

Organ Pipes National 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?

Organ Pipes National Park is the closest national park to Melbourne and is the perfect place to study geography, due to its geological rock formations which showcase sedimentary rocks from 400mya through to more recent volcanic formations and its unique history. Prior to European settlement, Aboriginal people used the lands for hunting and shelter. Evidence of their occupation can still be found and several stone artefacts have been uncovered from the area. The land was grazed and farmed from as early as the 1830s until 1972 when it was gazetted as national park due to its significant geological features. Since 1972 hundreds of thousands of native trees and shrubs have been planted, in one of the most successful revegetation programs in Australia, which is still continuing today.

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 excursion can be done in 1–2 hours, or you can opt to spend half a day completing multiple activities in the park.

For additional information on the park, download the [visitor guide](#) or visit the [Organ Pipes National Park](#) webpage for additional information including facilities, management plans, maps and images.

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.

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 national park that 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.

Collecting data

We encourage you to gather primary data during your excursion 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, please complete an [application for a research permit](#).

Structuring your excursion

The park visitor centre is located adjacent to the carpark and is a good place to gather students undercover before you separate into smaller groups. There are interpretive panels that describe the formation of the geological features in the park and some of the stories of the first peoples and European settlers.

The park is very small, and it is only a short walk from the visitor centre to the river and the organ pipes. Be aware that the main path is quite steep in places. There are toilets and picnic facilities at the bottom of the hill where students can gather and work on their notes.

Learn and discover

1. Landscapes and landforms

More than 400 million years ago, the area known now as the Western Volcanic Plains was under the sea. The park contains light coloured sedimentary rocks from the Ordovician and Silurian, some of which can be seen by the river, near Rosette Rock. Over time subterranean forces and falling sea level left the area exposed and it became land. It now sits around 80m above sea level and the volcanic flows can be up to 60m thick.

The Western Volcanic Plains of Victoria covers an area of 2.3 million hectares and is the third largest volcanic plains in the world. The plains have been built up over millions of years as lava flowed out from one of the many (now dormant) volcanoes found across the area.

The geomorphological and geological features in the Park are of State significance. The basalt 'organ pipes', formed about a million years ago when a massive lava flow spread over the plains from nearby volcanic hills (probably those located around 6kms to the north). It filled an ancient creek bed and cooled very slowly to form a crust. Vertical cracks developed, and as the lava continued to harden the cracks lengthened until the basaltic mass was divided into columns.

Rosette Rock, 500m upstream of the Organ Pipes was formed by radial cooling of a pocket of lava, probably within a cave. Rosette Rock was formed earlier than the Organ Pipes, and resembles the spoke of a wheel.

The Tessellated Pavement is 250m upstream of Rosette Rock and is another area of columnar basalt formations. They are similar to the Organ Pipes formation, however can be viewed from the top, or their horizontal surface, rather than viewing them vertically.

The carpark area is on the remains of a weathered scoria cone. 800,000 million years ago this volcanic cone exploded molten rock producing scoria, which are brown rocks filled with air pockets.

Weathering and erosion have been acting on the landscape since the last eruption and lava flow. Jackson's Creek, the main tributary cutting through the park, has cut a deep valley through the basalt, exposing the

Organ Pipes and other geological features along the river banks. Weathering of the rocks has also created the red-brown earths (most common soil type in the park, low permeability), colluvial soils (deposited at the base of slopes) and lithosols (shallow, stony soils) found in the park and surrounding areas.

2. Water in the landscape

The Park clearly shows the process of valley incision by Jacksons Creek, which originates from the Macedon Ranges (Wombat Forest) and later joins up with the Deep Creek and Maribyrnong River and then flows out into Port Phillip Bay.

The Maribyrnong Valley is the only natural corridor link from the City of Melbourne to the forested foothills of Mt Macedon to the north-west.

Records of rainfall have been kept at the Park since 1972. The area is in a rain shadow, receiving an average of 580 mm of rain per year, which creates a relatively dry and harsh environment. However high rainfall during winter and spring can cause flooding.

The creek provides an oasis in an otherwise dry landscape, and supports a community of plants and animals different to the broader grassland. This distinct habitat type is called a riparian zone and has a higher diversity of species than elsewhere on the plains, as it forms a junction (or ecotone) between two habitats where species from both can coexist.

Kangaroos, wallabies, waterbirds, fish, platypus and small aquatic invertebrates use this habitat, and the creek provides an important wildlife corridor, enabling species to move between pockets of native vegetation and protected areas.

This area is particularly sensitive to changes in land use upstream, as water quality can be affected by the use of pesticides and fertilizers, erosion and development in the catchment to the north of the park.

3. People and the land

The area now known as Organ Pipes National Park is situated within the traditional lands of the Wurundjeri-willam and Marin-balluk, people of the Woiwurrung language group within the larger Kulin nation. Jacksons Creek formed part of the boundary between the two clan estates, offering shelter, water and plentiful food. Aboriginal people had camped and hunted on the open, grassy plains surrounding Organ Pipes for thousands of years. They probably used fire as a tool to encourage new growth and attract animals to the area for hunting. The area supported kangaroos, dingoes, tiger cats, bandicoots, gliders and platypuses as well as native grasslands with abundant wildflowers. Evidence of Aboriginal occupation including stone artefacts have been found throughout the park, and the local Aboriginal community are the custodians of these places.

Europeans settled on the Keilor Plains in the 1830s. Ideal for sheep, the grassy plains were among the first parts of Victoria to be occupied by European settlers from Tasmania. Settlers hunted kangaroos because they considered them to be competing with the sheep for the grass. They brought with them exotic plant species to 'beautify' the landscape, considering the dry Australian bush to be barren and ugly. Rabbits and foxes were introduced for food and sport.

The land was used for growing wheat, oats, barley, fruits and vegetables, and superphosphate fertilizers were applied to promote growth. These further affected native species which are adapted to cope with very low nutrient levels, resulting from our ancient soils.

4. Revegetation and rejuvenation

Organ Pipes National Park is unlike many national parks as when it was protected in 1972, it wasn't because of its wonderful diversity of native flora and fauna, as it had been farmed and grazed for the past 150 years. Because of this the land had become degraded, eroded, weed-infested and full of rubbish, with few native plants and animals remaining.

The land was set aside to protect the amazing rock formations of the landscape, which had been known to naturalists for some 100 years, and to return the landscape as far as possible back to its original condition. With the creation of the park, volunteers (including Victoria's first park Friends Group) and park staff set about restoring the indigenous vegetation.

Successful revegetation incorporates direct and indirect strategies. Direct strategies include direct seeding and planting of native species (including overstorey and understorey species), and indirect strategies include the control of weeds and pest animals such as rabbits, and the use of fire to stimulate seed germination. Together these strategies give the land a chance to recover and start to rejuvenate itself.

5. A unique ecosystem

The most significant vegetation community is the native grasslands, which consist of large stands of indigenous grasses on the slopes above and between the steep rocky sections of Jacksons Creek. Organ Pipes National Park forms part of the largest remaining volcanic plains grassland and shrubland in the Maribyrnong River system.

Plants in grasslands are adapted to living in shallow soils with low rainfall and have to tolerate large variations in temperature throughout the year. Our native grasslands are home to a huge diversity of flowering plants, including orchids, peas, lilies and daisies, however are one of the most highly threatened ecosystems in the state, due largely to their suitability for grazing and agriculture.

Less than one per cent of Victoria's original grasslands remain, and these are found in small remnant patches. These patches are threatened by weeds, infrequent fire regimes that inhibit growth of diverse flowering herbs and altered nutrient levels that favour weed growth.

The park is home to different vegetation communities, found along the river, on the slopes and on the top of the escarpment. The upper sections of the escarpment support Sheoke and Lightwood communities on basalt soils. The Sheoke community type, dominated by Drooping Sheoke, is associated with the gentle slopes in the transition from the plains to the valley. The Lightwood community, dominated by a mixture of wattles including Lightwood and Golden Wattle, occurs on the steep slopes of the escarpment.

The valley walls provide conditions different to along the river and out on the open plains. They provide shelter for small trees to grow and cliff faces used for nesting by birds for prey. The valley walls are sensitive to erosion, and rabbits can have a devastating impact on this habitat. Eroded soil moves down to the valley floors and provides soil to the riparian habitat. However, if too much erosion occurs, the creek can become choked with sediment.

The Yellow Box community is found on the lower section of the escarpment. Eucalypts including Yellow Gum and Yellow Box form a canopy above wattles and other shrubs. The River Red Gum community grows along the banks of Jacksons Creek and is dominated by River Red Gum, Manna Gum and Blackwood.

6. Managing the park today

The park now provides habitat for many native fauna species that used to live across the Western Volcanic Plains, including small insectivorous bats, sugar gliders, Black Swamp Wallabies, platypuses and a large number of birds.

Park management activities aim to maintain or improve this habitat and protect the geological rock formations that make the park extra special. It's a team effort, with Rangers working alongside the Friends of Organ Pipes National Park and Conservation Volunteers International to continue the revegetation efforts started in 1972. One of the challenges with revegetation is that native species like kangaroos like to eat fresh young shoots, so part of the work done by volunteers involves building tree guards to give the plants a start in life. In some of the trees you'll see nest boxes that support populations of micro bats and Sugar Gliders.

Other management activities involve the control of weeds and pest species. Rabbits have been controlled since even before the park's establishment however are almost impossible to remove completely due to the surrounding farmland. Other feral (non-native) animals include foxes, cats and dogs. The existence of these species means that the small mammals that would have originally been found in the area cannot be sustainably returned.

The maintenance and improvement of visitor facilities is another big part of park management. National 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. The Information Centre interpretive panels are a way that Parks Victoria seek to engage visitors to the park in learning about the place.

Discover and reflect

You might like to enhance your excursion with some activities and inquiries that help students record and extend their learning back into the classroom. You might like to complete one or more of the following:

1. Take photos to create an annotated photolog or poster of your excursion to share with classmates. You could use social media to share it with friends.
2. Create a short video that helps tell one of the six stories outlined above to share with classmates.
3. Map your trip using software such as Scribblemaps or Tour Builder, annotating what you've learned at various points.
4. As you walk along the river upstream, note and draw the different vegetation storeys, from the large River Red Gums and Manna Gums through to the Wattles, She-oaks and spear grass.
5. Create a map of the Maribyrnong catchment to show the connections between the mountains and the sea.
6. Graph rainfall and temperature data for the park.
7. Monitor the river's water quality using [Waterwatch](#).
8. 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.
9. Interview the park ranger or friends group member about their connection to the park. You could do this via Skype before or after the field trip.
10. Create annotated sketches of the landforms and geological formations.

11. Create an annotated field sketch of the park, taking into account the different elevations and the course of the river. You might like to extend this activity further by developing a plan for new visitor facilities for the park, outlining how they help people connect with the values of the place. Consider in particular how you might help people with special needs experience the park.
12. Discuss the role National Parks play in connecting people to their environment, or influencing people personal relationships to nature.
13. Look through the eyes of a child living here 1,000 years ago. Write down what you see, hear, smell and touch.
14. Become a citizen scientist and walk our [Climatewatch trail](#). You can download the app, recording sheet and species identification guide from the [Climatewatch](#) website.

Get active

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