# European Wasp Spring Queen Trapping Program 2024

## Jerrabomberra Wetlands Nature Reserve

ACT Parks & Conservation Services

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eWasp© Research & Monitoring Programs

2024 eWasp spring queens, JWNR Trap 17.
Image by CoreEnviro Solutions Pty Ltd.

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## Directors Summary

CoreEnviro Solutions European Wasp (eWasp™) Spring Queen Trapping Program Report 2024 to ACT Parks & Conservation Services. The information in this report is for the period 5 October - 27 November 2024.

## About us

CoreEnviro Solutions is a Canberra-based service provider specialising in the delivery of noxious/environmental, agricultural, horticultural, aquatic pest and weed management, and pest control solutions.

Our main objective is to save our native species. We are committed to educating the public on invasive and beneficial species.

## Innovation

CoreEnviro Solutions Pty Ltd is committed to minimising the establishment and spread of eWasps in Australia.

We are committed to research and implementing new and improved innovative programs in environmental pest management, this is achieved through improved nest reporting along with insect and arachnid information and identification via both the eWasp mobile app and website.

## Notes on Data

Count is the number of European wasp queens trapped and removed from the trap/station.
The SQ count is the count day in which the European wasp queen counts were conducted.
European wasp season runs from September through to April.
(eWasp Spring queen survival rate is approx. 30%)

## Acronyms

| | |
|---|---|
| eWasp | European wasp |
| eSQ | European wasp spring queen |
| JWNR | Jerrabomberra Wetlands Nature Reserve |
| PCS | ACT Parks & Conservation Services |
| TCCS | Transport Canberra & City Services |
| CES | CoreEnviro Solutions Pty Ltd |

## Executive Summary Table

- 22 non-chemical lure trap stations were deployed at Jerrabomberra Wetlands Nature Reserve.
- 1,055 eWasp queens were trapped and removed from the environment.
- $232,100.00 in estimated total savings on nest treatments (if all queens produced viable nests).
- Prevented an estimated 4,220,000 worker wasps impacting the environment (if all eWasp queens produced viable nests).
- Prevented an additional 316,500 next generation eWasp queens from establishing nests (based off 30% survival rate).
- Saved ACT Parks & Conservation Services staff approximately 2,110 hours or 264 working days in time spent treating eWasp nests.
- Significantly reduced the use of pesticide required, 211 kg of Permethrin dust, (200gms per nest), to control established nests in the Jerrabomberra Wetlands Nature Reserve.
- Vespex is a non-chemical carbohydrate-based lure proved to have low impact on the environment and native species.

## Directors Comments

Welcome to the European Wasp Spring Queen Trapping Program Report for 2024. The trapping program at Jerrabomberra Wetlands Nature Reserve was conducted by CoreEnviro Solutions Pty Ltd for ACT Parks & Conservation Services.

Canberra is the bush capital of Australia. There are 39 nature reserves in and around Canberra for Canberrans, and tourist, to utilise and enjoy.

Jerrabomberra Wetlands Nature Reserve is centrally located in Canberra. The Wetlands are part of the Molonglo River and is 174 hectares of protected area, abundant with birdlife and other animals. There is a 3.2-kilometer path around the wetlands for the public to enjoy all the Wetlands have to offer.

For several years, Jerrabomberra Wetlands has been inundated with European wasp activity due to the location of the wetlands and what it provides; good supply of water, food and building materials for sustaining the nest survival. The wetlands are in proximity to cafés, bars, restaurants, and an industrial area. The environment in the wetlands makes it suitable for insects, which European wasp prey on.

Over the last several seasons, the eWasp team has identified several hot spot locations, one being Jerrabomberra Wetlands, and surrounding areas such as Molonglo River and Jerrabomberra Creek, which include the suburbs of Pialligo, Fyshwick, Campbell and Narrabundah.

In this report, you will see an increase in eWasp spring queens captured and removed during the 2024 program. This may be due to favorable conditions for eWasps, whether a full scale eWasp spring queen trapping program was conducted by TCCS, or whether nests went untreated in late Autum 2024

A spring queen trapping program was conducted by TCCS , from Campbell to Pialligo and Fyshwick, Molonglo River. A total of 775 spring queens were captured and removed from the environment.
(2023 European wasp spring queen trapping data on urban land provided by TCCS)

Table 1 shows the count of eWasp nests by location and date.

| Molonglo River Corridor | 2023 eWasp Nests | 2024 eWasp Nests |
|---|---|---|
| Campbell | 17 | 7 |
| Pialligo | 5 | 8 |
| Fyshwick | 13 | 31 |
| Grand Total | 35 | 46 |

(The eWasp nest data for 2024 is combined data from CES & TCCS)

After the 2023 spring queen trapping program, the 2024 wasp season identified 46 eWasp nests along Molonglo River (Campbell, Pialligo and Fyshwick), an increase of 31%.

Note: Kerrison's Orchard Pialligo, conducted their own eWasp spring queen trapping program, and as a result, a further 134 spring queens were trapped and removed from the environment, an estimated 536,000 worker wasps, and 40,200 next generation queens. We believe Kerrison's Orchard, along with other businesses in Pialligo, have conducted a 2024 eWasp spring queen trapping program, but this data is not available currently.

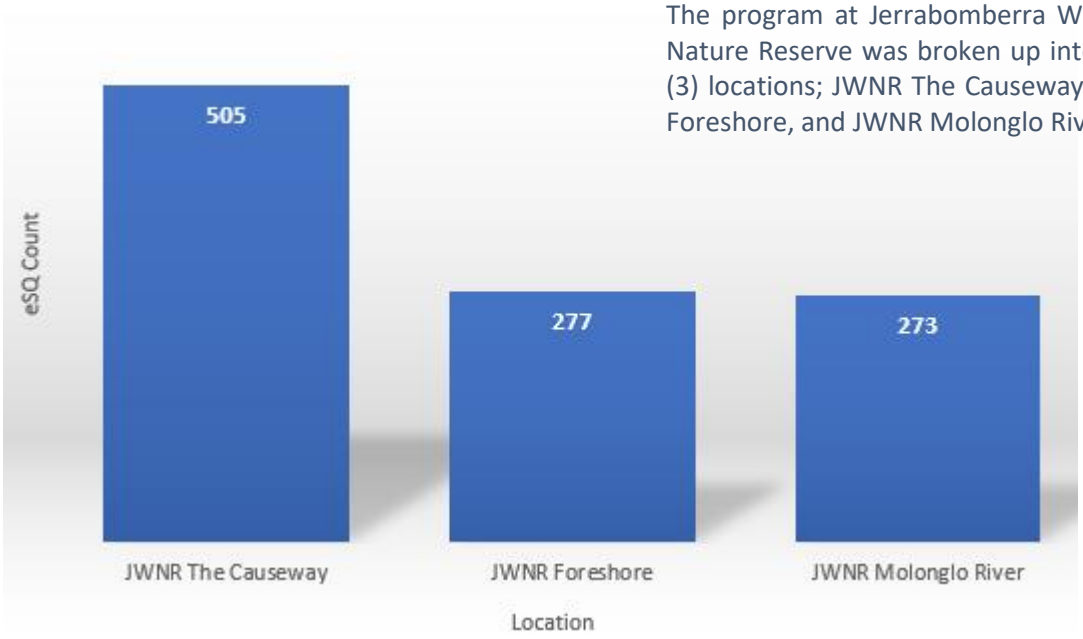
The 2024 eWasp spring queen trapping program deployed 22 traps at Jerrabomberra Wetlands; JWNR The Causeway, JWNR Foreshore, and JWNR Molonglo River. The program used a non-chemical carbohydrate product called Vespex by Sundew, see product information here.

## Program Results

There was a total of 22 European wasp spring queen traps deployed in Jerrabomberra Wetlands. The program ran from 5 October to 27 November 2024.

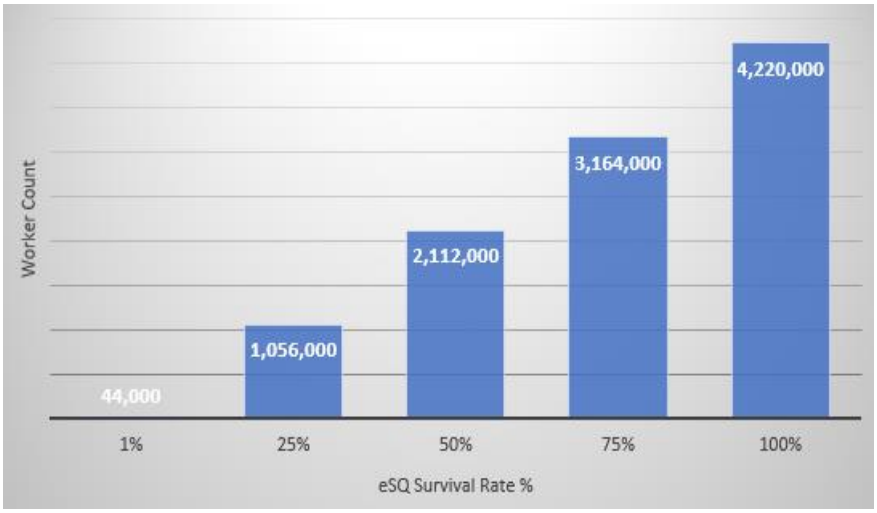
Chart 1 shows the total count by location.

The program at Jerrabomberra Wetlands Nature Reserve was broken up into three (3) locations; JWNR The Causeway, JWNR Foreshore, and JWNR Molonglo River.




The trapping trial was successful in capturing 1,055 eWasp spring queens with little impact on the environment and native species. By removing the queens from the environment, we have eliminated the potential of 100,000's of invasive wasps impacting the environment at Jerrabomberra Wetlands Nature Reserve.

Chart 2 shows the count of workers by queen's survival rate.




By removing eWasp Spring Queens from the Jerrabomberra Wetlands environment, it has prevented the establishments of 1,055 nests, an estimated 4.2 million worker wasps, and an additional 316,500 next generation queens impacting the environment and the surrounding areas.

## Data Comparison

Table 2 shows the comparison of eWasp queen counts by location and year.

| *Location* | 2024 | 2023 | 2022 | 2021 |
|---|---|---|---|---|
| *Jerrabomberra Wetlands The Causeway* | 505 | 234 | 71 | 17 |
| *Jerrabomberra Wetlands Foreshore* | 277 | 202 | 99 | 38 |
| *Jerrabomberra Wetlands Molonglo River* | 273 | 85 | 47 | 49 |
| ***Grand Total*** | **1055** | **521** | **217** | **104** |

Chart 3 shows the total eWasp spring queen count by location and year.

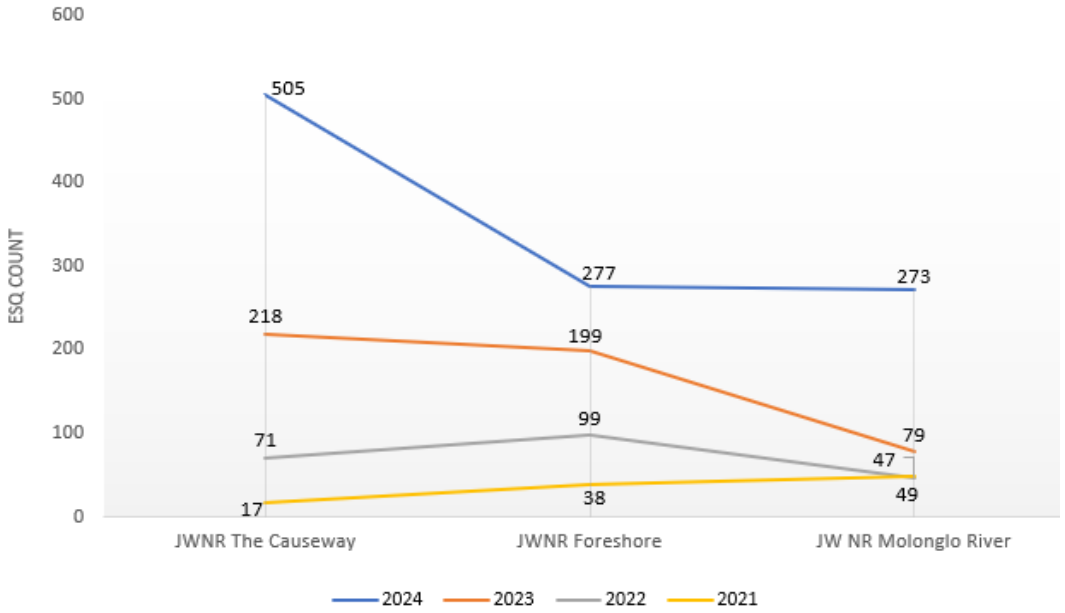


Table 3 shows the increase/decrease by location and year.

| Location | 2021 | 2022 | 2022 Increase or Decrease | 2023 | 2023 Increase or Decrease | 2024 | 2024 increase or decrease |
|---|---|---|---|---|---|---|---|
| JWNR The Causeway | 17 | 71 | 317% ↑ | 234 | 229% ↑ | 505 | 116% ↑ |
| JWNR Foreshore | 38 | 99 | 160% ↑ | 202 | 104% ↑ | 277 | 37% ↑ |
| JWNR Molonglo River | 49 | 47 | 4% ↓ | 85 | 81% ↑ | 273 | 221% ↑ |
| **Grand Total** | **104** | **217** | **108% ↑** | **521** | **140% ↑** | **1055** | **102% ↑** |

From 2021 to 2024, there has been 1,897 eWasp spring queens removed from Jerrabomberra Wetlands Nature Reserve. If all queens survived and established nests, there may have been an estimated 7,588,000 worker wasps, and an estimated 569,100 next generation queens impacting the environment and surrounding areas.

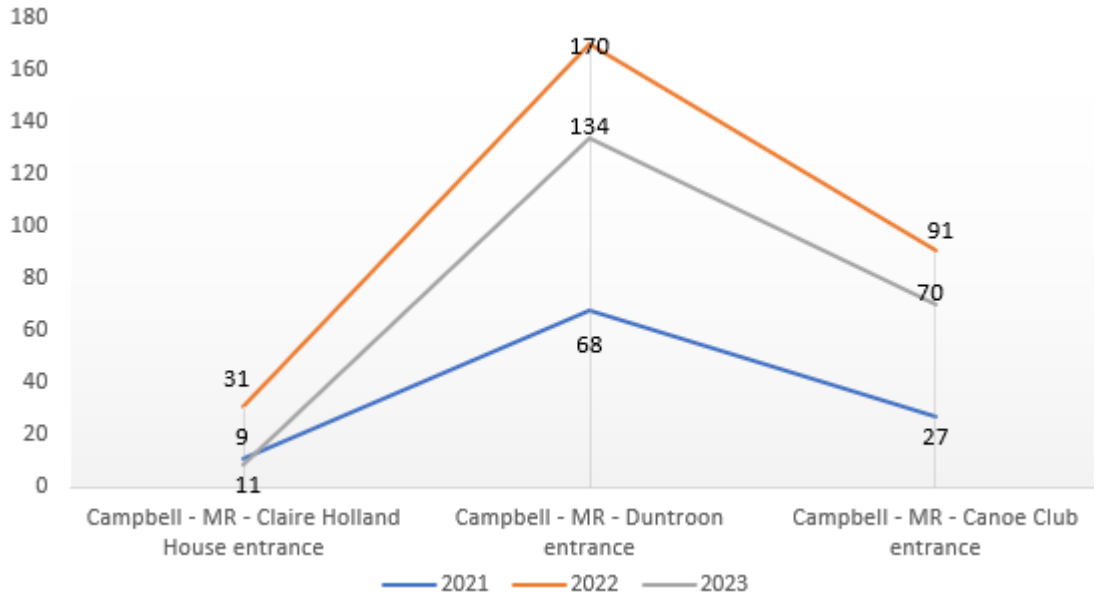
In 2024, all three (3) locations saw an increase in eWasp spring queen counts. Molonglo River had the highest share with an increase of 221%, followed by the Causeway with 116%, and the Foreshore with 37% eWasp spring queens caught and removed from the environment, with an overall total increase of 102% for Jerrabomberra Wetlands Nature Reserve.

Although the program has been successful in capturing and removing 1,055 eWasp queens from the environment, it is impossible to capture every queen, therefore continued trapping programs in the future are essential to the protection of the ecosystem in the nature reserve.

It is not known whether Transport Canberra and City Services (TCCS) conducted a spring queen trapping program in 2024. The extent of the program across Molonglo River, Pialligo, Majura, and Narrabundah will impact Jerrabomberra Wetlands and surrounding areas. It is recommended Parks and Conservation Services obtain the 2024 Molonglo River urban spring queen trapping data.

Trap JW 8, JWNR The Causeway, saw an overall total of 8% or 89 eWasp spring queens.

Chart 4 shows the count by location and year.




The 2023 program conducted by TCCS along Molonglo River, from Claire Hollands House to The Canoe Club, saw a total of 213 European wasp spring queen trapped and removed from the environment, a decrease of 27%.

Table 4 shows the number of eWasp nests by location and year.

| *Location* | 2021 | 2022 | 2023 | Totals |
|---|---|---|---|---|
| *Campbell - MR - Claire Holland House entrance* | 11 | 31 | 9 | **51** |
| *Campbell - MR - Duntroon entrance* | 68 | 170 | 134 | **372** |
| *Campbell - MR - Canoe Club entrance* | 27 | 91 | 70 | **188** |
| ***TOTALS*** | **106** | **292** | **213** | **611** |

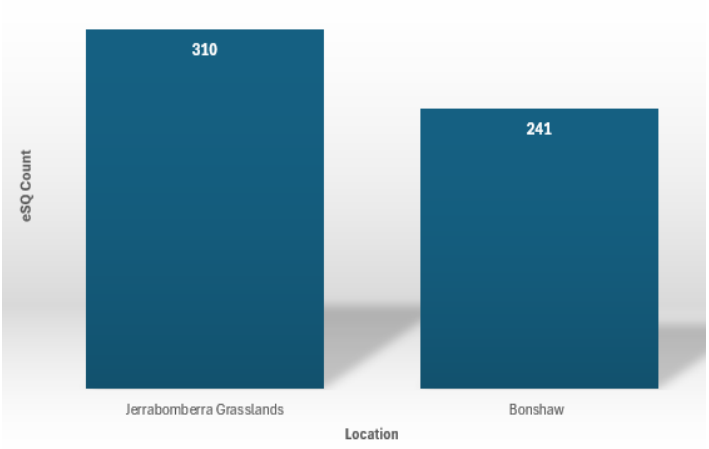
There may have been a decrease in eWasp numbers due to a program reduction in this location by TCCS in 2023.

## Other PCS Programs 2024

CoreEnviro Solutions Pty Ltd conducted an additional two (2) eWasp spring queen trapping programs for ACT Parks & Conservation Services, Jerrabomberra East Grasslands Nature Reserve and Amtech Grasslands.

The Jerrabomberra East Grasslands Nature Reserve program was broken up into two (2) areas, Jerrabomberra Grasslands and Bonshaw, a total of 551 eWasp spring queens were removed from the environment.

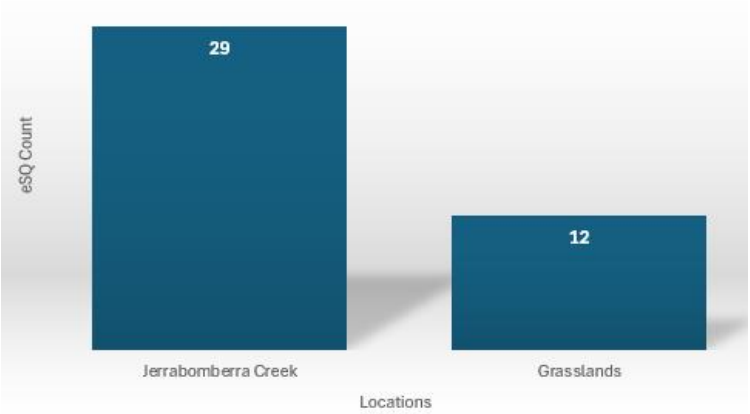
Chart 5 shows the number of eWasp spring queen by location.




The results for Jerrabomberra Grasslands Nature Reserve are as follows; there were 42 traps deployed, a total of 551 spring queens were trapped and removed from the environment. Jerrabomberra Grasslands had the highest share of eWasp spring queens with 56% or 310.

The Amtech Grasslands program was broken up into two (2) areas, Jerrabomberra Creek and Grasslands, a total of 41 eWasp spring queens were removed from the environment.

Chart 6 shows the number of eWasp spring queens by location.




The results for Amtech Grasslands are as follows; there were 9 traps deployed, a total of 41 spring queens removed from the environment. The Grasslands had the highest share of eWasp spring queens with 71% or 29.

## European Wasp Impact

European wasps have a negative impact on our native species and environment. The European wasp has no predators, therefore putting pressure on native species by consuming large amounts of insects which are normally preyed upon by native insects, reptiles, and birds.


The above images are of eWasps foraging on a Kangaroo Carcass at Mulligans Flat Road in Forde, ACT, eWasps foraging on a prey mantis, and eWasps foraging on a Brown snake at Googong Dam, ACT.

Native scavenging animals find it difficult to feed off carcasses due to large numbers of European wasps present on the carcass. Flies have been observed being attacked by European wasps and at times their heads decapitated.

An average European wasp nest can contain an estimated 4,000 wasps during the peak of the season, between February - March, and each nest can produce and additional 1,000 queens at the end of the season; survival rate for spring queens is unknown, Dr Philip Spradbery' s research shows the queen survival rate was around 30%, but further studies would need to be conducted.

Through data collection, we have seen the European wasp favours areas where a body of water is present, e.g. rivers, creeks, ponds. These locations are ideal due to a good supply of water, food and building materials for the nest's survival. Data has shown that the European wasp will establish a nest near other nests, if the environment is ideal.

Nuisance wasps that forage in large numbers prevent the public from enjoying outdoor areas such as nature reserves, parks, and open spaces, and pose a high risk to public safety.

It is known that European wasp's impact European honey bee hives, they prey on honey bees returning to the hive, rob the hive of honey and attack the brood which weakens the hive. There is no information or evidence that supports they impact native bee hives/species.

A publication in the New Zealand Journal of Zoology, 1991, stated that the European wasp's diet consists of Diptera, fly & mosquito species, lepidopteran larvae, caterpillars – moths – butterflies, and arachnids, are also an important food, this was also documented in Europe and North America.

The wasp population at Jerrabomberra Wetlands has impacted surrounding businesses such as cafes/restaurants, and industrial/trade businesses; it has also had a negative impact on the residents of Kingston Foreshore. The nuisance wasps have prevented the public from enjoying outdoor amenities such as park and open spaces. Some businesses have been impacted negatively where productivity has fallen due to nuisance eWasps. In situations such as this, there is a high risk to public safety.

## Benefits of a Spring Queen Trapping Program

The benefit of an eWasp spring queen trapping program is to minimise the impact the European wasp it has on native species and protect ecosystems, as well as minimise the risk of stinging incidents to the public, staff and contractors.

Treating nests on average for a Ranger can take up to two hours, from set up, to treatment, to waiting for nest activity to settle down. There is also a high risk of stinging incidents occurring.

Tracking European wasps back to the nest is extremely time consuming and does not always pay off; most Rangers don't have the time and capacity for such a time-consuming task. Reported European wasp nests on public land are treated by ACT Parkes and Conservation Services, however, there are many nests that go unreported and untreated in the reserves, these nests produce next generation queens which continue to impact the environment.

From the 1,055 eWasp spring queens captured and removed from the environment, if all queens captured established nests, 1,055 nests, the Parks and Conservation Services Ranger would have spent an estimated time of 2,110 hours or 264 days treating nests, if a private company were to treat the nests at a cost of $220.00 per nest, the total cost would be $232,100.00.

The European wasp spring queen trapping program has also reduced the quantity of insecticide used at Jerrabomberra Wetlands Nature Reserve, 211 kg of Permethrin dust, which greatly benefits the environment and reduces the cost of purchasing insecticides.

The Vespex lure is a non-chemical carbohydrate that lures and traps European wasp spring queens and has proven very low impact on the environment and native species.

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# Data Overview

## Weather

Table 5 shows the weather conditions at **Canberra Airport** for the months of October and November 2023 and 2024.

| eWasp Program Weather Conditions | | |
|---|---|---|
| Statistics | Oct-23 | Nov-23 |
| Highest daily | 29.7 °C | 33.3 °C |
| Lowest daily | 14 °C | 15.8 °C |
| Monthly mean | 21.9 °C | 25.5°C |
| Rainfall | 32.6 mm | 134.2 mm |
| | | |
| Statistics | Oct-24 | Nov-24 |
| Highest daily | 28.3 °C | 31.5 °C |
| Lowest daily | 15.5 °C | 18.6 °C |
| Monthly mean | 22.3 °C | 22.3°C |
| Rainfall | 18.8 mm | 25.7 mm |

*Weather data obtained from the Bureau of Meteorology1.*

- The weather conditions for October 2024 show an increase for the monthly mean by 1.8% and a decrease in rainfall by 42%.
- The weather conditions for November 2024 show a decrease for the monthly mean by 13% and an increase in rainfall of 81%.

More detailed weather observations can be found here.

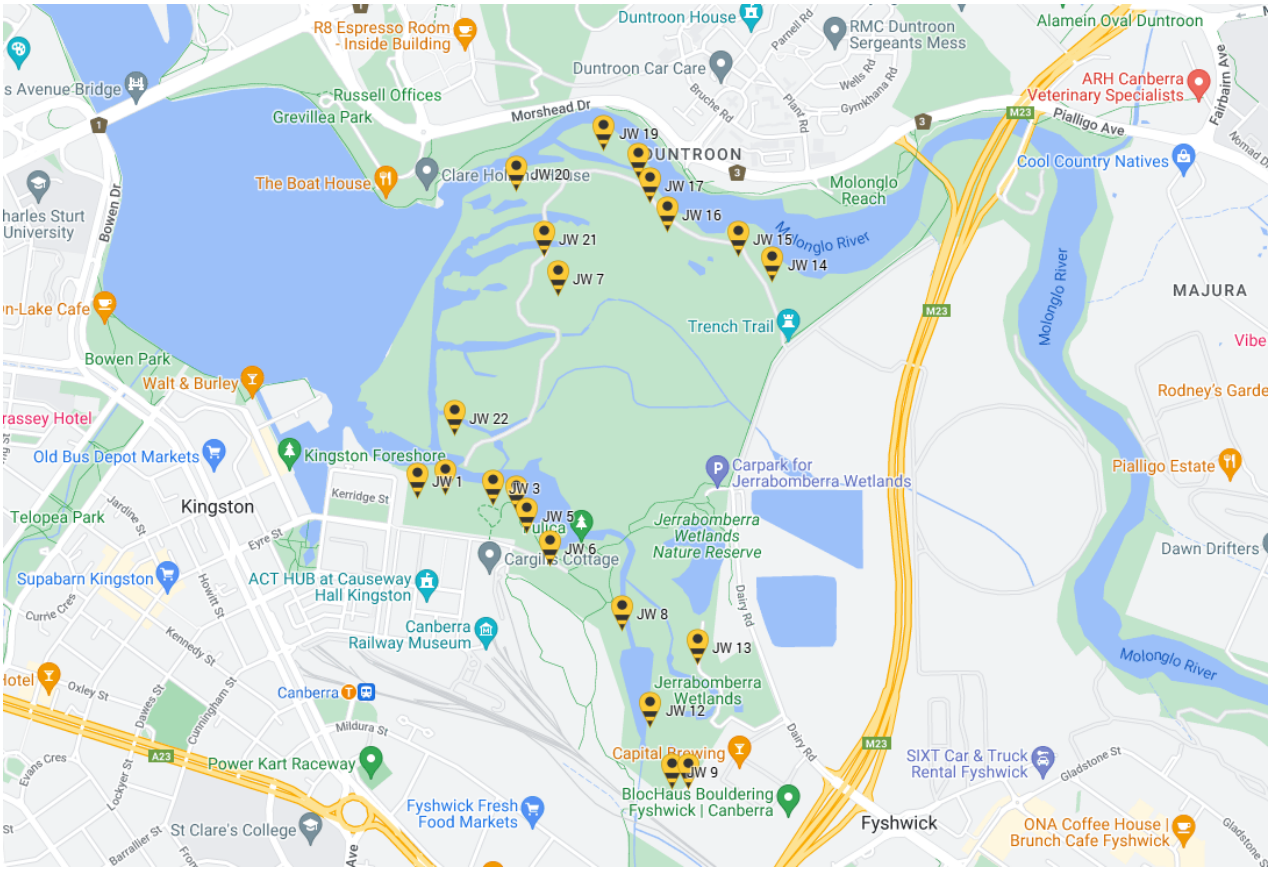
Trap JW 19, JWNR Molonglo River, saw an overall total of 3% or 33 eWasp spring queens.

[1] Australian Capital Territory - Daily Weather Observations (bom.gov.au)

## Trap Locations

The trapping program was broken up into three (3) areas. The program traps were deployed and monitored between 5 October – 27 November 2024.

- Jerrabomberra Wetlands
  The Causeway Traps JW 1 - 8
- Jerrabomberra Wetlands
  Foreshore Traps JW 9 - 13
- Jerrabomberra Wetlands
  Molonglo River Traps JW 14 - 22




*eWasp Spring Queen Traps locations at Jerrabomberra Wetlands Nature Reserve, 2024*

## Program Data

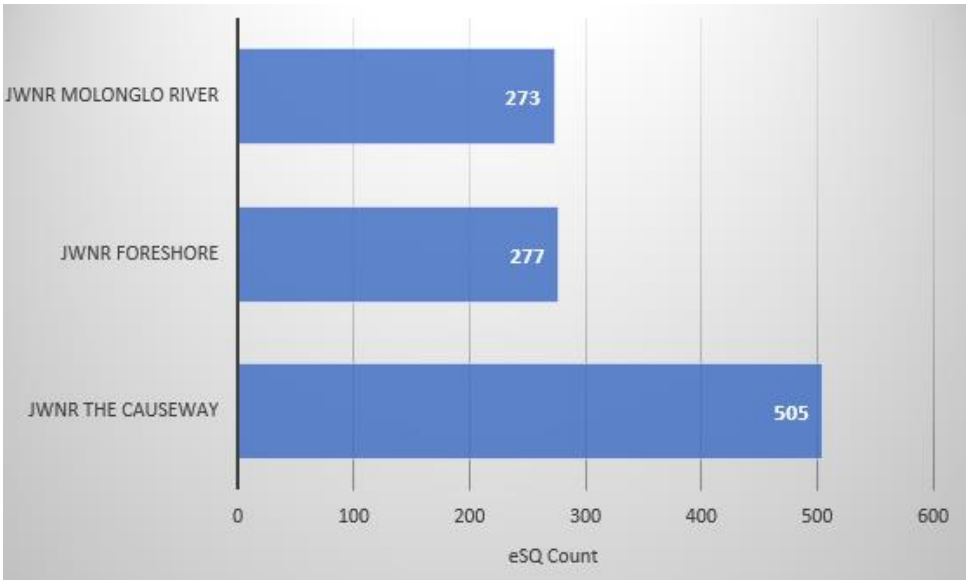
Table 6 shows trap number, set up date, GPS coordinates and location 2024.

| *Trap Number* | Set-up Date | Latitude | Longitude | Location |
|---|---|---|---|---|
| *JW 1* | 5/10/2024 | -35.313032 | 149.1515507 | JWNR The Causeway |
| *JW 2* | 5/10/2024 | -35.31291682 | 149.1525756 | JWNR The Causeway |
| *JW 3* | 5/10/2024 | -35.31321913 | 149.1543486 | JWNR The Causeway |
| *JW 4* | 5/10/2024 | -35.31339997 | 149.1551914 | JWNR The Causeway |
| *JW 5* | 5/10/2024 | -35.31407135 | 149.1555958 | JWNR The Causeway |
| *JW 6* | 5/10/2024 | -35.31504257 | 149.1564249 | JWNR The Causeway |
| *JW 7* | 5/10/2024 | -35.315094 | 149.1588711 | JWNR The Causeway |
| *JW 8* | 5/10/2024 | -35.31702245 | 149.1591078 | JWNR The Causeway |
| *JW 9* | 5/10/2024 | -35.32176854 | 149.1609287 | JWNR Foreshore |
| *JW 10* | 5/10/2024 | -35.3217628 | 149.1615288 | JWNR Foreshore |
| *JW 11* | 5/10/2024 | -35.3203649 | 149.1627338 | JWNR Foreshore |
| *JW 12* | 5/10/2024 | -35.31992036 | 149.1601472 | JWNR Foreshore |
| *JW 13* | 5/10/2024 | -35.31803111 | 149.1618812 | JWNR Foreshore |
| *JW 14* | 5/10/2024 | -35.30650203 | 149.1646482 | JWNR Molonglo River |
| *JW 15* | 5/10/2024 | -35.30574166 | 149.1633802 | JWNR Molonglo River |
| *JW 16* | 5/10/2024 | -35.3050051 | 149.1607671 | JWNR Molonglo River |
| *JW 17* | 5/10/2024 | -35.30413144 | 149.1601374 | JWNR Molonglo River |
| *JW 18* | 5/10/2024 | -35.30340827 | 149.1597012 | JWNR Molonglo River |
| *JW 19* | 5/10/2024 | -35.30254417 | 149.1584259 | JWNR Molonglo River |
| *JW 20* | 5/10/2024 | -35.30376123 | 149.1551914 | JWNR Molonglo River |
| *JW 21* | 5/10/2024 | -35.30572525 | 149.15621 | JWNR Molonglo River |
| *JW 22* | 5/10/2024 | -35.31112918 | 149.1529179 | JWNR Molonglo River |

Table 8 shows the total count by location.

| *Location* | 2024 |
|---|---|
| *JWNR The Causeway* | 505 |
| *JWNR Foreshore* | 277 |
| *JW NR Molonglo River* | 273 |
| Grand Total | 1,055 |

Chart 7 shows the total count by location.




The Causeway had the highest share of eWasp spring queens with 48% or 505, followed by The Foreshore with 26% or 277.

Trap JW 4, JWNR The Causeway, saw an overall total of 12% or 125 eWasp spring queens.

Table 7shows the total count by location and trap number.

| *Trap Number & Location* | Totals |
|---|---|
| *JWNR The Causeway* | **505** |
| *JW 1* | 28 |
| *JW 2* | 27 |
| *JW 3* | 80 |
| *JW 4* | 125 |
| *JW 5* | 37 |
| *JW 6* | 48 |
| *JW 7* | 71 |
| *JW 8* | 89 |
| *JWNR Foreshore* | **277** |
| *JW 9* | 61 |
| *JW 10* | 60 |
| *JW 11* | 7 |
| *JW 12* | 92 |
| *JW 13* | 57 |
| *JWNR Molonglo River* | **273** |
| *JW 14* | 20 |
| *JW 15* | 20 |
| *JW 16* | 19 |
| *JW 17* | 66 |
| *JW 18* | 47 |
| *JW 19* | 33 |
| *JW 20* | 14 |
| *JW 21* | 3 |
| *JW 22* | 51 |
| **Grand Total** | **1055** |

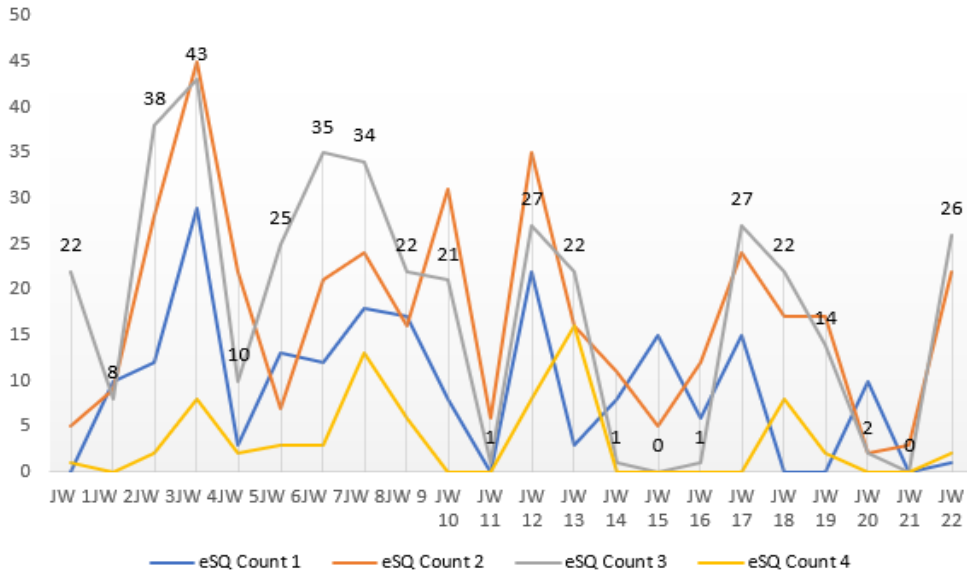
Trap JW 4, JWNR The Causeway, had the highest number of eWasp spring queens with 12% or 125.

Table 8 shows the counts by trap number and count number.

| *Trap Number* | eSQ Count 1 | eSQ Count 2 | eSQ Count 3 | eSQ Count 4 |
|---|---|---|---|---|
| *JW 1* | 0 | 5 | 22 | 1 |
| *JW 2* | 10 | 9 | 8 | 0 |
| *JW 3* | 12 | 28 | 38 | 2 |
| *JW 4* | 29 | 45 | 43 | 8 |
| *JW 5* | 3 | 22 | 10 | 2 |
| *JW 6* | 13 | 7 | 25 | 3 |
| *JW 7* | 12 | 21 | 35 | 3 |
| *JW 8* | 18 | 24 | 34 | 13 |
| *JW 9* | 17 | 16 | 22 | 6 |
| *JW 10* | 8 | 31 | 21 | 0 |
| *JW 11* | 0 | 6 | 1 | 0 |
| *JW 12* | 22 | 35 | 27 | 8 |
| *JW 13* | 3 | 16 | 22 | 16 |
| *JW 14* | 8 | 11 | 1 | 0 |
| *JW 15* | 15 | 5 | 0 | 0 |
| *JW 16* | 6 | 12 | 1 | 0 |
| *JW 17* | 15 | 24 | 27 | 0 |
| *JW 18* | 0 | 17 | 22 | 8 |
| *JW 19* | 0 | 17 | 14 | 2 |
| *JW 20* | 10 | 2 | 2 | 0 |
| *JW 21* | 0 | 3 | 0 | 0 |
| *JW 22* | 1 | 22 | 26 | 2 |
| Totals | **202** | **378** | **401** | **74** |

eSQ Count 3 had the highest share of eWasp spring queens with 38% or 401

Chart 8 shows the count by trap number, data displayed on eSQ count 3.



# eWasp Reporting

## About the eWasp mobile app

The eWasp mobile app is an easy-to-use GPS mapping tool that allows the user to report a European wasp (eWasp) nest or sighting, European honey bee hive or swarm, Fire ant nest or sighting, by dropping a location pin on a map, on public, commercial & residential land. Users have access to submit a report with camera capability (take photo or upload), view map, insect information, ID an insect or arachnid with camera capability (take photo or upload), first aid & safety, listed pest control companies, the eWasp website and eWasp contact details. We feel we have covered what the public has requested, and with the ability to modify or add to the app when needed.

The eWasp app map displays active reports on public and commercial lands only, once the reports have been actioned, the location pin will be removed from the app map. The location of the nests and information will remain in the eWasp database. Users can use the app map to view/search locations for active reports; simply tap on the location pin and it will display the report type. e.g. eWasp nest, Fire ant nest, see image above. For more information on the eWasp app, please visit eWasp Mobile App - eWasp.

## eWasp Research Programs & Information Centre

The eWasp Research Programs & Information Centre monitors the distribution of invasive species through data collection to create programs with the aim of protecting native and endangered species.

Through education, we believe we have saved numerous native species. eWasp is open Australia wide and with the support of the public, we believe we have and can further reduce the number of invasive species in and around suburban areas, and nature reserves.

## European honey bee

European honey bee hive reporting was initially added to the app due to the volume of reports we were receiving.

We realised that having honey bee hives visible on the app map, and in the eWasp database, would be beneficial for public awareness, but in the event of a disease or pest outbreak such as the Varroa mite. If this were to occur, the data captured would assist in the inspection of hives and take any action that is required.


European honey bee swarm reporting allowed us to assist in the relocation of the hives, this was done in conjunction with the ACT Beekeepers Association. This in turn would keep the bees out of the environment, such as in wild hollow trees where native animals would normally take up residence.

Download on Google play  Available on the App Store

The eWasp mobile app can be downloaded for free from both the App & Google Play stores.

# Results by Location

## Jerrabomberra Wetlands

## The Causeway

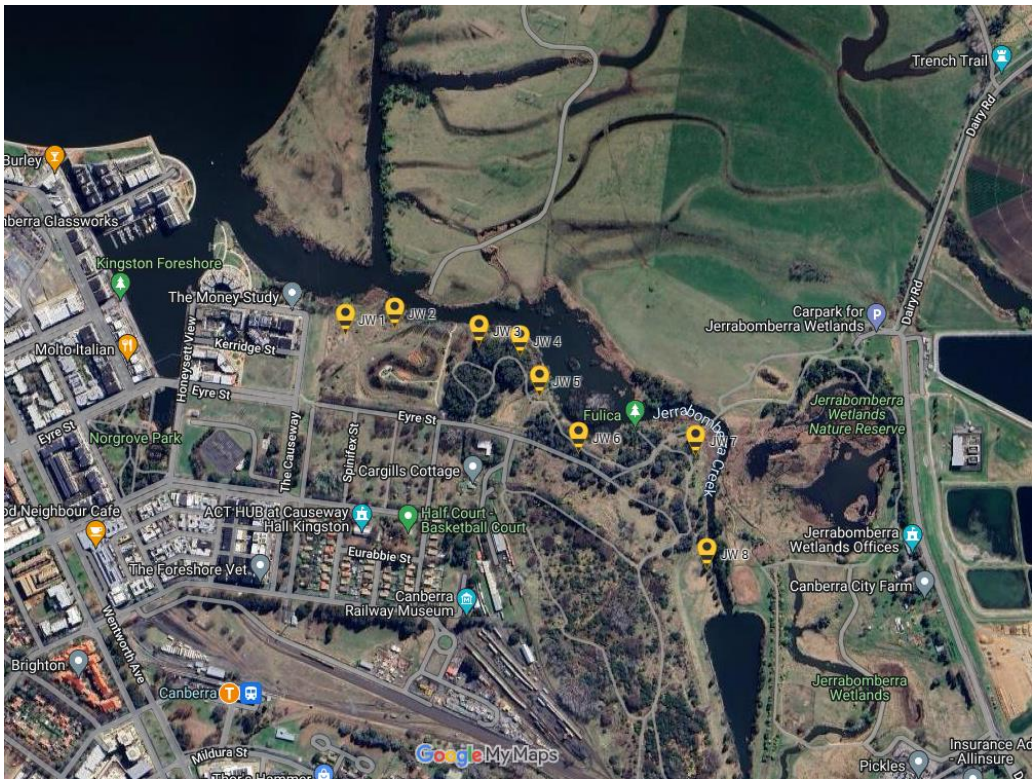
### Background

The Causeway, Jerrabomberra Wetlands Nature Reserve, is located along Jerrabomberra Creek and is in proximity to Kingston Foreshore where there are many cafes, restaurants, Bars and other businesses. This location is an entrance point into Jerrabomberra Wetlands and is also a residential area where nuisance wasps have been problematic over several years.

### 2024 eWasp Spring Queen Trap Location

| *Trap Number* | Latitude | Longitude | Location |
|---|---|---|---|
| *JW 1* | -35.313032 | 149.1515507 | JWNR The Causeway |
| *JW 2* | -35.31291682 | 149.1525756 | JWNR The Causeway |
| *JW 3* | -35.31321913 | 149.1543486 | JWNR The Causeway |
| *JW 4* | -35.31339997 | 149.1551914 | JWNR The Causeway |
| *JW 5* | -35.31407135 | 149.1555958 | JWNR The Causeway |
| *JW 6* | -35.31504257 | 149.1564249 | JWNR The Causeway |
| *JW 7* | -35.315094 | 149.1588711 | JWNR The Causeway |
| *JW 8* | -35.31702245 | 149.1591078 | JWNR The Causeway |

### Mapped Traps



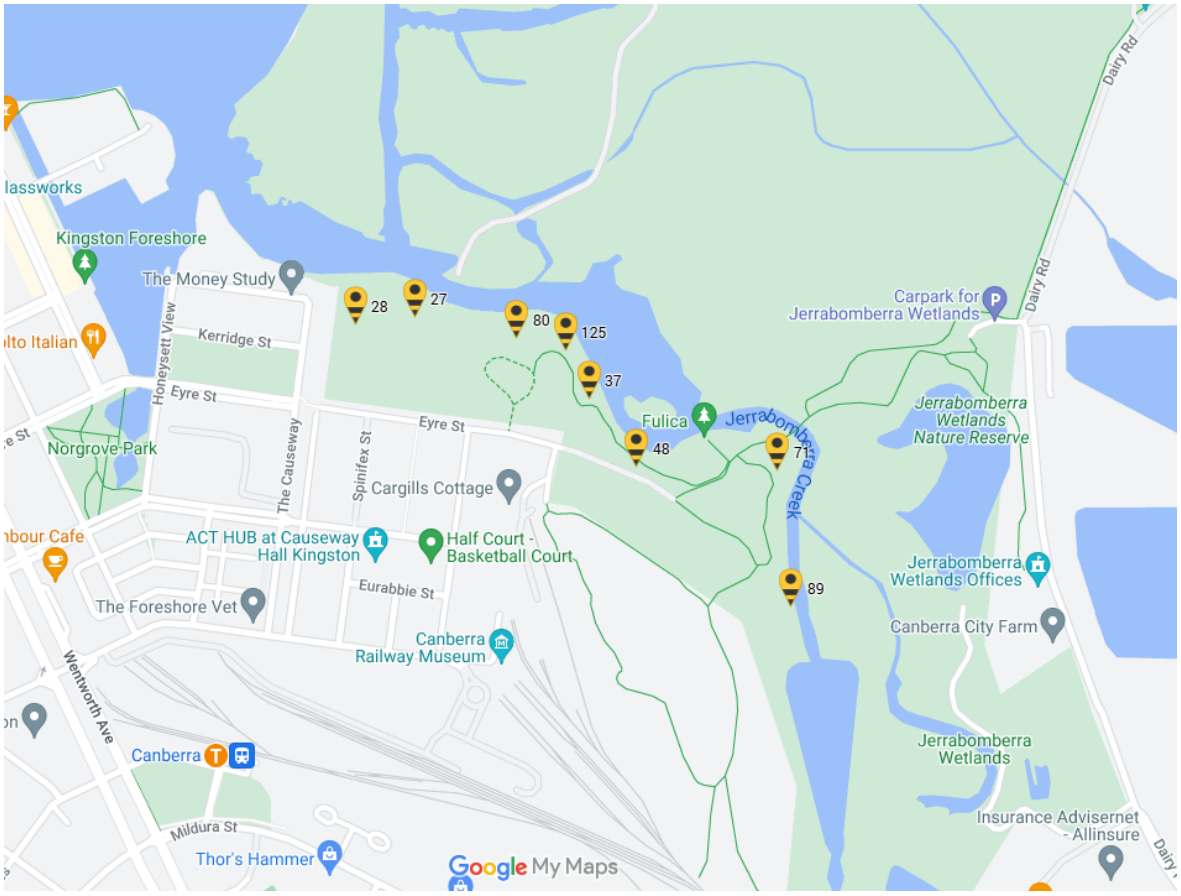

Traps JW 1 to JW 8 were deployed at the Causeway, Jerrabomberra Wetlands.

## 2024 eWasp Spring Queen Count

| *Trap Number* | eSQ Count 1 | eSQ Count 2 | eSQ Count 3 | eSQ Count 4 | Totals |
|---|---|---|---|---|---|
| *JW 1* | 0 | 5 | 22 | 1 | 28 |
| *JW 2* | 10 | 9 | 8 | 0 | 27 |
| *JW 3* | 12 | 28 | 38 | 2 | 80 |
| *JW 4* | 29 | 45 | 43 | 8 | 125 |
| *JW 5* | 3 | 22 | 10 | 2 | 37 |
| *JW 6* | 13 | 7 | 25 | 3 | 48 |
| *JW 7* | 12 | 21 | 35 | 3 | 71 |
| *JW 8* | 18 | 24 | 34 | 13 | 89 |
| | Total Number Of eWasp Spring Queens | | | | 505 |

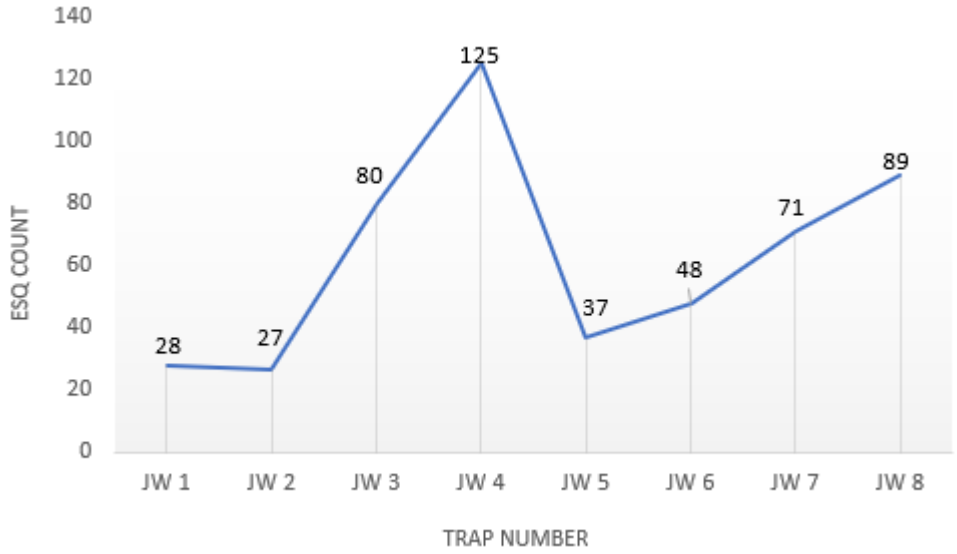
## Mapped Counts

Mapped traps with eWasp spring queen counts.



## Results

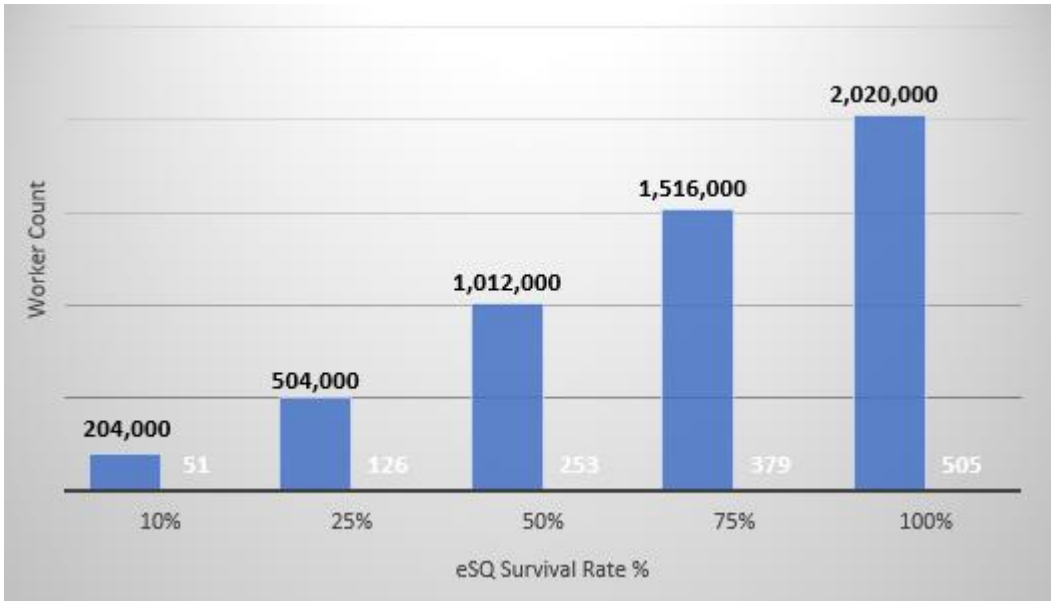
Chart 9 shows the number of eWasp spring queens by trap number.




There were eight (8) traps deployed at The Causeway, Jerrabomberra Wetlands, which had a total of 505 spring queens trapped and removed from the environment during the program period.

Of the total 505 eWasp spring queens trapped and removed from the environment, JW 4 had the highest count with 25% or 125, followed by JW 8 with 18% or 89.

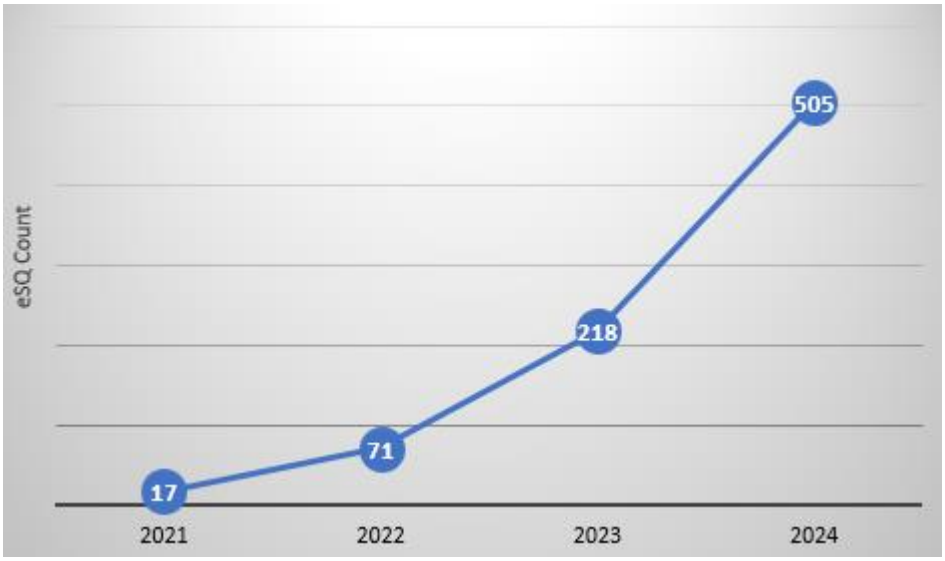
Chart 10 shows the number of worker wasps by spring queen survival rate.




If all queens survived and established nests, there may have been an estimated 2 million worker wasps and an estimated 151,500 next generation queens impacting the environment and surrounding areas.

## Data Comparison

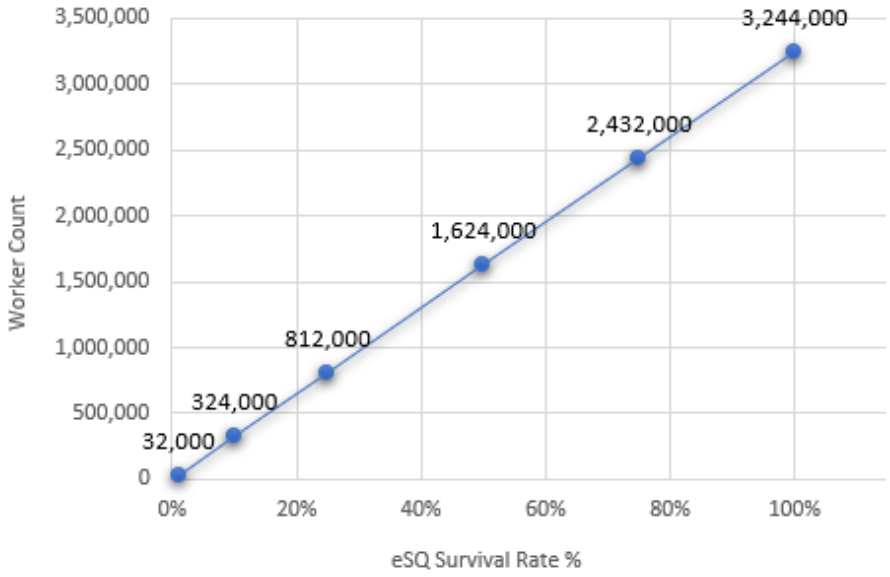
Chart 11 shows the eSQ count by year.




| *Location* | 2022 | 2023 | 2024 | Increase/decrease |
|---|---|---|---|---|
| *The Causeway* | 71 | 218 | 505 | 132% ↑ |

The 2023 spring queen trapping program at the Causeway trapped a total of 218 spring queens, in 2024, there were 505 spring queens trapped and removed from the environment, an increase of 132%.

Chart 12 shows the count of worker wasps by eSQ survival rate from 2021 – 2024.




From 2021 to 2024, 811 eWasp spring queens have been removed from this location. If all queens survived and established nests, there may have been an estimated 3.2 million worker wasps, and an estimated 243,300 next generation queens impacting the environment and surrounding areas.

# Jerrabomberra Wetlands Foreshore

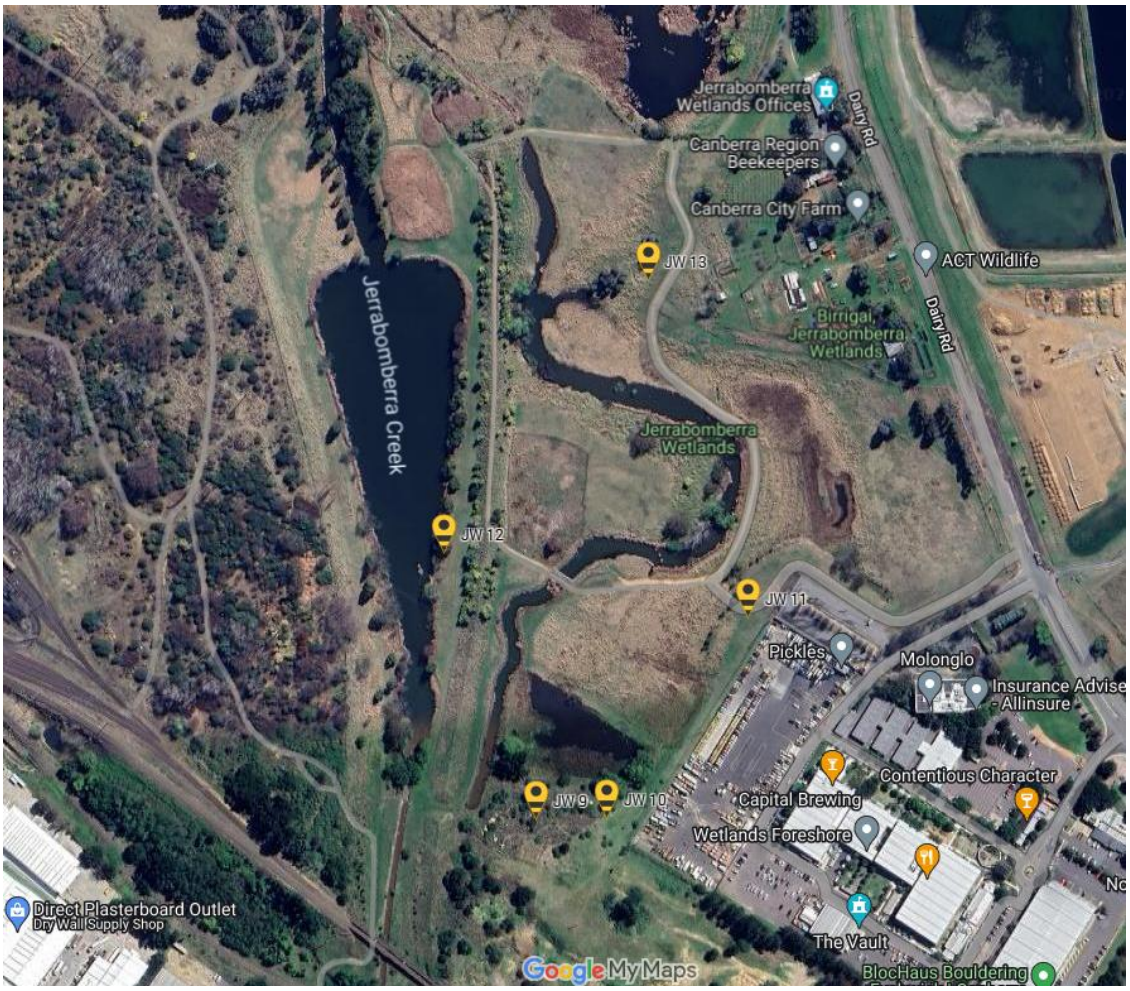
## Background

Jerrabomberra Wetlands Foreshore is adjacent to Jerrabomberra Wetlands Nature Reserve. It is an area occupied by various businesses such as cafes, bars, restaurants, and industrial and trade businesses in the nearby suburb of Fyshwick.

## 2024 eWasp Spring Queen Location

| *Trap Number* | Latitude | Longitude | Location |
|---|---|---|---|
| *JW 9* | -35.32176854 | 149.1609287 | JWNR Foreshore |
| *JW 10* | -35.3217628 | 149.1615288 | JWNR Foreshore |
| *JW 11* | -35.3203649 | 149.1627338 | JWNR Foreshore |
| *JW 12* | -35.31992036 | 149.1601472 | JWNR Foreshore |
| *JW 13* | -35.31803111 | 149.1618812 | JWNR Foreshore |

## Mapped Traps



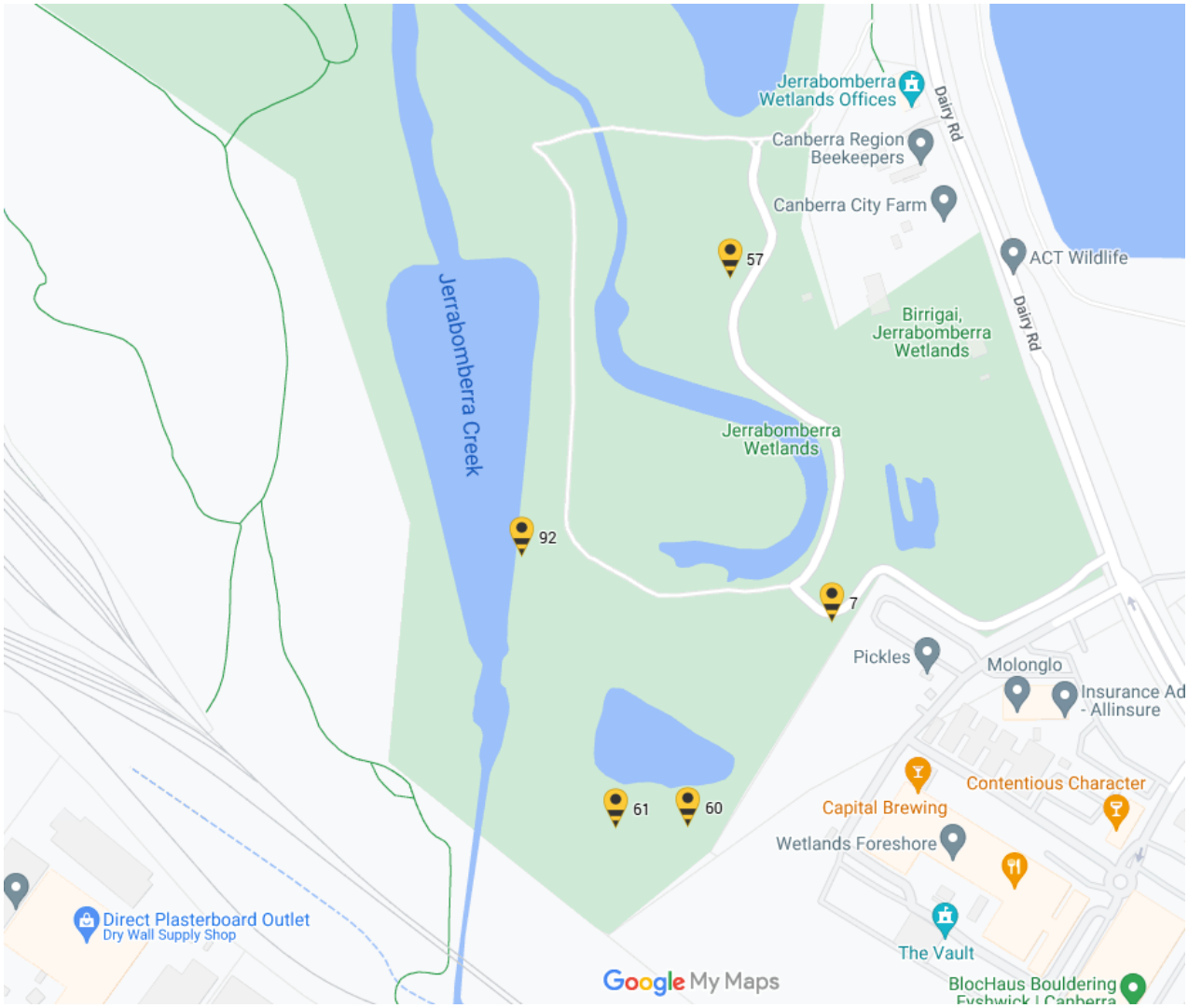

Traps JW 9 to JW 13 were deployed at the Foreshore, Jerrabomberra Wetlands.

## 2024 eWasp Spring Queen Count

| *Trap Number* | eSQ Count 1 | eSQ Count 2 | eSQ Count 3 | eSQ Count 4 | Totals |
|---|---|---|---|---|---|
| *JW 9* | 17 | 16 | 22 | 6 | 61 |
| *JW 10* | 8 | 31 | 21 | 0 | 60 |
| *JW 11* | 0 | 6 | 1 | 0 | 7 |
| *JW 12* | 22 | 35 | 27 | 8 | 92 |
| *JW 13* | 3 | 16 | 22 | 16 | 57 |
| | Total Number of eWasp Spring Queens | | | | 277 |

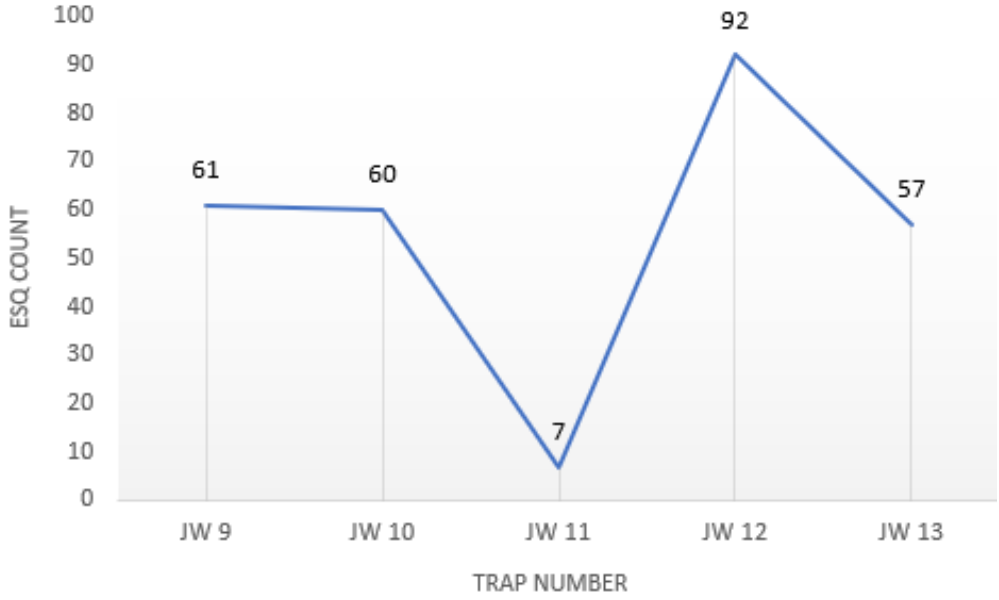
## Mapped Counts

Mapped traps with eWasp spring queen counts.



## Results

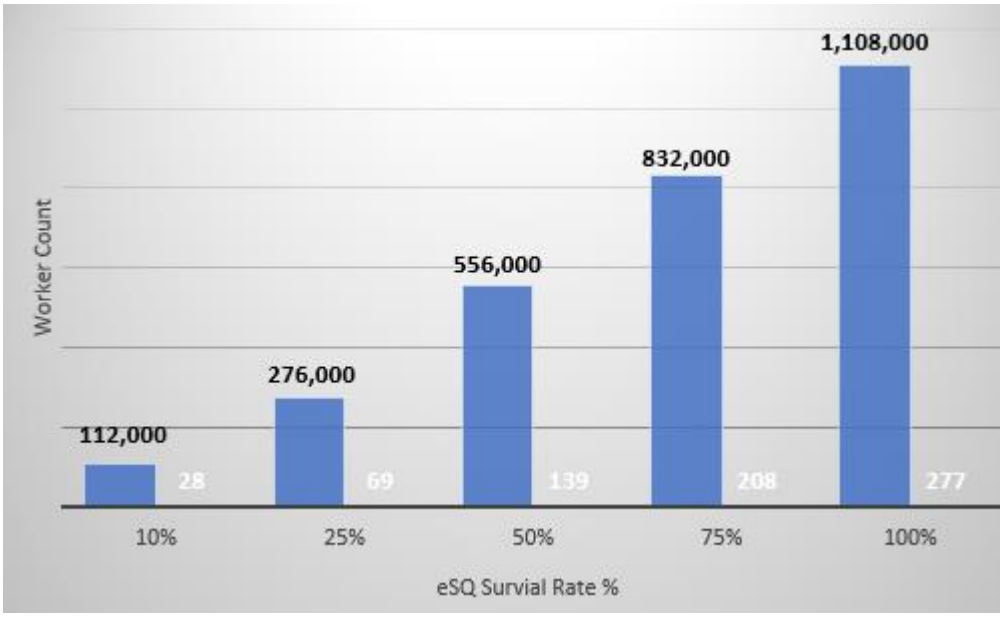
Chart 13 shows the number of eWasp spring queens by trap number.




There were five (5) traps deployed at Jerrabomberra Wetlands Foreshore, which had a total of 277 spring queens trapped and removed from the environment during the program period.

Of the total 277 eWasp spring queen trapped and removed from the environment, JW 12 had the highest count with 33% or 92, followed by JW 9 with 22% or 61.

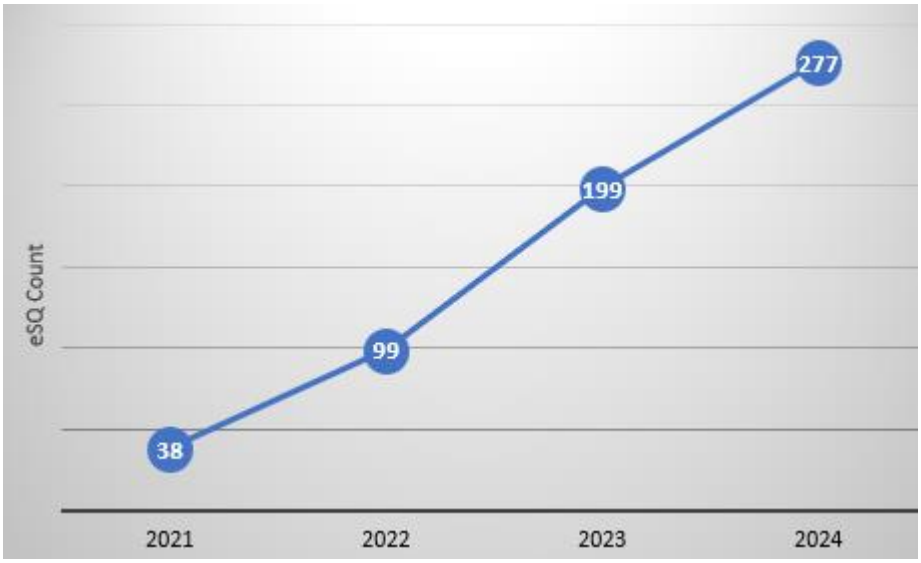
Chart 14 shows the number of worker wasps by spring queen survival rate.




If all queens survived and established nests, there may have been an estimated 1,108,000 worker wasps and an estimated 83,100 next generation queens impacting the environment and surrounding areas.

## Data Comparison

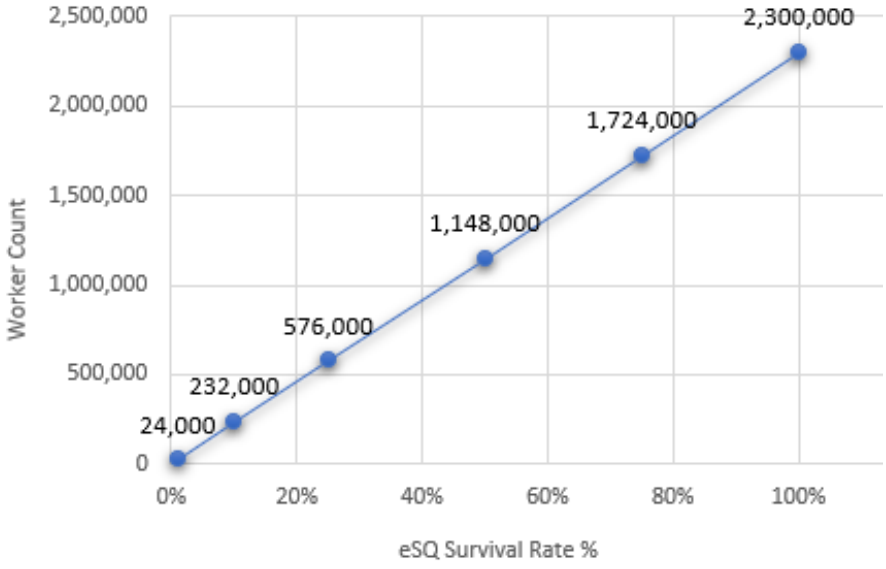
Chart 15 shows the number of eWasp queens by year.




| *Location* | 2022 | 2023 | 2024 | Increase/decrease |
|---|---|---|---|---|
| *Jerrabomberra Wetlands Foreshore* | 99 | 199 | 277 | 39% ↑ |

The 2023 spring queen trapping program trapped a total of 199 spring queens, in 2024, there were 277 spring queens removed from the environment, an increase of 39% for Jerrabomberra Wetlands Foreshore, ACT.

Chart 16 shows the count of worker wasps by eSQ survival rate from 2021 – 2024.




From 2021 to 2024, 575 eWasp spring queens have been removed from this location. If all queens survived and established nests, there may have been an estimated 2.3 million worker wasps, and an estimated 172,500 next generation queens impacting the environment and surrounding areas.

# Jerrabomberra Wetlands Molonglo River

## Background

Jerrabomberra Wetlands Molonglo River is home to the historical Trench Trails. This location is utilised by farmers for grazing cattle. The river corridor is utilised by the public for water activities, and across the river, there are BBQ amenities, walking and cycling paths.

## 2024 eWasp Spring Queen Location

| *Trap Number* | Latitude | Longitude | Location |
|---|---|---|---|
| *JW 14* | -35.30650203 | 149.1646482 | JWNR Molonglo River |
| *JW 15* | -35.30574166 | 149.1633802 | JWNR Molonglo River |
| *JW 16* | -35.3050051 | 149.1607671 | JWNR Molonglo River |
| *JW 17* | -35.30413144 | 149.1601374 | JWNR Molonglo River |
| *JW 18* | -35.30340827 | 149.1597012 | JWNR Molonglo River |
| *JW 19* | -35.30254417 | 149.1584259 | JWNR Molonglo River |
| *JW 20* | -35.30376123 | 149.1551914 | JWNR Molonglo River |
| *JW 21* | -35.30572525 | 149.15621 | JWNR Molonglo River |
| *JW 22* | -35.31112918 | 149.1529179 | JWNR Molonglo River |

## Mapped Traps

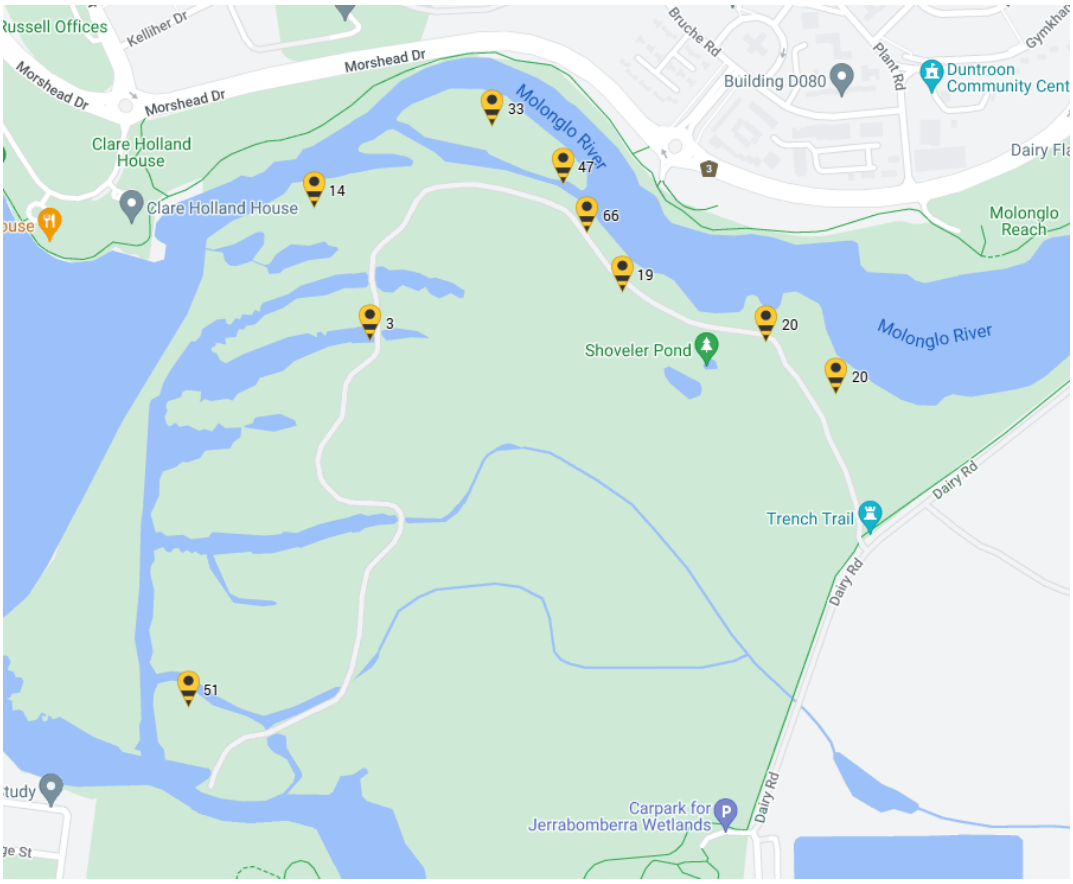

Traps JW 14 to JW 22 were deployed at the Jerrabomberra Wetlands Molonglo River.

## 2024 eWasp Spring Queen Count

| *Trap Number* | eSQ Count 1 | eSQ Count 2 | eSQ Count 3 | eSQ Count 4 | Totals |
|---|---|---|---|---|---|
| *JW 14* | 8 | 11 | 1 | 0 | 20 |
| *JW 15* | 15 | 5 | 0 | 0 | 20 |
| *JW 16* | 6 | 12 | 1 | 0 | 19 |
| *JW 17* | 15 | 24 | 27 | 0 | 66 |
| *JW 18* | 0 | 17 | 22 | 8 | 47 |
| *JW 19* | 0 | 17 | 14 | 2 | 33 |
| *JW 20* | 10 | 2 | 2 | 0 | 14 |
| *JW 21* | 0 | 3 | 0 | 0 | 3 |
| *JW 22* | 1 | 22 | 26 | 2 | 51 |
| | Total Number of eWasp Spring Queens | | | | 273 |

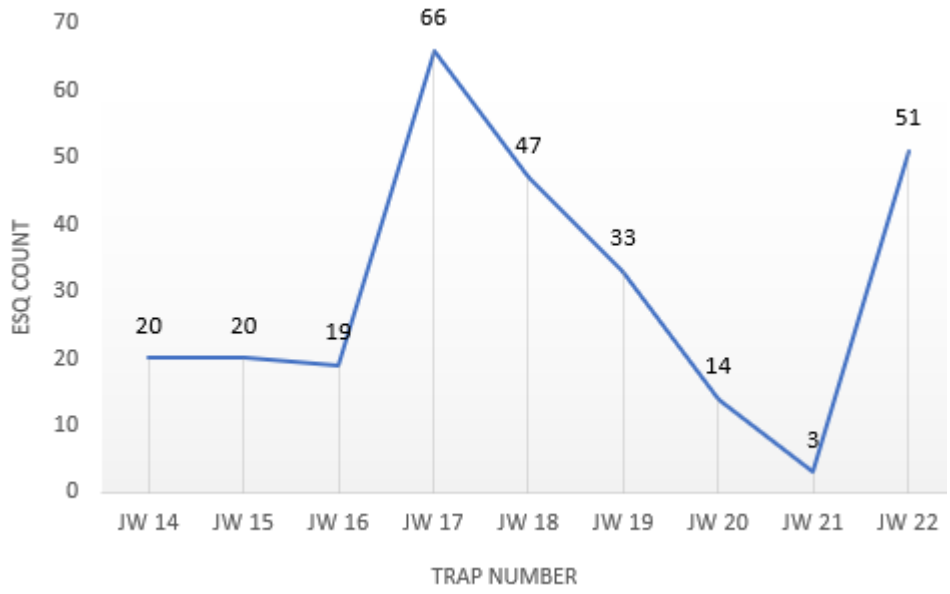
## Mapped Counts

Mapped traps with eWasp spring queen counts.



## Results

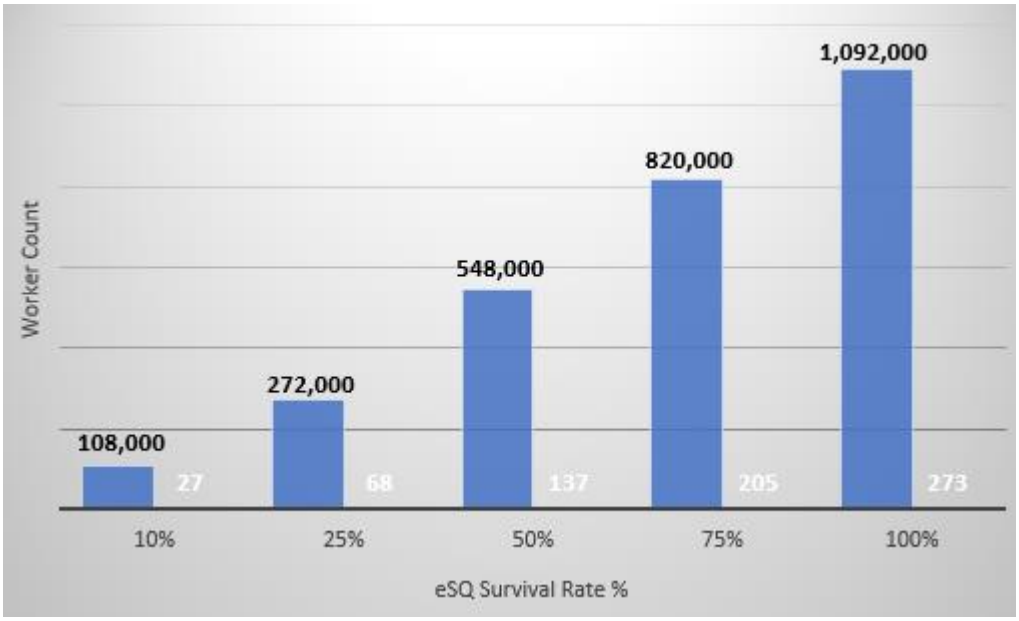
Chart 17 shows the number of eWasp spring queens by trap number.




There were nine (9) traps deployed at Jerrabomberra Wetlands Molonglo River, which had a total of 273 spring queens trapped and removed from the environment during the program period.

Of the total 273 eWasp spring queens trapped and removed from the environment, JW 17 had the highest count with 24% or 66, followed by JW 22 with 19% or 51.

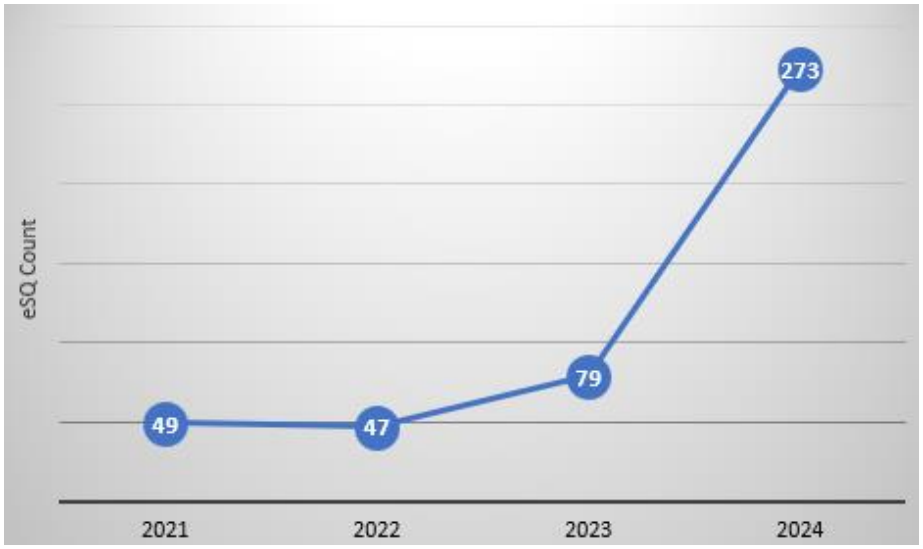
Chart 18 shows the number of worker wasps by spring queen survival rate.




If all queens survived and established nests, there may have been an estimated 1,092,000 worker wasps, and an estimated 81,900 next generation queens impacting the environment and surrounding areas.

## Data Comparison

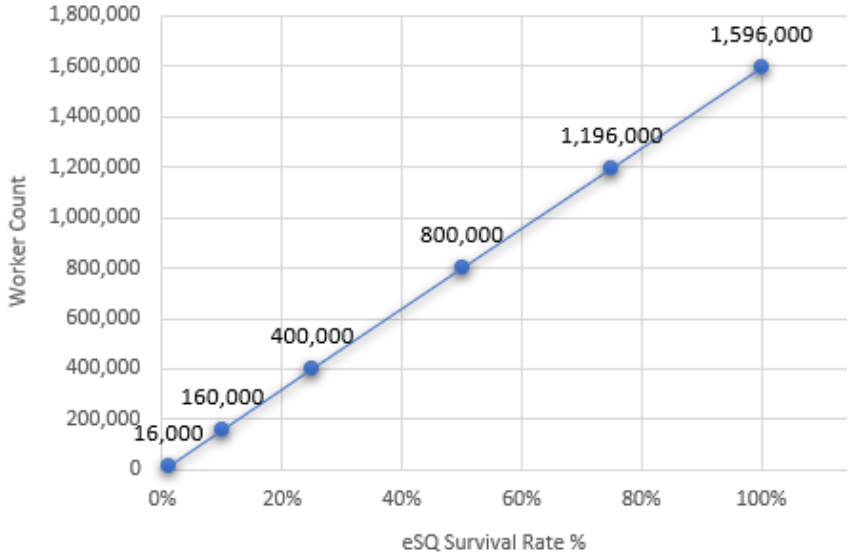
Chart 19 shows the total count by year.




| *Location* | 2022 | 2023 | 2024 | Increase/decrease |
|---|---|---|---|---|
| *Jerrabomberra Wetlands Molonglo River* | 47 | 79 | 273 | 246% ↑ |

The 2023 spring queen trapping program at Molonglo River trapped a total of 79 spring queens, in 2024, there were 273 spring queens trapped and removed from the environment, an increase of 246%.

Chart 20 shows the count of worker wasps by eSQ survival rate.




From 2021 to 2024, 399 eWasp spring queens have been removed from this location. If all queens survived and established nests, there may have been an estimated 1.6 million worker wasps, and an estimated 119,700 next generation queens impacting the environment and surrounding areas.

## Recommendations

From late January to March 2024, the eWasp population and activity should be high and noticeable, therefore, an inspection to identify and treat nests in Jerrabomberra Wetlands Nature Reserve is recommended. This will prevent spring queens from emerging in spring 2025 and establishing nests.

If eWasp activity is high in January to early February, and nests cannot be located, a baiting program may be required.

It is recommended that eWasp spring queen trapping programs continue in the future to preserve the ecosystem in Jerrabomberra Wetlands Nature Reserve.

In spring 2025, it is recommended 3 - 4 spring queen traps are deployed to monitor spring queen activity, before commencing a full trapping program. Due to queens still being trapped at the last count, a longer program would be more beneficial to the environment.

It is also recommended that PCS collaborate with TCCS in future trapping programs to preserve the ecosystems in ACT Nature Reserves and surrounding areas.

Report all nest and significant sightings to the eWasp team, this enables us to monitor the distribution of eWasps at Jerrabomberra Wetlands Nature Reserve.

Trap JW 18, JWNR Molonglo River, saw an overall total of 4% or 47 eWasp spring queens.

# Weather Observations BOM

## October 2024 Daily Weather Observations, Canberra, ACT

**Canberra, Australian Capital Territory**
**October 2024 Daily Weather Observations**
Observations from Canberra Airport.

Australian Government
Bureau of Meteorology

| Date | Day | Temps | | Rain | Evap | Sun | Max wind gust | | | 9am | | | | | | 3pm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | Max | | | | Dirn | Spd | Time | Temp | RH | Cld | Dirn | Spd | MSLP | Temp | RH | Cld | Dirn | Spd | MSLP |
| | | °C | °C | mm | mm | hours | | km/h | local | °C | % | eighths | | km/h | hPa | °C | % | eighths | | km/h | hPa |
| 1 | Tu | 2.5 | 21.6 | 0.2 | | | E | 41 | 20:36 | 10.9 | 78 | 8 | W | 9 | 1024.3 | 20.1 | 41 | | NNW | 22 | 1020.1 |
| 2 | We | 9.1 | 19.2 | 0 | | | NE | 39 | 13:17 | 14.5 | 69 | 8 | ENE | 20 | 1029.9 | 18.5 | 50 | 6 | NNE | 17 | 1028.0 |
| 3 | Th | 6.2 | 20.9 | 0 | | | N | 37 | 12:36 | 13.5 | 63 | 4 | E | 7 | 1030.4 | 20.2 | 39 | | NNE | 19 | 1024.9 |
| 4 | Fr | 2.8 | 20.1 | 0 | | | NW | 44 | 10:34 | 13.2 | 74 | 6 | W | 4 | 1020.3 | 18.1 | 54 | 8 | NNW | 26 | 1013.8 |
| 5 | Sa | 12.3 | 20.0 | 5.8 | | | NW | 52 | 13:24 | 16.7 | 53 | 4 | W | 20 | 1008.3 | 18.1 | 43 | 5 | WNW | 28 | 1006.5 |
| 6 | Su | 9.4 | 17.5 | 0 | | | WNW | 61 | 05:59 | 14.4 | 55 | | WNW | 41 | 1010.6 | 15.9 | 54 | 8 | NW | 24 | 1012.9 |
| 7 | Mo | 8.5 | 22.5 | 0 | | | WNW | 59 | 13:06 | 15.7 | 63 | | NW | 19 | 1018.0 | 20.5 | 45 | 8 | WNW | 37 | 1015.9 |
| 8 | Tu | 7.4 | 17.0 | 0 | | | E | 43 | 19:29 | 9.9 | 74 | 8 | SSE | 17 | 1022.1 | 14.9 | 52 | 1 | NE | 17 | 1020.8 |
| 9 | We | 0.4 | 17.7 | 0 | | | NE | 33 | 14:32 | 9.3 | 62 | 8 | ESE | 11 | 1026.9 | 16.9 | 42 | 1 | NE | 13 | 1023.3 |
| 10 | Th | -0.3 | 22.7 | 0 | | | NNW | 52 | 12:37 | 10.5 | 74 | | NW | 4 | 1023.2 | 22.3 | 36 | | N | 30 | 1019.1 |
| 11 | Fr | 4.4 | 24.9 | 0 | | | NW | 46 | 14:23 | 12.8 | 73 | 7 | W | 6 | 1024.6 | 23.7 | 37 | | NW | 26 | 1019.5 |
| 12 | Sa | 9.9 | 19.6 | 0 | | | NNE | 39 | 14:09 | 11.0 | 60 | 8 | SSE | 19 | 1026.7 | 18.8 | 33 | | NNE | 24 | 1024.6 |
| 13 | Su | 3.0 | 21.2 | 0 | | | NNW | 26 | 10:28 | 11.3 | 57 | | SSE | 9 | 1026.7 | 20.2 | 29 | | N | 13 | 1021.0 |
| 14 | Mo | 7.3 | 22.9 | 0 | | | S | 48 | 15:15 | 14.9 | 64 | 8 | W | 2 | 1019.7 | 19.3 | 52 | 8 | S | 19 | 1016.4 |
| 15 | Tu | 8.1 | 15.5 | 5.8 | | | ENE | 33 | 14:27 | 11.8 | 79 | 8 | SE | 13 | 1025.4 | 14.5 | 62 | 7 | NE | 20 | 1023.5 |
| 16 | We | 3.6 | 22.0 | 0 | | | N | 31 | 13:53 | 10.1 | 70 | | SSE | 9 | 1022.3 | 20.8 | 45 | | N | 17 | 1017.5 |
| 17 | Th | 4.6 | 25.0 | 0 | | | | | | 12.7 | 75 | | | Calm | 1018.4 | | | | | | |
| 18 | Fr | 12.7 | 21.9 | | | | NNW | 61 | 12:04 | 15.7 | 100 | 7 | NNE | 15 | 1009.4 | 20.2 | 81 | 8 | NNW | 35 | 1003.2 |
| 19 | Sa | 11.7 | 24.4 | 6.8 | | | SSE | 31 | 16:37 | 16.1 | 86 | 3 | | Calm | 1009.5 | 21.0 | 62 | 8 | NNW | 19 | 1011.1 |
| 20 | Su | 3.9 | 26.3 | 0.2 | | | SSE | 37 | 09:58 | 14.8 | 57 | | SSW | 13 | 1019.9 | 24.8 | 29 | | SSW | 19 | 1017.4 |
| 21 | Mo | 5.2 | 24.1 | 0 | | | NNE | 33 | 16:17 | 13.3 | 65 | | SSE | 13 | 1023.7 | 23.0 | 34 | | S | 9 | 1018.5 |
| 22 | Tu | 4.1 | 26.8 | 0 | | | NNW | 30 | 15:15 | 9.7 | 99 | 8 | SE | 6 | 1017.7 | 26.3 | 36 | | N | 19 | 1013.1 |
| 23 | We | 8.1 | 24.1 | 0 | | | WSW | 41 | 15:47 | 15.7 | 71 | 3 | | Calm | 1012.6 | 23.3 | 43 | 8 | NNW | 17 | 1009.3 |
| 24 | Th | 6.5 | 21.5 | 0 | | | NNW | 46 | 14:53 | 15.8 | 43 | | NNW | 13 | 1011.3 | 20.7 | 24 | | NNW | 22 | 1008.9 |
| 25 | Fr | 1.3 | 18.9 | 0 | | | ESE | 28 | 16:24 | 10.3 | 69 | | WNW | 4 | 1015.1 | 16.5 | 30 | 8 | NW | 7 | 1014.0 |
| 26 | Sa | -1.3 | 19.3 | 0 | | | N | 33 | 15:22 | 9.1 | 40 | | SSE | 15 | 1022.2 | 17.5 | 21 | | N | 17 | 1018.3 |
| 27 | Su | 4.6 | 25.0 | 0 | | | NW | 41 | 13:35 | 11.7 | 65 | 5 | S | 7 | 1019.8 | 21.8 | 29 | 8 | N | 20 | 1016.3 |
| 28 | Mo | 3.7 | 27.7 | 0 | | | WNW | 54 | 11:31 | 13.6 | 60 | 4 | NW | 6 | 1018.5 | 26.7 | 17 | | NW | 30 | 1015.4 |
| 29 | Tu | 7.2 | 25.6 | 0 | | | N | 35 | 14:16 | 14.2 | 64 | | NNW | 2 | 1023.4 | 24.2 | 36 | | NNE | 17 | 1019.3 |
| 30 | We | 9.9 | 28.3 | 0 | | | W | 44 | 14:26 | 15.1 | 73 | 3 | SSW | 7 | 1018.2 | 27.1 | 17 | | WNW | 31 | 1012.6 |
| 31 | Th | 5.0 | 26.1 | 0 | | | W | 50 | 13:07 | 15.8 | 48 | 3 | | Calm | 1011.5 | 23.8 | 23 | 8 | WNW | 30 | 1008.6 |
| **Statistics for October 2024** | | | | | | | | | | | | | | | | | | | | | |
| Mean | | 5.9 | 22.3 | | | | | | | 13.0 | 67 | 5 | | 10 | 1019.7 | 20.7 | 39 | 6 | | 21 | 1016.5 |
| Lowest | | -1.3 | 15.5 | | | | | | | 9.1 | 40 | 3 | | Calm | 1008.3 | 14.5 | 17 | 1 | NW | 7 | 1003.2 |
| Highest | | 12.7 | 28.3 | 6.8 | | | # | 61 | | 16.7 | 100 | 8 | WNW | 41 | 1030.4 | 27.1 | 81 | 8 | WNW | 37 | 1028.0 |
| Total | | | | 18.8 | | | | | | | | | | | | | | | | | |

Observations were drawn from Canberra Airport {station 070351}
Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

IDCJDW2801.202410 Prepared at 16:01 UTC on 2 Dec 2024


## November 2024 Daily Weather Observations, Canberra, ACT

**Canberra, Australian Capital Territory**
**November 2024 Daily Weather Observations**
Observations from Canberra Airport.

Australian Government
Bureau of Meteorology

| Date | Day | Temps | | Rain | Evap | Sun | Max wind gust | | | 9am | | | | | | 3pm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | Max | | | | Dirn | Spd | Time | Temp | RH | Cld | Dirn | Spd | MSLP | Temp | RH | Cld | Dirn | Spd | MSLP |
| | | °C | °C | mm | mm | hours | | km/h | local | °C | % | eighths | | km/h | hPa | °C | % | eighths | | km/h | hPa |
| 1 | Fr | 9.3 | 24.0 | 0 | | | E | 50 | 17:28 | 16.1 | 61 | 1 | NE | 17 | 1015.5 | 22.3 | 33 | 4 | NNE | 13 | 1013.5 |
| 2 | Sa | 4.7 | 23.0 | 0 | | | NE | 35 | 16:28 | 12.7 | 66 | 8 | SE | 4 | 1023.0 | 20.8 | 43 | 2 | NNE | 11 | 1018.6 |
| 3 | Su | 8.1 | 31.4 | 0 | | | NW | 70 | 15:50 | 19.0 | 62 | 5 | NW | 24 | 1014.5 | 30.4 | 16 | 2 | WNW | 39 | 1009.9 |
| 4 | Mo | 12.4 | 27.0 | 0 | | | NW | 50 | 13:41 | 23.5 | 35 | 6 | NNW | 19 | 1011.3 | 24.7 | 26 | | NNW | 31 | 1011.2 |
| 5 | Tu | 12.2 | 26.9 | 0 | | | NE | 35 | 17:08 | 14.8 | 76 | 8 | NNE | 11 | 1017.8 | 25.2 | 40 | 2 | NNE | 11 | 1013.6 |
| 6 | We | 9.0 | 32.3 | 0 | | | NW | 46 | 12:54 | 19.2 | 73 | | NW | 2 | 1013.9 | 31.5 | 25 | 1 | WNW | 19 | 1010.4 |
| 7 | Th | 15.9 | 27.7 | 0 | | | NNW | 63 | 10:34 | 24.0 | 49 | 7 | NNW | 13 | 1009.0 | 26.0 | 34 | | WNW | 31 | 1006.8 |
| 8 | Fr | 8.9 | 22.7 | 0 | | | W | 54 | 16:33 | 15.2 | 61 | 1 | NW | 20 | 1012.4 | 21.9 | 29 | 1 | W | 30 | 1011.0 |
| 9 | Sa | 6.0 | 25.3 | 0 | | | N | 37 | 12:31 | 16.4 | 61 | 8 | N | 9 | 1020.2 | 23.4 | 30 | 7 | WNW | 11 | 1016.8 |
| 10 | Su | 8.7 | 27.6 | 0 | | | ESE | 54 | 15:30 | 19.3 | 35 | | N | 9 | 1020.8 | 27.3 | 22 | | WNW | 13 | 1017.5 |
| 11 | Mo | 12.3 | 23.2 | 0 | | | | | | 14.7 | 65 | 8 | ESE | 4 | 1021.9 | 21.6 | 45 | 3 | NNE | 11 | 1017.5 |
| 12 | Tu | 11.6 | 25.4 | | | | NE | 37 | 16:22 | 17.5 | 69 | 8 | ESE | 7 | 1018.4 | 24.4 | 36 | 7 | NE | 19 | 1013.9 |
| 13 | We | 12.8 | 25.1 | 0 | | | NNW | 52 | 11:24 | 19.2 | 64 | | ENE | 4 | 1012.5 | 23.0 | 47 | 6 | WNW | 20 | 1009.1 |
| 14 | Th | 7.8 | 26.8 | 0 | | | SE | 52 | 16:24 | 16.1 | 77 | 8 | WSW | 7 | 1016.1 | 24.1 | 41 | 1 | NNE | 15 | 1013.2 |
| 15 | Fr | 13.1 | 25.4 | 0 | | | | | | 15.0 | 73 | 8 | ENE | 15 | 1021.4 | 21.9 | 43 | 5 | E | 15 | 1018.3 |
| 16 | Sa | 14.6 | 31.1 | 0 | | | NE | 52 | 17:32 | 18.8 | 64 | 4 | NNE | 6 | 1021.8 | 29.6 | 29 | 1 | NW | 13 | 1017.2 |
| 17 | Su | 12.3 | 27.5 | 0 | | | NNW | 57 | 10:16 | 22.6 | 63 | | WNW | 9 | 1013.8 | 18.6 | 100 | 8 | NW | 26 | 1011.2 |
| 18 | Mo | 10.3 | 24.7 | 22.8 | | | NW | 46 | 11:28 | 16.0 | 47 | | NNW | 22 | 1014.5 | 23.4 | 26 | | WNW | 30 | 1014.1 |
| 19 | Tu | 8.4 | 26.3 | 0.2 | | | E | 48 | 17:17 | 15.6 | 69 | 8 | WSW | 7 | 1022.3 | 24.0 | 32 | | SE | 9 | 1019.0 |
| 20 | We | 13.4 | 27.3 | 0 | | | E | 50 | 17:13 | 17.6 | 65 | | W | 6 | 1023.5 | 26.2 | 33 | | SW | 13 | 1020.5 |
| 21 | Th | 15.1 | 28.1 | 0 | | | NW | 33 | 12:44 | 19.3 | 56 | | NE | 9 | 1026.3 | 27.0 | 33 | | NNW | 17 | 1021.7 |
| 22 | Fr | 10.8 | 31.3 | 0 | | | E | 35 | 18:45 | 19.5 | 63 | | NW | 6 | 1024.7 | 28.8 | 30 | 4 | W | 20 | 1020.1 |
| 23 | Sa | 12.9 | 33.5 | 0 | | | NW | 35 | 14:55 | 23.0 | 52 | | | Calm | 1021.7 | 32.6 | 22 | | WNW | 17 | 1017.1 |
| 24 | Su | 12.1 | 34.3 | 0 | | | NW | 44 | 14:56 | 24.4 | 38 | 7 | NNW | 7 | 1018.3 | 32.7 | 24 | 5 | NW | 24 | 1014.5 |
| 25 | Mo | 12.6 | 35.3 | 0 | | | N | 50 | 14:10 | 21.9 | 55 | | WNW | 6 | 1015.2 | 32.5 | 23 | 2 | NNW | 33 | 1010.8 |
| 26 | Tu | 15.7 | 32.8 | 0 | | | NW | 54 | 11:57 | 25.5 | 42 | 2 | NW | 13 | 1012.0 | 29.7 | 36 | 4 | WNW | 24 | 1010.4 |
| 27 | We | 16.2 | 28.2 | 0 | | | NW | 61 | 10:51 | 23.7 | 54 | 1 | NW | 22 | 1009.3 | 20.8 | 94 | 8 | NNW | 20 | 1009.9 |
| 28 | Th | 18.3 | 29.8 | 2.8 | | | E | 52 | 17:20 | 22.0 | 77 | 8 | NW | 13 | 1014.5 | 27.0 | 51 | | N | 19 | 1013.2 |
| 29 | Fr | 15.1 | 22.3 | 0 | | | E | 33 | 15:50 | 20.1 | 74 | 8 | E | 13 | 1019.5 | 21.5 | 81 | 8 | E | 17 | 1017.0 |
| 30 | Sa | 17.3 | 19.7 | 14.8 | | | ENE | 37 | 11:16 | 19.0 | 98 | 8 | NE | 19 | 1010.6 | 19.6 | 99 | 7 | N | 15 | 1006.3 |
| **Statistics for November 2024** | | | | | | | | | | | | | | | | | | | | | |
| Mean | | 11.9 | 27.5 | | | | | | | 19.1 | 61 | 6 | | 10 | 1017.2 | 25.4 | 40 | 4 | | 19 | 1014.1 |
| Lowest | | 4.7 | 19.7 | | | | | | | 12.7 | 35 | 1 | | Calm | 1009.0 | 18.6 | 16 | 1 | SE | 9 | 1006.3 |
| Highest | | 18.3 | 35.3 | 22.8 | | | NW | 70 | | 25.5 | 98 | 8 | NW | 24 | 1026.3 | 32.7 | 100 | 8 | WNW | 39 | 1021.7 |
| Total | | | | 40.6 | | | | | | | | | | | | | | | | | |

Observations were drawn from Canberra Airport {station 070351}
Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

IDCJDW2801.202411 Prepared at 13:00 UTC on 2 Dec 2024


*Weather statistics provided by the Bureau of Meteorology, Australian Government*

# Vespex European Wasp Lure

## Acknowledgements

Jim Bariesheff, Director, CoreEnviro Solutions Pty Ltd; Data collection, environmental impact and recommendations.

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