetables making it hard to set a time. This set the group back a couple of weeks as these teething issues were rectified. Another limitation that arose was conducting surveys of a large enough sample size. As there are no "locals" to survey we relied solely on users of the area that we saw. By using this technique it was very challenging to attain large amounts of participants thus limiting our survey's accuracy. Following the earthquakes, some of the main features of Godley Head have been cordoned off. As a result of the cordons the mapping of the area has not been able to fully capture all of the attractions.

7.0 FURTHER INVESTIGATIONS

To complete the assessment of the way a GeoPark would look and work in Awaroa/Godley Head, more research needs to be done into a couple of areas. Firstly, researching the kinds of economic opportunity available for the area by studying other GeoParks and their functionality, as well as brainstorming new initiatives will provide guidance on community involvement and opportunity for development. A larger survey should be conducted to find out what would attract more users to the area, and what associated facilities and infrastructure they would expect from a park of this nature. Further investigation should be carried out into the management and maintenance potential for the GeoSite, and for the park as a whole. The final investigation that should be carried out is how to link the GeoPoints at the Awaroa/Godley Head GeoSite, to other GeoSites within the GeoPark. This needs to be done with the aim of continuity of the visitor experience within the park, and allow for easy navigation between GeoSites.

8.0 REFERENCES

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