

5 May 2017
22 Driftwood Dr,
Glen Waverley, 3150.



Gilwell Park, Patrol Activity Environment Camp April 29 ~ 30, 2017 – 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 Scouts on the Environment Patrol Activity Camp, Gilwell Park (April 29 ~ 30, 2017) as presented by Scouts on Sunday's camp debrief. These Environment camps have been held in November since 1999 and May from 2002.

In 2016 the activities for the May camp was changed to suit younger Scouts wanting to achieve their Pioneer or Explorer Environment Badges with the November camp continuing the activities for supporting the older scouts wanting to achieve their World Scout Environment Badge.

The timings of both these Environment camps were reviewed with the Troop Leaders attending our JOTA camp in October to determine which best suit Scouts wanting to achieve the WSEB and the Scout Medallion. In future:

- The May Environment Camps will continue with 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.
- The November Environment Camps will have activities to support Scouts wanting to achieve their Pioneer and Explorer Environment Badges.

Summary of this camp's Environmental outcomes:

- ⊗ Water quality is rated as very good.
- ⊗ Good bush areas along water ways and between camping areas – refer to sections 4 & 7.
- ⊗ Weed issue of Holly, Blackberry, Cedar Wattle and Sycamore plants.

Youths' Scouting outcomes:

- ☺ Environmental learning by all Scouts attending.
- ☺ 2 Scouts achieved and presented with their WSEB
- ☺ 1 Scout 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 Mount Waverley, Morwell and Sale.

Two discussion sessions were held with the Scouts on minimal impact camping and how Gilwell Park's environment has evolved to what it is today and the importance of making observations.

1. Details from discussion on minimal impact camping at Gilwell Park:

- *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 13)

This year's rainfall was below average in the months up to March with a number of heavy rain events. April's rainfall has been well above average which included heavy rain events, the evidence of this can be seen on Gilwell Park's campsites and tracks.

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 406.6 mm to 30th April, compared to Melbourne Airport BOM's (elevation 113M) rainfall 221.0 mm for the same period. Gilwell Park's Davis weather station rainfall observations were not included as there was a time when it was out of service and hence overall values would have been less than the actual.

Details of the Weather activity:

Day and Date	29 April 2017		30 April 2017	
Temperature – Gilwell Park (GP)	Max 17.1 Deg C		14.4 C at 11 am	
Forecast	Cloudy, high chance of showers in morning & afternoon.		Partly cloudy, chance of drizzle in the morning	
Observation	Showers overnight. A shower in the morning, cloudy.		Mostly cloudy.	
Barometric Pressure	1023 hPa		1024 hPa	
Rain fall (mm)	2.3mm		0.2mm	
Monthly Average Rainfall for April	Ferny Ck- NA Melb. 57.3 mm	2017 April Rainfall		Ferny Ck 130 mm Melb. 122.8mm
Last year's to date 30/4/16	Ferny Ck- 354.6mm Melb. 134.0mm	This year's to date 30/4/17		Ferny Ck- 406.6mm Melb. 221.0 mm

3. **Bush Survey Base** – refer to Water Watch's definitions in Camp Booklet pages 6 ~ 7.

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 30 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. Scouts 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 table is the assessments that were made at these three sites

Bush Survey – Water Watch ratings and comments for Sites 1, 2, & 3 on 29 April 2017

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. Vegetation has taken hold on the bank where a tree fell at the western end of the wall a number of years ago.
Verge Vegetation	8,10,6	Sites 1 & 2 had wide verge vegetation of natural flora. Site 1 has reduced verge width due to fire breaks on both side and an erosion track leading to the fallen tree that is across the gully. This 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	10,10,8	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 has taken hold.

4. Water Tests Base (Camp Booklet pages 8 ~ 9)

The water tests were conducted at 3 sites along Clarke Creek/Lochan (refer to page 9 of the Camp’s Patrol Booklet) and the Turbidity, Conductivity and pH tests indicate the water quality of Clark Creek and the Lochan is Healthy. Values obtained are tabled below.

Water Tests and observations recorded 29 April 2017

Site	WERG Marker Gauge	Flow (estimate)	Temperature (Degree C)	pH	Conductivity (µs)	Turbidity (NTU)
1 (inflow)	NA	818.52 pm	13.1	7.4	103	12
2 (Lochan)	NA		12.8	6.7	101	6
3 (outflow)	NA		12.8	6.7	101	6

Clark Creek’s flow was estimated using a float to measure the time it took to travel a measured length. This was conducted three times across the stream. The volume of the measured area had been estimated prior to the activity and together with the average time taken, was used to determine the estimated stream flow.

The outflow from the Lochan was not taken as the “V” notch weir, previously installed by Melbourne University Waterway Ecosystem Research Group (WERG), had been removed.

5. Who lives in the Lochan Base (Camp Booklet page 12)

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 Scouts are shown in **BLUE**. The number of creatures seen was similar to those in camps conducted in 2015 and 2016, although their physical size was small compare to those seen in the previous camps.

3

Creature Common name (Order)	Bug Score	No: Seen	Creature Common name (Order)	Bug Score	No: Seen
Very sensitive invertebrates			Tolerant invertebrates		
Stonefly nymph (Plecoptera)	8		Hydra (Hydrozoa)	4	
Mayfly nymph (Ephemeroptera)	7	30	Beetle Larvae/bugs (Coleoptera)	4	30
Caddis-fly larva (Trichoptera)	7	40	Backswimmer (Hemiptera)	4	
			Side Swimmer (Amphipod)	4	
			Water Bopatman	3	
Senetive invertebrates			Whirligig beetle (Coleoptera)	3	4
DobsonFlies (Megaloptera)	6		Round worm (Nematodes)	3	
Damselfly nymph (Odonata)	6		Leech (Hirudinea)	3	
Dragonfly nymph (Odonata)	6		Water snail (Gastropoda)	3	
Freshwater mussel (Bivalvia)	5		Flatworm (Turbellaria)	3	1
Aqu. caterpillars (Lepidoptera)	5		Very tolerant invertebrates		
Shrimp/prawn (Atyidae)	5	80	Mosquito larvae (Diptera)	2	2
Yabby/crayfish (Decapoda)	5		Midge Larvae (Diptera)	2	
Water mite (Acamia)	5	50	Blackfly larvae	2	
Freshwater Slater (Isopoda)	5		Segmented worm (Oligochaeta)	1	1
			Bloodworm (Diptera)	1	3
			Totals	38	242

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 above. = **38**
2. Add up the total number seen & circle abundance category number opposite (i.e. 1 to 5). = **242 ~ Cat 4**
3. Tick square where Category Number & Bug Score meet to indicate Stream condition.

Overall Abundance Category

>500 animals	5
201 - 500 animals	4
101 - 200 animals	3
31 - 100 animals	2
0 - 30 animals	1

Fair	Very Good
Poor	Good

0 18 35 >35 **38**
Total from Bug Score columns

Result, Status of the Lochan – Very Good

6. Soils Base – Penetration and pH tests (Camp Booklet page 14 ~ 15):

These measurements were taken on the Western side of Gilwell Park and the results obtained are shown in the table on page 5.

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. It was felt that the heavy rainfall events this year may not have penetrated deep into the soil which reduced the penetration depths obtained in the non camping areas on this activity.

A soil's acidity and Alkalinity balance was discussed and pH tests conducted on Gilwell Park's soil using a Manutec soil pH test kit.

Soil activity observations:

Date	pH Top	pH Valley	Penetration in cm.						
			Vehicle Track	Old Hike Track	New Hike Track	Camp site	Bush area	Verge Area	Creek Bank
30/4/2017	5.0	5.0	1	10	35	10	35	30	35

In addition to these recordings Scouts examined different soil types ranging from clay to coarse sand. Scouts then examined each soil's structure from jars containing Gilwell Park and soils they had brought to camp. The soils had water added to the jars on Saturday and after shaking to mix where allowed to settle prior to examining them on Sunday.

7. Vegetation Transect Survey Base (Camp Booklet pages 16 ~ 17)

This activity allows youth to observe and note the amount of vegetation and how the 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 identifiable sections. Scouts discussed their observation prior to writing a description of each section and the overall transect.

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 50M. 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 had reduced leaf cover exposing the soil to weather conditions and also there was a fire drum and ash left on one site.
- 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). Camp site areas also had reduced leaf litter, similar to those in 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 (not camped on for over 10 years) with lots of leaf litter showing it takes a long time for bush areas to recover after clearing and human use. 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. A fire drum and ash was seen on one site.

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: Davies' wax flower (believed to be extinct but in 1990, 55 plants were rediscovered on the Georges River in Tasmania. Despite the relative success in Tasmania's Botanical Gardens Nursery, its reintroduction into the wild has not fared so well and further investigations are being carried out); Spotted Tree Frog which is being endangered by a fungal disease and plans are being taken to limit the spread of the fungus and the honey bee and how it's being threatened by a mite from overseas that wipe out the colonies its invades. In addition, the involvement of Scouts involved with the survey of Lyrebird populations in Tarra Bulga National Park was explained. Scouts and others go to selected locations in the Park and on dawn they note the direction and loudness of any lyrebird calls heard. Later the observations from the different locations are analysed and from this an estimate is made of the number of males, females, chicks and their location.

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. 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 standard of their observations and behavior over the weekend.

A big thank you to Patrol Camping's Team Leaders (Ian, Alan, Alan, James, 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

