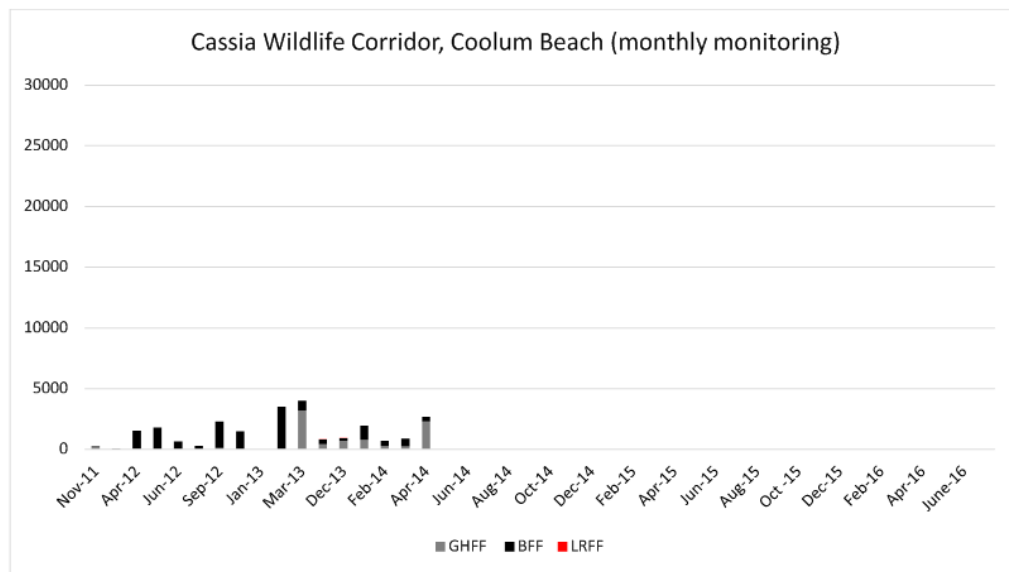


Flying fox management actions 2013 – 2016

Below is a detailed summary of the management actions undertaken at each roost location since 2013. The roost information below shows that each site is unique in terms of its environmental conditions, occupation history, seasonality, and flying fox behaviour and also the different community expectations. In response to this, Council officers have applied an ongoing adaptive management approach.

Cassia Wildlife Corridor, Coolum

The Department of Environment and Heritage Protection began monitoring the flying fox roost at this location in November 2011.



A Council Resolution in 2013 (OM - 23 May) to undertake non-lethal dispersal at the Cassia Wildlife Corridor roost resulted in preparations for Council's first dispersal attempt from the 22nd of July to the 31st of July 2013. Under both State and Federal permit conditions, dispersal could not go ahead if signs of pregnancy were observed in flying foxes at the roost. Therefore independent confirmation of pregnancy prior to the dispersal resulted in the action being postponed to the next approved dates in the following year.

In 2014 dispersal actions commenced on the 1st of May 2014 and continued for three weeks. Weekly monitoring after the dispersal showed that flying foxes returned to the roost a month later on the 30th of June 2014. Therefore a second dispersal started on the 15th of July 2014 and continued for four days. Weekly monitoring after this second dispersal showed that the flying foxes returned a month later on the 22nd of August 2014 and remained on site for three weeks before naturally abandoning the roost on 10th of September 2014 and establishing a splinter camp at Elizabeth Street Drain on the 17th of September 2014 where they have so far remained.

Two community consultation meetings were undertaken prior to these dispersals with the assistance of Queensland Health and Dr Les Hall. Selective removal of roost trees within a buffer was considered at these meetings but was not supported by the wider community or residents. Following the final dispersal when Flying foxes had left the site, Council undertook

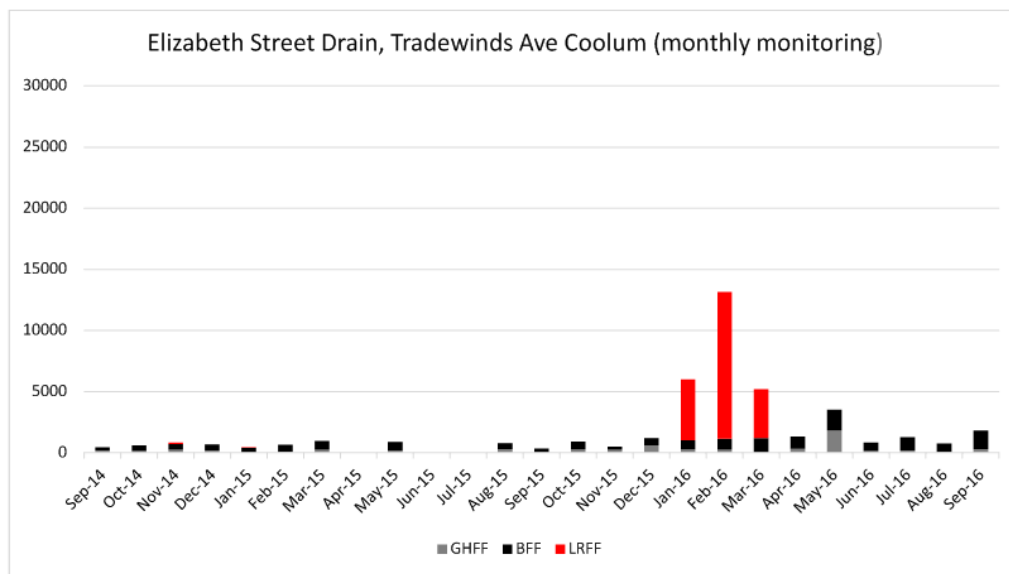
understorey weed removal aimed at maintaining less favourable conditions for flying fox to return.

The total cost of all management actions at this location to date is \$150,568.

Flying foxes have not returned to Cassia Wildlife Corridor, however animals have been observed taking refuge at this site when disturbed at nearby Elizabeth Street Drain.

Elizabeth Street Drain, Coolum

Prior to September 2014 there are no records or anecdotal evidence of Elizabeth Street Drain being used as a flying fox roost.



Flying foxes began roosting at Elizabeth Street Drain in September 2014 following the dispersal at Cassia Wildlife Corridor nearby. Although early intervention dispersal was a planned option for predicted splinter camps resulting from the Cassia Wildlife Corridor dispersal this was prevented at Elizabeth Street Drain due to the flying foxes being in the late stages of pregnancy on arrival. Community complaints escalated at this site with demands for a dispersal action to remove the flying foxes.

A community meeting where Queensland Health and Dr Les Hall were guest speakers, was held in April 2015 to prepare the community for the upcoming dispersal. Also prior to the dispersal in April 2015, ten flying foxes were captured and fitted with satellite tracking collars as part of Councils levy funded flying fox research program. This research was undertaken in conjunction with CSIRO and the University of Queensland with the aim of investigating the local foraging and roosting behaviour of black flying foxes and their broader migration patterns throughout Queensland.

After the capture of animals for the satellite tracking project, flying foxes naturally abandoned the roost for four weeks and returned on the 19th of May 2015. The first dispersal commenced on the 25th of May 2015 and discontinued after only three days when the flying foxes did not return. Weekly monitoring was undertaken and the flying foxes returned to the

roost four weeks later on the 29th of June 2015. A second dispersal commenced a few days later on the 1st of July 2015 with flying foxes temporarily leaving the site however when they returned a week later on the 9th of July 2015 no further dispersal actions were permissible due to the presence of visibly pregnant individuals.

In accordance with the decision support tool developed in the RFFMP Council subsequently followed a course of responses at this site which triggered the development of an options paper which was then taken to the community for discussion prior to finalising any further actions. In February 2016, the Options Paper was finalised by an independent consultant which also included this and the other Coolum roosts. The Options Paper analysed the best management strategies for Elizabeth Street Drain including the possibility of further dispersal attempts. The consultant's recommendations were to take a staged approach to create a flying fox exclusion buffer, and include the installation of canopy mounted sprinklers to keep the flying foxes out of the buffer. Further dispersal attempts were not recommended due to the likelihood of creating more splinter camps at nearby suitable habitat including returning to Cassia Wildlife Corridor or moving closer to the school.

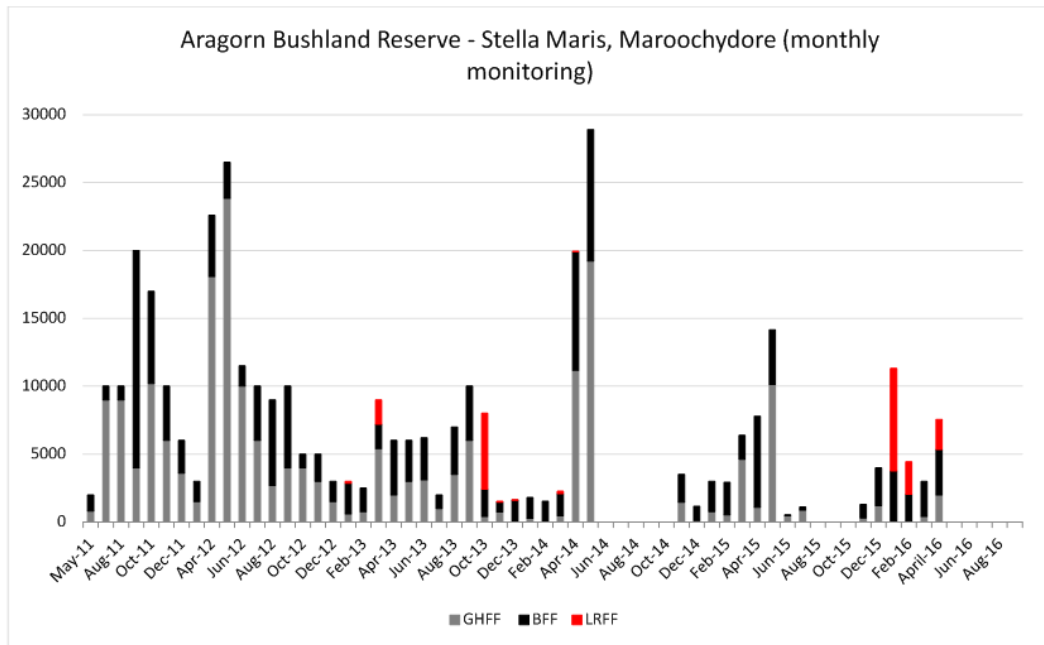
A community meeting to present the options paper and councils support for the recommendations was held on the 11th of May 2016 with approximately 50 residents attending. The community was generally supportive of the recommendations in view of the previous dispersal attempts and because buffer options had not been tried at this site. An application to the Department of Environment and Heritage Protection (EHP) for a clearing permit exemption was required due to this site being identified on State flora survey mapping to be an area of "high risk" for endangered flora. A flora survey and essential habitat assessment was undertaken as per the flora survey guidelines to support this application. No Endangered, Vulnerable or Near Threatened species were identified and an exemption notice was received. Works commenced on an initial 5m flying fox exclusion buffer in May 2016.

Selective roost tree removal and trimming in the 5 meter stage 1 buffer area resulted in several CRM complaints and on-site interventions from local residents. In consultation with the divisional Councillor the decision was made to utilise canopy mounted sprinklers in key locations to maintain the buffer in place of further vegetation removal. Three sprinklers have been installed in partnership with local residents and a community group occupying one of the properties at this site. With residents controlling the sprinklers and agreeing to the installation of pumps and pipes on some private properties, this method in conjunction with the preliminary vegetation removal is proving successful at maintaining a buffer distance of between 10 and 40m for the adjacent affected residents.

The total cost of all management actions to date is \$155,593. An additional \$22,484 has been allocated from the 2016/17 budget to offset the vegetation removal. This offset will be used to improve identified low conflict potential habitat at Coolum Creek Environmental reserve and in some street tree plantings as required by Parks and Gardens.

Aragorn Street Bushland Reserve/Stella Maris School, Maroochydore

Aragorn Street Bushland Reserve is recorded as a nationally significant site for the Grey headed Flying fox, as there have been multiple records of over 10 000 Grey-headed flying foxes using the roost. The Department of Environment and Heritage Protection began monitoring at this site in May 2011.



At the Ordinary Meeting on 23 May 2013, a Council Resolution was made to undertake non-lethal dispersal at the Tepequar Drive Roost. As this roost is listed as a nationally important flying fox camp by the Australian Government, any dispersal actions required Referral to the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*. Approval was not received in time to undertake non-lethal dispersal activities during the non-breeding season of the flying foxes in 2013. In early 2014 discussions with the Australian Government who advised that a modified approach involving Flying fox exclusion buffers would be considered required an updated submission to for approval and further negotiation and discussions with representatives of the private landowner, Brisbane Catholic Education, and Stella Maris Primary School. As a result of these discussions and unable to obtain agreement from the private landowner in time, Council missed the narrow window of opportunity for dispersal in 2014.

Council's application for a referred action of establishing flying fox exclusion buffers was approved. Council was then required to enter into a Terms of Agreement with the Brisbane Catholic Education which included providing an indemnity and ongoing commitment to maintenance. Before executing the Terms of Agreement Council was then required to obtain Queensland Treasury approval. Council commenced agreed works when the flying foxes naturally abandoned the roost in July 2014, and a flying fox exclusion buffer was created. The exclusion buffer included the establishment of a cleared 15 m buffer on the western side of the camp, understory modification adjacent to Aragorn St and selective removal of weed trees and target roost trees on school owned land.

Flying foxes returned to the roost in November 2014. Council continued to pursue Brisbane Catholic Education for Terms of Agreement to enter school grounds for the purposes of non-lethal dispersal throughout 2014-15 and finally in December 2015 Brisbane Catholic Education provided support to undertake non-lethal dispersal. The Terms of Agreement were sent to Queensland Treasury for approval, which was received in March 2016. In September 2015 the Federal Department of Environment released their *Referral guideline for management actions in grey-headed and spectacled flying-fox camps* removing the need for a Referral to the Australian Government if management actions were complying with the Guidelines.

The Terms of Agreement specified dispersal actions could only be undertaken on weekends, public holidays and school holidays. Dependent young were still present on site during the Easter school holidays in March 2016 and the animals usually abandoned the site before the June/July school holidays, subsequently two long weekends in April and May were identified as potential dispersal commencement dates. The first, ANZAC Day long weekend was unable to be utilised due to working constraints on the contractors Ecosure. The second, Labor Day long weekend was suitable and community consultation began. Council staff, with Councillor in attendance held a community meeting on 26 April 2016, 17 interested residents attended.

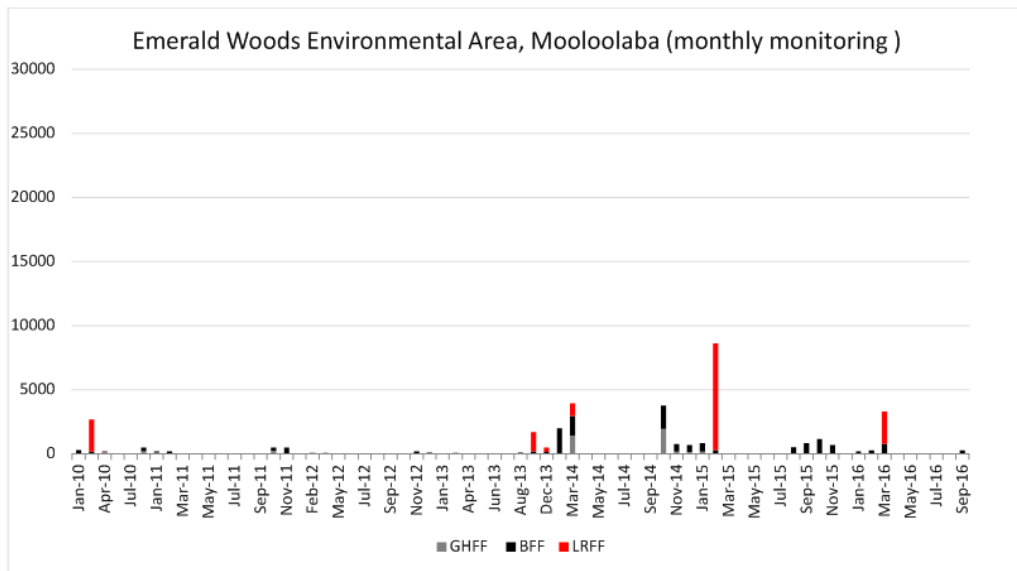
Non-lethal dispersal activities commenced with a trial afternoon dispersal from 6pm on Friday 29 April 2016. Activities ceased on Monday 1 May 2016 as per the Terms of Agreement and flying foxes have not returned. In the two years leading up to the flying management actions the roost had become a seasonal roost generally occupied from November to June. Council officers continue to monitoring the site for the potential return of the animals.

Two splinter camps established during dispersal activities at nearby Eudlo Creek Conservation Area, approximately 600m west of Aragorn Street Bushland Reserve and in the Riparian Reserve on Kawana Island in the Mooloolah River, approximately 6km south of Aragorn Street Bushland Reserve. The flying foxes naturally abandoned Eudlo Creek after a two week occupation and did not return to original site. The roost on Kawana Island spread to an adjacent island within the Mooloolah River which has seen flying fox occupation in the past. This roost was occupied until September 2016 and no complaints were received from nearby residents.

The total cost of all management actions to date is \$111,686.

Emerald Woods Environmental Area, Mooloolaba

The Department of Environment and Heritage Protection began monitoring the flying fox roost at this location in 2010. Reports from residents suggest that this site has been a seasonal flying fox roost for the last 20 years.



In early 2014 customer complaints triggered a Council response at this site. Council staff and the divisional councillor met with local residents on site to discuss their concerns and answer questions. Monthly monitoring commenced in April 2014 and an Options paper was commissioned in June 2014. The Options Paper did not recommend dispersal due to the risk of flying foxes relocating to nearby suitable habitat in the urban area. Council supported the recommended option to create a 30m flying fox exclusion buffer and notification letters were posted to all surrounding residents. Works commenced with stage 1 which was the removal of 1 in 3 roost trees in a 5-10m perimeter buffer which was within the surrounding mowed park. During the application to the EHP for a clearing exemption to extend the buffer to 30m within the Environmental Area, this site was identified as potential habitat for the vulnerable Tusked Frog. Tusked Frogs were found in the pre-clearance surveys and a Species Management Program (SMP) was submitted to EHP and approved in April 2015. Following the first stage of perimeter tree removal there was considerable community opposition to further tree clearing at this site.

A community meeting was held in April 2015 to present the options paper results to the community and there were notable differences of opinion at this meeting with the community appearing to be equally divided on the issue of whether the flying foxes were a problem or not. The community was invited to make submissions to Council on their preferred management actions at this site with both points of view represented including a more broadly canvassed petition with 27 signatures from surrounding residents requesting the continuation of the options paper recommendations for a 30m buffer, as well as the restoration of previous flying fox habitat adjacent to the motorway and the use of deterrents such as sprinklers.

Councils decision was to address all concerns equally and therefore the selective roost tree clearing was only applied to a buffer adjacent to one primary impacted property and included

the trial of canopy mounted sprinklers at this site as well as adjacent to one property on the opposite side of the reserve as a precaution against the Flying foxes moving closer to these residents in response to councils actions.

The sprinklers installed at this site were part of an innovative partnership approach initiated by Council where residents were invited to participate through agreements to share the costs and in return would have full control of the sprinklers themselves and be able to turn them on to chase the flying foxes out of an area within 30m of their property boundary. The success of this method required full cooperation and understanding by the residents of how this approach works which is to ensure the flying fox do not become accustomed to the sprinklers. Therefore it was important the sprinklers were also switched off shortly afterwards when the flying foxes had moved away. Two residents either side of the reserve on Brentwood Ave and Candlewood Close respectively, agreed to participate in the trial and the sprinkler systems became operational in October 2015.

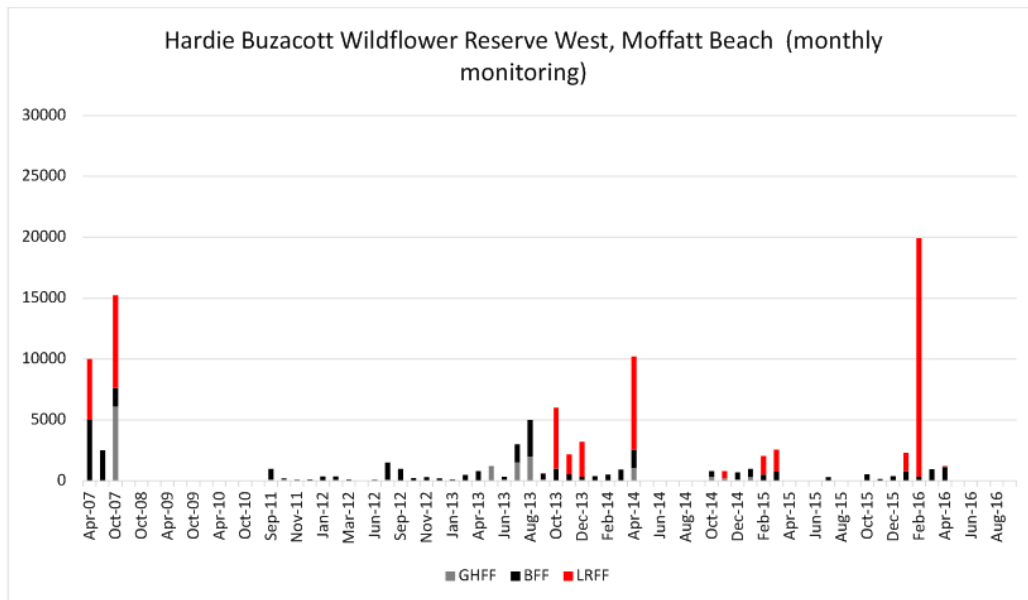
The system at Brentwood Ave was not used by the resident during the seasonal occupation of the reserve in 2015-2016. With the agreement of the resident the pump and controller were removed and installed at Elizabeth Street Drain however the sprinklers remain in place within the canopy at the Brentwood Ave site as a precaution. The Candlewood Close system remains operational on site and continues to be effectively maintaining the buffer between flying foxes and residents. The residents are in control of the flying fox footprint at this site and have reported great relief from the previous levels of distress they had been experiencing.

Little red Flying foxes visit this site annually for short periods of time with numbers ranging from a few hundred to several thousand, however the numbers of Black and Grey headed flying foxes seasonally occupying this site has declined (refer to the above graph), which may be a result of the management actions.

The total cost of all management actions at this site is \$65,489. An additional \$12,450 was required to offset the vegetation removal.

Hardie Buzacott Wildflower Reserve West, Moffatt Beach

The Department of Environment and Heritage Protection has records of flying foxes roosting at Tooway Lake from April to October 2007. This area was naturally abandoned by flying foxes until September 2011, when the roost was established at its current location. Since 2011, Council has received 10 complaints regarding the flying fox roost, four of those were from 2016 during the large seasonal migration of Little Red flying foxes in February/March.

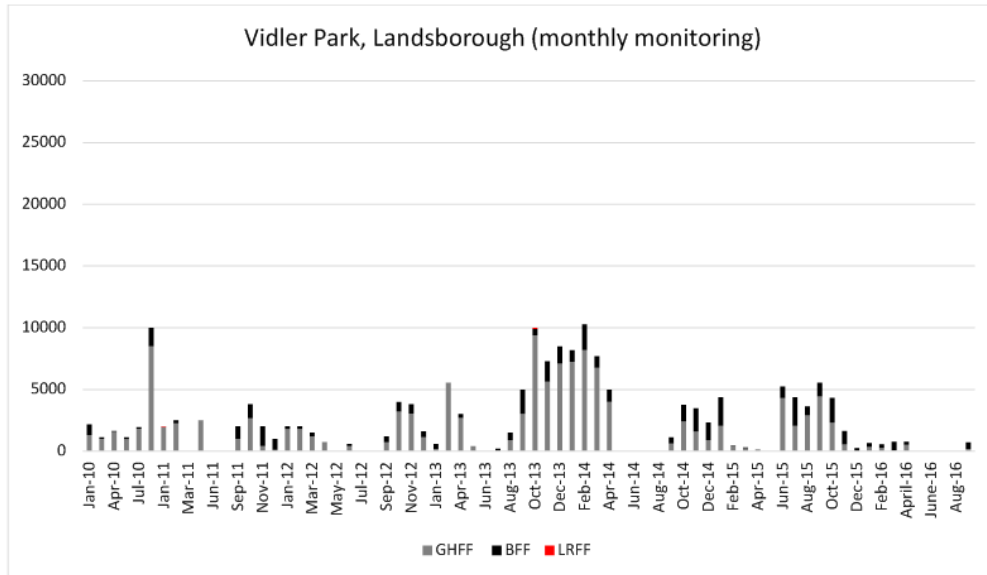


In January 2015 an Options Paper was finalised and further investigations are underway to determine whether any vegetation removal which was recommended for this site would be desirable due to the age and importance of these trees to other wildlife. In June 2015 a flora assessment of the site was completed and no EVNT species were located. Council officers are investigating a recommendation in the Flying fox Education Report to include an interpretive flying fox trail and tourist attraction from Dicky Beach Caravan Park to the Hardie Buzacott Wildflower Reserve West Flying Fox roost, traversing the Tooway Lake Esplanade. Due to the Aboriginal peoples history of this area and association with Flying foxes, relevant art installations could also be a unique feature of the trail, promoting local history and supporting tourism and creative industries.

To date \$5,645 has been spent on the Options Paper and flora survey.

Vidler Park, Landsborough

The Vidler Park roost was first recorded by the Department of Environment and Heritage Protection in 2010, and local residents have confirmed that this location has been used by flying foxes since before 1965.



An Options Paper was produced in September 2014. Two community meetings were held to discuss the management actions with the community. A 20m flying fox exclusion buffer was subsequently created on the north western and southern boundaries of the roost by removing overhanging branches from Eucalypts and removing pine trees within the Park.

Another option which was identified within the Options Paper is the installation of an acoustic fence. To determine if this fence will assist adjacent residents by reducing the noise and smell impacts from the roost an acoustic assessment will be undertaken this financial year.

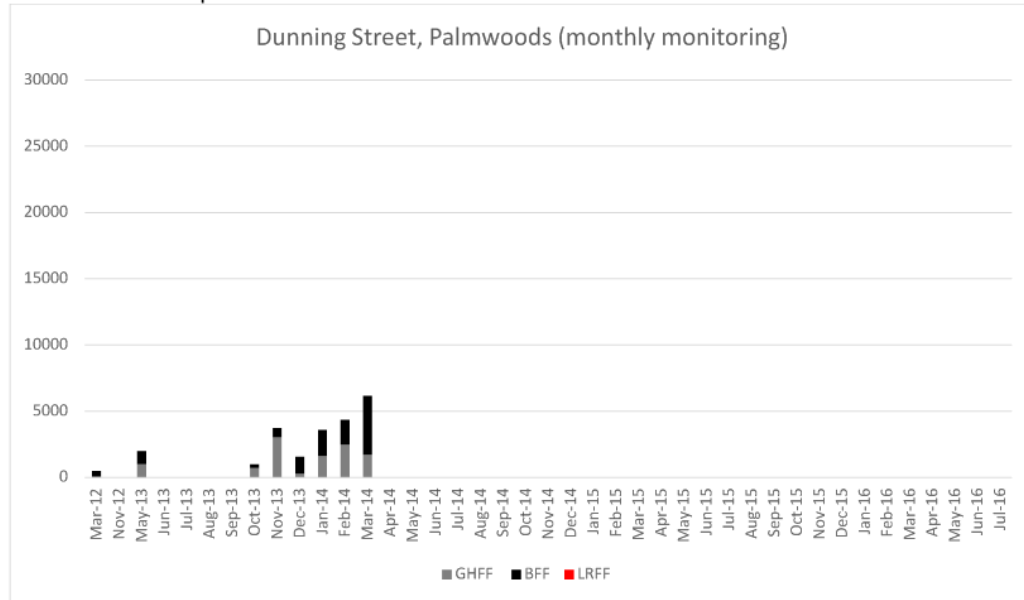
An acoustic fence has the potential to be quite effective at minimising the noise impacts from a roost. This was demonstrated by the splinter colony that formed after the Maroochyodore dispersal when several thousand flying foxes moved to the Kawana Island Riparian Reserve adjacent to residential properties. An existing acoustic fence separated the roost from nearby residents. This site was occupied from May-September and Council did not receive any complaints.

There is the potential for emerging issues at this site with the approval of two development applications within 100m of the roost. The development of housing at this location will increase the number of impacted residents as measured under the RFFMP and therefore increases the management response at this site from a moderate Category 2 into a high conflict Category 3 roost.

The total cost of management actions to date is \$16,719.

Dunning Street, Palmwoods

Flying foxes were first recorded at this location in 2010 and EHP began monitoring in 2012. This was a seasonal roost maternity roost with Grey headed and Black flying foxes residing from October to April.



In 2012 19% of the roost footprint occurred on Council drainage and road reserve with the remainder across several private residential properties. In 2013 a resident was permitted under Sunshine Coast Council's approved Species Management Program to remove one in four Melaleuca species from their Wells Street property in an attempt to deter a small number of black flying foxes from roosting there. Flying foxes continued to occupy the surrounding area.

In January 2014 a heat stress event occurred when temperatures peaked at close to 40degrees and over 3000 black flying foxes died. Council co-ordinated and undertook the collection and disposal of the carcasses. This mass death did not have a long lasting effect on the number of animals at this roost, with new recruits arriving in a matter of weeks and numbers returning to previous levels.

A number of community meetings were held which also included the divisional Councillor and the local State Member of Parliament. These meetings took place both formally and informally between February and July 2014 and included the presentation of the options paper developed for this site at the final meeting in July. The Options Paper evaluated the management options at this site including dispersal actions. Dispersal was not a recommended option due to the amount of high conflict suitable habitat within 1km. The recommended management option which was supported by Council was to establish a 25-50m flying fox exclusion buffer by removing weeds and some native vegetation between the residential boundaries and the flying-fox roost. In early May 2014, flying foxes naturally abandoned the roost as per their normal seasonal migration and works commenced on removing the understorey weeds from the buffer. Monitoring continued on a monthly basis until July 2016 and no flying foxes have returned to this site.

Total cost of management actions to date is \$26,217.