

BELFAST COASTAL RESERVE



Management Plan Review

May 2022



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Executive Summary and Recommendations

The *Belfast Coastal Reserve Management Plan 2018* (the plan) commits to a review of some key management strategies two years from the date of implementation of the plan. Accordingly, these strategies have been reviewed for the period to June 2021. The review has been prepared by Parks Victoria with input from agency and implementation partners Moyne Shire Council, Warrnambool City Council, Eastern Maar Aboriginal Corporation and the Department of Environment Land Water and Planning (DELWP). The review is provided for public information and in the interests of transparency.

The review is to inform any changes to management strategies or approach. The plan identified six specific key management areas to compile evidence-based reports from monitoring. These are:

- Dog walking strategy compliance;
- Horse riding strategy compliance (Recreational horse riding; Horse tour operations; Horse training historical trainers; Horse training commercial trainers);
- Environmental and cultural impacts at Hoon Hill and Levys Beach;
- Hooded Plover breeding success;
- Impacts on resident and migratory birds and their habitat;
- Visitor conflicts or impact.

The plan was finalised in July 2018 and the review covers the period until June 2021. The initial management approach taken was for education and public information to help promote community acceptance of the new rules for activities in the reserve. The reserve management plan zoning informs the access and allowable uses of different areas of the reserve. Regulations have been in place since September 2020, and since February 2021 infringement notices have been available to rangers as a tool to increase park visitor compliance with the new rules.

Limits of the review

Some of the management areas in the review scope do not have data i.e. as commercial horse training and monitoring of any environmental or cultural impacts in training areas have not been activated in the Reserve to date. The monitoring for Hooded Plover breeding success will require sustained effort over many years to manage this species recovery. The COVID-19 pandemic has reduced the capacity of Birdlife volunteers to collect data over 2020 and has also affected visitor numbers to the reserve.



Summary of Review Recommendations

General recommendations:

- For the two-year review period management strategies, the management approach and the reserve zoning are adequate and no amendment to the plan is required.
- That the plan's 5-year review includes an assessment of the same management strategies included in this 2-year review.

Specific recommendations for the six management areas covered by the review.

Dog walking strategy compliance:

- Continue providing community information about on-leash dog regulations through various media, visitor education, ranger patrols and cross-agency promotion.
- Continue the enforcement of regulations through ranger patrols, issuing of warning letters and infringement notices or court summons depending on the severity of breaches of regulations.
- Continue to work with and support Birdlife Australia and the Far South West Friends of the Hooded Plover to identify and demarcate Hooded Plover habitat for protection from roaming dogs.
- Continue to actively manage and monitor compliance with the new regulations and respond to partner agency and other reports of dogs off-lead and/or in Hooded Plover nest areas.

Horse riding strategy compliance:

- Continue providing community information about horse riding regulations through various media, visitor education, ranger patrols and cross-agency promotion.
- Continue to work with and support Birdlife Australia and the Far South West Friends of the Hooded Plover to identify and demarcate Hooded Plover habitat for protection from horses.
- Continue the Licenced Tour Operator permit for guided horse riding tours in the reserve. Continue to monitor and manage compliance with licence conditions and address any breaches of conditions or reserve regulations.
- Continue to work with Licensed Tour Operators to promote and encourage sustainable and legally compliant access to trails and beaches in the reserve.
- Continue the licence scheme for historical racehorse trainers. Continue to monitor and manage compliance with licence conditions, enforcing breaches of conditions or reserve regulations as necessary. Continue erosion and environmental impact monitoring.
- If/when commercial racehorse training is activated, ensure licence conditions and regulatory requirements are met.

Environmental and cultural impacts at Hoon Hill and Levys Beach:

- Ensure licence conditions and regulatory requirements are met when commercial racehorse training occurs.

Hooded Plover breeding success:

- Continue to support volunteer monitoring and on-ground protection of nests (signage, fencing).
- Increase community awareness and education and compliance, particularly in areas of the reserve with a high occurrence of off-leash dogs.

- Investigate further methods of implementing protective buffer distances around nests on the reserve.

Impacts on resident and migratory birds and their habitat:

- Continue to implement the dog walking and horse riding management strategies.
- Continue to protect and enhance shorebird habitat by undertaking/supporting pest plant removal programs such as community hand-pulling of beach daisy, and revegetation with spinifex and other local native species.
- Continue to undertake fox baiting to reduce predation by foxes.
- Continue to partner with DELWP and Birdlife Australia on maintaining Orange Bellied Parrot habitat in the reserve.

Visitor conflicts or impact:

- Continue to engage and educate visitors about the reserve values and where specific activities are appropriate, including design and installation of regulatory, interpretive and risk management signage.
- Continue to consolidate and improve roads, car parks, and access tracks to reduce duplication, visitor risk and adverse environmental impacts.
- Continue to enforce the reserve regulations, the *Wildlife Act 1975* and other relevant legislation. Refer breaches of other legislation where appropriate. For example: *Aboriginal Heritage Act 2006*, *Summary Offences Act 1966*.
- Continue to monitor and manage allowable uses of the reserve with the potential for visitor impact or conflicts. For example: racehorse training, horse riding tours, events.



1. Introduction

The *Belfast Coastal Reserve Management Plan 2018* (the plan) outlines the management strategies for a 20km long coastal strip of public land between Port Fairy and Warrnambool in south-west Victoria. The plan describes the management directions for the reserve over a 15-year timeframe, aimed at enhancing the scenic beauty, biodiversity, cultural heritage and community enjoyment of the Reserve. The plan was released in July 2018 following an extensive public engagement process and commits to completing a review of some key management strategies two years from the date of implementation.

1.1 About the Management Plan Review

The plan commits to undertaking a comprehensive review of monitoring data of six specific areas of management within two years of implementation of the plan (being 12 months from when the plan was published in 2018). Accordingly, the review is being undertaken in 2021 for the period up to June 2021. The regulations for the reserve were gazetted in September 2020 and the process to implement the regulations finalised in early 2021.

The management plan review has been prepared by Parks Victoria with input from agency and implementation partners Moyne Shire Council, Warrnambool City Council, Eastern Maar Aboriginal Corporation and DELWP.

1.2 Scope of the Review

The review informs any changes to management strategies or approach. The plan identifies six specific key management areas to compile evidence-based reports from monitoring: These are:

1. Dog walking compliance
2. Horse riding compliance (Recreational horse riding; Horse tour operations; Horse training historical trainers; Horse training commercial trainers)
3. Environmental and cultural impacts at Hoon Hill and Levys Beach.
4. Hooded Plover breeding success
5. Impacts on resident and migratory birds and their habitat
6. Visitor conflicts or impact

The following sections provide context for these management areas and findings from the implementation of the plan strategies to date.

Key directions in the BCR plan:

Partnerships with Traditional Owners will protect and conserve Aboriginal features, places and objects of cultural significance.

Coordinated management of the Reserve with other land managers being Warrnambool City Council, Moyne Shire and DELWP.

Protect native vegetation and priority habitats for nationally and internationally protected species and the condition improved by reducing disturbance, rehabilitating priority areas, managing weeds and pests, and implementing control measures for sustainable access and use.

A more inviting visitor experience by providing sustainable, rationalised access and facilities to minimise the impact of visitor activities e.g. dog walking and recreational horse riding, on environmental and cultural values.

To establish the legislative and regulatory environment to manage commercial horse training in the reserve at Levys Beach and Hoon Hill.

2. Review Assessment

2.1 Dog walking Compliance

The beaches between Port Fairy and Warrnambool are frequently used by visitors with dogs. Many people bring their dogs to the beach not just for exercising, but as companions to enjoy a range of leisure activities in nature. The interests of dog owners must be balanced with the potential risks posed by dogs to the environmental and cultural values of the reserve. Dogs can impact the reserve in several ways, including impacts to wildlife, in particular disturbance to beach nesting shorebirds, and the experience of other visitors.

Management Plan Strategies

The strategies in the plan aim to protect the most significant areas for shorebird breeding from disturbances including those from dogs. The management zoning provides for on-lead dog walking all year along the shoreline within the Conservation and Recreation Zone, including the Special Management Area Overlay along the base of the dunes abutting the conservation zone. Dogs are not permitted within the Conservation Zone located along the central part of the Reserve extending 5 metres seaward from the base of the dunes.

Killarney Beach, managed by Moyne Shire, remains an off-lead area for dog walking but is subject to seasonal restrictions. Buffer zones along the dune line and at identified breeding sites i.e. during the breeding seasons for beach nesting birds, help to safeguard protected species from dogs, whether on lead or off lead.

2.1.1 Review findings

To ensure that the visitor experience of walking with dogs is managed in the reserve the introduction of the dog walking rules and restrictions was supported by a period of education and public information to support community acceptance and adjustment. Monitoring of compliance with on-leash rules and education of visitors was the approach taken prior to regulations being in place. An education campaign targeting park visitors, neighbouring residents and the community was implemented and included:

- Signage defining dog walking regulations installed in prominent locations.
- Ranger patrols including joint patrols with Moyne Shire Council.
- Monitoring of visitor behaviour data including off-leash dogs during patrols.

The BCR Plan outlines the following measures to assess compliance with dog walking strategies:

- Compliance with regulations / number and type of dog related infringements or offences
- Observation and recording the number of off-leash dogs
- Impacts and disturbance to beach nesting birds (see 3.4 Hooded Plover breeding success)



- Developing and distributing a visitor map clearly showing where activities are allowed with the Reserve. This is provided as Attachment 1.
- Community education activities including ‘Dog’s breakfasts’ with BirdLife Australia and market stalls.
- Producing a video on the Parks Victoria website outlining the changes to dog walking rules.

The regulations for the reserve became enforceable in early 2021. The regulations formalise the controls on visitor behaviour and enable enforcement and the issuing of infringement notices including for dog related non-compliance. Detailed patrol log data has been recorded by Parks Victoria since September 2020, which covers the period prior to and following regulations being place.

The figure below ‘Patrol observations – Dogs’ shows that for the period September to November 2020 and the period December 2020 to January 2021 there was over 60% non-compliance with the dog on-leash regulations. This increased to 80% non-compliance for the period February to March 2021. There has been a reduction in non-compliance to just over 50% in April 2021. Over 90% of people complied with the on-lead rules when approached or spoken with by Rangers and a number of people put their dogs on-lead when a Ranger was seen. There have been several infringement notices issued in the past months.

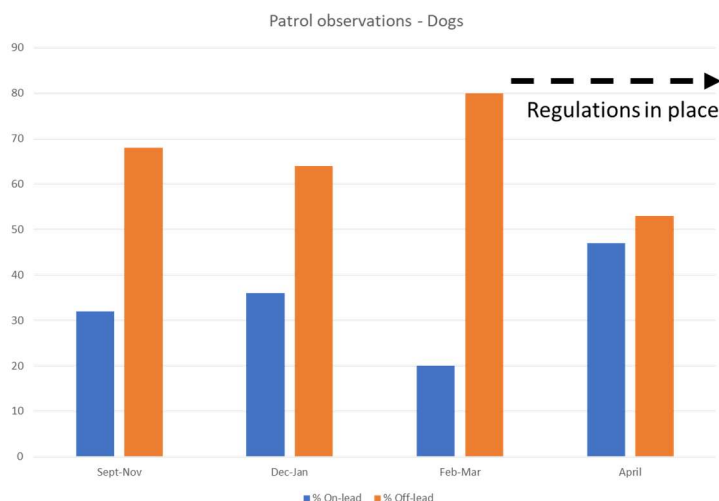


Figure 1: Patrol observations - Dogs

Authorised Officers report that visitors to the reserve are largely aware of the dog regulations but a high percentage are choosing to not comply.

Recommendations.

- Continue providing community information about on-leash dog regulations through various media, visitor education, ranger patrols and cross-agency promotion. Continue the enforcement of regulations through ranger patrols, issuing of warning letters and infringement notices or court summons depending on the severity of breaches of regulations. Continue to work with and support Birdlife Australia and the Far South West Friends of the Hooded Plover to identify and demarcate Hooded Plover habitat for protection from roaming dogs. Continue to actively manage and monitor compliance with the new regulations and respond to partner agency and other reports of dogs off-lead and/or in Hooded Plover nest areas.

2.2 Horse Riding Compliance

The review has differentiated four types of horse riding that occurs within the reserve as there are differences in their operations, frequency and potential impacts on reserve values, visitor amenity or safety. These are:

1. Recreational horse riding
2. Recreational horse licensed tour operations
3. Racehorse training - historical trainers
4. Racehorse training - commercial trainers

One of the potential impacts of horses on beaches in the reserve is the disturbance of beach-nesting shorebirds, their eggs and chicks during the breeding season.

Management Plan Strategies

The strategies in the plan aim to provide all four forms of horse riding in the reserve and be managed so that environmental and cultural values are protected, and for visitor conflicts to be minimised. Through management plan zoning, regulations and licensing the management of horse riding involves:

1. restrictions on the areas available. Horse riding is permitted all year on the waterline of beaches within the Conservation and Recreation Zone, including the Special Management Area Overlay. Horse riding is not permitted within the Conservation Zone, which includes parts of the beach which are within 5 m of the base of dunes. Horse riding is permitted on designated access tracks and designated carparks in all zones;
2. a Licensed Tour Operator permit that includes restrictions on the areas accessible to horse tours. Horses are permitted on designated access tracks and designated carparks;
3. a commercial licence between Parks Victoria for historical and individual trainers for up to four horses with restrictions on the areas available for training;
4. a commercial licence between Parks Victoria and the Warrnambool Racing Club for commercial trainers with restrictions on the areas available for training at Levys beach and in the Hoon Hill dune area.

The BCR plan outlines the following measures to assess compliance with horse riding strategies:

- Compliance with regulations
- Compliance with licence conditions (where applicable)
- Impacts and disturbance to beach nesting birds (see 3.4 Hooded Plover breeding success)
- Impacts to other environmental values (vegetation / erosion)
- Risks to Cultural Heritage values



2.2.1 Review findings recreational horse riding

Recreational horse riders have been using the beaches for many years. This activity can cause impacts such as illegal off-track riding in the dunes which can generate erosion, damage cultural heritage sites and impact biodiversity. There are also potential risks and conflicts with other visitors, especially when there is limited space. The approach for has been education and monitoring compliance. That is, focussing on horse riders following the rules and staying in approved areas and tracks.

To reduce impacts on environmental or cultural values several informal tracks have been closed including from Spookys to Hoon Hill, a track on north side of Hoon Hill closed to horses (remains open for pedestrians only) and informal tracks west of Gormans Lane beach access.

Observations are that there is currently a low level of recreational horse riding in the reserve. Patrol log data for the past several months has recorded only 19 instances of recreational riding in the reserve, with 2 observations of riding within 20 metres of a hooded plover nest.

The strategy to implement a permit system for group recreational horse riders has not been necessary to date given the level of use.

Recommendations:

- Continue providing community information about horse riding regulations through various media, visitor education, ranger patrols and cross-agency promotion. Continue to work with and support Birdlife Australia and the Far South West Friends of the Hooded Plover to identify and demarcate Hooded Plover habitat for protection from horses.

2.2.2 Review findings Recreational horse licensed tour operations

There is one to operator licensed with Parks Victoria to undertake recreational riding tours within the reserve - Rundell's Mahogany Trail Rides. These guided services access the reserve beaches from Big Baldy and Spookys track, and previously used Kellys Swamp track, Roller Coaster and Sarahs tracks. Access to some tracks with known or exposed Aboriginal cultural heritage has ceased until impacts can be mitigated (Hoon Hill, Sarahs Track, and Roller Coaster).

Licence conditions for tour operators include comprehensive protections for cultural values, natural values and other beach users. The approach has been to work with the existing Licenced Tour Operator and provide support to implement the required actions for expanding the track network available for tour operations in line with BCR plan. This may involve further assessment for environmental and cultural heritage impacts.

Recommendations:

- Continue the Licenced Tour Operator permit for guided horse riding tours in the reserve. Continue to monitor and manage compliance with licence conditions and address any breaches of conditions or reserve regulations. Continue to work with Licensed Tour Operators to promote and encourage sustainable and legally compliant access to trails and beaches in the reserve.

2.2.3 Review findings Horse training – Historical trainers

Local racehorse trainers have also been using beaches in the Reserve for many years for resistance training and rehabilitation. In response to increasing use of the Reserve, ‘historical’ horse training requires a licence. Parks Victoria and Moyne Shire Council have established horse training licences for local historical trainers with strict licence conditions. Local, small-scale registered trainers from within Moyne Shire or City of Warrnambool who previously used parts of the Reserve prior to 2008 and who have demonstrated historical use were able to qualify for an individual licence for historical use.

Parks Victoria managed a process that identified eighteen trainers as eligible and eleven trainers have proceeded to obtain licences. The licences will sunset when the individual trainers cease to train on the reserve. The trainers also undertook cultural awareness training facilitated by Eastern Maar Aboriginal Corporation.

The locations at Killarney Beach and Rutledges Cutting are for specified periods of the year that avoid Hooded Plover breeding season and peak recreation times. Management of the historical horse training has also involved regular monitoring by quadrat vegetation survey and erosion depth measurement of the horse access track at the Rutledges Cutting car park. Track width and depth measurements over time may be sufficient to show gross changes but not subtle changes. The measurements to date have shown some change over the short period of monitoring, but are inconclusive as to the definitive cause(s) of change. Periodic monitoring will continue.

Compliance monitoring of historical trainers has found full compliance with licence conditions, and no substantiated complaints regarding historical trainers have been received from the public. There have been reports of unlicensed training within the Reserve, which have been investigated and resolved.

Recommendations:

- Continue the licence scheme for historical racehorse trainers. Continue to monitor and manage compliance with licence conditions, enforcing breaches of conditions or reserve regulations as necessary. Continue erosion and environmental impact monitoring.



2.2.4 Review findings Horse training – Commercial trainers

Commercial horse training in the reserve is highlighted in the plan as an important activity for the regional economy. The plan sets out an approach for horse training that balances support for the racing industry, equity of access for all trainers and protection for cultural and natural values.

Parks Victoria supported by DELWP has worked with the Warrnambool Racing Club to put in place a licence with conditions and meet the regulatory requirements to manage commercial horse training in the reserve. The Warrnambool Racing Club completed some of the required assessments and approvals including a Cultural Heritage Management Plan, *Marine and Coastal Act 2018* consent and an Environmental Management Plan that requires environmental monitoring at Levys Beach and Hoon Hill. At time of review, there are still regulatory approvals required for the licence to be activated and utilised, including a new *Marine and Coastal Act 2018* consent, and approvals from Warrnambool City Council.

Access to the training areas is through the Spookys beach access track and will need to meet the requirements of the land manager Warrnambool City Council to proceed. To date the WRC has not activated the commercial licence for racehorse training on the reserve.

Recommendation:

- If/when commercial racehorse training is activated, ensure licence conditions and regulatory requirements are met.

2.3 Environmental and cultural impacts at Hoon Hill and Levys Beach

Management Plan Strategies

Monitoring of the beaches, dunes and vegetation will form part of the ongoing management of racehorse training in the Reserve at Levys Beach and Hoon Hill. An environmental monitoring plan has been completed by WRC, refer section 2.2.4.

The measures used to assess environmental and cultural impacts to these areas are:

- Environmental impacts: to monitor and report on sand/soil loss and movement, and changes in vegetation structure and composition at Hoon Hill and Levys Beach, from commercial horse training;
- Cultural impacts – to undertake commercial horse training and associated site interventions and management controls at Levys Beach and Hoon Hill in accordance with an approved Cultural Heritage Management Plan and monitoring regime.

2.3.1 Review findings

To date the Warrnambool Racing Club has not activated the commercial licence for racehorse training on the reserve. Accordingly, following the environmental monitoring required at initiation to create the plan, no further monitoring has been undertaken related to the strategies in the plan.

Recommendation:

- Ensure licence conditions and regulatory requirements are met when commercial racehorse training occurs.

2.4 Hooded Plover breeding success

The protection of vulnerable fauna such as Hooded Plover requires reducing threats through controls on the key impacting activities of dogs, horses and people. The Hooded Plover and several other shorebirds breed on the beaches from August to March, which coincides with the peak visitor period. It is therefore critical that the most significant areas for shorebird breeding are protected from disturbances.

Management Plan strategies

The plan strategies aim to protect Hooded Plover nests and chicks through a range of initiatives. These include:

- implementation of a predator control programs;
- creation of management zones specifying where dog-walking and horse riding is permitted;
- protection of Hooded Plover from trampling through the erection of temporary fencing and signage around individual breeding sites;
- targeted Hooded Plover nest monitoring to understand breeding success and the range of specific threats at sites;
- use of monitoring results to inform/adapt management of visitor activity and use.

Park Victoria has an ongoing partnership with Birdlife Australia and the Far West Friends of Hooded Plover volunteers for monitoring and protection of Hooded Plover habitat and breeding sites and generating information for user groups on how to ensure minimal impact on shorebirds.

The measures which have been used to assess Hooded Plover breeding success are:

- Records of Hooded Plover breeding success
- Evidence of impacts and disturbance to beach nesting birds, fenced nesting areas, nest and chicks (from off-leash dogs or horses)
- Records of Hooded Plover nest and fledgling failures



2.4.1 Review findings

A number of the immediate strategies relating to Hooded Plover breeding success have been implemented including a fox control program, BirdLife Australia and the Far West Friends of Hooded Plover's monitoring, installation of signage and erection of temporary fencing, and a community education campaign, particularly in relation to responsible dog walking.

Parks Victoria, in collaboration with BirdLife Australia and the Far West Friends of the Hooded Plover has collected comprehensive data and observations over several years on the success, failures and threats to Hooded Plover and other beach nesting birds. BirdLife Australia has provided Parks Victoria and DELWP with

reports on fifteen years of nest monitoring within the reserve (from 2006-007 to 2020-21), and five years of targeted research into disturbance vectors and impacts on Hooded Plovers and other beach nesting birds. These reports are still in draft, and preliminary key information is presented below.

Hooded Plover breeding sites within western Victoria were monitored intensively across the breeding season (August to April) as part of BirdLife Australia’s Beach-nesting Birds Program. In a Victorian context, the Belfast Coastal Reserve has contributed an average of 14.2% of fledglings to the population each season of the total fledglings produced across pairs selected as part of the Beach-nesting Birds Program.

Over the fifteen seasons, Belfast Coastal Reserve has produced an average of 0.44 fledglings per pair which meets current recovery targets. This has been subject to high variation, ranging from 0 to 1.36 fledglings/pair, and with 9 out of 15 (60%) seasons coming in under the target. The trend is towards Belfast having higher fledging production in the past seven seasons (from 2014/2015) than compared to earlier years.

Nests most commonly occurred on the beach in western Victoria, and foredune and rocky outcrops were also favoured nesting habitats, the latter particularly within the Belfast Coastal Reserve where availability of this habitat type is high. The breeding season starts later and ends later in Western Victoria than in other regions (including within Victoria and South Australia). Most nests are laid between October-February. The later in the season the nest is laid, the higher likelihood it hatches (with the exception of April nests).

The data shows success of nests may vary with month of laying, and the figure below compares the average number of nests hatching versus failing (to hatch) according to the month they are laid. Nests laid from January to March have a higher chance of hatching compared with earlier in the season, and March nests have the highest success rate. The trend overall is for nests to have a higher likelihood of hatching as the season progresses, with the exception of April nests. Poor nest survival in the earlier months, with failure rates peaking in November and December, is similar to the pattern on the Bellarine Peninsula and Surf Coast.

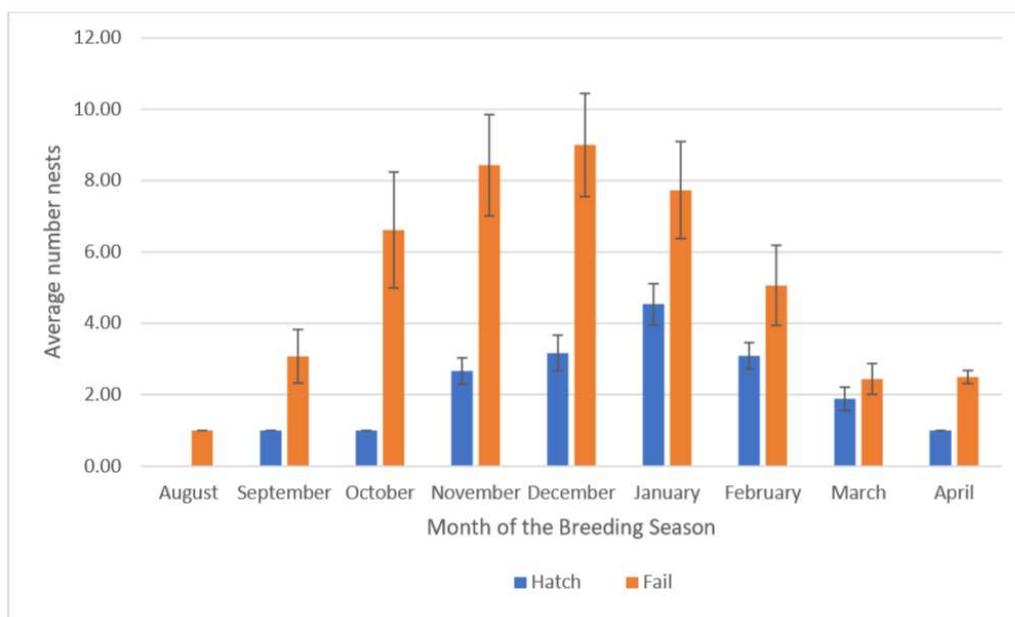


Figure 2: Month of the Breeding season.

The figure above shows average number (with standard error) of nests hatching versus failing per month of the breeding season for western Victoria, based on 15 seasons of data. (Source: Birdlife Australia (2021) Fifteen seasons of monitoring breeding success of hooded plovers in western Victoria *draft report*).

Breeding success of Hooded Plovers can be assessed according to a number of parameters, including hatching success (egg survival), chick survival (the number of chicks that survive to fledge) and the proportion of nests fledging young. The most powerful breeding success parameter is the fledglings produced per breeding pair because this best reflects recruitment capacity of the current population and is a proxy for future recruitment into the breeding population.

The table below for the Belfast Coastal Reserve provides the breakdown of nest outcomes across seasons, with averages, for the number of pairs monitored, number of fledglings produced by those pairs and the fledgling per pair standardised breeding success figure. Across all seasons combined (13 with enough data for comparison), 76% of nests failed, 24% hatched and 12% fledged young (488 nests). Compared to western Victoria as a whole, results are similar, with the exception of 2012-13 which had poorer hatching success within Belfast Coastal Reserve than within the western Victoria region as a whole.

Season	Visits	Pairs	Visits/pair	Nests	Failed nests	Hatched nests	Fledged nests	% failing	% hatching	% fledging
2007/2008	200	12	16.7	13	8	5	1	61.5%	38.5%	7.7%
2009/2010	363	14	25.9	34	17	17	10	50.0%	50.0%	29.4%
2010/2011	191	14	13.6	42	37	5	1	88.1%	11.9%	2.4%
2011/2012	155	11	14.1	28	27	1	0	96.4%	3.6%	0.0%
2012/2013	155	14	11.1	20	17	3	1	85.0%	15.0%	5.0%
2013/2014	242	19	12.7	32	24	8	2	75.0%	25.0%	6.3%
2014/2015	146	10	14.6	20	11	9	3	55.0%	45.0%	15.0%
2015/2016	160	11	14.5	28	18	10	7	64.3%	35.7%	25.0%
2016/2017	444	24	18.5	52	40	12	10	76.9%	23.1%	19.2%
2017/2018	735	24	30.6	59	45	14	8	76.3%	23.7%	13.6%
2018/2019	492	26	18.9	37	27	10	5	73.0%	27.0%	13.5%
2019/2020	1186	21	56.5	56	47	9	4	83.9%	16.1%	7.1%
2020/2021	523	21	24.9	67	53	14	7	79.1%	20.9%	10.4%
Average	384.0	17.0	21.0	37.5	28.5	9.0	4.5	74.2%	25.8%	11.9%

Figure 3: Belfast Coastal Reserve nest outcomes.

Note green highlighting indicates higher than average success, while yellow highlighting indicates lower than average success. Note 2006/2007 and 2008-09 were excluded due to inadequate number of pairs monitored within Belfast Coastal Reserve in those seasons. (Source: Birdlife Australia (2021) Fifteen seasons of monitoring breeding success of hooded plovers in western Victoria *draft report*).

A separate draft report by Birdlife Australia into human related disturbance to incubating Hooded Plovers in Western Victoria, analyses threat data from snapshot assessments made during breeding monitoring visits (within 100 metre radius of the birds/their nest) for five seasons (2016-17 to 2020-21) providing insights into the distribution of threats across the Belfast Coastal Reserve.

In summary, the data in the table below shows 764 disturbance events recorded across 65 nest observations.

	Disturbance type	Total recorded
Human (N = 382)	Walker/jogger	252
	Dog on leash	48
	Dog off leash	63
	Fisherman	2
	Surfer	9
	Horse 1	1
	Other human	7
Natural (N = 382)	Gull	309
	Raven	48
	Bird of prey	19
	Magpie	5
	TOTAL	764

Figure 4: Disturbance types by category

The monitoring data and reports indicates there is regional variation across Victoria in timing of the breeding season as well as timing of threats. This provides managers with information about chick survival and fledging success for different locations within the Reserve and about the factors impacting breeding success. The data shows that Hooded Plovers are highly susceptible to a range of disturbances that negatively impact breeding success, particularly off-leash dogs, and that the protective buffer distances around nests should be in the order of 100 metres to effectively protect birds from human disturbance.

In addition, a study was conducted by BirdLife Australia and Deakin University into effects on beach invertebrate assemblage of horse activity on beaches within Belfast Coastal Reserve, and other like beaches in South-western Victoria. This study concluded that horses disrupt the sand matrix on beaches and can alter assemblage structures of invertebrates at many beaches. The extent to which this alteration compromises the function of sandy shore food webs should be the subject of further, experimental study.



Recommendations:

- Continue to invest in volunteer monitoring and on-ground protection of nests (signage, fencing). Increase community awareness and education and where necessary compliance, particularly in areas of the Reserve with a high occurrence of off-leash dogs. Investigate further methods of implementing protective buffer distances around nests on the Reserve.

2.5 Impacts on resident and migratory birds and their habitat

Beach nesting birds, migratory waders and a rich variety of native plants and animals can be found in the Reserve's wetlands, beaches, dunes and waters. Much of the original flora of south-west Victoria has been cleared for agriculture and the Belfast Coastal Reserve provides an important refuge for species of local, national, and international significance.

Management Plan strategies

The plan's strategies aim to reduce disturbance to vulnerable fauna and their habitat including for migratory birds by implementing park zoning and access regulations. On-ground works include reducing the impact of browsing animals on priority habitat areas, such as for the Orange-bellied Parrot. Targeted fox control programs within the reserve and across adjoining land management areas aim to minimise predation on vulnerable species, such as shorebird and waterbird breeding sites.

Monitoring strategies aim to evaluate trends in predation and fauna populations and include regular migratory shorebird, beach nesting bird counts, breeding success observations, and regular predator population monitoring.

The measures used to assess resident and migratory birds are:

- Annual bird count of Orange-bellied Parrot
- Evidence of impacts and disturbance, refer to section 3.4
- Pest plant and pest animal programs



2.5.1 Review findings

An annual fox control program has been implemented in the Reserve for the review period, and for some years prior. Parks Victoria and Warrnambool City Council have worked collaboratively on predator management in the eastern part of the Belfast Coastal Reserve and extending through the Thunder Point and Merri Marine Sanctuary areas to protect sensitive populations of beach nesting birds and the Middle Island Little Penguin colony. Small-scale, localised pest plant treatment has been undertaken by Parks Victoria staff and volunteer groups, reducing weed infestation and seeking improvement in the extent of native vegetation communities and condition of habitat. Emerging pest plant threats, including Cape Beach Daisy, *Arctotheca populifolia*, have been identified and options sought for treatment and monitoring.

Recommendations:

- Continue to implement the dog walking and horse riding management strategies. Continue to protect and enhance shorebird habitat by undertaking/supporting pest plant removal programs. Continue to undertake fox baiting to reduce predation by foxes. Continue to partner with DELWP and Birdlife Australia on maintaining Orange Bellied Parrot habitat in the reserve.

2.6 Visitor conflicts or impacts

Visitors to the Reserve commonly value the ability to escape to nature, enjoy the scenery, rest and relax, socialise or exercise in a setting removed from the busier developed areas to the immediate east and west. This accords with the vision for the Reserve as providing a natural environment, a place to appreciate and connect to nature.

Management Plan strategies

The plan strategies aim to minimise the impact of visitor activities on environmental and cultural values. The reserve zoning supports management by identifying the areas where the range of recreational activities can occur and can reduce conflicts between different uses of the Reserve. Interpretation and education of visitors about the values in the reserve, for example: though signage for visitor orientation and interpretation and safety to support appropriate visitor behaviour. Other strategies include closing illegal vehicle access points and closing and rehabilitating informal tracks to reduce the impacts of fragmentation in dunes, foredunes and wetlands.

2.6.1 Review findings

Implementation of the strategies in the plan has been undertaken with a modest budget and resources. Signage identifying the values in the reserve and the regulations has been installed in prominent locations of carparks and entrances to beach access tracks and several informal tracks have been closed. A targeted compliance operation to address illegal off-road driving enforcement was conducted in partnership with Victoria Police in 2020, and further compliance is ongoing.

Other works for managing recreational uses and site protection include development and communication distribution of materials to educate park visitors on established management zones and permitted activities (see Attachment 1). Parks Victoria Rangers ran information sessions at local community markets and specific events such as the Koroit Sheepdog Trials, and BirdLife Australia ran several “Dogs Breakfast” events to effectively message changes to conditions for dog walking within the reserve.

Recommendations:

- Continue to monitor and manage allowable uses and engage and educate visitors about the reserve values and where specific activities are appropriate. Maintain the regulatory, interpretive and risk management signage. Continue to consolidate and improve roads, car parks, and access tracks to reduce duplication, visitor risk and adverse environmental impacts. Continue to enforce the reserve regulations, the *Wildlife Act 1975* and other relevant legislation. Refer breaches of other legislation where appropriate. For example: *Aboriginal Heritage Act 2006*, *Summary Offences Act 1966*.

The measures used to assess visitor conflicts or impacts are:

- Signage at key visitor sites and access points
- Assessment and action on closing illegal access
- Monitoring of visitor behaviour for compliance with regulations



Attachment 1

Belfast Coastal Reserve - Recreational User Map

