



The Middle Island Project

SEASON REPORT 24/25





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The Middle Island Project (the Project) has contributed to the conservation of the Middle Island Little Penguin (*Eudyptula minor*) colony for twenty years.

Known as “The Warrnambool Method” for wildlife conservation, the project’s innovative use of Maremma guardian dogs to protect a colony of wild little penguins was a world-first. By controlling fox predation on the island, the project saw the recovery of the little penguin colony to over 200 individuals in the 2016-17 breeding season.

The project is overseen by Warrnambool City Council (WCO), with the help of major sponsors including PETstock Warrnambool and the vet group, as well as Warrnambool Coastcare Landcare Network (WCLN), Deakin University, Warrnambool Field Naturalists Club, the Department of Energy, Environment and Climate Action (DEECA) and Parks Victoria all coming together to ensure the ongoing success of the project.

The aim of this Middle Island Project season report is to provide feedback regarding the key achievements of the Project from July 2024 to June 2025 in the context of the objectives outlined by the Strategic Plan 2020-2025.

The Project highlights for 2024-25 include:

- No evidence of foxes on the island during this season
- Ongoing interest in the Penguin Protectors Warrnambool - Educational Experience as well as the Flagstaff Hill Maritime Museum Education Program (FSH), engaging over 906 individuals throughout the Middle Island Project’s summer tour season and year-round education program at Flagstaff Hill
- Continued media interest in the Project
- The project has experienced continued support from major sponsors including PETstock Warrnambool and The Vet Group
- Support from local businesses

and individuals across multiple aspects of the Project, as well as correspondence from interstate and overseas

Project Challenges for 2024-25 include:

- Increase in age-related health concerns for Maremma Guardian dogs
- Damage to infrastructure on Middle Island has raised the need for ongoing maintenance to provide safe working conditions for the Maremma Guardian dogs
- Island accessibility was dependent on tide, swell and weather conditions, as well as repair works to Viaduct Road carpark at the beginning of the season, resulting in a significantly reduced monitoring program

Key Penguin Statistics:

- Indirect evidence of the colony on the island, including evidence of breeding activities, was used in the absence of direct observations due to highly impaired monitoring activities
- No penguin counts or breeding surveys were able to be conducted this season, largely to unsafe crossing conditions reducing accessibility for direct observation. As a result, there remains no reliable estimate for the population size for this season
- Short-tailed Shearwaters continue to breed on the Island during their global migration journey
- Warrnambool Coastcare Landcare Network continues to investigate the use of motion activated cameras and acoustic monitoring for passive monitoring of penguins



Key Maremma Statistics:

- The guardian dog team consists of Mezzo (lead guardian), Isola, and Oberon
- The maremma guardian dogs continued their work protecting Middle Island and the wildlife that reside there from fox predation through onsite guarding where possible, as well as scenting the island and Stingray Bay.
- Avis and Amor continued to be valuable ambassador dogs within the education team, increasing awareness of the project and educating the public around different conservation methodologies
- Amor fully retired in early 2025 due to his age

Key Education Statistics:

- The Penguin Protectors Warrnambool - Educational Experience was available to the public over summer, with

a predominant amount of talks being held in January. The Easter tour season was cancelled due to staffing complications.

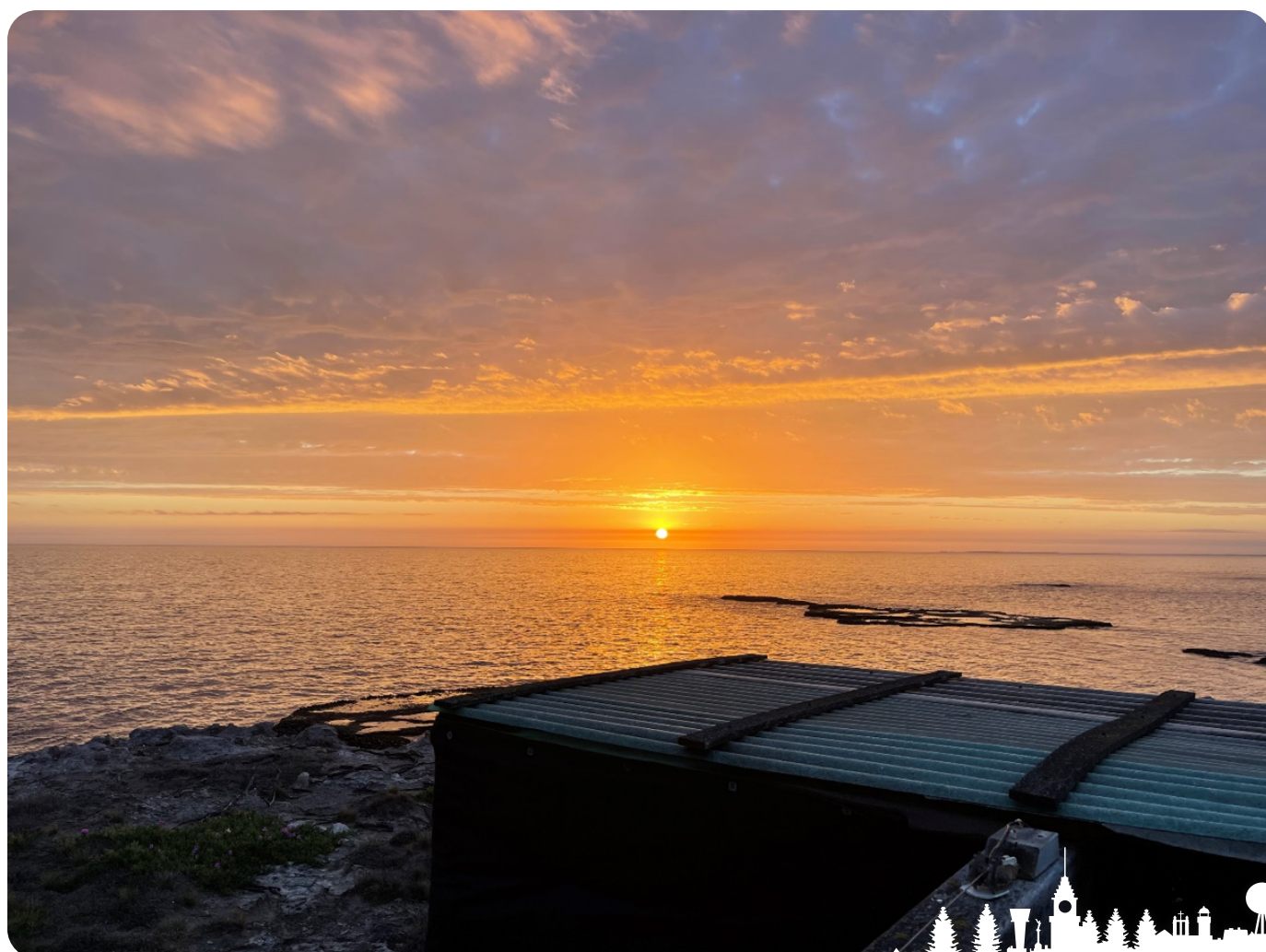
- The Penguin Protectors Warrnambool - Educational Experience was available to private bookings year round, with 13 schools participating at the end of their school year in 2024, and beginning of the school year in 2025.
- The FSH education program was available year round
- The Penguin Protectors Warrnambool - Educational Experience engaged with over 534 people, and FSH bookings reached 372 individuals. These numbers represent an increase compared to last year, where total participant numbers for the Penguin Protector Experience reached 259 individuals.
- Two third-year Deakin University students completed their placement with the Middle Island Project, completing 160 hours and assisting with the expansion

and development of our education program.

- For the first time, the education program was delivered entirely in a different language. Travellers from Israel participated in the education experience at FSH, where an interpreter translated the presentation into Hebrew. Highlighting the importance and interrelation of environmental education and global citizenship.

Deakin University

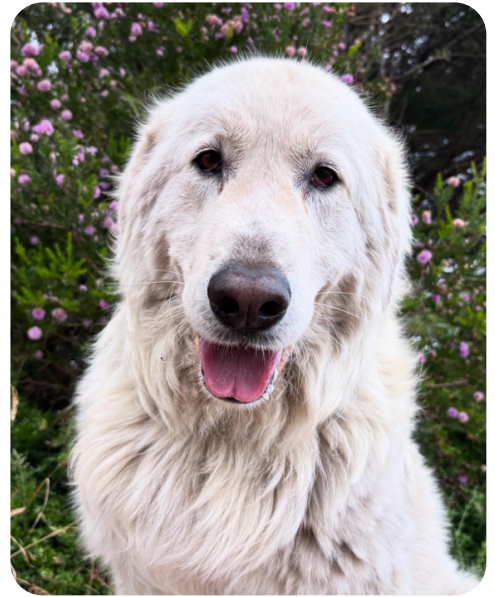
- Continued to support and provide advice to the project and WCLN Seabird Monitoring program, including ethics approvals and research permit requirements
- Continued collaboration between the project and the Bachelor of Marine Science degree, providing marine students with an opportunity to learn about a local conservation initiative, and the benefits and challenges faced.



CONSERVATION AND ADAPTIVE MANAGEMENT

The Project has adopted an adaptive management approach to conserve the penguins and other seabird species on Middle Island.

This adaptive approach, known as “The Warrnambool Method” of wildlife conservation, uses Maremma guardian dogs in conjunction with other fox control methods implemented by WCC. In doing so, the Middle Island project continues to



MAREMMA DOGS

Maremma dogs working on the project are trained as guardians to protect the penguins and other seabird species on Middle Island by deterring foxes from accessing the island. All five Maremma dogs continued their work during the 2024-2025 season, consisting of three guardians and two ambassadors.

Accessibility to Middle Island was significantly reduced due to unfavourable and unsafe crossing conditions for much of the season, therefore deployment of the Maremma dogs onto Middle Island was diminished. The guardian team (including Mezzo, the lead guardian, Isola, the support guardian and Oberon, support guardian and the projects newest recruit), continued

to scent the Island and the beach at Stingray Bay to further reduce fox predation. Scenting involved a dog handler walking one of the Projects Maremma's around Stingray Bay, where their scent can be left in the area by loose fur or urine. Scenting the island and surrounds appears to be a sufficient alternative for reducing fox predation when the Maremma guardians cannot be deployed onto the island.

Avis and Amor are the Project ambassador dogs and are used during

educational talks, and for the projects awareness and engagement. Avis and Amor enjoyed another busy season, and both participated in several Penguin Protectors Warrnambool - Educational Experiences, emphasizing the Maremma breed and their essential work on Middle Island.

In early 2025, following veterinary advice, Amor was retired from his role as an ambassador dog and is now spending his retirement with Avis and the guardian dogs at the farm.



LITTLE PENGUIN MONITORING

Ongoing difficulty in safely accessing Middle Island significantly reduced the ability of WCLN volunteers to monitor the Little Penguin population during the 2024-25 breeding season. As peak breeding season for Little Penguins on Middle Island is in December, conducting arrival counts during this period is essential to gaining a reliable estimate of population size.

During both the peak and off-peak period of this season it was not possible to safely cross to Middle Island. Access was gained to the island during late December and early January, however low tide times (and hence, times of safe access) were not in unison with penguin arrival. A valid population count requires fortnightly arrival monitoring from as early as October and continued until after the post-moult in approximately March. As a result of these challenging environmental conditions, no penguin counts were able to be conducted this breeding season and it was not possible to estimate the size of the Little Penguin population.

Monitoring is highly dependent on environmental conditions, and the 2025-26 season may prove challenging if crossing conditions do not improve. Over the past 5 summers from 2020-2025, 4 have been La Nina or minor La Nina events in the ENSO cycle, with one neutral year. During this time the heavy rainfall causes large influxes on both the coast and inland, where this rainfall exits via rivers including the Merri River. The Merri river estuary is adjacent to Middle Island, and during periods of high influxes a channel forms between the mainland and Middle Island,

creating difficulties accessing Middle Island.

Considerations have been made for ensuring pre-breeding season readiness by the project in future seasons, so that even in challenging environmental conditions, Middle Island seabird protection, monitoring and data collection can be maintained in some capacity. This includes adequately trained staff for penguin monitoring and safe island conditions for maremma deployment. Currently there is a sufficient number of trained staff for breeding monitoring, including four staff trained in bird handling, and of these, two are microchip trained. Additionally, this season the project is able to undertake more comprehensive passive monitoring via motion activated cameras, which WCLN volunteers can station on the island when conditions are suitable for deployment and collection within reasonable time periods.

Pre-breeding season readiness for maremma deployment requires careful consideration and is dependent on off-season severity. During the winter season, Middle Island experiences extreme weather events, with strong winds, high wave action and heavy rainfall. As a result, there is continued damages incurred to the boardwalk that generally require repairs before maremmas guardians can be deployed, therefore a holistic approach to island management, penguin monitoring and maremma deployment must be considered for future seasons.

Additionally, further collaboration for penguin monitoring could be explored to assist with more passive monitoring, including collaboration with Mosswood Wildlife and the Warrnambool community via citizen science programs. Mosswood Wildlife has seen an increased number of Little Penguins in need of rehabilitation during both the breeding season and off-season. Collaboration with Mosswood Wildlife for penguin numbers, their injuries and microchip numbers if present could further assist our monitoring efforts when Middle Island is inaccessible, and also assist in the collection of data during the off-season. Furthermore, this season many members of the Warrnambool

community either directly or indirectly sighted Little Penguins in Stingray and Lady Bay, showing evidence of Penguin arrival and breeding. Therefore, a citizen science program for Little Penguin sightings could further assist in Little Penguin passive monitoring with some degree of reliability.

Moreover, maremma deployment does not only benefit the Little Penguin population. Other seabird species including Little Pied cormorants, Black-faced cormorants, Sooty Oystercatchers and Short-tailed Shearwaters live and breed on Middle Island. These seabirds are also vulnerable to fox predation, and maremma deployment for Little Penguin protection guards these species by default. There is currently limited monitoring occurring on Middle Island for these seabirds, however a more holistic approach to Middle Island monitoring should consider expanding current practices to include these seabirds in some capacity, including their vulnerability and the island ecosystem as a whole.

It is also important to note the multidisciplinary nature of the Middle Island Project, and how combination strategies have contributed to its success. Maremma guardian dogs, in conjunction with fox baiting and fox scat detection dogs (Canidae Development), penguin monitoring, and education programs have largely contributed to the success and longevity of the Middle Island Project.

Therefore, further involvement in island management and conservation, as well as more comprehensive seabird monitoring and pre-breeding season readiness will not impede on the project, but further contribute to safeguarding the biodiversity of Middle Island.



EDUCATION & OUTREACH



Community Engagement

The Middle Island Project offers a unique opportunity to foster community knowledge and understanding of conservation management, as well as wildlife education and the importance of environmental stewardship.

The project maintained an educational and engaging partnership with the local and wider community during the 2024-25 season.

Community Support and Partnerships

During the 2024-25 season, the project continued to garner interest and support from both the local and wider community, including local businesses, individuals and groups.

Highlights include a \$1000 donation to the Project by Boss Burger Co, from stores all across the state. Additional support from a range of local businesses was kindly provided to the project, with some examples outlined below.

The continued support from Mandy at Lucky Little Penguins, who donates proceeds from the sale of each Project themed greeting card, including a Christmas range. This season, donations from Lucky Little Penguin reached \$270.30. Furthermore, Coles Northpoint donated funds raised from recycling their bottles and cans used by staff in-store. Additional donations from Rafferty's Tavern, Flagstaff

Hill and the Warrnambool Visitor Information Centre, Surfside Holiday Park, and The Vet Group was given to the project via hosting donation boxes. Local Author Samuel Ridley recently published a book titled "The Mahogany Ship" and is donating 100% of the profits to the project. Additional support from local businesses supported the project through display of promotional media for our Penguin Protectors Warrnambool – Educational Experience. The Pavilion Café and Bar have provided important and ongoing support to the project, offering their facilities, continued support and encouragement, and valuable feedback to the program.

This season the project experienced many donations contributed by the public via donation boxes outlined above, as well as online. These donations were significantly higher than previously thought, particularly considering the absence of an Easter season education program. These new insights provide valuable information about the important streams of income to the project, and where improvement and expansion is best suited.

Sponsors

Petstock Warrnambool and The Vet Group continued as major sponsors of the project during 2024-25 season, contributing invaluable resources and support to the Middle Island Project.

The project and its success can be credited to the continued commitment and support of these two sponsors, whose partnership with the project ensures the health and wellbeing of the Maremma dogs.



Educational Talks

The project resumed its summer education program and continued its education program at FSH.

There is continued interest in the education program and strong demand for the talks year round, with interest predominantly occurring between October and April. Audience members in the tours came from near and far, with participants being locals, interstate or even international travellers. This season included talks for kindergartners, primary and high schools, camp groups, tertiary students and tourism operators. Penguin Protectors Warrnambool and the connection it provides to the Warrnambool community, members of the public from all ages, and interstate and international travellers has demonstrated that the Middle Island Project, while a conservation initiative, is also rooted in education, and the investment in and importance of environmental education for all people.



students contribute directly to the ongoing operations and management of Little Penguins, all of which support their development into confident, career-ready professionals in the environmental sciences.

In addition to hands-on experience, students benefit from attending the Penguin Protectors Warrnambool - Educational Experience as part of a second year unit focussing on Marine Futures, which investigates global challenges and ocean based solutions. This session provides students with a unique dual perspective: a deeper understanding of the scientific and logistical aspects of the penguin protection strategy, and a firsthand experience of public engagement in marine conservation. As future marine scientists, it is essential for students to learn how to communicate complex marine issues to the broader public in an engaging, accessible way. Observing and participating in effective science communication fosters appreciation for the role of education in driving conservation outcomes and equips students with the confidence and tools to become advocates for positive environmental change.

Work Experience

Empowering Future Marine Scientists:
Student Engagement with the Middle Island
Penguin Project Through work Placement
and Education.

Work placement with the Middle Island Penguin Project provides Deakin University students with a rare and valuable opportunity to engage directly with the world-first, conservation initiative. By participating in aspects of planning, operations, management, and educational talks, students gain an understanding of, and help contribute the Middle Island Projects objectives. Students gain critical discipline-specific skills in marine and wildlife conservation while also developing highly transferable capabilities such as teamwork, problem solving, and effective communication that help prepare students for their career beyond their degree. Working within the team at WCC,

Research

A PhD student based at Deakin's Warrnambool campus continued to investigate environmental determinants of little penguins, with a particular focus on the Middle Island colony over the past year.

This research has utilised the long-term dataset collected by Warrnambool Coastcare Landcare Network volunteers, as well as publicly available environmental data to explore how penguins at the colony are impacted by environmental variability. Findings have been presented at conferences of the Australian Marine Science Association, and the Ecological Society of Australia, with the aim to publish a research article from the work. During their final year of the program, the student will expand their research to a broader area encompassing the entire spatial range of little penguins across Australia and New Zealand.

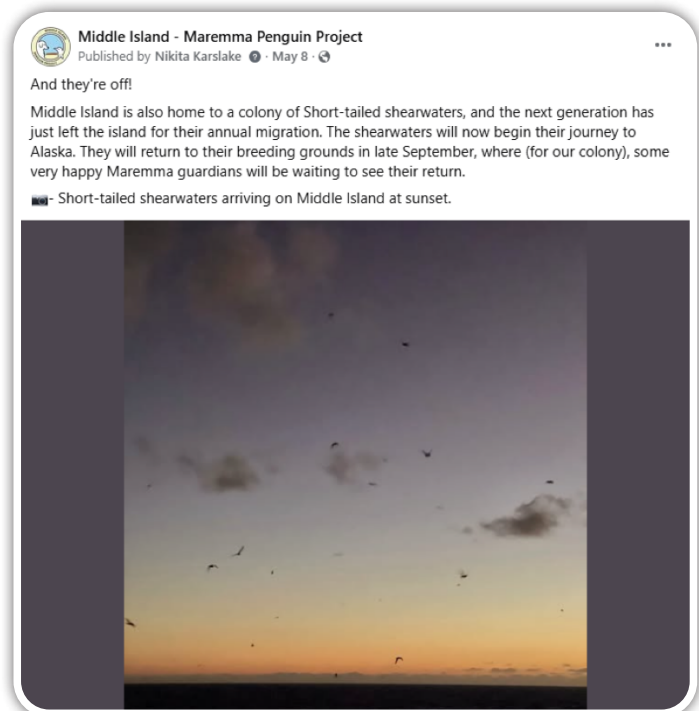
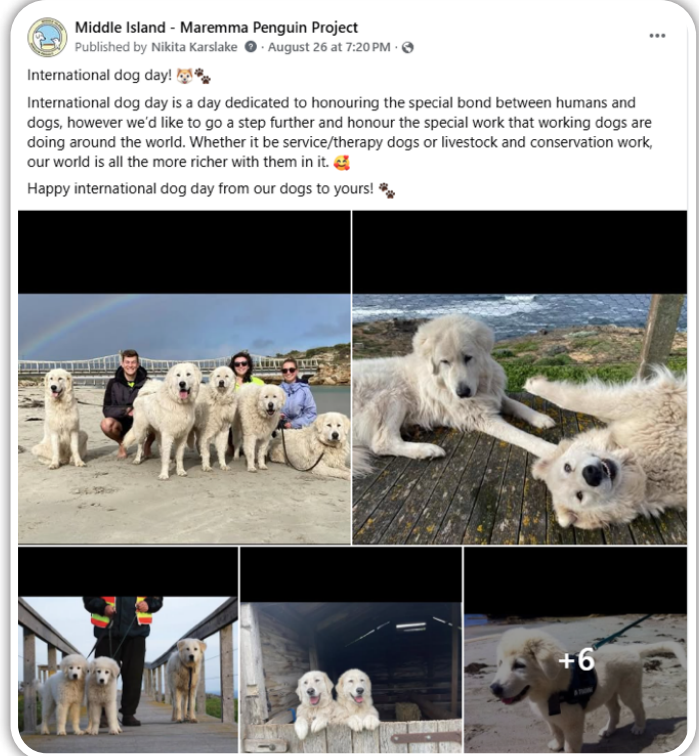


Media and Communications

Interest in the Maremma dogs and their role on Middle Island continues to attract media attention locally and internationally.

The Penguin Protectors Warrnambool - Educational Experience was promoted across all social media platforms and continues to be an effective way of informing the public of upcoming sessions.

Social media interaction is still high, with 18,839 followers on Facebook and 12,052 on Instagram engaging or commenting on posts, including “likes” and “sharing” our content.



Middle Island Project Committee

The Middle Island Project Committee met quarterly throughout the 2024-2025 season, enabling regular participation from stakeholders to provide guidance, advice and insights to the project.

Interest in the project from the community and key agencies promotes the continued development of the project and assures its longevity. The Committee is comprised of a representative from the following organisations, agencies and groups, in addition to a Project Officer and a Penguin Monitoring Officer.

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| 1. Deakin University | 5. Parks Victoria |
| 2. Warrnambool Field Naturalists Club | 6. Community Representative |
| 3. Warrnambool Coastcare Landcare Network | 7. Warrnambool City Council – Officer |
| 4. Department of Energy, Environment, and Climate Action | 8. Warrnambool City Council – Executive |

Council would like to thank all committee members for their contribution and guidance to the project this season.

Fox Action Plan Coastal Reserve

Middle Island and Warrnambool foreshore remained the focus of Warrnambool City Council's 2024-25 fox survey and treatment program.

From September 2024 to April 2025, two fox baiting and fumigation programs were completed by Warrnambool City Council's Environment, Playgrounds and Coastal Maintenance Team.

Over the 12 month period, a total of 29 baits were taken, with the greatest level of fox activity noted at Pickering Point (east and west).

Bait locations were selected using field research and fox kill numbers from the 2023-24 season (Fig 1), determining targeted stations at the following zones:

- Levies/ Shelly Beach areas
- Pickering Point (east and west)
- Worm Bay
- Lake Pertobe (Jetty Flat and Circuit Walk).

Spring 2024

Phase one of the fox control program ran from 2 to 30 September, with the installation of 10 singular bait stations across the foreshore.

Significant bait activity was noted at Pickering Point, Lake Pertobe and Worm Bay localities. Bait takes were replaced three times during the spring (and autumn) programs.

Autumn 2025

Phase two of the fox control program ran from April 7 to May 2 2025, operating at the same localities. A total of 18 individual baits were taken evenly across the 10 bait stations (Fig 2).

Fox Baiting Surveys 2024/25

Canidae Development Pty. Ltd. completed a 2024-25 fox monitoring program to determine effectiveness of fox control within Warrnambool foreshore compared to a 2021-2022 fox monitoring program.

Evidence of fox activity within the baiting zone has reduced by 50%. Pre and post fox monitoring completed during 2024/25 phases shows a 79% reduction in fox activity (scats) directly following baiting programs.

Continued monitoring is required to determine long term impacts on fox populations from control measures, and to form baseline data sets incorporating environmental and control factors (eg. la Nina / el Nino influences and baiting efficacy)

WCC Fox Activity Mapping 2024 Activity Density

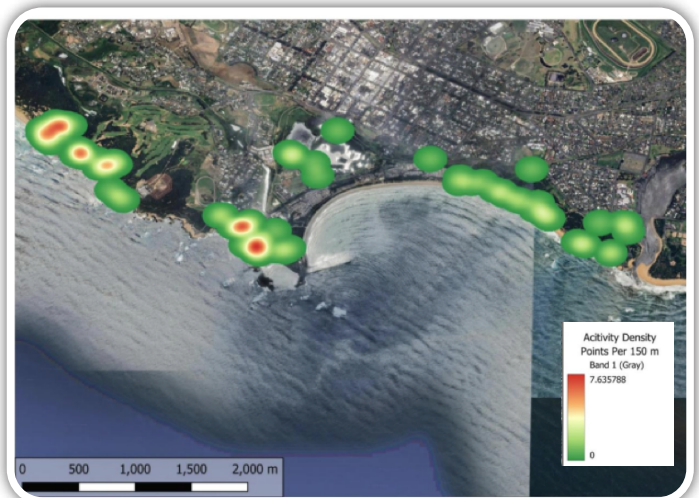


Figure 1: Fox Activity Density Mapping from Canidae Development's Winter 2024 report.



SUPPORT THE MIDDLE ISLAND PROJECT

The Middle Island Project is supported by Warrnambool City Council, some great sponsors and a crew of wonderful volunteers.

You can help the Middle Island Project by following and sharing our social media, hosting a donation box or becoming a sponsor.

If you'd like to help please get in touch: green@warrnambool.vic.gov.au

And if you'd like to help the Project financially you can make a donation through our website at this link: www.warrnamboolpenguins.com.au/get-involved

Facebook: Middle Island – Maremma Penguin Project

Instagram: @wboolpenguins

Twitter: @wboolpenguins

