

General Certificate of Education  
June 2006  
Advanced Level Examination



**GEOGRAPHY (SPECIFICATION A)**  
**Unit 7**

**GGA7/PM**

You will need no other materials.

**To be issued to candidates on 1 May prior to the examination**

### **Pre-release material**

#### **Instructions**

- This material must be kept **unmarked** for use in the forthcoming examination.
- The centre 2-page section of this booklet contains coloured photographs, which can be detached.

#### **Advice**

- You should use the information contained in this booklet to become familiar with the aims, methods and data provided. Methods of data presentation should be considered and subsequent analysis and conclusions drawn. Enquiry related issues should be explored. You should use your own experience of fieldwork.

## TITLE OF ENQUIRY

**What is the impact of tourism on the Old Faithful area of Yellowstone National Park, USA?**

### AIM

The aim of this enquiry is to determine the effects of tourism on this honeypot area and evaluate the success of management strategies.

In order to complete this enquiry, a number of objectives can be identified.

- Objective 1. To determine patterns of annual use, points and means of entry, type of accommodation in, and the origin of visitors to, Yellowstone National Park.
- Objective 2. To determine the attractiveness, visitor intensity and other effects of tourism of Old Faithful area.
- Objective 3. To assess the effectiveness of management strategies designed to reduce the impact of tourism.

### BACKGROUND INFORMATION

Yellowstone was the world's first national park, designated in 1872. Located mainly in Wyoming and covering a total area of almost 9000 km<sup>2</sup>, it is divided into five regions. **Figure P1a** shows the location of the Old Faithful area within Yellowstone, whilst **Figure P1b** shows the study area. Here the world's largest concentration of geysers is found with other adjacent geothermal features such as hot springs and pools.

Yellowstone was brought to the fore by fur trappers who recounted what they had seen in the area – bubbling cauldrons and a steaming landscape. Local residents went to investigate and this was followed by an official government expedition. In recognition of the belief that Yellowstone should be available and preserved for others to see and enjoy, President Ulysses S Grant signed the necessary bill on 1 March 1872, stating that Yellowstone would be 'dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people'. **Figure P2** shows the Theodore Roosevelt Arch located at the North Entrance and dedicated in 1903.

Figure P1a

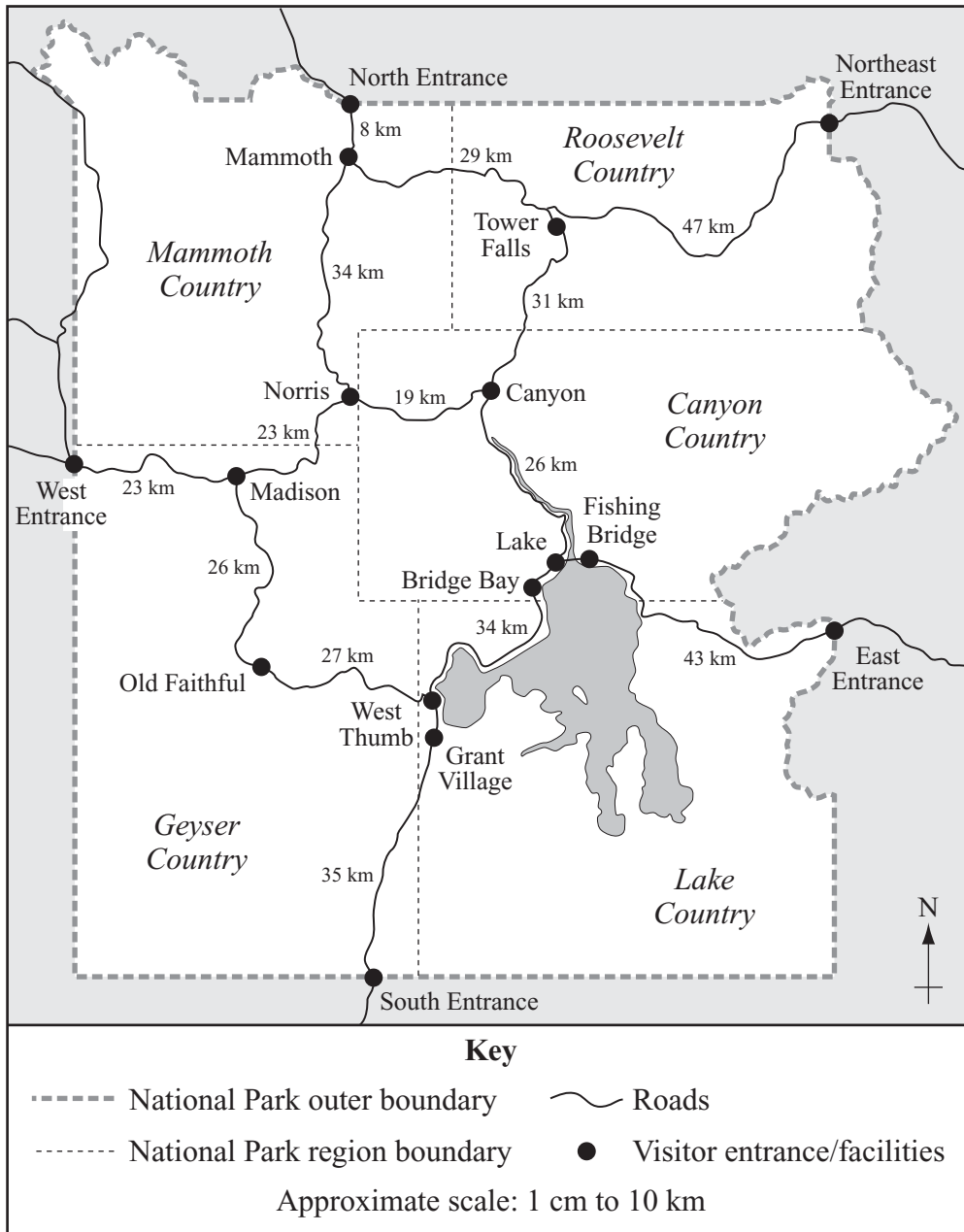


Figure P1b

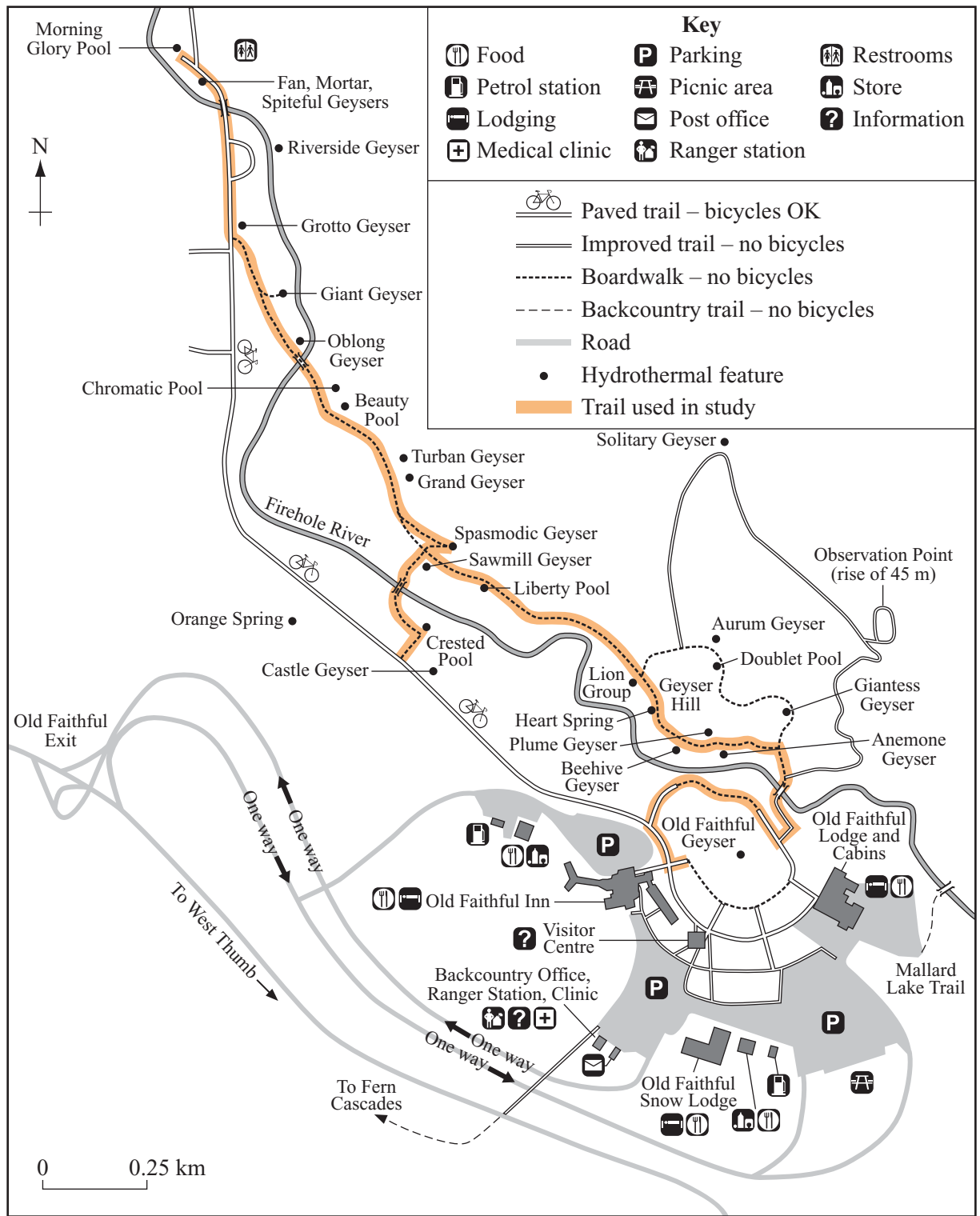


Figure P2



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**DATA COLLECTION**

Information regarding the number of recreational visits to Yellowstone from September 2003 to August 2004 was accessed via the following website – [www.nps.gov/yell/technical](http://www.nps.gov/yell/technical) and is shown in **Figure P3a**. **Figures P3b** and **P3c** show more detailed data relating to the pattern of entry into the National Park and the type of accommodation non-day visitors stayed in during the months of January and July 2004. This was obtained from the same source.

**Figure P3a**

<b>Month</b>	<b>Number of recreational visits</b>
September 2003	404 498
October 2003	175 877
November 2003	7 967
December 2003	12 951
January 2004	22 817
February 2004	30 030
March 2004	20 187
April 2004	32 434
May 2004	216 905
June 2004	584 925
July 2004	732 682
August 2004	657 869

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Figure P3b

Entrance	January 2004				July 2004			
	Total recreational visitors	Arriving by car	Arriving by recreation vehicle/snow-mobile	Arriving by bus/snow-coach	Total recreational visitors	Arriving by car	Arriving by recreation vehicle/snow-mobile	Arriving by bus/snow-coach
North	10 875	10 676	22/311	176/684	105 892	97 041	4 752/0	4 023/0
West	8 362	0	0/5 944	0/2 394	306 896	276 306	18 445/0	11 997/0
South	3 019	0	0/2 138	0/874	181 731	159 575	12 371/0	9 394/0
East	561	0	0/397	0/35	80 586	67 138	10 001/0	3 439/0
North-east	0	0	0/0	0/0	57 576	54 293	1 774/0	1 494/0

Figures for the different methods of arrival do not add up to total recreational visitors as non-recreational visitors are included in the arrival figures.

Figure P3c

Type of accommodation	January 2004	July 2004
Concessioner lodging	5 503	146 082
Concessioner campgrounds	0	152 577
National Park Service campgrounds	214	35 939
National Park Service backcountry	125	13 401
National Park Service miscellaneous	0	4 738
Total overnight stays	5 842	352 737

In addition to these secondary data, a primary data survey was carried out in the car park, south of the visitor centre at Old Faithful, on 27 July 2004. In order to determine the origin of visitors, the number plate on parked vehicles was inspected. The number plates identified the state where the vehicle originated in North America and this information was recorded. Four rows of parked vehicles were surveyed within a very large car park. The sample size was 95. The results of the survey are shown in **Figure P4**.

**Figure P4**

<b>Origin</b>	<b>Number</b>	<b>Origin</b>	<b>Number</b>
Arizona	4	New York	1
California	6	Ohio	2
Idaho	3	Oklahoma	2
Illinois	6	Oregon	3
Indiana	2	South Dakota	1
Iowa	2	Texas	3
Kentucky	1	Utah	12
Michigan	2	Washington	7
Minnesota	4	Wyoming	5
Missouri	8	Alberta	1
Montana	10	British Columbia	1
Nebraska	2	Ontario	1
Nevada	2	Quebec	1
New Mexico	1	Saskatchewan	2

22 potential study sites were identified along the main path from Old Faithful Geyser to Morning Glory Pool, shown in **Figure P1b**. These were numbered and the first 12 numbers drawn randomly from a container determined the actual study sites. **Figure P5** (in the centre of this booklet) shows photographs of each of the 12 study sites.

At each study site, surveys were carried out relating to interest/attractiveness, effects of tourism and visitor intensity. The first two surveys were scored on a scale of 1 to 10, whilst the last survey was scored on a scale of 1 to 20. It had been intended to count the number of people at each study site over a five minute period. However, the unexpectedly large numbers at study site 1 precluded this. **Figure P6** shows three descriptors for each of the surveys, whilst the results are shown in **Figure P7**.

**Figure P6**

Score	Interest/attractiveness	Score	Effects of tourism	Score	Visitor intensity
1	Inspirational/spectacular. Rare/well-known landforms. Unparalleled. Colours enhance landform. Activity likely and seen whilst present.	1	Quiet – few people. No damage apparent. Management strategies not apparent.	1	Very quiet – less than 5 people at site.
5	Appealing/pleasant. Engaging. Colours add to appearance. Activity likely, but not seen.	5	Aware of presence of people. Some damage to feature. More than one management strategy apparent.	10	Busy – but possible to count with ease.
10	Boring/dull. Ordinary features. Lacking in colour. Unchanging/inactive.	10	Overcrowded. Overcapacity. Clear damage to feature. A variety of management strategies obviously in place.	20	Very high – impossible to count numbers present.

**Figure P7**

Study site number and name	Interest/ attractiveness	Effects of tourism	Visitor intensity
1 Old Faithful Geyser	2	10	20
2 Beehive Geyser	3	5	4
3 Lion Group Geysers	2	3	3
4 Castle Geyser	1	7	10
5 Spasmodic Geyser	1	3	1
6 Grand Geyser	3	6	4
7 Beauty Pool	1	6	4
8 Oblong Geyser	4	3	3
9 Giant Geyser	1	3	4
10 Grotto Geyser	1	4	6
11 Fan Geyser	3	3	3
12 Morning Glory Pool	1	10	3

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**Figure P8**



Trail entrance



Visitor centre



Path to Beehive Geyser



Fading Glory

Every year park personnel remove hundreds of rocks, coins and other objects from Morning Glory Pool

### Fading Glory

Morning Glory Pool is losing its brilliant colour. Through ignorance and vandalism, people have tossed objects into the hot spring, clogging its vent and lowering the temperature. Brown, orange and yellow algae-like bacteria thrive in the cooler water, gradually turning the vivid aqua-blue to a murkier greenish-brown.

All thermal features are at risk. Hot springs and geysers have fragile, complex plumbing that takes centuries to develop. Morning Glory's future is uncertain; you can help by immediately reporting any vandalism.

Information board

To seek to secure the future “enjoyment and benefit of the people”, there are a variety of management strategies in place. Some of these are shown in **Figure P8**, whilst **Figure P9** lists some of the more common ones via study site location.

**Figure P9**

<b>Study site</b>	<b>Information board</b>	<b>Boardwalk</b>	<b>Seating</b>
1	Yes – several	Very wide	Yes – vast area
2	Yes	Widens out	Yes – small area
3	No	Present	Yes – single bench
4	Yes	Widens out	Yes – a lot of benches at side of road
5	No	Present	No
6	Yes	Wide	Yes – quite a lot
7	Yes	Widens out	Yes – single bench
8	No	Widens out	No
9	Yes	Widens out	No
10	Yes	Present	Yes – benches at side of road
11	No	Not present	No
12	Yes – several	Present	Yes – single, small bench

Fire plays an important role in shaping the landscape at Yellowstone. Where it is safe to do so, fires started by lightning are allowed to burn. The most recent severe fires were in 1988, although each year fires do occur. The 1988 fires affected the Old Faithful area. **Figure P10** shows a part of the vegetation next to the boardwalk on the Old Faithful trail.

**Figure P10****ACKNOWLEDGEMENT OF COPYRIGHT-HOLDERS AND PUBLISHERS**

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