

Plenty Gorge Park

An excursion and fieldwork resource for schools



Congratulations for taking the leap outdoors!

Excursions and field trips are an important part of the educational experience for students, offering hands-on, concrete experiences that are important for reinforcing key concepts taught in the classroom.

Our aim is that every student leaves a park or reserve with a greater appreciation not only of its unique values, but how these are connected to other places and larger issues, and a desire and the know-how to get involved in making a difference.

Our excursion/fieldwork resources aim to help students:

- develop a sense of wonder, curiosity and respect for our parks and the people and environments they support
- develop their knowledge of their own locality and region and how places are connected
- understand the changes that are occurring in our parks and what strategies are being employed to manage these changes
- consider some of the complex interrelationships between the physical environment and the flora, fauna and fungi that live in our parks
- become informed, responsible and active citizens who contribute to the protection of our special places.

This resource is designed to provide teachers with ideas for planning exciting and experiential learning activities out in our beautiful parks, reserves and waterways.

We would love to hear about ways we can improve this resource to support teachers who take their lessons outdoors. Please contact education@parks.vic.gov.au with your feedback.

Why visit?

Plenty Gorge Park, 20 kilometres north of Melbourne, has the greatest diversity of habitats of all parks in the Greater Melbourne area. Not far from the fastest-growing suburb of Mernda, Plenty Gorge is a fantastic place to escape from the city – it has the feeling of being an isolated park whilst including the unique flora and fauna. Kangaroos are abundant in this park, and many migratory birds use the wetlands, making the gorge a very special park.

Within the park the Plenty River is the dividing line between two distinct geological types, the western side is basalt and the eastern side is sedimentary rock. This provides Plenty Gorge Park with a wonderful diversity of vegetation communities and habitats, and it is recognised as being one of Greater Melbourne's most important refuges for both threatened and regionally significant species.

The area is one of great contrasts between landforms, vegetation and land use, including steep gorges, the Plenty River, woodlands and forests. Around the Le Page Homestead, built in 1850, some of the original fruit trees can be seen in the gardens. In particular, the Hawkstowe Picnic Area is a great place to run activities that align to geography, history and science.

For teachers

This self-guided excursion is designed to be linked to the Victorian Curriculum for the subjects of geography, science and history, but can be enjoyed by a wide range of students who want to explore, discover and learn about our parks. It is suitable and scalable from Levels 5–10. Some suggested linkages to the Victorian Curriculum are provided below:

Subject	Level	Content descriptions
Geography	5-6	Factors that shape places and influence connections
	7-8	Water in the world Landforms and landscapes
	9-10	Environmental change and management
Science	5-6	Biological sciences
	7-8	Biological sciences Earth and space sciences
	9-10	Biological sciences
History	5-6	The Australian colonies
	7-8	Aboriginal and Torres Strait Islander peoples and cultures

The field trip can be completed in 2-3 hours, or you can opt to spend a whole day, or stay overnight at Nioka Bush Camp, with prior arrangement, to complete multiple activities. Camping at Nioka Bush Camp is only available to schools and incorporated community organisations. For more information please call 13 1963. It is an idyllic site far removed from the hum of urban living.

Before you go

Make sure you have reviewed the information provided for planning an excursion at <http://parkweb.vic.gov.au/learn> for safety and permit requirements and have checked the facilities available.

For activities such as bushwalking (including overnight camping), group sizes are generally restricted to 16 people or fewer (including leaders). Multiples of 16 are acceptable where campsites cater for larger groups. For appropriate group sizes please refer to the Adventure Activity Standards.

All groups are required to let us know you're coming. Please complete a Group Activity Statement downloadable from <http://parkweb.vic.gov.au/learn> and email to: groupactivities@parks.vic.gov.au at least four weeks prior to arrival. This will assist us to alert you to any park closures, storm damage or management activities such as planned burning or pest animal programs that may affect your visit. It also forms part of your group's emergency management plan and provided quick access to emergency contacts, should your group need assistance.

You will be visiting a park and it is an important home to many species of plants and animals, some found in only a few other areas, and others nowhere else in the world! Please remember to keep to the paths, don't pick or take any vegetation and take your rubbish home with you.

Watch

Introduce students to Plenty Gorge Park by showing the following sights and sounds footage: <https://www.youtube.com/watch?v=3Z2bpVTmSfs> (7.37 mins).

Collecting data

We encourage you to gather primary data during your field trip to support a truly immersive and hands-on experience. Pictures, drawings and records of sightings are all easy to take and don't require a research permit. If you'd like to do something that involves moving off the paths, including transects or quadrats, you are required to complete an [application for a research permit](#).

Structuring your excursion

The most accessible place to take school groups within this vast park that stretches for 24 kilometres along the Plenty River, is to enter from Plenty Road in South Morang, off Gordons Road. Teachers should note that access to the river from this area is limited.

There are three options for activities at this site:

Option 1: Drop the students at Red Gum Picnic Area to walk through the Morang Wetlands only and return to Red Gum Picnic Area.

Option 2: Drop the students at Red Gum Picnic Area to walk through the Morang Wetlands and then around to Nioka Bush Camp and access the Plenty Gorge. Arrange to have the bus meet the group at Hawkstowe Picnic Area.

Option 3: Travel by bus directly to Hawkstowe Picnic Area (follow the sign to Le Page Homestead) where the students can focus on the colonial home, walk to Nioka Bush Camp and the gorge below and take the Wonga Walk to the river's edge.

Morang Wetlands – 1 hour walking

Leave the Red Gums Picnic Area car park via the gate on the sealed road. This walk stays on the escarpment throughout. Immediately there are small areas of wetland. Observe the reedy vegetation and the bird nesting boxes; listen for the frogs and a number of bird calls; notice the she-oaks native to the area. Follow

this road until it becomes a wide gravel road and, at the T-intersection, take the left turn to follow the fence line around a grassy rise.

After about 10 minutes, the turn into the Morang Wetlands conservation area is signposted “Bluestones” and the gate is clearly marked. Continue on the wide gravel path while spotting numerous kangaroos and wallabies in the open grass areas. At the next intersection keep to the orange indicators for Morang Wetlands, stay on the path to the right and the walk goes through a more densely-treed area. At the signpost to Marshland Track (about 10 minutes into the conservation area), take this well-mown, wide grassy track. Almost immediately (20m) veer to the left for a short distance and observe the exposed basalt revealed from quarrying long ago and now filled with water.

Return to the Marshland Track and follow this track deeper into the wetland area, observing a wide range of vegetation types. Bird nesting boxes can be seen in the water, the sound of frogs is clear and there is a diversity of birdlife – look and listen for these. After about 10 minutes you will reach a T-intersection – a detour to the right will reveal the remnants of a quarry, more exposed basalt and a lake.

Return to the T-intersection and continue ahead as if you had turned left. Shortly this path will return you to the main path at the sign post to Frog Hollow Track. Return the way you came. If you want to go back to the Red Gum Picnic Area, then take the “Bluestones” sign and reverse the walk (10 minutes to the picnic area).

Morang Wetlands and Plenty Gorge at Nioka Bush Camp – 1.5–2 walking hours

Begin by following the walk instructions for Morang Wetlands (above). If you want to take the longer walk, continue ahead at the sign to “Bluestones”, re-join the path around the grassy hill keeping the treed river area on your left. Further wetland areas are on your left and a planting of she-oaks can be seen on top of the rise.

After about 10 minutes you will come to the sign to Nioka Bush Camp. Walk to this camp area and just beyond the timber building find the track down the hill to the Plenty River. There are a couple of very short but quite steep sections on this track, but this is the opportunity to see the river passing through the gorge. Stay behind the fence and observe the river below before arriving at the ford. Do not cross, but look up to appreciate the depth of the gorge at this spot.

Return through the camp and either follow the ridge top walk or take the lower pathway to arrive at Le Page Homestead and Hawkstowe Picnic Area.

Le Page Homestead and Plenty Gorge – 1 hour walking

The Le Page Farmhouse and its outer buildings sit on the rise beside the Hawkestone Picnic Area car park. Explore these buildings from the outside. The choice from arriving in this car park is to take the walk to the Plenty Gorge at the Nioka Bush Camp and on the Wonga Walk. Set off on the Wonga Walk (yellow arrows) as signposted from the car park. The walk passes a lake in a small conservation area – a viewing deck allows good access to study the reed vegetation and look at the birdlife.

After about 10 minutes this track crosses the road that goes uphill to the Nioka Bush Camp. Walk to this camp area, following the signs, and just beyond the timber building find the track down the hill to the Plenty River. There are a couple of very short but quite steep sections on this track, but this is the opportunity to see the river passing through the gorge. Stay behind the fence and observe the river below before arriving at the ford. Do not cross, but look up to appreciate the depth of the gorge at this spot.

Return through the camp and down the hill to re-join the Wonga Walk. On this walk the Plenty River shows undercut sedimentary banks and changed vegetation indicating that this opposite side of the river is no longer based on basalt. There is no need to complete the circuit walk. Return to the Hawkstowe Picnic Area.

Learn and discover

1. Landscapes and landforms

Plenty Gorge Park lies broadly along the dividing line between two distinct landscape types. The western side is characterised by a flat basalt plain formed initially over 400 million years ago, and more recently (a million years ago) experiencing a further lava flow. The newer volcanic period filled the lower part of the ancient Plenty River valley with basalt lava, disrupting, diverting and reorganising the entire drainage of the area. The western side of the park is completely underlain by basalt. The eastern side of the park consists of the undulating hills and ridges formed during the Silurian period, occurring between 400 and 430 million years ago. Sediments of sandstone, mudstone and shale form the soil types visible on the eastern side of the Plenty River and in the cliff faces of the Plenty Gorge. Tectonic plate movements have folded the landscape, which is demonstrated in the gorge and the undulating nature of the park.

The landscape at Plenty Gorge Park has been significantly modified as a result of settlement of the area. Where native woodlands, grasslands and forests previously occurred, farmland and residential areas now exist. The clearing of the land for farming removed much of the former vegetation, changing the original character of the land to what it is today. Settlement in the area introduced houses, roads, power lines and brought in exotic plants and animals which now compete for the habitats of native plants and animals.

Quarrying for basalt has also significantly changed the landscape creating major lakes where quarry holes have filled with water. In some instances, these lakes have been developed and now provide important wetland habitats for significant bird life that visits the park.

2. Water in the landscape

The Plenty River and its gorge (about 75 metres) are the major physical features of the park. The Plenty River extends from Mt Disappointment southwards to its confluence with the Yarra River, and flows for about 24 kilometres through the park. Finding its original course blocked by basalt lava flows, the river has carved through the older and softer sedimentary rocks to form the dramatic steep-sided gorge, which starts about one kilometre south of Bridge Inn Road, Mernda.

The river is still actively eroding and widening the gorge, and small rapids are interspersed with large, slow flowing pools. The river width varies through the gorge from over 10 metres at these pools, to being narrow enough to jump over. The meandering path of the river indicates its search for the easiest flow path.

3. People on the land

Plenty Gorge Park has a unique history. The Wurundjeri people lived a traditional lifestyle, moving within their traditional lands to exploit seasonally available resources. For many thousands of years Wurundjeri people inhabited the area now known as Plenty Gorge Park and made use of the abundance of flora and fauna, and to carry-out other important cultural duties. Flora and fauna served many purposes, such as the construction of shelters, transport, food, medicine, clothing, hunting implements and many other culturally important items. Seasonal movement was influenced by the availability of food and weather conditions.

Wurundjeri people removed the bark from selected species of trees, particularly box and red gum. The bark was used to make canoes, containers, shields, and temporary shelters. They also cut toe holds in trees to make them easier to climb. This allowed them to use trees as lookouts, hunt for possums or access bee hives. These trees (scar trees) are important in showing the areas occupied by the Wurundjeri, and the perishable items that they used.

With the arrival of Europeans in the 1830s, the nature of Wurundjeri occupation changed dramatically. Disruption to traditional ways of life had a swift and severe impact. Traditional resources were no longer as abundant as they once were, due to extensive land clearing, changes to the natural flooding regime, and the introduction of non-native grazing animals that competed for the same food resources as native species. Although the area has been extensively modified by Europeans, many material examples of traditional Wurundjeri lifestyle/activities remain. The most common in the park being surface scatters and scar trees. Surface scatters are quite commonly associated with past campsites. These campsites are usually located near a reliable source of fresh water, and contain the material remains of various activities. Some of these activities include the manufacture of stone tools, production and maintenance of weapons, preparation and consumption of meals, construction of temporary shelters, and social and spiritual activities.

The Plenty Valley was among the first of the Port Phillip districts to be settled. The entire area came to be known as "The Plenty", as there was plenty of land, equally promising for grazing and agriculture, plenty of water and plenty of game (birds for food). The earliest settlers were attracted to the western side of the river, which was less heavily timbered and better covered in grass than the east.

By 1837 pastoral squatters claimed huge runs of land for their sheep and cattle. In 1841 the area was proclaimed a "settled district" within Port Phillip and government land sales saw all land suitable for agriculture west of the Plenty River in private ownership by the mid-1840s. The land on the eastern side of the river sustained a longer period of pastoral activity than the west, even though it was of poorer agricultural quality, due to its sedimentary geology.

Early settlers were faced with many challenges, including isolation, flood, bushfires and the fear of Victoria's first bushrangers, who systematically worked their way through the area in 1842. The ravaging bushfires of 1851 known as "Black Thursday" caused mass destruction of agriculture, livestock and buildings, leaving little evidence of early pastoral days. The fires led to the quarrying of basalt from the region to construct more permanent, fire resistant buildings. Many of these buildings, including the former Le Page Homestead located within the Hawkstowe Picnic Area, are still in use today.

The Hawkstowe Picnic Area was once part of the larger Hawkstowe Farm established in the 1850s by the Le Page family. The historic Le Page Homestead and out buildings reflect the prosperous farming times of the 1860s and 1870s. Le Page Homestead is now home to the Plenty Valley Arts Inc. art gallery. The cottage garden surrounding the homestead is maintained by volunteers. A potager orchard retains quince trees planted by the early settlers.

By the 1860s, a series of Land Selection Acts were instigated opening land to the less wealthy settlers. The Acts enabled settlers to pay off small holdings over a number of years, providing they improved their land through cultivation and housing. It was they who had the greatest concentrated impact on the landscape, especially around the 'Selectors' townships of Doreen and Yarrambat, around which a fruit growing industry flourished between the 1880s and 1914. The selectors were encouraged by an increased demand for meat and agriculture products throughout Victoria.

The closure of the Yan Yean Reservoir catchment to the timber industry in the mid-1870s was felt throughout the valley until the First World War. Restrictions on industries in the catchment and the draining of swampland, which once fed the watercourse, eventually closed the Plenty River flour mills. The bluestone flume and part of the aqueduct are intact today and are reminders of this important chapter of Victoria's history. Carome Homestead at Mernda has remnants of a flour mill. You can read more about Carome Homestead by following these links: <http://www.workingheritage.com.au/places/carome-homestead-at-mernda> and <http://www.workingheritage.com.au/news/55-carome-site-management-plan-launched>.

During the 1980s the Victorian State Government decided there was a need to protect the natural and heritage features of Plenty Gorge for future generations.

Today, Wurundjeri people continue to live, practice and strengthen their culture. The [Wurundjeri Land and Compensation Cultural Heritage Council Aboriginal Corporation](#) is a Registered Aboriginal Party, representing the traditional owners of the area. They ensure that Wurundjeri culture and connection to place is maintained into the future.

4. A unique ecosystem

Plenty Gorge Park is considered of state significance for its flora. Nine ecological vegetation communities, comprising 32 sub-communities, have been identified in the park. These are: Damp Sands Herb-rich Woodland, Swampy Riparian Complex, Water Body – Natural/Man-made, Grassy Dry Forest, Valley Grassy Forest, Plains Grassy Woodland, Riparian Forest, Box Ironbark Forest and Riverine Escarpment Scrub.

There is a total of 860 different plant species: 557 indigenous and 303 introduced. Of these, 351 species are considered significant plant species: 26 are listed as rare or threatened in Victoria, seven are listed as rare or threatened in Australia and three are protected under the Flora and Fauna Guarantee Act. The remaining species are regionally significant. All remaining indigenous species are considered to have at least local significance given the general depletion of native vegetation, which has occurred since European settlement.

These vegetation communities support a total of 265 animal species, 252 of those being native. Over 200 birds (egrets, herons and swans) have been seen as well as animals such as kangaroos, wallabies, echidnas, and a variety of reptiles. Many plant and animal species, which live in or visit the park are now rare or endangered in the region, or have declined substantially in numbers. Pressures on the existing species will increase as residential properties extend through the Plenty Corridor. The river gorge and the southern section of the park are the largest remaining areas of original vegetation. The often steep and difficult terrain has limited access to some areas of the park, helping to preserve flora and fauna in these unreachable areas.

The river supports a number of native and non-native fish species. The native species include river blackfish, short-finned eel, southern pigmy perch, mountain galaxias, common galaxias and flat-headed gudgeon. Introduced species include brown trout, goldfish, English perch, roach, loach and mosquito fish. Platypus still occur in reduced numbers in river pools and another native mammal, the water rat, has also been recorded. Other river vertebrates include one species of tortoise and five species of frog.

5. Revegetation and rejuvenation

The park is now an isolated and reduced remnant of what existed over 150 years ago. Both the geology and history of land use in the Plenty Valley have significantly affected the present-day vegetation of the park. All

the original vegetation communities still occur however some have been highly degraded by changed land use.

The greatest change has occurred on the basalt plains bordering the western escarpment of the gorge. Although some woodland vegetation still occurs along this escarpment, only scattered remnants of the once predominant River Red Gum woodlands and Tussock grasslands remain. It is likely that this area consisted of river red gum open forest or woodland. Yellow box, red box and red iron bark still stand in the park and represent areas that may have once been extensive, pure stands. Eucalypt forest and woodland is predominant over the sedimentary soils in the south and east of the park. Dominant species are yellow box, manna gum, yellow gum, red stringybark, long-leaf box and red box. Riparian vegetation along the Plenty River has remained relatively intact except in the far north of the park. River red gums would have been dominant in this area with manna gum being the dominant tree along the rest of the river.

Since European settlement, the vegetation in the region has been substantially modified, firstly from pastoral, agricultural, river improvement and mining practices prior to the turn of the century, and in more recent times from activities such as poultry farming, piggeries, quarrying, horse agistment, landfills and residential sub-divisions. Trees were felled and rocks removed for fencing and building; clearing of native grasses and vegetation and the importation of animal and plant species allowed more open space for grazing animals; swamp lands were drained and reclaimed for use as pastures or reservoirs, removing important Aboriginal resources; gullies have been dammed or filled in; basalt has been quarried from the river banks and terraces; gold mining has defaced gullies and terraces; floodplains and undulating landscapes have been ploughed and crops/orchards planted; and townships have been built. Quarrying for basalt has significantly changed the landscape creating major lakes where quarry holes have filled with water. In some instances, these lakes have been developed and now provide important wetland habitats for significant bird life that visits the park.

The river gorge and the Janefield land are the largest remaining areas of original vegetation. Remnant bushland is now under pressure from rabbits and other feral animals, weeds and changes in the water table as a result of land clearing. Many animal species, once common in the area, are now under threat due to loss of suitable habitat. By comparison, kangaroo numbers have increased significantly in the park in recent years and the danger of causing environmental damage through overpopulation is being monitored. Pressures on the existing vegetation are expected to increase in the future as residential properties extend through the Plenty Corridor.

6. Managing the park today

Different pressures threaten the ecological value of Plenty Gorge Park. The major threats to plants and wildlife include introduced plant species and introduced pest animals such as foxes, rabbits and feral cats. The park rangers have a management plan in place to address these issues within the park boundaries.

When introduced or non-native plant species occur close to park boundaries, seeds can be carried by wind, birds, tyre treads and the soles of your shoes, and end up in areas of native vegetation. Whilst there are many European plants which are quite acceptable to have in your garden, there are definitely some that should be avoided – those that are considered to be “environmental weeds”. The reasons for avoiding these plants are the speedy nature of their seed production and their ability to quickly spread without assistance, enabling them to out compete and in the worst case, replace native species.

The long-term effect of invasion of non-native species into the parkland is the possible extinction of remnant bushland species, and of wildlife species that depend on native plants for their survival. Additionally, invasion of non-native species creates a visually unattractive landscape as these plants spread throughout the park. As with all disturbed areas, weeds within Plenty Gorge Park are taking advantage of past land practices and control of certain species is a priority every year for the rangers. Mapping of weed infestations helps rangers monitor and prioritise works. The Global Positioning System (GPS) and mapping software are useful tools for determining the location and size of weed infestations. Without proper management of bushland areas and assistance by park neighbours, the rare sanctuary that Plenty Gorge Park provides could be lost.

Planned burns are used to ensure the health of Plenty Gorge Park. Parks Victoria has rangers that are skilled in fire and complete much planning for any burns that occur. The two different vegetation types at Plenty Gorge Park require assessment of fuel, the environment change and the possible affects a planned burn has at a time of increased native animals and with the proximity of housing.

Cultural heritage existing in Parks Victoria parks provide a precious reference to times gone by. The management and protection of these sites is increasingly important as urban development continues to grow northwards. Parks Victoria is guided in the long-term protection of these sites by Heritage Victoria, government policy and legislation. Explore the Master Plan for Plenty Gorge Park at:

<http://parkweb.vic.gov.au/explore/parks/plenty-gorge-park/plans-and-projects/plenty-gorge-park-master-plan>.

The maintenance and improvement of visitor facilities is another big part of park management. Parks are for the enjoyment and education of people, as well as to protect the natural and cultural values found within them, so it's important to provide and maintain car parking, toilets, picnic tables and other facilities to support visits to our parks.

Discover and reflect

You might like to enhance your field trip with some activities that help students record and extend their learning back into the classroom. You might like to:

1. Take photos to create an annotated photolog or poster of your field trip to share with classmates. You could use social media to share it with friends.
2. Map your field trip using software such as Scribblemaps, Tour Builder or Snap2Map, annotating what you've learned at various points.
3. Create a sound map of various points around the park, taking a series of 30 second audio recordings, referenced back to points on a map. Students can also record their audio observations on paper, using lines made from a central point to indicate the direction, type and frequency of sounds they hear, and whether it adds or detracts from the environment.
4. Discuss why it's important to protect cultural heritage such as shell middens and consider a range of different approaches land managers could adopt to care for and conserve this heritage.
5. Plenty Gorge Park is on the edge of the Western Volcanic Plains. Discover the closest volcanoes that would have helped to form this land. What role did plate tectonics have in shaping the land?
6. With the use of a map outline, describe the river landscape within Plenty Gorge Park. Include the shape of the river, the river width, rock types along river banks, areas of gums and the definition of a gorge.

7. Research the formation of a river meander. Suggest why the meanders in Plenty Gorge Park have formed.
8. How do you think the changes Europeans settlers made to the landscape affected native flora and fauna. What evidence supports your ideas?
9. The vegetation along the river is quite different to that on the escarpment. Compare the different types of vegetation, suggesting how the physical environment accounts for this change in vegetation types.
10. Google Earth can show what the area surrounding the park looked like in 2004. Use its time frames to see how the urban areas have grown around this park. Create a time line to show the urban expansion or shade a map naming the new suburbs.
11. Assess the impact on the park of:
 - a. housing developments
 - b. increased and wider roads
 - c. Mernda railway line and Hawkstowe Station
 - d. the inbound flight route for Tullamarine Airport
 - e. the City of Whittlesea's development plan for land beside the park:
<https://www.whittlesea.vic.gov.au/building-planning-development/future-development-plans/place-snapshots-a-guide-to-development-in-your-area/place-snapshot-south-morang/hawkstowe-recreation-reserve-master-plan/>
12. Study the recreational facilities provided throughout the park. Assess whether the facilities cope well with the number of visitors on week days/ weekends and in summer/winter. Is access for the disabled adequate?
13. Create a plan for the park as to how to sustain its health for the future. Make observations about the park now, including signage and paths, and create a future plan to ensure its health and the best outcomes for both animals and park users.
14. Discuss the role parks play in connecting people to their environment, or influencing peoples' personal relationships to nature.
15. *My favourite place at Plenty Gorge Park is . . .* Describe this place or annotate a photo to show why you selected one specific location.

Get active

Contact the [ParkConnect team](#) if you would like to get your students involved in some hands-on volunteer activities in Plenty Gorge Park.

Parks Victoria respectfully acknowledges the Traditional Owners of what is now known as Victoria. For many thousands of years they have lived in harmony with, and carefully managed the Country for which they have a deep spiritual connection. Contemporary Aboriginal people are proud of their ancestry and in addition to their inherent rights, they have spiritual and cultural obligations to ensure that their ancestral land and culture is managed responsibly and appropriately.