

27 November 2016  
22 Driftwood Dr,  
Glen Waverley, 3150.



## **Gilwell Park, Patrol Activity Environment Camp November 12 ~ 13, 2016 – Outcomes**

**To: Environmental Officer, Cardinia Shire.  
Water Watch, Melbourne Water.  
Manager, Gilwell Park.  
Victorian State Commissioner Environment**

This paper is in the same format as previous years' and contains the combined outcomes from observations recorded by Patrols on the Environment Patrol Activity Camp, Gilwell Park (November 12 ~ 13, 2016) as presented by Scouts on Sunday's camp debrief. These camps have been held in November since 1999 and May from 2002.

This year the May environment camp was restructured to cater for Scouts wanting to achieve their Pioneer and Explorer Environment badges. The camp activities focused on erosion and invasive plants where the youths' last activity was the removal of invasive plants from a selected area at Gilwell Park. Following a review of this year's environment camps, our 2017 environment camps activities will be the same but their timing will be swapped to better suit the Scout program, i.e.:  
May Camp – Activities to support the Scouts at the Adventurer Level (The highest Level in the Scout section) with the activities contained in this document, and which supports the World Scout Environment Program.

November Camp – Activities to support Scouts wanting to achieve their Pioneer and Explorer Environment Badges, as outlined.

### **Summary of Environmental outcomes:**

- ⊗ Water quality is rated as very good.
- ⊗ Good bush areas along water ways and between camping areas – refer to sections 4 & 7.
- ⊗ Storm damage was evident with fallen limbs and the loss of some trees.
- ⊗ Weed issue of Holly, Blackberry, Cedar Wattle and Sycamore plants.

### **Youths' Scouting outcomes:**

- ☺ Environmental learning by all Scouts attending.
- ☺ 6 Scouts to undertake the WSEP part B (Take Action), in their local area, and some to do projects to complete the requirements of the WSEB.

The pre-camp and camp activities are aligned with The World Scout Environment Program (WSEP). The WSEP encourages and rewards Scouts working towards a world where:

- People and natural systems have clean water and clean air.
- Sufficient natural habitat exists to support native species.
- The risk of harmful substances to people and the environment are minimized.
- The most suitable environmental practices are used.
- People are prepared to respond to environmental hazards and natural disasters.

Scouts came from Cheltenham, Mordialloc, Paynesville and Sale.

Saturday morning included two discussion sessions. The first was held prior to Scouts setting up their camp sites and covered minimal impact camping at Gilwell Park and how they manage their rubbish and recycling prior to taking them home. The second was an introductory discussion prior to the activities, which helped the youth to understand how the environment at Gilwell Park has evolved to what it is today and the importance of making observations.

**Details from debrief and camp activities:**

**1. Actions taken in setting up campsites and camping with minimal impact on Gilwell Park’s environment.** The following is a list compiled from these discussions and all were followed by the Scouts. **Actions taken, or noted** (Camp Booklet page 6)

- *Use established campsites.*
- *Keep raked ground litter in a pile next to a tree for scattering over bare ground after camp.*
- *Retain recyclables and rubbish and take it home – don’t burn bash & bury.*
- *Don’t break or cut down trees and shrubs.*
- *Bring wood or get from areas as directed by rangers.*
- *Use minimum amount of wood for fires.*
- *Place tent where trenching is not required.*
- *For Gilwell Park - Cool ash from camp fires and when cold with no embers scatter through bush areas. In bush camping CFA require these to be buried.*
- *If tying to trees use sticks to prevent damage-refer to bushcraft skills.*
- *Use established walkways or tracks.*
- *Camp well away from waterways – at least 30 metres.*
- *Wash away from waterways.*
- *Ensure sullage water is collected and disposed of where it can soak into the ground.*
- *Make sure campsite is left free of rubbish.*

All practiced these actions during camp and were presented with an Environmental Camping Certificate at the camp’s final parade. The Certificate depicts Plants and Creatures who inhabit, or visit Gilwell Park and the surrounding area.

**2. Weather & Rainfall Base** (Camp Booklet page 8)

This year’s rainfall was below average until May and since then rainfall has be above average giving higher totals for the year compared to 2015. Strong winds have also been a feature of the weather which has resulted in the loss of some trees and limbs from trees.

Rainfall at Gilwell Park is higher than Melbourne’s due to its higher elevation which can be seen by Ferny Creek BOM’s rainfall (elevation 513 M) of 1278.6 mm to 31<sup>st</sup> October, compared to Melbourne Airport BOM’s (elevation 113M) rainfall 544.0 mm for the same period. Gilwell Park’s Davis weather station was made operational in April.

Details of the Weather activity:

Day and Date	12 November 2016		13 November 2016	
Temperature – Gilwell Park (GP)	Max 24.9 Deg C		12.4 C at 11 am	
Barometric Pressure Gilwell Park	1000 hPa		995 hPa	
Forecast	Partly cloudy. High chance of Showers in the morning		Cloudy. High chance of showers in afternoon	
Observation	Showers overnight. Partly cloudy		Showers over night and in the morning.	
Year: 2015 Rainfall to 31/10/15	GP – NA mm Melb Airport 348.4 mm	Year: 2016 Rainfall to 31/10/16	GP NA mm Melb Airport 544 mm	
Monthly Average Rainfall for October	GP - NA Melb. Airport 54.0 mm	2016 October Rainfall	GP 113.8 mm Melb. Airport 72.8 mm	
Saturday’s (Nov 12) Rainfall	Gilwell Park 1.4 mm	Sunday’s (Nov 13) Rainfall	Gilwell Park 2.5 mm	

**3. Soils Base – pH and Penetration tests (Camp Booklet page 8 ~ 9):**

These measurements were taken on the Western side of Gilwell Park and the results obtained are shown the table below. Penetration tests show soil compression is caused by camping and human activity, which impacts on the many plants ability to grow and confirms why it is environmentally better to use established camp sites and tracks. Soil samples were obtained from a high area near A Block and from the verge on the creek side of Forest Path near the Messmate intersection; both places had lots of leaf litter. The pH of soil samples was 6.5.

Date	pH Top	pH Valley	Penetration in cm.						
			Vehicle Track	Old Hike Track	New Hike Track	Camp site	Bush area	Verge Area	Creek Bank
13/11/2016	6.5	6.5	2	15	34	21	56	33	42

In addition to these recordings Scouts examined different soil types. Scouts were asked to do soil structure experiments of their own soils when they go home and to view and identify the different layers present.

**4. Bush Survey Base – refer to Water Watch’s definitions in Camp Booklet pages 16 ~ 17.**

Scouts conducted Habitat survey ratings for the area along Whipbird Gully, a tributary to Clark Creek (Sites 1, 2 & 3, as shown on page 18 of the Patrol Booklet), using the Water Watch’s Habitat survey field guide. This was the site where Gilwell Park had obtained its spring fed drinking water and includes a dam at site.

Results were totaled and divided by 3 to obtain the rating for that section of stream – refer to Patrol log book and Bush Base photo album for location. The overall rating was 29 out of 35, which rates the **survey results as – Good.**

Photographs have been taken in October each year since 1999 to record the vegetation/habit at each site and along a transect line – refer to photo album for this base activity. Patrols noted that the vegetation has changed between drier and wetter years and since 1999 and that the density has decreased. We also noted tracks through the bush area had changed due to fallen limbs from trees. The following tables the assessments that were made at these three sites

Bush Survey – Water Watch ratings and comments for Sites 1, 2, & 3 on 12 November 2016

Factor	Rating	Comments
Bank Vegetation	8,10,8	Site 1 The original log crossing is showing no signs of use, resulting in re-growth on the track to it. The more recent fallen tree is being used in lieu of the original log crossing, hence a rating of 8. Site 2 was rated as excellent. Site 3 is a dammed area and as such had reduced overhanging vegetation. There is also a small exposed area NW end of the dam wall due to a tree fall a few years ago. Vegetation has taken hold on the banks of this exposed area.
Verge Vegetation	8,10,6	Sites 1 & 2 had wide verge vegetation of natural flora. Site 1 has an erosion track from one side to the other and reduced verge width due to fire breaks areas which reduced its rating from excellent. Site 3 had narrow to very narrow verge due to vehicle tracks each side and buildings on the east side giving it a poor rating.
In stream Cover	10,10,6	Sites 1 & 2 have thick tree fern covering. Both offer excellent in stream cover. Site 3 was at the dam wall and the amount of protection was therefore reduced as the stream expands to open water to the dam wall.
Bank erosion & stability	4,5,3	Site 1 has spot erosion due to a track and fallen tree. Site 2 has no sign of erosion but evidence of animal tracks - rating 5 Site 3 has a pump shed on

		the NE corner of the dam wall, which is classified as localized erosion and an exposed spot on the NW end of the dam wall giving a rating of 3. Bank vegetation along the banks at both these places is taking hold.
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## 5. Water Tests Base (Camp Booklet page 12)

The water tests were conducted at 3 sites along Clarke Creek/Lochan (refer to page 12 of the Camp's Patrol Booklet) and the Conductivity, pH and Turbidity tests indicate the water quality is **GOOD**. Values obtained are tabled below.

Water Tests and observations recorded 12 November 2016

Site	WERG Marker Gauge	Flow (estimate)	Temperature (Degree C)	pH	Conductivity (µs)	Turbidity (NTU)
1 (inflow)	NA	1260 lpm	15.6	6.4	102	12
2 (Lochan)	NA		16.1	6.3	101	0
3 (outflow)	0.3	895 lpm	16.2	6.5	101	0

Two methods were used to determine Clark Creek's water flow. The first is an estimate using a float, which was employed at site 1 and the second method uses a gauge at the V notch weir installed by Melbourne University Waterway Ecosystem Research Group (WERG) and a conversion chart to determine the stream's flow.

It was noted that the inflow estimate was higher than that indicated by the V notch weir. The estimate of Clark Creek stream's volume for site 1 will be re assessed at the next camp

## 6. Who lives in the Lochan Base (Camp Booklet page 13)

This camp included Water Watch's method of assessing pond life. This has been reproduced in the Patrol's booklet and is as shown below. Creatures observed by the reporting Patrol are shown in **BLUE**. The number of creatures seen was less than in November 2014 and 2015, i.e. 2014's Bug score 54, and Total bugs 311 and 2015's Bug score 43 and Total Bugs 241.

Creature Common name (Order)	Bug Score	No: Seen	Creature Common name (Order)	Bug Score	No: Seen
<b>Very sensitive invertebrates</b>			<b>Tolerant invertebrates</b>		
Stonefly nymph (Plecoptera)	8		Hydra (Hydrozoa)	4	
Mayfly nymph (Ephemeroptera)	7	40	<b>Beetle Larvae/bugs</b> (Coleoptera)	4	
Caddis-fly larva (Trichoptera)	7	40	Backswimmer (Hemiptera)	4	
			Side Swimmer (Amphipod)	4	
			Water Bopatman	3	
<b>Senetive invertebrates</b>			Whirligig beetle (Coleoptera)	3	
DobsonFlies (Megaloptera)	6		Round worm (Nematodes)	3	
Damselfly nymph (Odonata)	6		Leech (Hirudinea)	3	
Dragonfly nymph (Odonata)	6		Water snail (Gastropoda)	3	4
Freshwater mussel (Bivalvia)	5		Flatworm (Turbellaria)	3	
Aqu. caterpillars (Lepidoptera)	5		<b>Very tolerant invertebrates</b>		
Shrimp/prawn (Atyidae)	5	50	Mosquito larvae (Diptera)	2	15
Yabby/crayfish (Decapoda)	5		Midge Larvae (Diptera)	2	1
Water mite (Acamia)	5	100	Blackfly larvae	2	
Freshwater Slater (Isopoda)	5		Segmented worm (Oligochaeta)	1	3
			Bloodworm (Diptera)	1	
			<b>Totals</b>	<b>39</b>	<b>297</b>

Water Watch use the Bug Score total and the total bugs counted, to indicate water quality, as follows:

1. Add up the values in the Bug Score column for each of the creatures observed shown in **BLUE** on page 4. = **39**
2. Add up the total number seen (page 4) & circle abundance category number opposite (i.e. 1 to 5). = **297 ~ Cat 4**
3. Tick square where Category Number & Bug Score meet to indicate Stream condition.

Overall Abundance Category			
>500 animals	5	Fair	<b>Very Good</b>
201 - 500 animals	4		
101 - 200 animals	3		
31 - 100 animals	2	Poor	Good
0 - 30 animals	1		
		0	18
		35	>35 <b>39</b>
		Total from Bug Score columns	

## Result, Status of the Lochan – **Very Good**

### 7. Vegetation Transect Survey Base (Camp Booklet pages 14 ~ 15)

This activity allows youth to observe and note the amount of vegetation and how land is used along a transect line commencing north of Clark Creek, near campsite 12 and finishing at Sycamore Lodge on Peppermint Drive, as shown on Page 15 of the Patrol Booklet. The Transect has been divided into 5 sections where a Patrol can tick boxes to indicate aspects seen as an aid to write a brief description of each section viewed. Scouts earning their WSEB led discussions prior to writing their description of each section.

The aspects included for each section were: Trees, Shrubs, Ground Cover, Ferns, Leaf Litter, Stream and Granite Rocks. Under each aspect were 3 boxes labeled “None”, “Some” and “Lots”. Observations were made and a tick given to each of the boxes that closely matched what they saw. The following brief descriptions were noted for the sections along the transect line:

- Section A - (*North of Clark Creek*) - Lots of vegetation, with ferns along the creek and no signs of human activity. It has a southern slope and therefore has higher moisture due to the sun’s path across the sky.
- Section B - (*Clarke Creek to Forest Path*) - Has a thick bush area from Clark Creek to Forest Path, for approximately 30M. It is more exposed to sunlight than Section A. Retention of this bush helps reduce run off into Clark Creek. This section also included camping and activity areas located along Forest Path. The camp sites were in use.
- Section C - (*Forest Path south to start of a bush area*) - Has set camping areas and a Toilet Block with vegetation around these areas. Toilet block is approximately 100M from Clark Creek and Forrest Path track is located between it and Clark creek (i.e. Section B).
- Section D - (*Bush area between Forest Path camping area and the activity area alongside Peppermint Drive*) - Is a bush area with a rise that has both south and north slopes. This area has lots of vegetation and includes some large granite rocks. On top of the rise is an old campsite with lots of leaf litter showing it takes a long time for bush areas to recover after clearing. A wombat hole is close to the bush track used.
- Section E - (*Peppermint Drive north to start of bush area*) - Is a cleared, mainly grassed covered area used for a flying Fox and other activities.
- Overall - Gilwell Park has established campsites and activity areas whilst ensuring sufficient connecting habitat exists for other creatures and that sufficient vegetation exists along waterways to help maintain the quality of freshwater.

### 8. Fauna Sightings by Scouts and observations

The following fauna sightings were seen, heard or evidence seen of their passing: Crimson Rosellas, Kookaburras, Southern Yellow Robins and evidence of Echidnas’ diggings. The Possum feed tree, a tall stringy bark near the Bush Survey site 2, had recent signs of bark stripping, which

possums do to access the tree's sap. All passed a wombat hole on the transect path between Sycamore and Toilet Block D.

Environmental weeds are still present and include holly, blackberries, Cedar Wattle and Sycamore seedlings.

### **Research Projects.**

Saturday evening activities started with a Scouts Own focused on the environment and included some of the Scouts' findings on Australia's endangered species. Scouts had brought to camp information on a broad variety of Australia's endangered species, which included: Pigmy Possum, Southern Snapping Turtle, Yellow-bellied Guilder, Long Footed Potoroo, Diamond Firetail, Guthega Skink, Stuttering Frog, Baw Baw Frog and Woylie (Brush-tailed Bettong).

Other night activities were conducted over four bases, centered on the projects sent to Scouts prior to the camp. These bases included: a weather base linking weather to climate for a region, harmful substances and preparedness for bush fires and what to do when one is approaching. This year a Hazchem game (similar in concept to the Monopoly game) was played for the Harmful substances base and was a fun way of incorporating the Scout's research into this aspect of mans' impact on the environment. The Bush Fire preparedness activity included a small controlled fire using leaf litter on sections of roof metal. The activity highlighted movement of fire over flat and sloping terrain, affect of wind change and incorporated information brought by Scouts wanting to achieve their WSEB. In addition Scouts enjoyed seeing magnified pond life creatures projected onto a screen at the fourth base.

### **Acknowledgments.**

Our team gives credit to all Scouts for the way they conducted their observations and behavior over the weekend.

A big thank you to Patrol Camping's Team Leaders (Ian, Alan, Alan, James, Kevin and Marie) for their usual valuable contribution in setting up and conducting the Activity Bases, plus other activities that adds value to this and all Patrol Activity camps at Gilwell Park – well done.

Yours in Scouting,



Ken Reid (Doc),  
Act L. Gilwell Park Patrol Activity Camping

