Koala Surveys

Strzelecki Ranges/Gippsland Regions

December 2019 — July 2020

Friends of the Earth Melbourne

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Anthony Amis
July 2020

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tuckerfoundation.org

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Friends of the Earth Melbourne

Jumbuk Park koala photographed during pre-survey trip *November 2019*

Contents

Significance of the Strzelecki koala

The Strzelecki koalas and their associated genomes are the most important koala populations in Victoria. Source population (s) are located on the Strzelecki massif and radiate out.

Field data implies a population approaching optimum occupancy rates in core areas, more by chance than good management.

Primary threats would appear to be fire and loss of key habitat elements…

Maintaining widely dispersed populations in sufficiently large areas of suitable med – high carrying capacity habitat (i.e. defined in terms of larger size-class trees) is fundamental to longer term sustainable management. This must include improving connectivity across the landscape."

Dr Steve Phillips, 2016

Conservation of the South Gippsland koala population and its genetic diversity is important because its higher genetic diversity may increase this population's future viability relative to other Victorian populations…Information for a larger number of populations, particularly those with high levels of remnant genetic diversity, is needed for a successful approach to koala management and conservation. Studies to identify additional populations with high genetic diversity, to understand genetic relationships within and between populations and to monitor population size and impacts of disease are key actions required for future koala conservation."

Dr Faye Wedrowicz, 2017

Jack Smith Lake, Woodside. One of only two Koalas seen during the 7 months of surveys. This animal was observed in planted Manna Gums (*E.viminalis*) *June 2020*

Mountain Grey Gum at Uralla Reserve near Trafalgar. Mountain Grey Gums (E.cypellocarpa) are the most preferred tree species for Strzelecki Koalas in the Strzelecki Ranges. However, Koalas have not been sited at Uralla for some time *January 2020*

Background

Since 2013, Friends of the Earth (FoE), working in conjunction with Friends of Gippsland Bush (FoGB), have been involved in koala monitoring in the Strzelecki Ranges using scat analysis. The methodology was first used in the region by a research team from the NSW Office of Environment and Heritage (NSWOEH) in 2013/14. The methodology used for these surveys was the Regularised Grid-based Spot Assessment Technique (RG-bSAT), developed by Phillips S and Callaghan J.

In simple terms, the RG-bSAT method allows for teams (or individuals) to survey for koala scats at locations of either 250m or 500m intervals. Sites are located by GPS and 1:50,000 topographical maps (using Geocentric Datum of Australia). At identified locations, 30 trees are searched for koala scats, along with observations for koalas. The trees are identified, measured and the data recorded on a monitoring sheet. This data is then added into a excel spreadsheet and tabulated. Algorithms are then used to determine koala numbers.

Results of the 2013/14 NSW OEH surveys were first published in 2014 Phillips, S. and Allen C. 2014. *Strzelecki Koala Study*. Report to NSW Office of Environment and Heritage.

Following on from the 2013/14 work, FoE and FoGB continued conducting surveys between 2014-16. The results of these surveys (totalling 120 sites), along with data using the same methodology by Hancock Victorian Plantations and the Victorian Landcare Network was then used to determine more information regarding population size and preferential trees used by koalas over 10,500ha of land in the Strzelecki's and Gippsland Plains. A report of this work was published by Biolink Ecological consultants in 2016 for the South Gippsland Landcare Network. The authors were Phillips, S and Wallis, K. The report was entitled *Habitat Utilisation by Koalas in the Gippsland Region*. This report provides the framework through which FoE/FoGB now operate.

In 2019, a quicker assessment model Rapid SAT was developed to focus primarily on Preferred Koala Trees. Instead of assessing 30 trees, surveyors could survey between 1-7 trees with emphasis on Preferred species. If a scat is found, the surveyors then move onto the next site. This means a more targeted approach, also meaning that surveyors can theoretically target more survey sites per day. The Rapid SAT methodology was used in the compilation of writing this report and is used for calculating habitat utilisation and koala occupancy rates.

Work conducted by Anthony Amis from FoE from December 2019 through to July 2020, saw 203 sites assessed using the Rapid SAT methodology. However, due to Covid 19 and the difficulties associated with travelling from Melbourne to Gippsland, surveys after May, had to target more marginal koala habitat away from the Strzelecki Massif.

During this project, GPS locations was also recorded for scats found outside of the Rapid SAT "topographical map grid". This data, along with survey data has been uploaded onto the Strzelecki Koala Map. The Strzelecki Koala Map was developed by FoE in 2019 as a means of easily showing the public where surveys have been conducted and where scats or sightings of koalas have been located. The map has been a popular tool, along with the Friends of the Strzelecki Koalas Facebook group, which has reported 42 koala sightings in 2020. All sightings have been uploaded onto the Strzelecki Koala map.

A 15kg male Strzelecki koala

Key findings from 2020 surveys

- 203 Rapid Sat Surveys were successfully completed (equivalent to 5075 hectares of forest surveyed) between December 2019 and July 2020.

- Of the 203 sites surveyed, 60 (1500ha) were regarded as being sufficient for determining habitat utilisation/ occupancy rates, with another 42 (1050ha) reporting lower 'confidence measures'. Problems in finding suitable sites for statistical analysis are not new in the Strzeleckis, due to the highly fragmented nature of the environment. The surveys were also impacted by Covid 19 (see impacts of Covid 19 section at end of this report).

- According to Dr Steve Phillips (who has reviewed the survey data) **"1) We have calculated a habitat utilisation / occupancy rate of 28.33% +/- 5.82%(SE). This is based on 60 sites which qualify as Rapid-SAT sites because they contain PKFTs… 2) We suspect this estimate in 1 above is actually higher than what we have calculated; this is because there are a further 42 sites that have low – very low confidence measures when it comes to conclusions of absence / not being utilised because the numbers of PKFTs that have been sampled are less than 5."**

- These results were lower than 2013-2016 survey results of 43% habitat utilisation/occupancy rate, probably due to habitat fragmentation and lower than expected results in Alberton West State Forest.

- Using the number, determined by Phillips, Wallis (2016) of 0.09koalas/ha it is possible that the 60 sites (1500ha) containing PKFT's could contain a population of ~130 animals.

- 32 Positive sites were located. 15.8% recorded koala scats.

- The highest number of surveys, in terms of hectares were: Holey Plains State Park 850ha, Mullungdung State Forest 825ha, Giffard/Stradbroke area 325ha, Alberton West State Forest 325ha and Hedley/ Welshpool area 275ha.

- Key "newly" mapped koala areas include: Mirboo North Regional Park, Bennison, Giffard/ Stradbroke and Holey Plains State Park. (In terms of Holey Plains, it is recovering from 2019 bushfires. Koalas appear to be confined to a small area in the Park of ~200ha in size).

- The surveys have revealed very low numbers of koalas in Mullungdung State Forest, Hedley State Forest and Alberton West State Forest. The Alberton West State Forest result was surprising in that the forest is dominated by Blue Gum and Yellow Stringybark. Hedley is dominated by Manna Gum.

- Areas outside of the survey grid, with scats detected included: Seaview, Trafalgar East, Coalville/ Narracan, Mirboo North State Forest, Morwell River headwaters, Turtons Creek, Giffard, Woodside and Port Welshpool.

- Trees with scats identified during Rapid Sat surveys: E.cypellocarpa (Mountain Grey Gum) 9, E.consideriana (Yertchuk) 6, E.ovata (Swamp Gum) 3, E.viminalis (Manna Gum) 3 and E.Regnans (Mountain Ash) 3. These 5 species accounted for 75% of scats found during Rapid Sat surveys.

- 3 eucalypt species accounted for 70% of scats found outside the grid: E.cypellocarpa (Mountain Grey Gum) 26, E.viminalis (Manna Gum) 14, E.globulus (Bluegum) 10).

- The study confirms Mountain Grey Gum as the preferred Tree Species for Koalas in the Strzelecki Ranges and confirms a wider dispersal of koalas throughout the Strzeleckis and the Gippsland Plains.

- 17 different types of Eucalypts were identified during the Rapid SAT surveys, with scats found under 11 different types of eucalypts.

- FoE cannot estimate numbers of koalas in the 42 'low confidence' sites (1050ha) and the 2525ha of Marginal Koala Habitat sites surveyed in the 2020 surveys. Both, though are likely to be <0.09 koalas/ha.

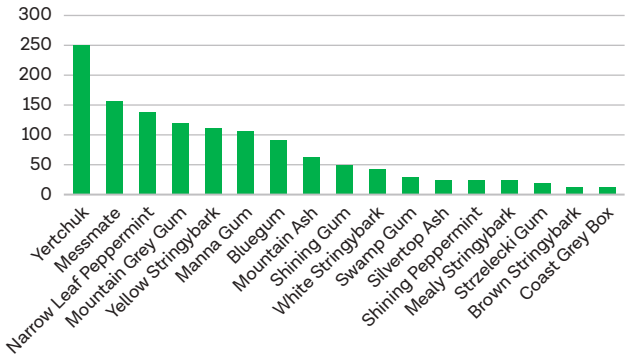
- A total of 1344 trees were surveyed. The most trees sampled included: Yertchuk 251, Messmate 156, Narrow Leaf Peppermint 136, Mountain Grey Gum 117, Yellow Stringybark 111 and Manna Gum 108. These trees account for 65% of all eucalypts surveyed.

Trees

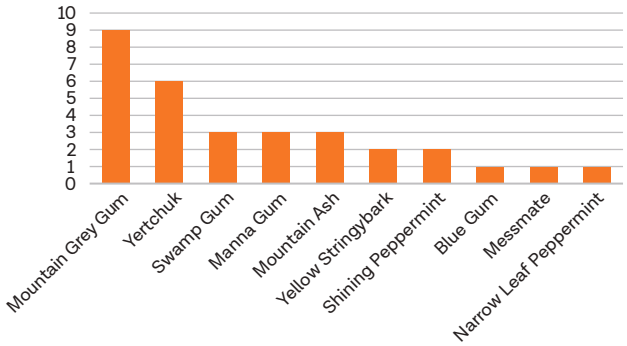
Hardwood “plantation” logging in the Strzelecki’s by Hancock Victorian Plantations has continued unabated during the time of the survey. Conversion of Mountain Ash to Pine Plantations appears to be a rapidly escalating phenomenon. At this site, in the Morwell River headwaters, logging coupes, hundreds of hectares in size, in prime koala habitat had recently occurred. *April 2020*

Mullungdung Forest, showing Yellow Stringybark. It was surprising the lack of koala scats located in the 33 sites surveyed in the northern half of Mullundung. Yellow Stringybark dominates areas on the eastern side of Mullungdung, whereas Yertchuk dominates the northern sections. 9 Eucalypts were identified at Mullungdung, with Yertchuk accounting for 43% and Yellow Stringybarks 21% of trees surveyed. Only one old scat was found, possibly meaning only a handful of koalas are in the surveyed parts of the forest.

2020: Number of eucalypts surveyed inside “grid”



Scats found within 500m “Survey Grid”

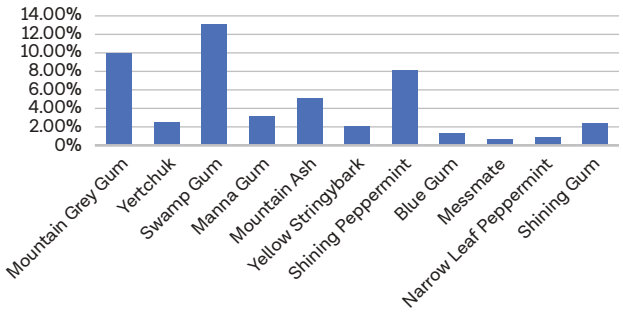


The most frequently surveyed trees during the Rapid SAT surveys were: Yertchuk*, Messmate, Narrow Leaf Peppermint, Mountain Grey Gum and Yellow Stringybark. These trees accounted for 57% of all trees surveyed).

*Approximately one third of trees identified as Yertchuk were burnt quite badly during the bushfires that engulfed Holey Plains State Park in early 2019. Exact tree identification for all trees surveyed at Holey Plains therefore very difficult. It is assumed that this recently burnt identification “quandry” may also impact on total amounts of Narrow Leaf Peppermints and possibly Shining Peppermint as well.

The highest number of scats, found within survey ‘grid/500m’ were found under Mountain Grey Gums, a result which confirms data published by (Phillips, Allen) in 2014 and (Phillips, Wallis) in 2016.

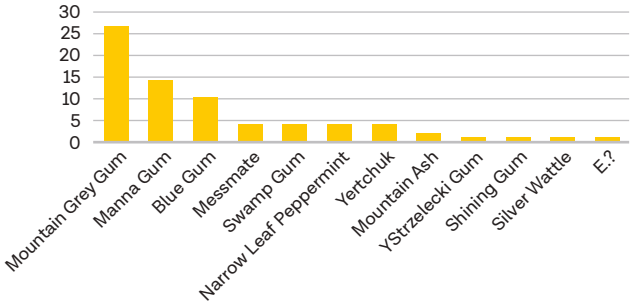
% of scats under surveyed trees within "grid"



However, in terms of percentages of scats under Eucalypts, the highest percentages were found under Swamp Gum (although statistically the amount of Swamp Gum, Shining Peppermint and Shining Gum* surveyed was very small – 23, 25 and 48 trees respectively).

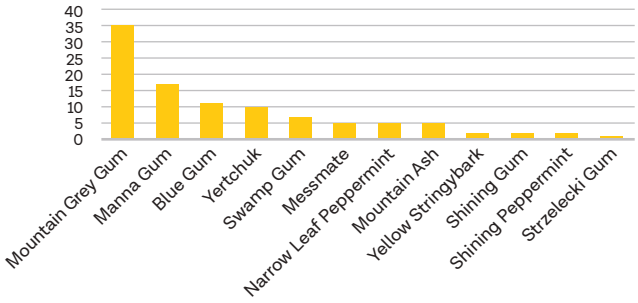
*Shining Gum is a plantation species and not endemic to the Strzeleckis.

Scats/tree types found outside survey "grid"



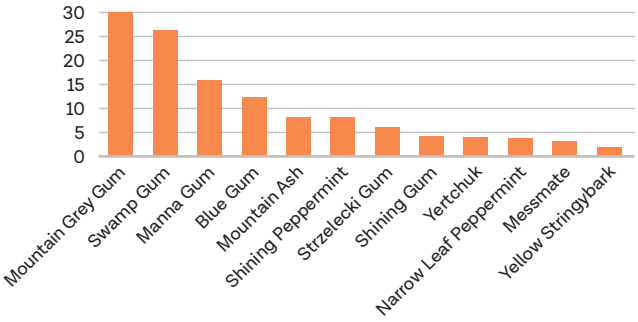
Again, the most frequently detected Eucalypt with scats was the Mountain Grey Gum. Only 16 Strzelecki Gums were surveyed during the study, impacting on lower numbers of scat detections.

2020: Scats found within and out of "grid" under eucalyptus type



The main trees with scats found under them were Mountain Grey Gum, Manna Gum and Bluegum, which more or less confirms the work of Phillips, Allen (2014) and Phillips, Wallis (2016). The significance of trees surveyed with the "grid" means that there can be algorithms produced to estimate koala habitat/utilisation rates. As far as FoE knows, algorithms have at this time not been created for scats or koalas found outside of the survey "grid". These scat locations have however been added to the Strzelecki Koala Map.

% of scats/eucalypts within and out of survey "grid"



A combination of all scats found under trees during the surveys again shows the "popularity of Mountain Grey Gums in the study area.

Note that although Yertchuk was the most surveyed tree, it ranked 9th in terms of scat %. Scats under Yellow Stringybark and Messmate were also recorded less frequently in 2020, than in 2014 and 2016.

Discussion

The results of this survey, more or less confirm previously conducted work done in the region. e.g. *Habitat Utilisation by Koalas in the Gippsland Region September 2016 (Final Report for South Gippsland Landcare Network) Biolink Ecological Consultants Phillips, Wallis.*

Key species targeted during the 2020 surveys were dominated by a Primary Data Set of Eucalypts identified in 2014 and 2016 surveys. 82% of trees surveyed consisted of the dozen determined by Phillips 2016. Other trees were surveyed if there was a limit of Primary species within 20m of centre tree.

P16/17 Phillips, Wallis **"…at least 23 species of Eucalyptus, 12 of which satisfied criteria for inclusion in the primary data set wherein strike rates ranged from 34.68% for Mountain Grey Gum Eucalyptus cypellocarpa to 11.63% for Yertchuk Eucalyptus consideniana.. Primary Data set included: Brown Stringybark (E.baxteri), Yertchuk (E.consideniana), Mountain Grey Gum (E.cypellocarpa), Southern Bluegum (E.globulus), Yellow Stringybark (E.muelleriana), Messmate (E.obliqua), Swamp Gum (E.ovata), Narrow Leaf Peppermint (E.radiata), Mountain Ash (E.regnans), Silvertop Ash (E.sieberi), Strzelecki Gum (E.strzeleckii), Manna Gum (E.viminalis)…"**

Koala surveys between 2014-16, found that habitat utilisation extended to ~41% of available habitat, with occupancy in 30% of available habitat. Estimates of total koala numbers were 0.09 koalas/ha over 10,500ha of habitat surveyed (earlier estimates for the Strzelecki Ranges (2014 Phillips and Allen were 0.25koalas/ha). This corresponded to an estimate of 945 koalas, most of which were associated with the Strzelecki's and adjoining lowland areas.

According to Dr Steve Phillips (who has reviewed our 2020 survey data) **"1) We have calculated a habitat utilisation / occupancy rate of 28.33% +/- 5.82%(SE). This is based on 60 sites which qualify as Rapid-SAT sites because they contain PKFTs… 2) We suspect this estimate in 1 above is actually higher than what we have calculated; this is because there are a further 42 sites that have low – very low confidence measures when it comes to conclusions of absence / not being utilised because the numbers of PKFTs that have been sampled are less than 5."**

The survey results from FoE's 2020 surveys, therefore correspond roughly to what has been determined by past survey results. 2020 surveys were hampered by lack of appropriate sites at 500m and a decision to move into forests lacking PKFT's, as a means of completing enough surveys in the "compressed" time frames available due to Covid 19. The habitat utilisation rate/occupancy rate may also suggest that the koala population in the region is still recovering from past disturbance and is slowly recolonising habitat throughout the region.

It could be debated that the reduction of koalas/ha, in the reports 2014 and 2016 relate specifically to surveys conducted by FoE, generally off the Strzelecki Massif on lesser quality soils in 2014-2016 due to the genome being distributed over a larger geographical area and a more fragmented forest landscape. The higher number of 0.25/ha related largely to surveys conducted on the Strzelecki Massif. It is highly likely the recalculated estimate of 0.09/ha may fall lower even lower if the results of the 2020 surveys could be properly quantified.

Most preferred tree species determined by the 2016 study were: Mountain Grey Gum, Strzelecki Gum and Southern Blue Gum. The 2014-16 surveys also allowed for the development of a four tiered koala habitat model, which accounted for 68 constituent Ecological Vegetation Classes and carrying capacities of koalas in the Strzeleckis and Gippsland Plains regions. 23 species of Eucalypt were included in the primary data set.

Old Growth Manna Gum (*E.viminalis*) near Agnes River, Hazel Park

Soils

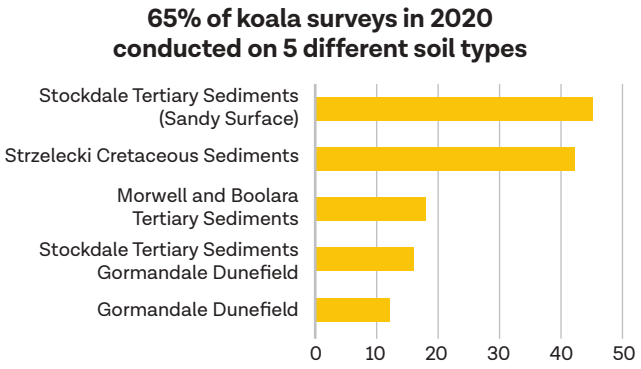
Soil nutrients can be a major factor in koala numbers. Even though a location may be dominated by preferred koala tree species, if the nutrients in the soil are poor, this can contribute to lower koala numbers. This adds a layer of complexity to locating koalas, as suitable trees alone, may not provide the necessary nutrients if they are located on poor soils.

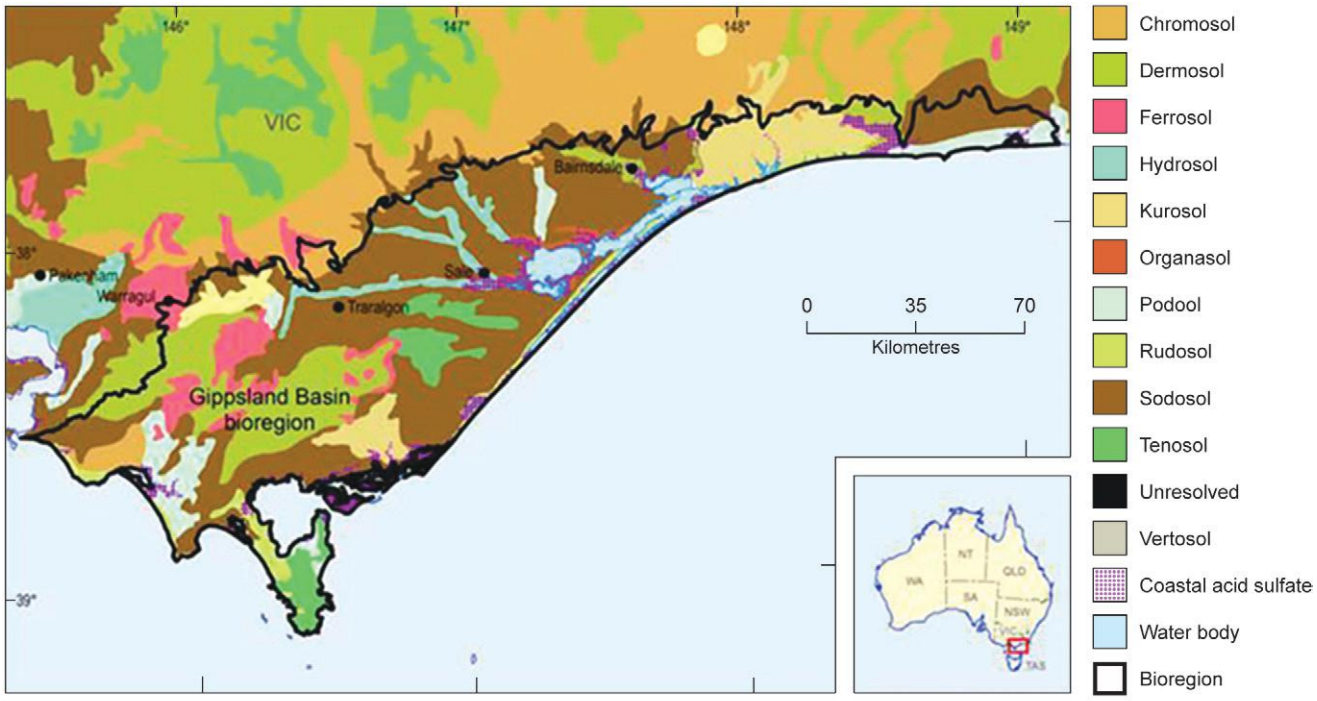
FoE's 2020 surveys occurred on sites containing ~20 different soil types. Soils were determined by accessing the following webpages, which map different soils types in the Gippsland region.

vro.agriculture.vic.gov.au/dpi/vro/wgregn.nsf/pages/wg_soil_detailed

"Some Eucalyptus species have the capacity to change the way they process carbon; on low nutrient soils and/or where competition for limited resources such as water exists, free carbon can be directed towards a phenolic-based defence system which renders many species unpalatable to arboreal marsupials. In contrast, once a certain size-class has been reached and/or the competition for resources is less, surplus carbon can be directed towards new growth."

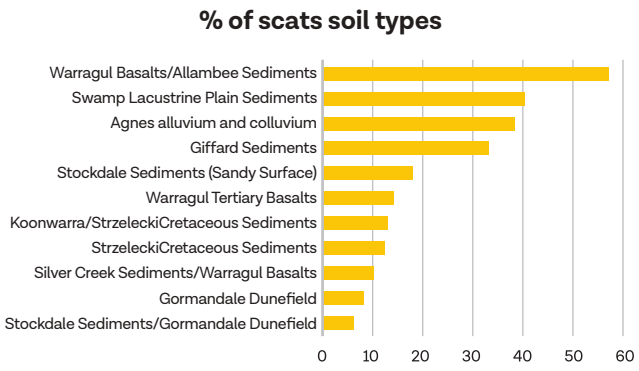
p6 Phillips, Wallis 2016





Basic map of Soil types of Gippsland. The Strzelecki's are dominated by Brown Dermosol. Red Ferrosols (on basalt-volcanic origin) can be found largely south of Moe and Thorpdale region on the western side of the Morwell River and portions of the upper eastern side of the Morwell River. The Leongatha area is also dominated by Red Ferrosols. Sodosol soils dominate the surveys conducted near Seaspray, Woodside and Giffard.

Source: **bioregionalassessments.gov.au/assessments/11-context-statement-gippsland-basin-bioregion/1121-physical-geography**



Many of the highest percentages of scats were found of forest types where few surveys were conducted and can't be regarded as being statistically significant. The high number of scats found on soils Warragul Basalts, relates to the location of the Mirboo North Regional Park. Eight types of soil recorded no scats.

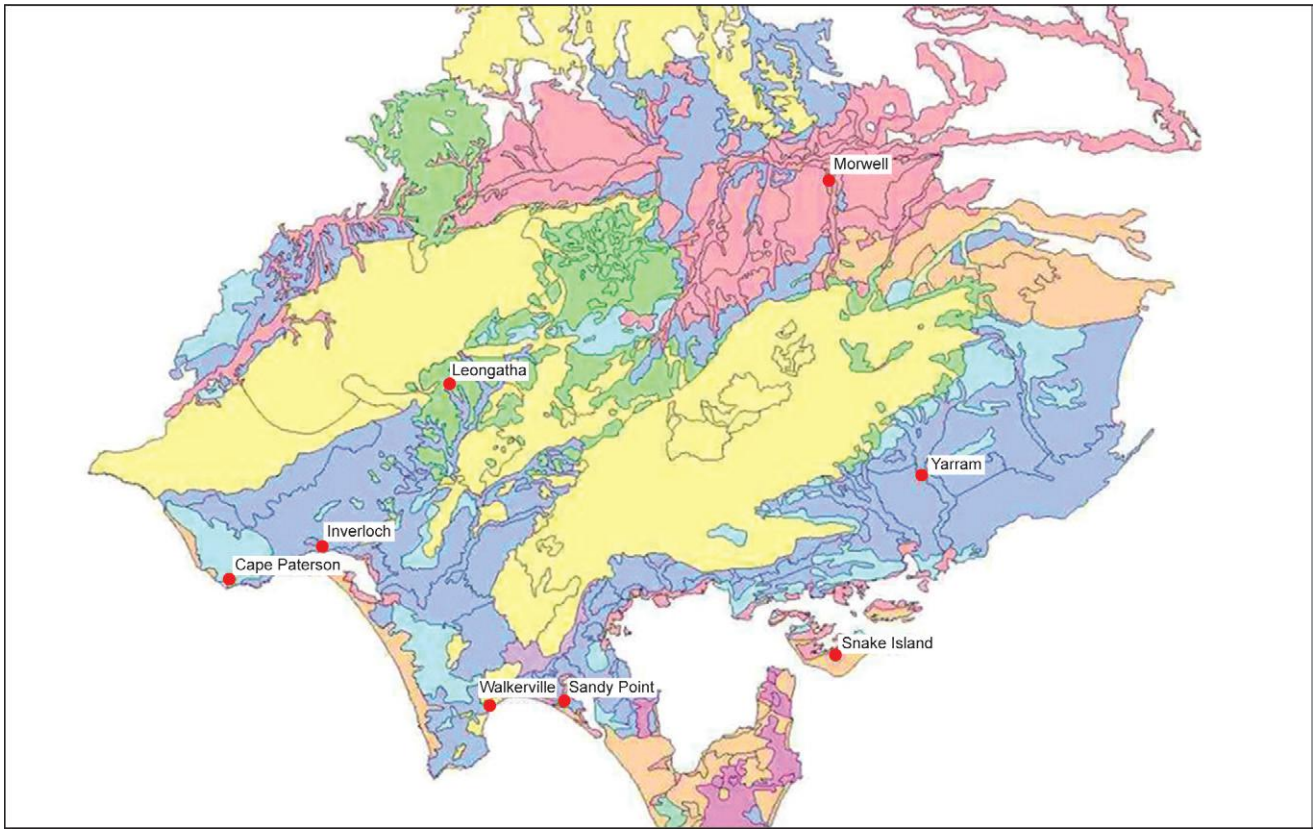
The main soil types where surveys were carried out included: Stockdale (Tertiary Sediments) 45, Strzelecki Cretaceous Sediments 42, Morwell and Boolara Teritary Sediments 18, Stockdale Tertiary Sediments Gormandale Dunefield 16, Gormandale Dunefield 12.

These soils types accounted for 65.5% of surveys.

Phillips and Wallis defined surveys conducted on between 2013-2016 into a system of 4 lithographic units, based on Soil Types based on VLUIS lithographic units (Victorian Land Use Information System). 1) Volcanics, 2) Coarse Fine CF Textured Unconsolidated Deposits, 3) Fine – Coarse (FC) Textured Unconsolidated Deposits and 4) Sedimentary (S).

Mountain Grey Gum had the highest strike rates in all lithographic units.

The VLUIS database has not been accessed in the compilation of this report, making a comparison of data impossible. Also complicating the issue is that 90 (44%) of the 203 surveys conducted in 2020, extended outwards from the Strzelecki massif by up to 23km, mainly to the north east, which may not include lithographic units included in the 2016 report.



The main Strzelecki lithographic units as used by Phiilips and Allen 2014 and Phillips and Wallis 2016. FoE's 2020 surveys used a different soil mapping system, so direct comparison to above lithographic units could not be applied.

Koala Habitat Classification

Approximately 70 Ecological Vegetation Classes occur over the study area. As a means of consolidating vegetation and geological data Phillips and Wallis created a system that incorporated 4 types of koala habitat:

"*Koala Habitat (Type A)* — forest and/or woodland EVCs occurring on soil landscapes of medium to high nutrient value whereupon primary koala food tree species are dominant orco-dominant components of the tallest stratum species.

***Koala Habitat (Type B)* — forest and/or woodland EVCs occurring on soil landscapes of medium to high nutrient value whereupon primary food tree species are sub-dominant components of the tallest stratum species.**

***Koala Habitat (Type C)* — forest and/or woodland EVCs occurring on soil landscapes of low to medium nutrient value whereupon primary food tree species are absent, the tallest stratum instead dominated or co-dominated by secondary food tree species only.**

***Marginal Koala Habitat* — forest and/or woodland EVCs occurring on soil landscapes of low nutrient value whereupon primary food tree species are absent and secondary food tree species are occasional components of the tallest stratum species".**

In terms of the 2020 report, the surveys ended up concentrating on Type C, Marginal and unclassified forest types. This was a result of having to quicken the survey process considerably, as a result of slow surveying in higher elevations as a response to the challenged presented by Covid 19, which made days to survey more limited. Approximately 70% of the surveys took place in Type C, Marginal Koala and Unclassified Habitat, with most of the remaining 30% of surveys taking place in Type B Koala habitat.

Yertchuk and Manna Gum forest at a site near Giffard Bush Reserve *July 2020*

Prime "Type B" Koala habitat in Mirboo North State Forest. *E.ypellocarpa* and *E.obliqua* dominated forest *January 2020*

An old growth bluegum near Hamann's Reserve, Leongatha North *March 2020*

Facebook Group/ Strzelecki Koala Map

The Friends of the Strzelecki Koala Facebook group, **facebook.com/groups/2379484805628595**, has also received a lot of attention during 2020. People have been photographing koalas that they have seen and uploading images and addresses to the group. The information uploaded onto the Facebook Group page has then been added to the Strzelecki Koala Map by Anthony Amis.

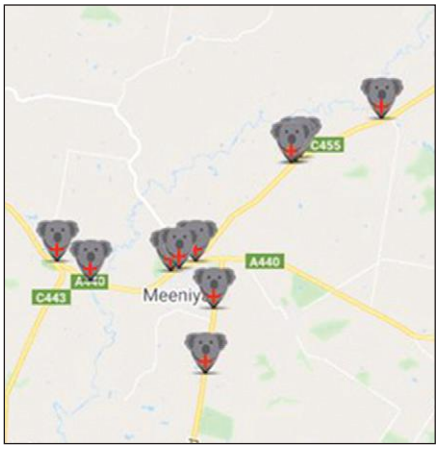
The map and surveys have also been highlighted in two newspaper articles published in Leongatha and Trafalgar. As a result of these articles three people sent additional information that was also uploaded onto the Strzelecki Koala Map. The data shared in these forums has not been included in 2020 Survey data, as these siting sites have not been visited or locations determined to see if they fit the Rapid SAT grid. Reported road kills have also been uploaded onto the koala map, again providing a useful resource about high risk locations.

There have been 42 Sightings of Strzelecki Koalas by residents in 2020 and sent through to Facebook group: (42). These sightings are concentrated near main population centres.

Localities of Koala sitings from community members January — July 2020

Berrys Creek	2	Leongatha	2
Boolara	3	Mardan	1
Boolara South	3	Meeniyan	1
Boolarong	1	Mirboo	1
Budgeree	1	Mirboo North	2
Churchill	1	Outtrim	1
Darlimurla	2	Sandy Point	2
Delburn	3	Trafalgar East	3
Jeeralangs	2	Yarragon South	1
Golden Creek	1	Yinnar	1
Inverloch	6	Yinnar South	2

42 koala sightings have been added to the Strzelecki Koala Map in 2020, from Friends of Strzelecki Koala Facebook Group. These sightings appear to be near to residential areas, but nevertheless are a valuable tool in helping understand koala populations throughout the region.



Injured koalas/road kills (9) January — August 2020: 7 of these road kills occurred near or in Meeniyan, with 6 occurring over January/February 2020. Three other road kills occurred in 2019 on the Meeniyan-Mirboo North Road: 10 dead koalas in area over a period of 14 months (February 2019 — April 2020)

Injured or killed Koalas 2020: Meeniyan 5, Tarwin 2, Giffard 1, Woodside North 1 (inj.), Gunyah 1 (inj.) and Mardan 1.

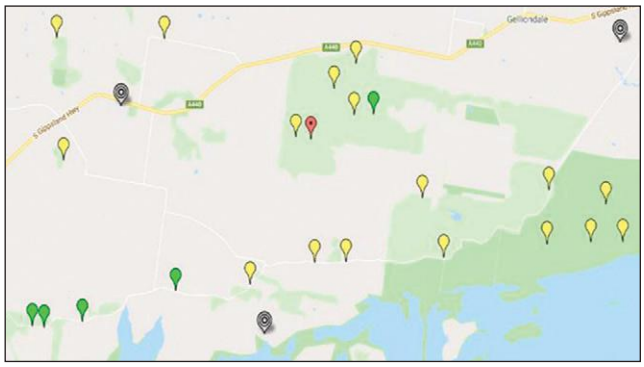
Strzelecki Koala Map and Survey Summary

strzkoala.australianmap.net

The Strzelecki Koala map was created by FoE in January 2019, as a means of making koala survey work in the Strzelecki's more accessible to the general public. It has been a useful tool in helping highlighting both the significance of the Strzelecki Koala and a visual means of showing key Koala locations.

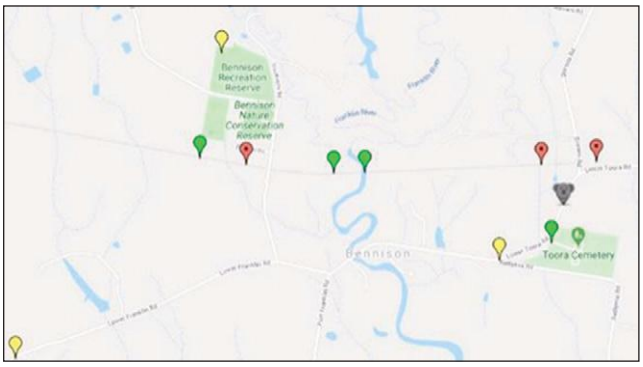
Statistics using Google analytics reveal that the highest page visits (after visits to the home page to the site are: 1) Sandy Point 39, 2) Koala Sightings 29, 3) Pine Plantations 23, 4) Translocations 15 and 5) Dead/Injured.

Following map pins:
Yellow (no scats)
Red (positive site)
Green (positive site, outside grid)



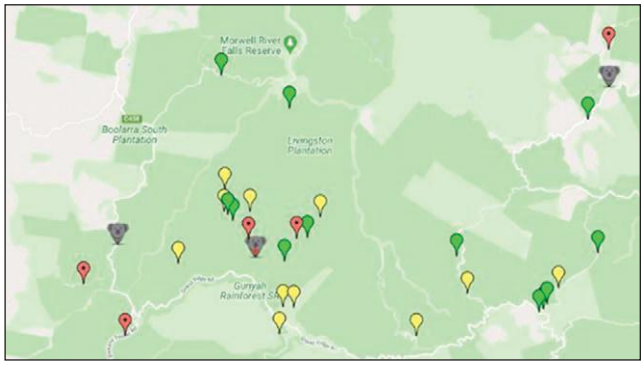
Hedley area of South Gippsland. 12 new surveys were added to the Strzelecki koala map, including 5 locations of koala scats that didn't fit into the grid. There was also a couple of corrections to survey data that had been completed in 2016 by the South Gippsland Landcare Network.

Hedley Range/Alberton West State Forest. 15 new sites were added to the Strzelecki Koala map (mainly on the left hand side of image above. The Alberton West State Forest was a mystery in terms of low koala numbers. Almost all sites were negative, despite trees being Bluegum and Yellow Stringybark. Soils were mainly Koonwarra and Strzelecki Cretaceous sediments.

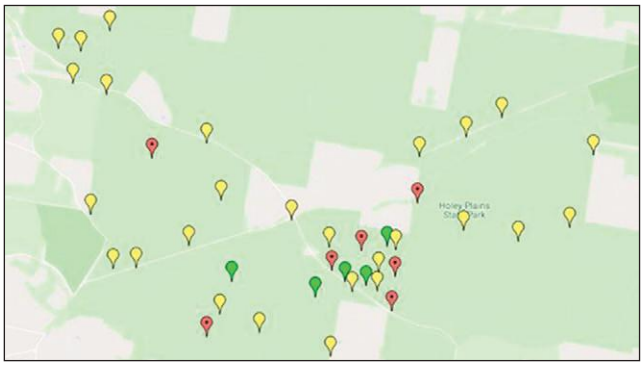


Bennison area, newly added to the koala map South Gippsland, recorded 3 positive sites, along with 4 positive scats, mainly along South Gippsland Rail Trail. Swamp Gum, Manna Gum and Strzelecki Gum appear to be koala preferred trees here. The Franklin River may also act as a corridor.

Giffard region, another newly mapped site, east of Mullungdung Forest. 5 positive sites, with 9 negative and 4 scats found outside of the grid.



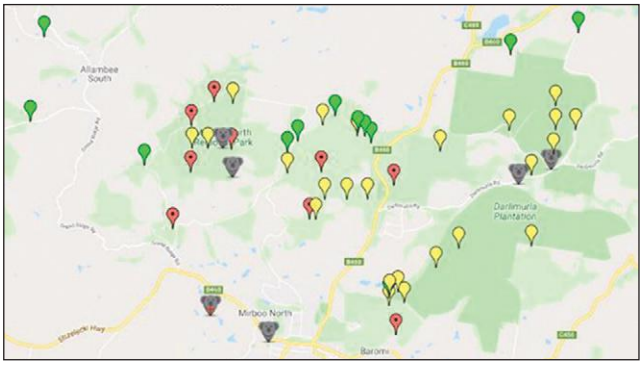
Morwell River headwaters. Another new koala hotspot, recent logging on and near Picnic Flat Track, is bound to have had an impact on koala numbers. Positive koala sites on Central Road and Boolara Foster Road also recorded. Koalas appear to be favouring a number of species, including: Mt Ash, Mountain Grey Gum, Messmate and scats were also located on the edge of Shining Gum plantations.



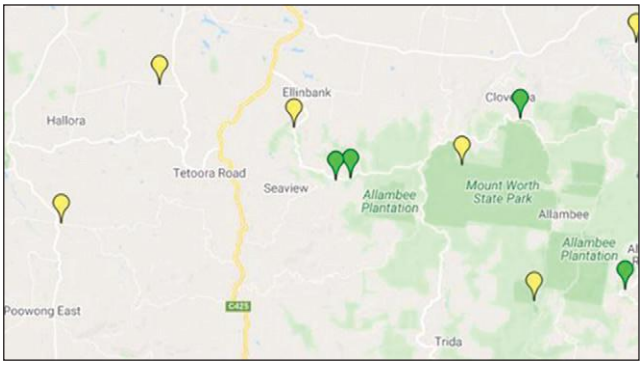
Holey Plains State Park. Heavily burnt in early 2019. 34 Rapid SAT surveys (850ha) were conducted with a surprising amount of positives, in or around 200 hectares near the centre of the reserve. Tree ID was also problematic due to the heavy burning. A spray drift incident was also reported to the Department of Agriculture, with hundreds of hectares of Park being impacted by spray drift after the recent spraying of pine plantations within the park.
gippslandtimes.com.au/story/6806238/holey-plains-state-park-focus-of-investigation

Coppicing Yertchuk inside Holey Plains Park. Scats found under two trees at this location.

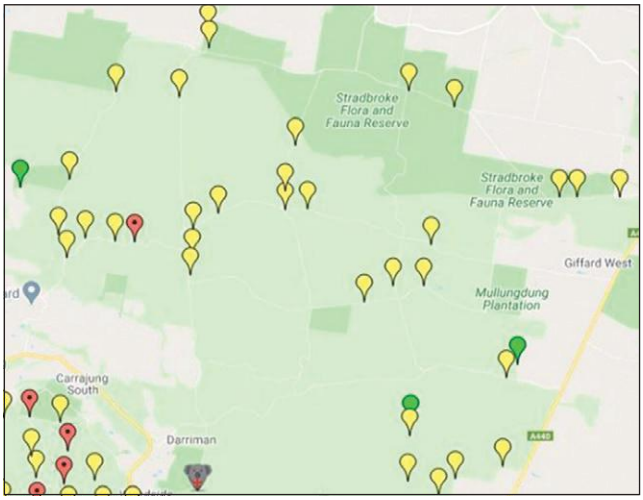
Prime Koala 'Type B' habitat in Mirboo North Regional Park. Mountain Grey Gums dominate Eucalypts at this location. *January 2020*



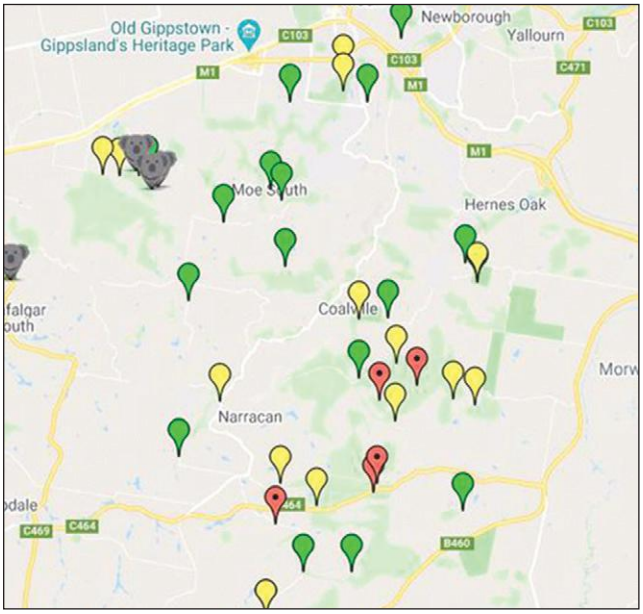
Mirboo North Regional Park and Mirboo North State Forest. One of the key finds of the 2020 surveys was the “location” of prime koala habitat in both the Regional Park and State Forest. The Reserve and Forest are divided by a pine plantation between the two. 4 positive sites were located with the Park and 2 in the State Forest. The best of the koala habitat in the State Forest is protected by an SPZ (Special Protection Zone). 5 scats, found outside the grid, were found during a 3 hour walk. Forest to the south of the State Forest, appears to have been impacted by fires that occurred in 2009.



Mount Worth. FoE’s surveys started in Mt Worth State Park in December 2019. It was clear that the Park would not be of high koala quality, due to the main species being Mt Ash <30 years of age. Sites were extremely difficult to locate. 4 scats, outside of the grid, were located near Seaview, under Bluegum and to the north and east of the Park, again under Bluegum.



Mullungdung State Forest was largely absent of signs of koalas. 33 surveys (825 hectares) were conducted in the northern sections of Mullungdung. The forest was located mainly on poor soils and the dominant tree type was Yertchuk. Further surveys need to be conducted in the southern parts of the park.



Narracan, Moe South and Coalville showed signs of koalas. 9 site surveys were conducted – all negative. But 6 scats outside the grid were found. Scats were also found at Trafalgar East, with sitings of three animals made by local residents after an article on the surveys was published in the Trafalgar News.

Manna Gum forest near Bennison

Planned burns in State Forest are an ongoing problem in koala habitat

Bluegum plantation near Giffard. The bluegum industry has almost collapsed in the Gippsland region due mainly to poor growth rates. Bluegums are being replanted with pine or being returned to farmland. The bluegum and koala problem occurring in South West Victoria does not appear to be as problematic in Gippsland.

Spray drift incident

A possible spray drift incident was reported to the Department of Agriculture in June. The incident was found, when dieback was noticed on plants in a site that was on FoE's survey "grid". Closer inspection found spray impacting on the canopies of possibly thousands of eucalypt trees. The impact zone was a 2km stretch of trees on the eastern side of the plantation. The impacted vegetation stretched for 100-150m within the State Park boundary. Hundreds of hectares of forest had been impacted. The Department of Agriculture was contacted and an investigation into the issue is currently occurring. Pine plantations are sprayed with 2-3 herbicides during establishment of plantations. It appears that Glyphosate and Metsulfuron Methyl could be the herbicides that caused the problem. The investigation could take some months to conclude. The issue was picked up by the Gippsland Time, who ran two articles on the incident in June.

Scats found near logging coupe on Picnic Flat Track in June 2020. This site located in the headwaters of the Morwell was an obvious koala hotspot. The Mt Ash hardwood site, is likely to be replanted with pine by Hancock Victorian Plantations.

Hundreds of hectares of forest along a 2km front inside Holey Plains State Park appears to have been impacted by a spray drift event. The forest lies next to a pine plantation that had recently been cleared and sprayed. The incident was reported by FoE to the Department of Agriculture in June, who sent investigators to the site. A final report of the investigation has not yet been completed.

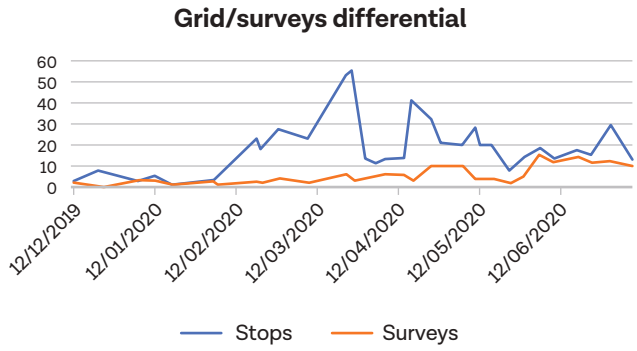
Impacts of COVID-19

Friends of the Earth/Friends of Gippsland Bush had organised a public meeting at Camp Jumbuk for April 18 2020, including a number of expert speakers and national media. This event unfortunately had to be cancelled due to the Coronavirus.

The virus also made it very difficult to conduct koala scat surveys, because travel wasn't supposed to occur outside of Melbourne, unless it was for "work" purposes, which arguably meant that koala surveys could be included in this work definition, although it was not entirely known if this was the case. Staying over at friend's houses in Gippsland was now also "out of bounds", meaning more travel time. The Melbourne "lockdowns" did mean that a change in surveying occurred, which meant that the more easily to survey "Marginal" forest was accessed, as a means of quickening up the surveys, due to less available days.

By March it became apparent, that sites that fitted into the 500m grid, as specified by the Rapid SAT methodology were increasingly difficult to come by due to the highly fragmented nature of the Strzelecki Massif. Average survey rates per day were approximately 3-4 day, with up to 50 stops in one day to try and find suitable sites, meaning most sites did not meet the required criteria of 7 trees, or were located on cleared or private land. At that rate up to 50 days surveying would be required to meet the goal of surveying 200 sites.

In late May, focus then changed to unsurveyed forests to the east of the Strzelecki Massif, at Holey Plains, Mullungdung and Wonwron. It was possible at these locations to carry out up to 15 surveys per day, greatly reducing the amount of survey days required to reach the 200 surveys. These forests, whilst not likely to generate high amounts of scats, nevertheless required surveying as the genome for these animals was similar to animals from the Strzeleckis. Most of these forests did not also include PKTA's.



Blue line represents the number of stops per day, the orange line represents the actual number of surveys completed per day. Lockdowns occurred in Melbourne in April/May and in July Melbourne recorded a huge increase in Covid 19, making travel to Gippsland almost impossible. The decision, therefore to move surveys to areas of less PKTA's was a correct one. If this decision was not taken, total surveys undertaken by July would have been <100, meaning completion of 200 surveys could not occur until an unspecified time, possibly sometime in 2021.

Koala on Stringybark in south western Victoria. Victoria has two distinct koala populations. 1) The endemic genetically diverse Strzelecki/South Gippsland Koala and 2) Translocated populations, sourced from island populations with a lack of genetic diversity.

Koala Surveys

Strzelecki Ranges/Gippsland Regions

December 2019 — July 2020

Friends of the Earth Melbourne