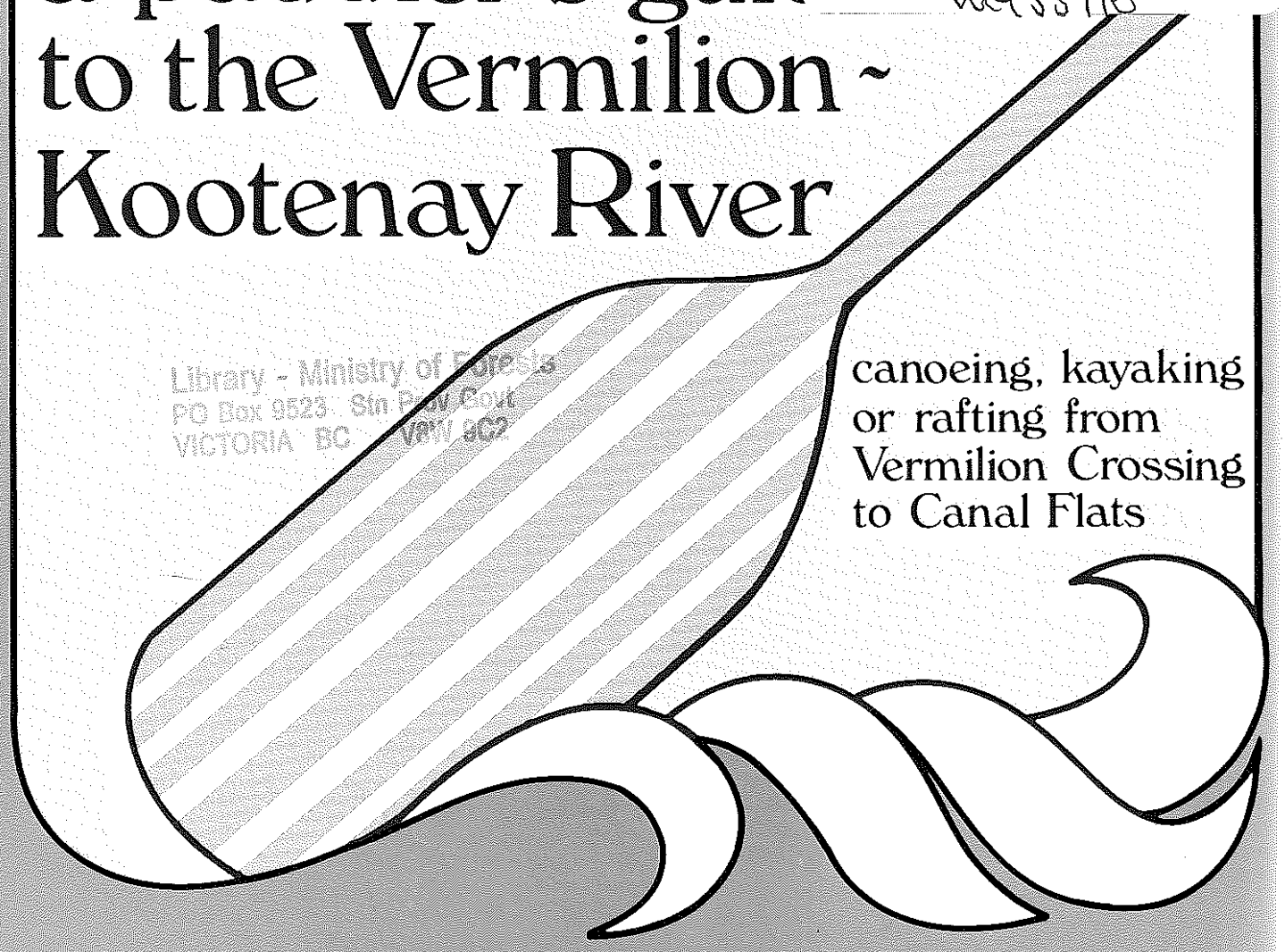
a paddler's guide to the Vermilion ~ Kootenay River



canoeing, kayaking or rafting from Vermilion Crossing to Canal Flats

INTRODUCTION

The section of the Vermilion/Kootenay River System between Vermilion Crossing in Kootenay National Park and Canal Flats, British Columbia provides superb opportunities for canoeing, kayaking and rafting. There are lots of rapids, beautiful scenery, good camping opportunities and easy access.

The Vermilion River upstream of Vermilion Crossing is not recommended. It contains a number of waterfalls and chutes. The Kootenay River downstream of Canal Flats is slow flowing. Wetland areas along this downstream section provide habitats for a variety of birds and wildlife.

This pamphlet describes a 168 km section of the river system which has been broken into three portions – or in river talk – *reaches.* An explanation of the river and rapid rating system used in the river guide is found on page 4.

The first reach is 87 km long, extending from Vermilion Crossing to the Settler's Road bridge (the Park Reach). The Park Reach is Grade 2 in difficulty, although numerous branching channels, frequent sweepers and occasional log jams across the smaller channels can make paddling interesting, particularly at higher water levels. There is one set of rapids in Hector Gorge that is Class IV in difficulty at medium - high water (Class III at other levels). The portage around these rapids is long and arduous.

The second reach (Canyon Reach) extends for 49 km from the Settler's Road bridge to the bridge near the White River. This reach contains the best and most scenic canoeing water along the river. There are lots of rapids in the reach ranging in difficulty from Class I to Class III. The over-all reach difficulty is Grade 3. With some care, it can be paddled using open canoes. The river has downcut through soft shale and glacial outwash, creating beautiful steep-walled canyons.

The 38 km long third reach (White River Reach) extends from the White River bridge to Canal Flats. With a reach difficulty of Grade 2, it is not quite as exciting to paddle as the Canyon Reach, although the scenery is equally spectacular as the river cuts through the western-most ranges of the Rocky Mountains and enters the Rocky Mountain Trench.

Using this Pamphlet

This pamphlet is intended to assist in planning a river trip. It can also be used as an information guide to be taken down the river. It is printed on water-proof paper and can be tied into your boat using the hole punched on the upper left corner.

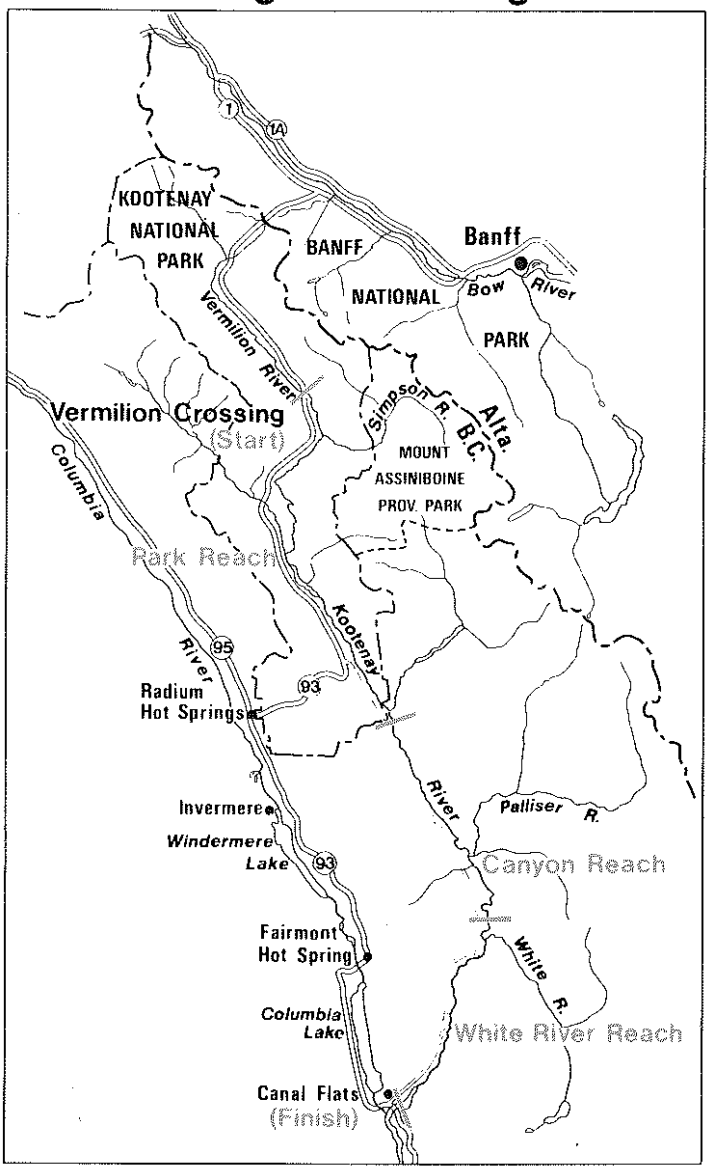
No responsibility can be assumed for the misuse of this information nor the failure of individuals to adequately assess their paddling ability. River conditions may change considerably with water levels. The decision to run this river system, reach or rapid, therefore rests solely with the individual. We hope the pamphlet will help paddlers to enjoy this beautiful river system.

Access

Highways 93 and 95 provide easy access to the river between Vermilion Crossing and Settlers Road, and again at Canal Flats (see page 3). The river can also be reached between the Kootenay River picnic site and Canal Flats by an all weather gravel route known as the Settler's Road and the Raven's Head Road (they follow the west side of the river). Settlers is a busy road, used by trucks hauling logs and ore. It is usually safest to assume that these trucks own the road!

Good river access sites, with parking are shown on the river maps that follow.

Regional Setting

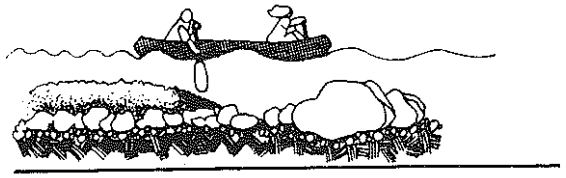


Rating River Difficulty

River difficulty is rated using the six-part International River Classification System. Individual rapid ratings are called classes, while sections are called grades. The rating system for river sections follows. The rapid rating scale is based on the same difficulty levels, but are always indicated in Roman numerals (Class I rapids are not indicated in this river guide). Where two ratings are indicated for a specific rapid, the first rating applies to high water conditions and the second to medium-low water.

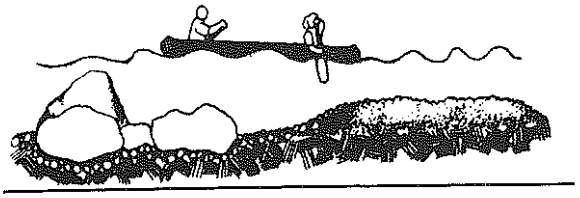
Grade 1 – VERY EASY

- Suitable for novices in all boats.
- Waves small and regular. Passages clear with occasional channel bars and artificial difficulties such as bridge piers.



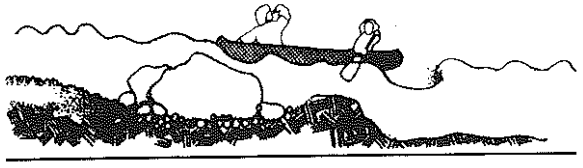
Grade 2 – EASY

- Suitable for intermediate open canoe, novice closed canoe or white water boat with intermediate accompaniment.
- Rapids of medium difficulty, with clear and wide passages. Low ledges, sweepers, snags, log jams and large protruding boulders may be present. Open canoes may ship some water.



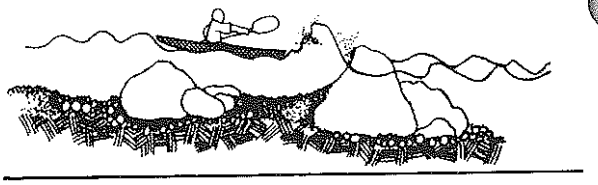
Grade 3 - MEDIUM DIFFICULTY

- Suitable for advanced paddlers in open canoes and intermediate paddlers in white water and closed boats.
- Waves numerous, high and irregular rocks, eddies and rapids with clear and narrow passages requiring precise manoeuvering. Inspection usually needed. Upper limit for open canoes, although extended reaches at this level are not recommended.



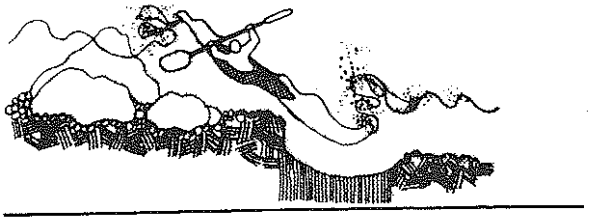
Grade 4 – DIFFICULT

- Suitable for advanced paddlers in closed canoes and white water boats. Not suitable for open canoes.
- Long rapids with powerful and irregular waves. Narrow passages through rocks and boiling eddies, requiring precise manoeuvering. Course difficult to reconnoiter from the water. Inspection mandatory.



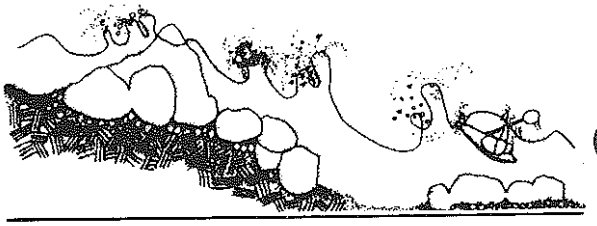
Grade 5 – VERY DIFFICULT

- Suitable for expert white water paddlers only.
  Extremely difficult, long and very violent rapids following each other almost without interruption. Channel bed is extremely obstructed. Big drops, steep gradient and violent current. Inspection essential but may be difficult due to nature of the terrain.



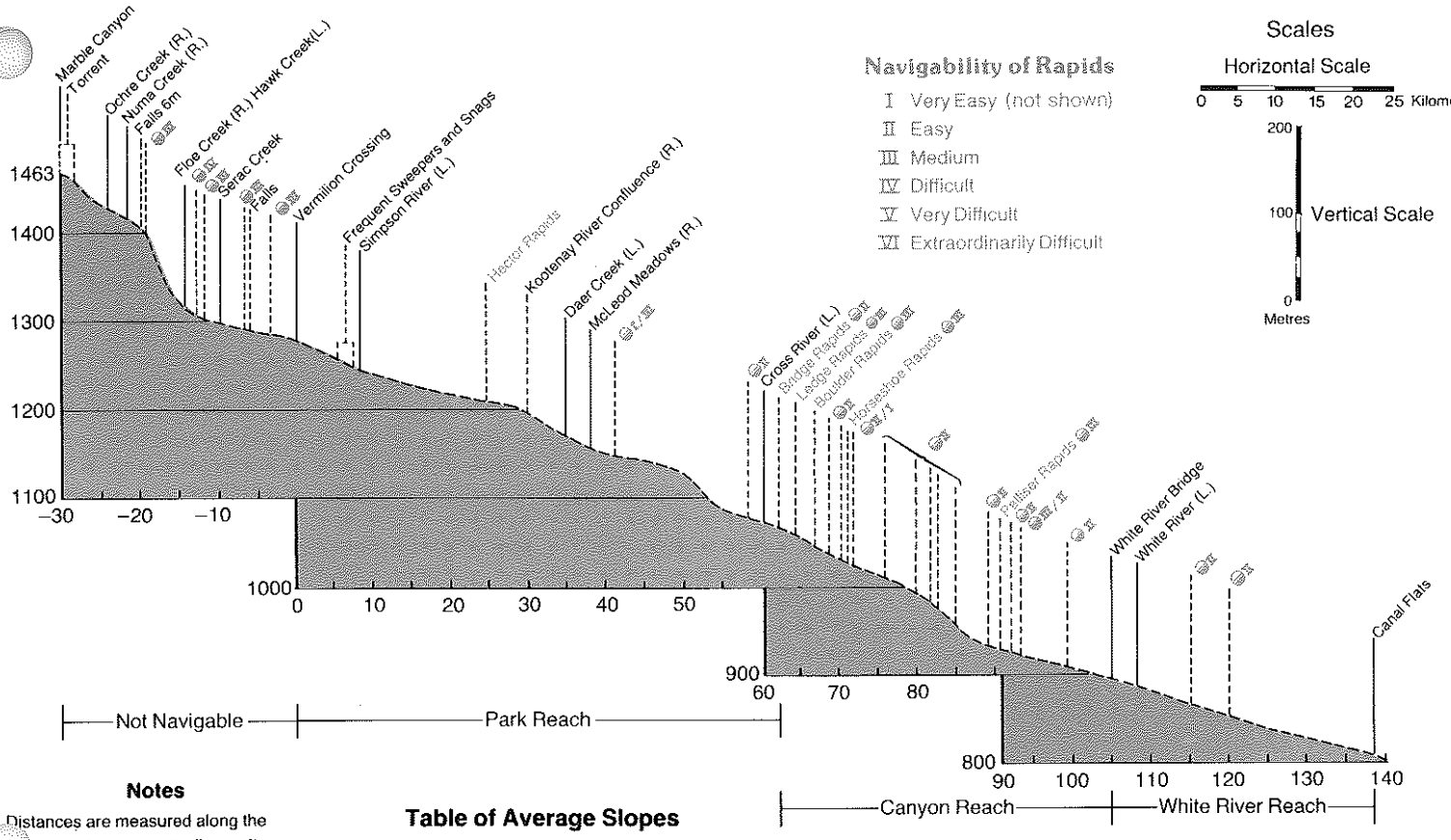
Grade 6 – EXTRAORDINARILY DIFFICULT

- Suitable for teams of expert white water paddlers, at favourable water levels and with adequate provision for rescue.
- Difficulties of Grade 5 carried to extremes of navigability. Nearly impossible and very dangerous.



Vermilion & Kootenay Rivers

Profile From Marble Canyon to Canal Flats



Navigability of Rapids

I Very Easy (not shown)
II Easy
III Medium
IV Difficult
V Very Difficult
VI Extraordinarily Difficult

Scales

Horizontal Scale
0 5 10 15 20 25 Kilometres

200
100 Vertical Scale
0
Metres

Notes

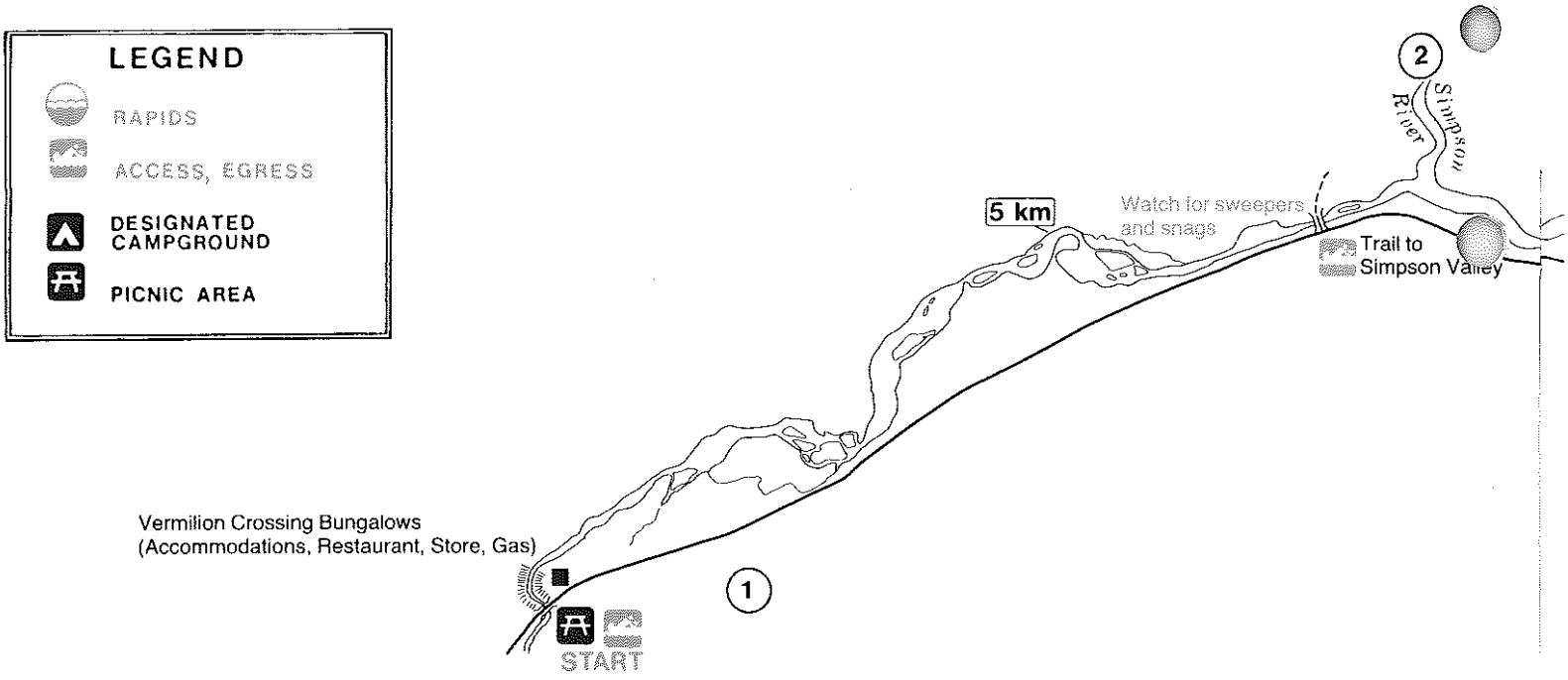
Distances are measured along the apparent channel centre line as it appears on 1 50,000 National Topographic maps.

All elevations are given in metres above mean sea level.

R/L Denotes side of river in downstream direction.

Table of Average Slopes

REACH	DISTANCE (km)	FALL (m)	SLOPE (m/km)
Park	63	220	3.5
Canyon	42	170	4.0
White River	35	90	2.6
TOTAL	140	480	

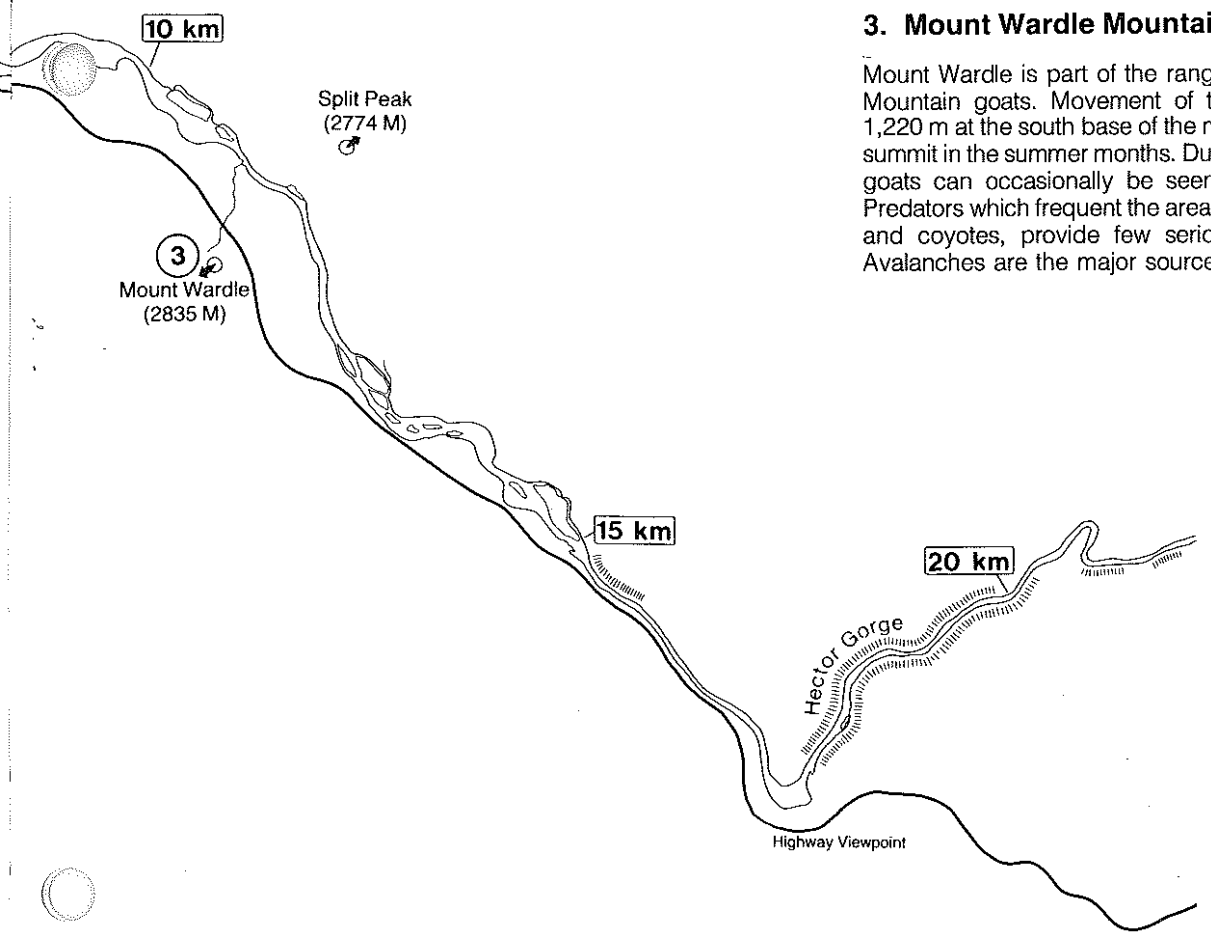


1. Avalanche Slopes

Avalanche slopes are a distinctive feature on many steep mountain slopes. These slopes appear as vertical treeless strips. Typically they occur on slopes with gradients between 25 and 40 degrees. Avalanches occur when snow, accumulated on a mountain side, lacks sufficient cohesion and plunges down the mountain in a rapidly growing mass at speeds of over 110 km per hour. The abrasive forces of the snow and accompanying air blast usually removes any trees in its downward path, leaving an area where only shrubs and herbs remain.

2. Simpson River

The river drains a large area to the east, including much of Mount Assiniboine Provincial Park. It is named after Sir George Simpson, the flamboyant governor of the Hudson's Bay Company. Simpson was the first whiteman recorded to have travelled in the Vermilion and upper Kootenay valleys. In 1841 he traveled westward up the Bow Valley to Healy Creek, over Simpson Pass and down the Simpson Valley to the Vermilion River Valley. His journey then took him down the Kootenay Valley to Sinclair Pass and into the Columbia Valley. Neither Simpson nor any subsequent travellers during these early years of exploration continued southward down the Kootenay Valley to Canal Flats. Presumably, the hot springs at Radium were a significant attraction that drew visitors over Sinclair Pass.



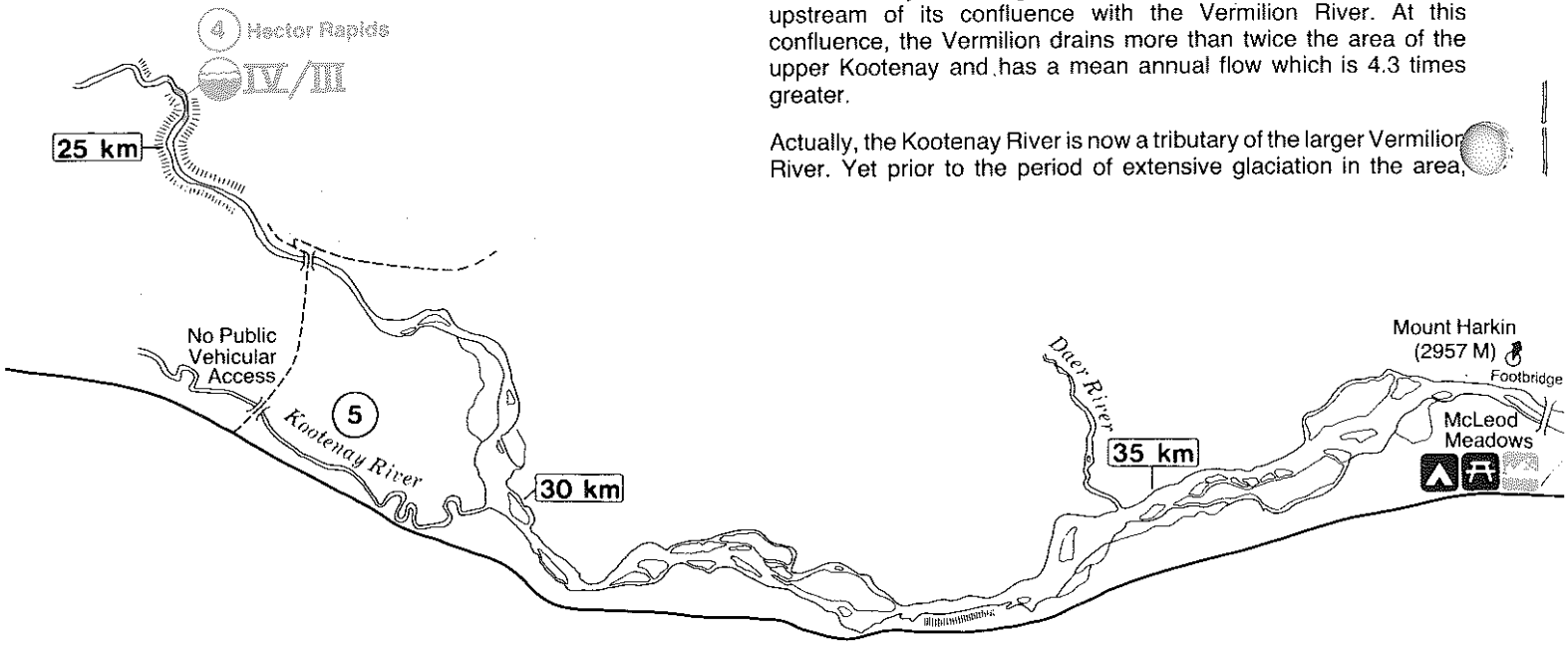
3. Mount Wardle Mountain Goats

Mount Wardle is part of the range for a band of up to 100 Rocky Mountain goats. Movement of this band varies seasonally from 1,220 m at the south base of the mountain during winter, to near the summit in the summer months. During May, June and July, however, goats can occasionally be seen at mineral licks near the river. Predators which frequent the area, such as grizzly bear, cougar, lynx and coyotes, provide few serious threats to the goats' safety. Avalanches are the major source of mortality for this band.

5. The Kootenay River

The Kootenay River begins humbly in a marshy area about 40 km upstream of its confluence with the Vermilion River. At this confluence, the Vermilion drains more than twice the area of the upper Kootenay and has a mean annual flow which is 4.3 times greater.

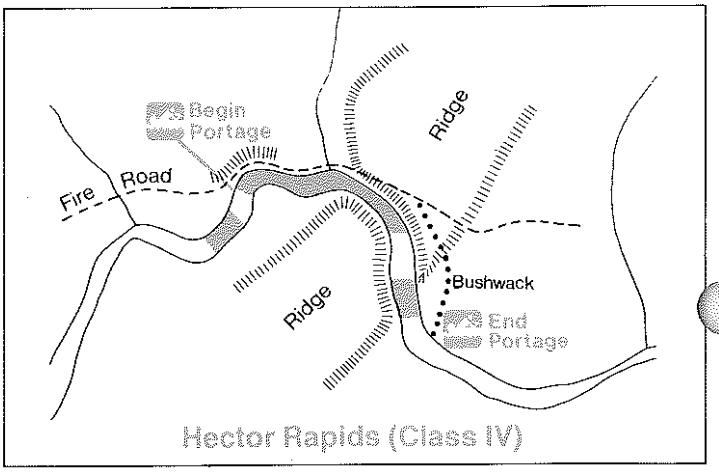
Actually, the Kootenay River is now a tributary of the larger Vermilion River. Yet prior to the period of extensive glaciation in the area,



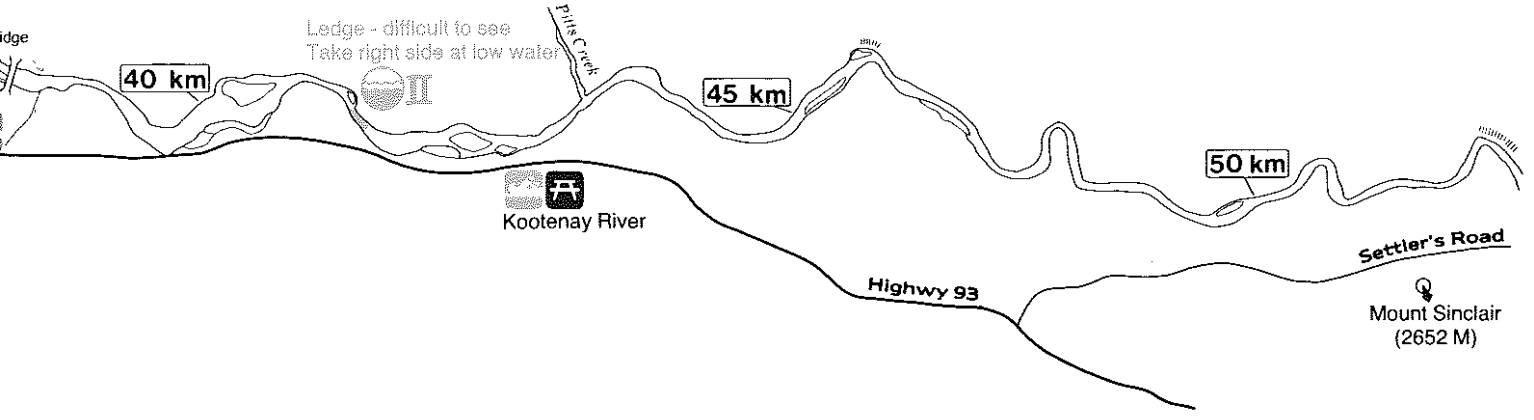
4. Hector Rapids (Class IV)

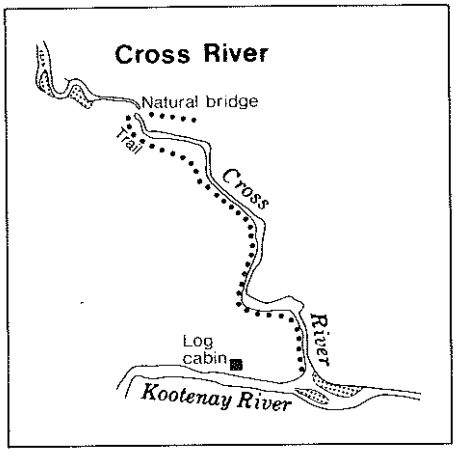
Hector Gorge is the most scenic section of river in the park and contains the only noteable rapids downstream of Vermilion Crossing. The Hector Rapids reach class IV in difficulty at medium-high water and are class II-III at all other water levels. At medium-high water, the main current swings up against a rock wall. Large standing waves and mid-channel obstructions also increase the difficulty. Paddlers not wishing to run these rapids should be aware of the options for portaging and lining.

The rapids can be portaged on either shore, but with difficulty. The best option involves pulling out on the east (left) side of the river, portaging about 550m along an old fire road and then bushwacking for a frustrating 500m back to the river. Portaging on the other shore is shorter but considerably more arduous. A third option involves paddling along the periphery of the rapids and lining where necessary and possible.



which ended about 10,000 years ago, the Vermilion was a true tributary of the Kootenay River. At that time, the Kicking Horse River flowed through the valley of the Beaverfoot River and into the Kootenay drainage. As the glaciers melted, however, glacial material blocked this route and the Kicking Horse River began to cut a steep and tortuous route, westward to Golden and the Columbia River.

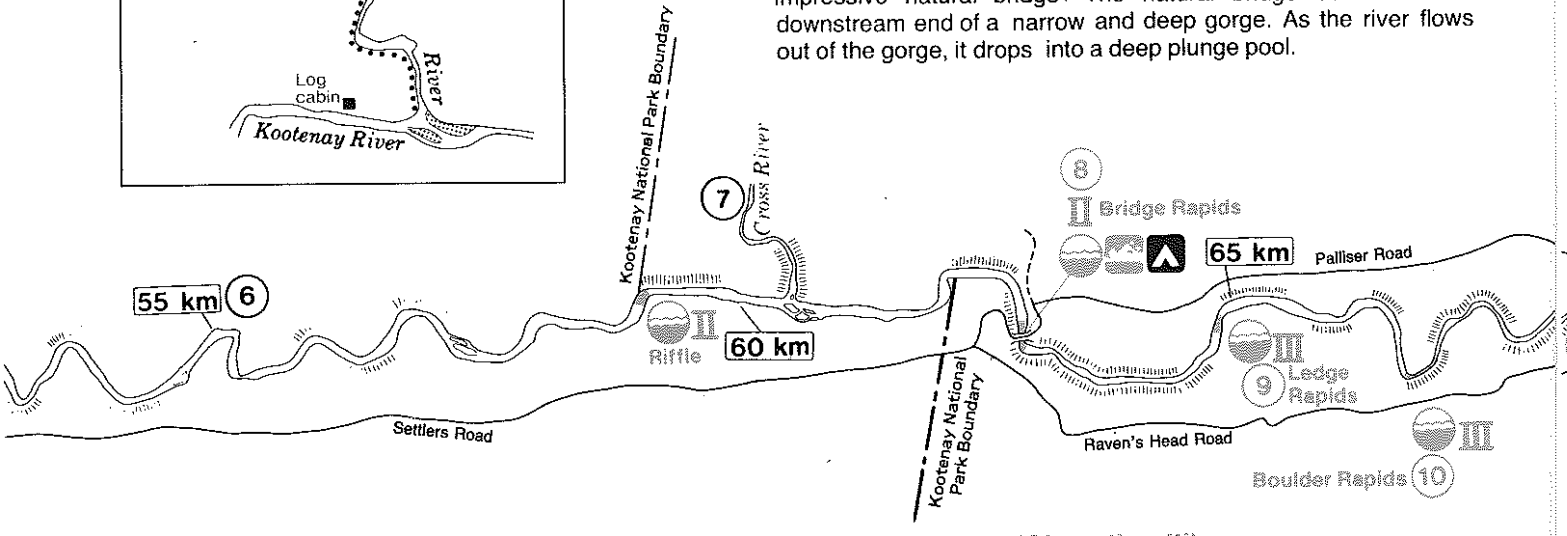




7. Cross River

This tributary river flows westward from its source near the summit of White Man Pass. Father Pierre De Smet, who crossed the Rockies in an attempt to establish peace among warring Indians of the region, erected a cross at the top of the pass in 1845 – hence the river's name. The mouth of this river is a particularly attractive spot, because the river flows out of a steep-walled gorge.

A scenic 2.5 km trail follows the left (north) side of the river to an impressive natural bridge. The natural bridge occurs at the downstream end of a narrow and deep gorge. As the river flows out of the gorge, it drops into a deep plunge pool.



6. High Gravel Wall

At km 77, the river flows up against a 45 m high wall of gravel. The material composing this wall was left by the retreating Kootenay Valley glacier. Now the river is cutting down through these deposits. The distinct layers and partial sorting show that the material was deposited by running water. This high wall is unusual because it has not slumped into the river but is almost vertical. Calcium carbonate, from limestone rock ground-up by glaciers, has cemented the gravel making it almost rock hard.

8. Bridge Rapids (Class II to III)

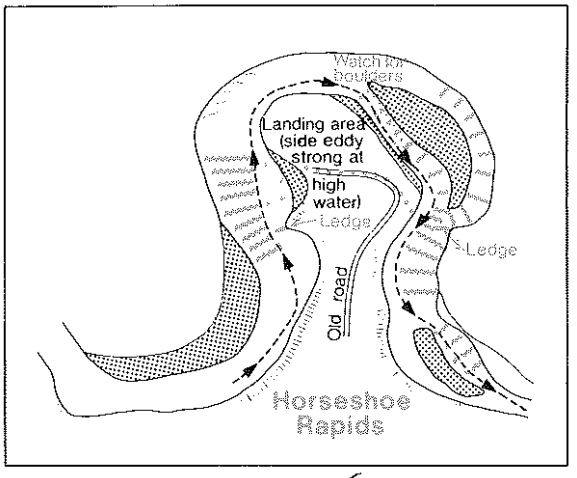
These rapids occur beneath the Settler's Road bridge. Strong converging currents, cross-waves and powerful back eddies behind the bridge pilings make reconnoitering advisable at most water levels, particularly if open canoes are used.

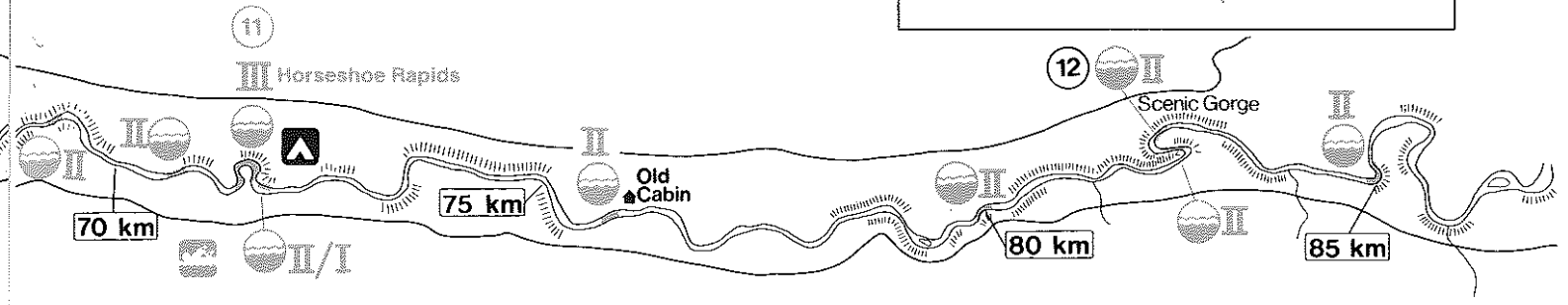
9. Ledge Rapids (Class III)

A large gravel bar divides the river into two channels. A rock ledge crosses the left channel and cannot be navigated easily by open canoe. The right channel is unobstructed but requires precise manoeuvering around and through high standing waves. In open boats, it is often best to run through the waves at the beginning of the rapid and then to draw left to avoid swamping in the rollers that follow.

11. Horseshoe Rapids (Class III)

As the insert shows, there are actually two sets of rapids at this location. At the first set, the current flows up against a rock wall and then over a ledge. Open canoes must pass to the left of the ledge and then run between large standing waves to the left and a side-eddy to the right. At high water the waves are one metre high and the side-eddy is strong. The second set of rapids can be reconnoitered by pulling into the side-eddy and walking over the neck of land. The second set of rapids should be run along the inside channel. The outside channel contains a ledge and high standing waves.





10. Boulder Rapids (Class III)

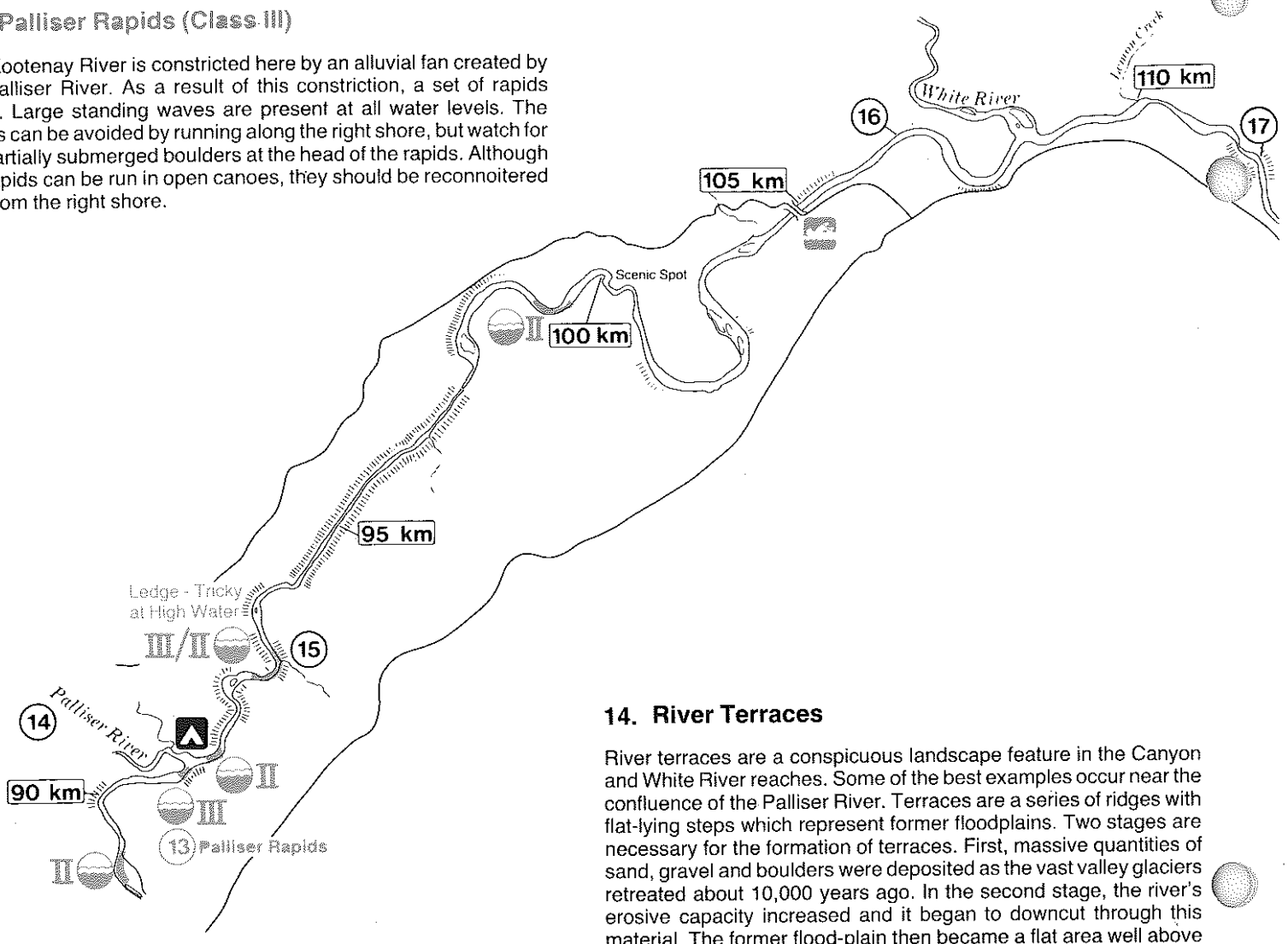
These rapids are straight forward at high and low water. At moderate levels, however they can be challenging. At this level high standing waves and large mid-channel boulders result in the need for mid-rapid manoeuvering. The rapids should be reconnoitered by landing on the east (left) shore.

12. Tufa Deposits

The tufa deposits occur along a steeply sloping bank of outwash material on the east (left) shore. These deposits are composed of calcium carbonate left by percolating ground water which surfaces along the river bank. Butterworts (Pinguicuta vulgaris) are found at this site. These plants are able to trap and digest insects.

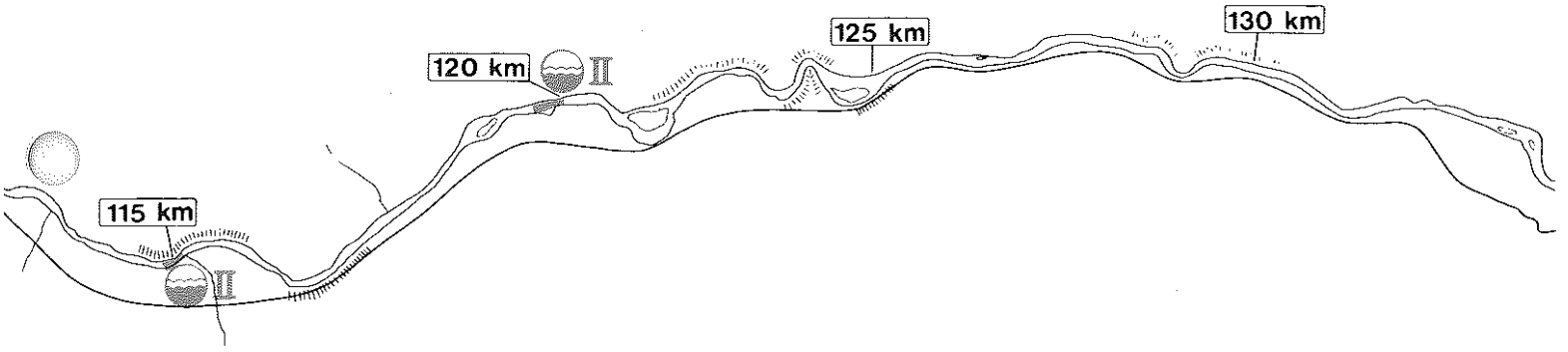
13. Palliser Rapids (Class III)

The Kootenay River is constricted here by an alluvial fan created by the Palliser River. As a result of this constriction, a set of rapids occur. Large standing waves are present at all water levels. The waves can be avoided by running along the right shore, but watch for the partially submerged boulders at the head of the rapids. Although the rapids can be run in open canoes, they should be reconnoitered first from the right shore.



14. River Terraces

River terraces are a conspicuous landscape feature in the Canyon and White River reaches. Some of the best examples occur near the confluence of the Palliser River. Terraces are a series of ridges with flat-lying steps which represent former floodplains. Two stages are necessary for the formation of terraces. First, massive quantities of sand, gravel and boulders were deposited as the vast valley glaciers retreated about 10,000 years ago. In the second stage, the river's erosive capacity increased and it began to downcut through this material. The former flood-plain then became a flat area well above the river. Following the period of downcutting, a period of lateral erosion occurred as the river migrated across the valley bottom forming a new floodplain. The series of terraces and perched floodplains are a record of these occurrences.



15. Pedley Falls

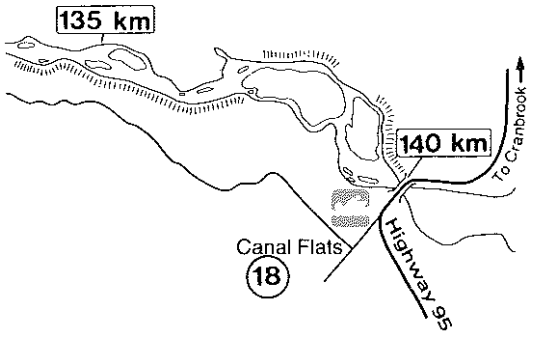
These falls are one of the most impressive sights along the river. Just upstream of the falls, the river enters a narrow gorge which is about 50 m deep. Several hundred metres along the gorge, Pedley Creek flows into the Kootenay. Pedley Creek has been unable to down cut through the shale bedrock as deeply as the Kootenay River because its flow volume and, consequently, erosive capacity is considerably less. As a result, the creek enters the gorge about 25 m above the Kootenay River, forming a beautiful, cascading waterfall.

16. Hoodoos

A spectacular set of hoodoos occurs on the east (left) side of the river. Alternating layers of coarse (glacial outwash) and fine-grained (lake-bed sediments) material make-up the high spires and turrets of these features. The different rates of erosion which resulted in their formation are due to variations in the intensity of cementing by calcium carbonate.

17. Gibraltar Rock

This site was considered by B.C. Hydro for a dam – and it is easy to see the reason. The river has dissected a high but narrow ridge of limestone. The steep walls of limestone facing the river are pitted by numerous small solution holes, giving the rock a volcanic-like appearance. At lower water levels, there is a superb small sand beach on the south (left) side of the river which is fringed by a stand of cedar.



18. Canal Flats

Canal Flats is situated on a large alluvial fan formed by the Kootenay River. The best access to the river is provided immediately downstream of the highway bridge on the north shore.

In 1808 David Thompson named these flats McGillivray's Portage after crossing from Columbia Lake to the Kootenay River. At this location, Columbia Lake – the source of the Columbia River – and the Kootenay River are separated by 1.5 km and less than four metres in elevation.

During the 1880s, W. A. Baille-Grohman, a British sportsman-promoter-author, decided he could develop the Kootenay Flats region of southern British Columbia into a rich farming area if the river's annual flooding could be controlled. His solution was to construct a ditch from the Kootenay into Columbia Lake to divert the Kootenay's flood waters. The Canadian Pacific Railway objected to the scheme, fearing their newly-laid track along the Columbia River would be flooded by the extra water.

Baille-Grohman agreed with the Canadian government to join the two waterways by a canal with a single lock. He also inexplicably agreed that no diversion of the Kootenay's floodwaters would occur, an agreement he later regretted. These regulations so restricted the operation of the canal that only two steamboats passed through – the Gwendoline in 1894 and the North Star in 1902. As for the Kootenay Flats area that Baille-Grohman wanted to promote, it continued to flood regularly and the canal locks are only a memory.

Regulations and Requests

For your safety and the protection of this river, please follow these points.

- One approved life jacket must accompany each paddler. Spare paddles should always be carried in canoes and rafts.

While in Kootenay National Park . . .

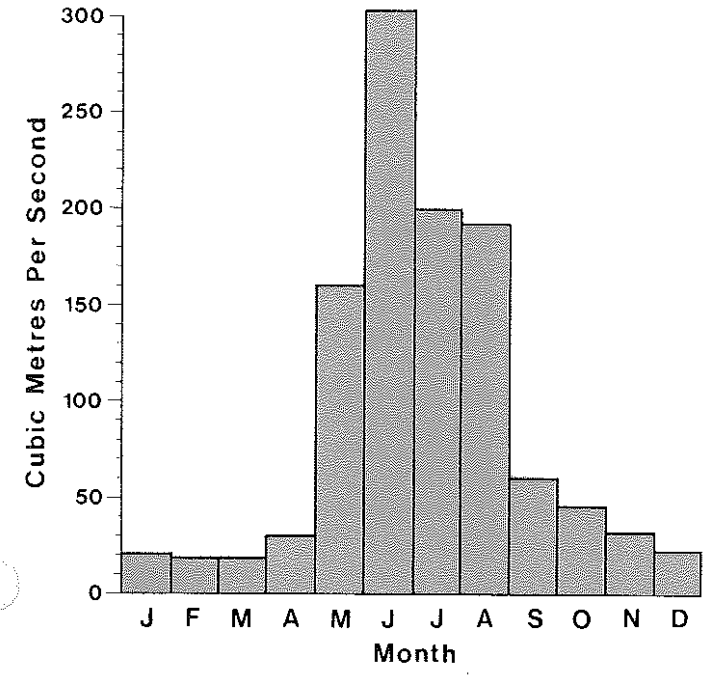
- No primitive camping is permitted along the river. There are three campgrounds in the park, at Marble Canyon, McLeod Meadows and Radium (Redstreak). The McLeod Meadows campground (km 55) is the only facility along the river.
- If intending to fish, it is necessary to obtain a national park fishing permit. The fishing permit is valid in all national parks for one season. A permit can be purchased at the park office in Radium or any other national park information office.
- Removal of natural or historical objects from the park is prohibited. This includes small fossils and antlers.

South of the park, the river flows through lands administered by the British Columbia Forest Service.

- You may camp at any suitable site (see river map for park boundary), providing environmentally – appropriate camping practices are followed.
- Subject to the Ministry of Forests Campfire Regulations, small campfires are permitted, except during periods of high fire hazard. Always build the fire on mineral soil near the river. Extinguish the fire with water, and scatter the fire ring and cold charcoal before leaving. If it is very windy or dry, use a camp stove.
- A British Columbia Anglers License is required for fishing outside the national park boundary.
- There is a Forest Service campsite at the Hoseshoe Rapids.

GENERAL NOTES

Water Levels: Changes in water level affect river travel times and the difficulty of individual rapids. Normally the river can be paddled from late May to late September. It usually rises rapidly in May and peaks in June, during the period of maximum snow-melt. Water levels decrease through July with a pronounced decrease in August and September. By mid-September, shallow sections may be encountered, particularly in the Park Reach. Within these mean monthly levels, water levels will also fluctuate daily, depending on the rate of high altitude snow-melt (usually a factor in June and early July) and the amount of rain.



Mean Monthly Discharge
Kootenay River at Canal Flats

Hypothermia: The navigable section of this river begins a short distance from its icy source. The water, therefore, is cold, seldom rising above 10°C even in summer. Prolonged immersion in this water can result in hypothermia, a condition which causes shivering, physical incapacitation, loss of judgement, unconciousness and even death. Hypothermia is brought on by cooling of the brain and internal organs. Even after rescue, body cooling will continue, once the victim's body reaches a point where he can no longer warm himself. Heat must be provided to the victim through an external source, such as a campfire, warm fluids (not alcohol) or another person's body. Blankets and coverings do not replace body heat. Wet suits can significantly increase safe exposure time in cold water. Paddlers are advised to obtain more information on this subject.

Fishing: Bull trout (or Dolly Varden char), mountain white fish and cutthroat trout are most often caught in the river. Fishing improves in late August and September when river levels drop and the water is less turbid.

For Assistance: If serious problems are encountered and assistance is required, contact the Kootenay Warden Service (347-9615 or 347-9361), the Radium detachment of the R.C.M.P. (347-9393 or the R.C.M.P. detachment at Invermere (342-9292).

THE VERMILION / KOOTENAY PADDLER'S GUIDE IS . . .

** useful in planning a river trip.*
** a handy reference once on the river.*

THE GUIDE IS PRINTED ON WATERPROOF PAPER AND CAN BE TIED INTO YOUR BOAT USING THE HOLE PUNCHED ON THE UPPER LEFT CORNER.

Environment Canada

Canadian Parks Service

Province of British Columbia

Ministry of Forests
FOREST SERVICE

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