APPENDIX 7-6

Collision Monitoring Report

Planning and Environmental Consultants

Appendix 7-6 - Collision Monitoring Report

Taurbeg Wind Farm Extension of Operational Life

DOCUMENT DETAILS

Client:	**Taurbeg Ltd.**
Project Title:	**Taurbeg Wind Farm Extension of Operational Life**
Project Number:	**231030-f**
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Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

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01	Final	30.06.2025	AL	CB

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1. INTRODUCTION

MKO was commissioned by Taurbeg Ltd. to complete dog-led collision monitoring surveys as part of an application for the continued operation of the existing Taurbeg Wind Farm, Rockchapel, Co. Cork, as permitted by Cork County Council (Pl. Reg. Ref: N/2002/3608), for a further period of 10 years from the date of the expiry of the current planning permission (2026). The 'Proposed Lifetime Extension' is described in detail in Chapter 4 of the Environmental Impact Assessment Report (EIAR). In this report, the "Site" is defined as the existing Taurbeg Wind Farm site.

The surveys outlined in this report were conducted to monitor any potential turbine related bird or bat fatalities at the site, and to provide an estimate of potential turbine collision related mortality associated with the Proposed Lifetime Extension.

This report provides details of the surveys undertaken, including survey design, methods used to carry out those surveys, and results of those surveys. Surveys presented in this report were undertaken between January 2024 and May 2025 and included carcass searches, searcher efficiency trials and scavenger activity trials on site. Surveys are being continued on-site. Any recommendations that may inform additional mitigation measures during the extended operational phase of the wind farm are prescribed below.

1.1 Background

Traditionally, carcass searches were carried out by human observers by means of walking transects and visually identifying the carcasses. Their effectiveness, however, was affected by a variety of variables, such as size, colour and decomposition of the carcass, topography, weather conditions, vegetation type and density in the environment, and finally observer competency in detecting the carcasses. Hence, according to earlier studies, human searches are frequently carried out with low efficiency rates, which causes a significant bias in mortality estimates.

According to Bernardino *et al.* (2012), the employment of dogs and their olfactory capabilities may boost carcass detection rates. Numerous studies have shown and proven that dogs have a superior ability to detect bird and bat carcasses in respect to humans, particularly with small carcasses or when the carcasses are located in dense vegetation (Arnett 2006, Horman 2001, Mathews F.M. 2013, Paula 2011, Reed 2011, Rafael Barrientosa 2018).

While the guidelines provide recommendations in relation to methodologies, dog-led searches require flexibility while conducting surveys: *"the dog and handler must adapt their survey technique to the current site conditions"*, Bennet (2015). Additionally, the usage of transects should only be used as a guide, with freedom to stray from it if necessary. Bennet also states that a trained dog should be able to pick up the target smells prior to the survey starting, highlighting the importance of allowing the dog the opportunity to "follow the nose" and look for the desired odours somewhat independently. Dog teams are deployed to carry out searches at turbines bases starting at dawn each morning to reduce the possibility of carcasses being removed by scavengers.

It should be emphasized that the dog's ability to find carcass odour can be significantly influenced by wind conditions, as the scent travels with the wind. Hence, each search should ideally start downwind on the outer edge of the search area, and the transect walked horizontally across the wind while also moving upwind. Bennet (2015) lists a number of environmental variables that affect search efficiency rates, which can be seen in Table 1-1.

Table 1-1 Factors influencing a dog's ability to detect carcasses.

Consideration	Issue	Management
Relationship between dog and handler	Handler must be able to monitor the dog's performance to determine interest and likely success on a day-by-day, and hour-by-hour basis	Handlers should be appropriately experienced with dog training and behaviour
	Handler must recognise when the dog has detected a scent to enable them to go off transect	Dog and handler should live together and have a strong relationship outside of work
		Regularly use roadkill to stimulate success and monitor performance
Wind speed: Still	On days with no wind there is nothing to carry the scent of the carcass to the dog and detection will be more difficult	Identify days as low wind
		Reduce the distance between transects to allow the dog to cover more ground and be closer to the source of the scent
Wind speed: Low-Medium	Ideal scenting conditions for dogs	Maximum spacing between transects
Wind speed: High	Dogs will become overloaded with scents from much further than the survey area	Reduce spacing between transacts on downwind side of turbine. Allow the dog freedom to follow scents off transects
Wind speed: Extreme	It is more difficult for dogs to locate sources of scents in extreme wind conditions	Allow the dog freedom to follow scents. Maintain constant spacing along transects. Encourage the dog more frequently. Use roadkill to simulate success and monitor performance
1Temperature: Cold (<8°C approximately)	Scents are reduced in cold conditions	Reduce the distance between transects to allow the dog to cover more ground and be closer to the source of the scent
Temperature Mildly cool to warm (<30°C approximately)	As scents warm up, they become more readily detected	Maintain recommended transect distances (dependent upon wind and precipitation)
Topography: flat	Scents are readily carried from one side of the survey area to the other	Maximum transect spacing
Topography:	Undulating Scents may not be uniformly detected across the site	Ensure transects encompass depressions as well as rises
Topography: Steep	Steep sites may reduce exposure to scents depending upon the interaction with the wind	Ensure transects are crossing the direction of wind from the survey area
Vegetation: low (<5cm)	Detection is based on vision and scent	Maximum transect spacing
Vegetation: medium to tall grass	Dogs may be below the optimum scenting area and vegetation may reduce the exposure of the scent to wind	Ensure the dog has the freedom to "hop/bounce" through the survey area to reach the scents above the vegetation height
Vegetation: dense heath land	Vegetation may reduce the exposure of the scent to wind	Ensure dogs are adequately target trained to eliminate confounding scents. Reduce transects to cover more terrain
	Scented vegetation (i.e. flowers) may increase the time to find target scents	
Vegetation: Trees/Scrub	Reduction in wind speed	Reduce distance between transects
Target Species	Large carcasses are more readily detected than small carcasses	Ensure dogs are adequately target trained to eliminate confounding scents
	Carcasses from species not of interest (i.e. lambs, rabbits) can provide additional scents	

1.2 Statement of Authority

Collision Monitoring Surveys were undertaken by MKO Conservation Detection Dog Handlers Cathal Bergin (BSc.) and Jessica Sara Barbara (BSc., MSc.). They were assisted by Dr. Caroline Finlay (PhD), Patrice Kerrigan and Lucy Wilde of Conservation Detection Dogs Northern Ireland. All surveyors are LANTRA [1] accredited handlers with relevant expertise in undertaking the ecological surveys utilised to inform this collision monitoring effort.

The dogs employed in the surveys were Clay (fox-red Labrador), Taio (Springer Spaniel), Kizzy (Springer Spaniel), Niffler (Sprocker), Cain (Labrador), Monty (Springer Spaniel), Ivy (Springer Spaniel), Jasper (Springer Spaniel) and Ziba (German Shorthaired Pointer) and have been specially trained in the detection of bird and bat carcasses.

The Collision Monitoring Report was prepared by Aoife Lyster (BSc). Aoife Lyster has 7 months experience within the MKO Research team, with a focus on conducting carcass efficiency trials. This report has been reviewed by Cathal Bergin (BSc), Aoife Joyce (BSc., MSc.) and John Hynes (BSc., MSc. MCIEEM). Cathal has over 5 years' experience in ecological consultancy and 3 years LANTRA accreted conservation detection dog handler experience. Aoife Joyce has 6 years' experience in advanced bat survey techniques and ecological impact assessments. John is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has over 10 years' professional ecological consultancy experience.

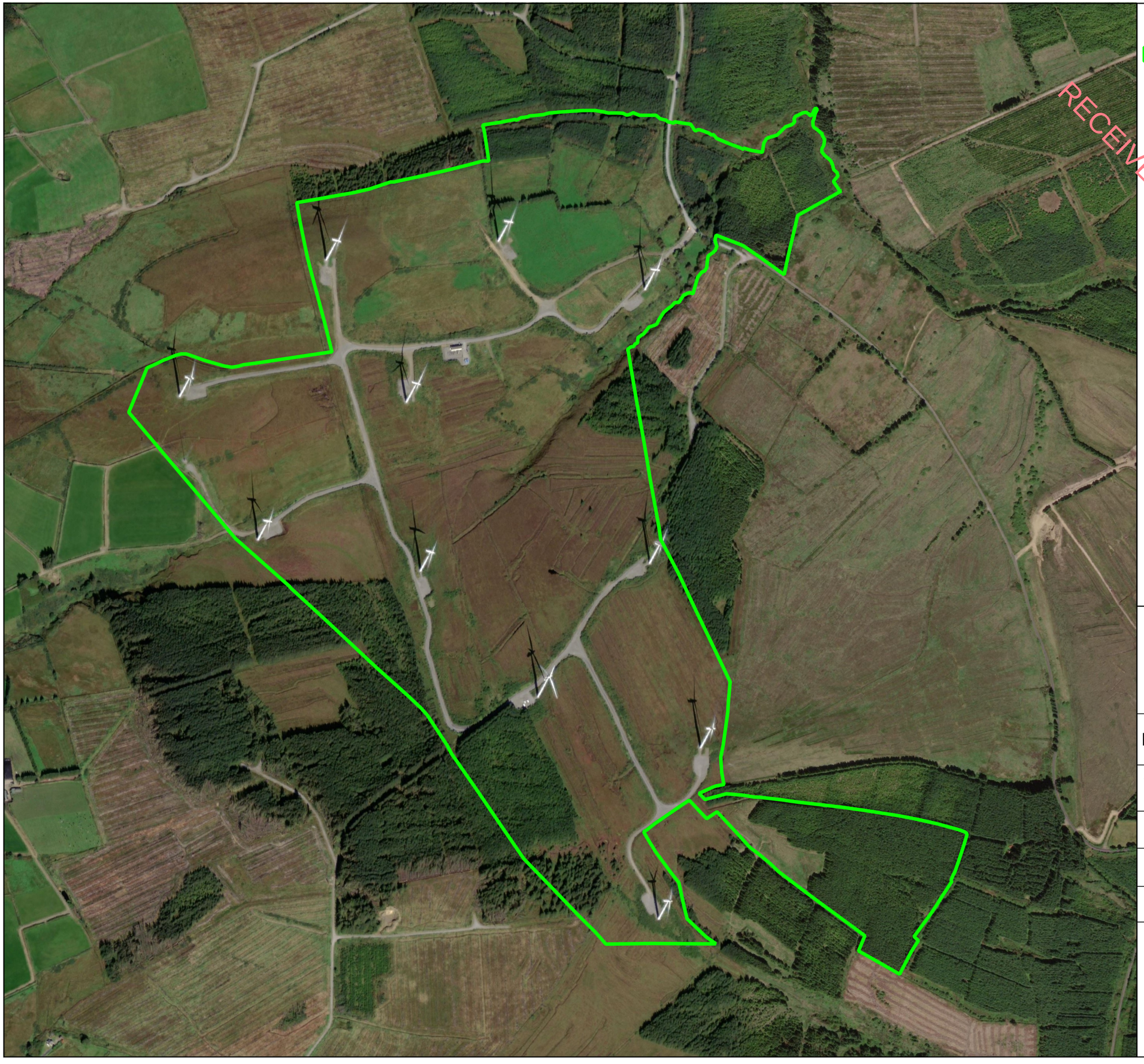
[1] LANTRA as one of the leading awarding bodies for land-based industries in both the UK and the Republic of Ireland have combined with Kryus Ltd a specialized detection dog provider to provide a specialised course aimed to train handlers in the use of detection dogs for conservation purposes.

2. PROJECT DESCRIPTION

Planning permission is sought for the continued operation of the existing Taurbeg Wind Farm, as permitted by Cork County Council (Pl. Reg. Ref: N/2002/3608), for a further period of 10 years from the date of the expiry of the current planning permission (2026) as per Condition no. 7 of the consent issued (the "Proposed Lifetime Extension").

The Proposed Lifetime Extension does not comprise any alterations to the existing operational wind farm.

Details of the Proposed Project are described in full in Chapter 4 of this Environmental Impact Assessment Report (EIAR).



Map Legend

Proposed Lifetime Extension Site Boundary

Drawing Title
Proposed Lifetime Extension Site Boundary

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
NS	EMcC
Project No.	Drawing No.
231030	Figure 2-1
Scale	Date
1:7,000	2025-06-05

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3. METHODS

3.1 Collision Monitoring

3.1.1 Search Area

At the time of designing the scope and carrying out the surveys, there was no standardised boundary surrounding a wind turbine for the detection of bird and bat fatal collisions. The search distance from turbine bases was calculated using a variety of techniques. Recommendations on search areas are listed below.

- Atienza (2011) states "the ground search area has to be at least 10% more than the rotor diameter".
- According to Edkins (2014) "search width should be equal to the maximum rotor tip height".
- Rodrigues (2015) advises a search area with "a radius equal to the total height of the wind turbine, as bats that collide can be blown away from the turbine by strong winds", but due to the impracticality of a 250mx250m search area "it is advisable to search a smaller area (not less than 50m radius)".
- Smallwood (2020) suggests a 50m search area surrounding turbine bases.
- Young (2003) demonstrates how that the majority of bird strikes on wind turbines occur 63 meters or less from the turbine base. And that the chance of carcasses being found outside of this area has recently increased due to the steadily rising turbine height.

The existing Taurbeg Wind Farm consists of 11 Bonus (now Siemens) SWT-2.3-82 turbines with a rotor diameter of 82.4m. A search area covering a minimum search radius of 50m from the base of each turbine was applied in accordance with guidance recommended by Rodrigues 2015.

All carcasses found within the search area, regardless of species, are recorded.

Collision Monitoring Surveys were designed to identify and establish the number and species of bird and bat fatalities suspected to have been brought about by collision with wind turbines. For carcasses where the cause of death was uncertain, the fatality was, according to Johnson *et al.* (2003), assigned to the wind farm. Furthermore, when species identification is questionable, like the case of decaying remains or feather spots, samples are submitted for DNA analysis.

Surveys were undertaken monthly at the site between January 2024 and May 2025. Monthly searches allowed for results to be gathered for bird and bat casualties year-round. Dog-led searches for bird and bat carcasses were conducted by a dog and trainer team, as laid out in Table 3-1 below. The search methodology and trials used to inform carcass detection probability are also described below.

Table 3-1 Detection Dog Teams

Date	Surveyor	Dogs
Jan-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Feb-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Mar-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Apr-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio

May-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Jun-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Jul-24	Cathal Bergin & Jessica Sara Barbara	Cain, Clay, Kizzy, Niffler and Taio
Aug-24	Cathal Bergin & Caroline Finlay	Clay, Taio, Kizzy, Cain, Niffler, Jasper, Monty & Ziba
Sep-24	Cathal Bergin & Lucy Wilde	Cain, Clay, Kizzy, Niffler and Taio
Oct-24	Cathal Bergin & Caroline Finlay	Clay, Taio, Kizzy, Cain, Niffler, Monty & Ziba
Nov-24	Cathal Bergin	Cain, Clay, Kizzy, Niffler and Taio
Dec-24	Cathal Bergin & Caroline Finlay	Clay, Taio, Kizzy, Cain, Niffler, Monty & Ziba
Jan-25	Cathal Bergin & Patrice Kerrigan	Clay, Taio, Kizzy, Cain, Ivy
Feb-25	Cathal Bergin & Caroline Finlay	Clay, Taio, Kizzy, Niffler, Monty, Ivy & Ziba
Mar-25	Cathal Bergin & Caroline Finlay	Clay, Taio, Kizzy, Cain, Niffler, Monty, Ivy & Ziba
Apr-25	Cathal Bergin	Clay, Taio, Cain, Kizzy and Niffler
May-25	Cathal Bergin	Clay, Taio and Niffler

3.1.2 Dog-led Searches

Searches were conducted through dog-led surveys, broadly following the methodologies recommended by Bennet (2015).

Before each survey, meteorological data (temperature and wind speed) and ground cover details (habitat) were recorded. When a carcass was discovered, the GPS location, a photograph, the distance from the turbine and the date and time were recorded. The carcass condition was assessed and assigned to one of the following categories:

- Intact (carcass that is completely intact or not badly decomposed);
- Scavenged (evidence that the carcass was fed upon by a predator); or
- Feather spot (ten or more feathers indicating predation or scavenging or two or more primary feathers must be present to consider the carcass a casualty).

Carcass searching work was calibrated to account for the ability of the search dog to find bird and bat carcasses and likelihood of scavenging by predators (see Section 3.5 below), this ensured a more accurate estimation of the total number of collisions.

3.2 Scavenger Removal Trials

The scavenger removal trials are conducted monthly by leaving a carcass (facing a camera trap) in plots located within the search radius, on a variety of habitats, for a minimum of 21 days, or until scavenger(s) removed the carcasses, before retrieving them. A maximum of two camera traps with carcasses were placed on site per month during the duration of the survey with locations being moved each month. Browning Strike Force Trail Camera model BTC-5PX-1080 along with 64GB SD cards were chosen for use. Low numbers of carcasses are placed at a time on a site to avoid scavenger swarming i.e. when high number of carcasses on site attract higher than usual numbers of scavengers. A determination on carcass removal was made when no body parts containing flesh or bone or >10 disarticulated feathers could be found. Scavenger removal rate was then determined by the amount of scavenging that occurred in the intervening period.

3.3 Searcher Efficiency

To ensure a more accurate estimation of the total number of fatalities, dog-led searches were calibrated to account for the dog's ability to find bird and bat carcasses (searcher efficiency) and the likelihood of carcasses not being found due to scavenging by other animals (scavenger removal).

The searcher efficiency trials were carried out at randomly chosen times during the survey cycle by planting a mixture of bird and bat carcasses within the site and allowing the dog and trainer team(s) to search for them. Searcher efficiency was then based on the percentage retrieval success. One worker left carcasses within the various habitats proportional to habitat representativity in the search area, and the dog and trainer team searched for them in the following hours. This time period aided in hiding any scent of the worker laying the carcasses and allowed a double-blind test to be conducted where the detection team is unaware of the carcasses location or number of carcasses placed in order to simulate as accurately as possible a survey without handler's bias.

3.4 Collision Rates

Collision-related mortality at the Site was estimated using the GenEst software package (version 1.4.9; Dalthorp *et al.,* 2023). The results of carcasses found during collision monitoring surveys was inputted into a model, along with information on the wind farm and survey, such as the number of turbines, the area surveyed and the survey effort. This generated an estimate of mortality at the Site, which was then corrected for searcher efficiency, scavenger removal and detection probability, based on the results of the trials.

4. RESULTS

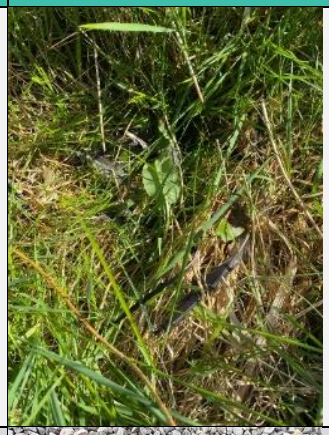
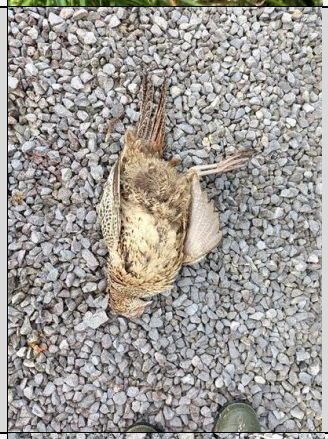
4.1 Collision Monitoring

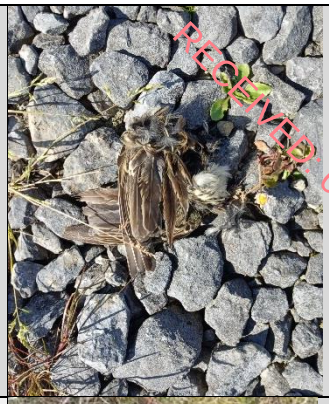
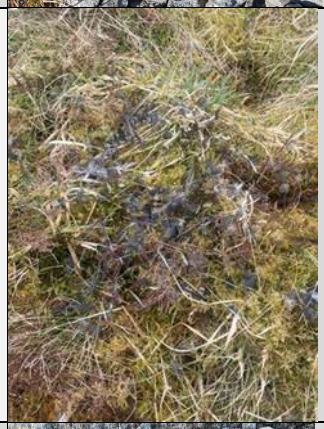
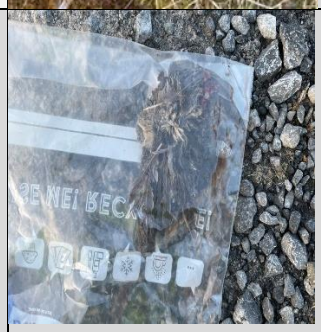
4.1.1 Dog-led Carcass Searches

Throughout the Collision Monitoring Surveys undertaken from January 2024 to May 2025, seven fatalities were discovered. As outlined in Section 3.2, for carcasses where the cause of death was uncertain, the fatality was assigned to the wind farm (Johnson, 2003).

The results of the carcasses found are outlined in Table 4-1 below. Further detailed results are outlined in Appendix 1 to this report.

Table 4-1 Details and photographs of each fatality recorded.

Date	Surveyor	Details	Surrounding Habitat	Photograph
16/05/24	Cathal Bergin and Clay	Corvid feather spot found 23m from T2 on recently felled woodland on 16/05/2024.	WS4	
20/06/2024	Jessica and Kizzy	Intact female pheasant found 1m from T11, on hardstand on 20/06/24	BL3	
20/06/24	Jessica and Cain	Intact-decomposed chaffinch found 36m from T11 on hardstand on 20/06/24.	BL3	

20/06/24	Jessica and Cain	Scavenged small passerine found 19m from T7 on hardstand on 20/06/24.	BL3	
12/03/2025	Cathal and Niffler	Featherspot of skylark found 35m from T5 on heath on 12/03/2025	HH	
03/04/2025	Cathal and Taio	Meadow pipit found 23m from T7 on road.	Bl3	
03/04/2025	Cathal and Kizzy	Feather spot of female pheasant found 35m from T6 in scrub.	WS1	

*WS1 (Scrub), **GA1 (Improved Agricultural Grassland), ***BC1 (Arable Crop), ****BL3 (Buildings and Artificial Surfaces)

4.2 Scavenger Removal Trial

Scavenger removal trials conducted over the duration of the survey cycle sought to gain an insight into scavenger activity levels on site. Results from the scavenger removal trials, represented in Table 4-2, show that predation time varies on the Site. It should be noted that on occasion the predation event was not seen, although the carcass was gone upon retrieval. In these cases, days from time of placement until collection were attributed. The median number of days a carcass persisted on site for was 5.6 days suggesting high predation. Predators recorded were predominantly foxes and hooded crows.

Table 4-2 Scavenger Removal Trial Results

Turbine	Carcass	Date and time laid	Date and time scavenged/recovered	Predator
11	Mouse	23/01/2024 09:05	24/01/2024 09:02	Hooded Crow
1	Mouse	25/01/2024 12:05	20/02/2024 10:53	n/a Carcass present
12	Mouse	20/02/2024 12:28	01/03/2024 02:24	Pine martin
7	Mouse	20/02/2024 13:33	03/03/2024 08:01	Hooded Crow
8	Pinky	13/03/2024 09:55	04/04/2024 23:59	Fox
6	Pinky	13/03/2024 09:55	15/03/2024 09:44	Hooded crow
5	Mouse	18/04/2024 11:10	20/04/2024 23:49	Fox
2	Pinky	18/04/2024 12:30	16/05/2024 11:00	Carcass absent, unknown predator
3	Pinky	16/05/2024	29/05/2024	Fox
9	Pinky	16/05/2024 08:00	20/06/2024 07:35	Carcass absent, unknown predator
8	Pinky	20/06/2024 11:15	20/06/2024 11:10	CT malfunction, event not captured
6	Pinky	20/06/2024 11:20	20/06/2024 10:30	Scavenger event not seen; cattle moved CT
7	Baby mouse	19/07/2024 11:30	05/08/2024 17:32	Hooded crow
5	Mouse	19/07/2024 10:39	26/07/2024 13:11	Carcass absent, unknown predator
8	Large white rat	20/08/2024 11:00	26/08/2024 10:00	Fox
2	Mouse	20/08/2024 12:00	26/08/2024 10:30	Carcass absent, unknown predator
5	Mouse	27/09/2024 11:25	01/10/2024 09:47	Fox
7	Mouse	27/09/2024 11:45	07/10/2024 09:08	Hooded crow
2	Baby mouse	17/10/2024 14:05	17/10/2024 15:58	Hooded crow
6	Mouse	17/10/2024 14:02	05/11/2024 03:27	Fox
12	Rat	30/11/2024 10:35	03/12/2024 03:09	Fox

7	Mouse	30/11/2024 13:15	01/12/2024 15:43	Hooded crow
3	Mouse	19/12/2024 12:20	29/01/2024 8:00	CT fell over, event not seen
10	Mouse	29/01/2025 12:30	20/02/2025 9:25	CT malfunctioned, event not seen
9	Chick	19/02/2025 11:02	12/03/2025 8:35	Carcass present
11	Chick	13/03/2025 12:00	03/04/2025 7:35	Carcass present
1	Mouse	03-04-2025 10:00	28-05-2025 08:50	Absent CT malfunctioned

*WS1 (Scrub), **GA1 (Improved Agricultural Grassland), ***BC1 (Arable Crop), ****BL3 (Buildings and Artificial Surfaces)

4.3 Searcher Efficiency Trial

During surveys on the 19/12/2024, 19/02/2025, 02/04/2025, 03/04/2025, 27/05/2025 and 28/05/2025 numerous carcasses were randomly placed throughout the site without the dog and handler team being aware of location or number of carcasses placed. Of the carcasses lain for the dog searcher efficiency trial, none were predated on. All were found by the dog and handler team apart from one carcass, thus the efficiency rate for Taurbeg Wind Farm was 96%. Details shown in Table 4-3.

Table 4-3 Efficiency Trial Results

Turbine	Date	Carcass	Condition	Habitat	Trial results
T10	19/12/2024	Kestrel	Feather spot	GA1	Found
T10	19/12/2024	Meadow pipit	Intact fresh	BL3	Found
T11	19/12/2024	Rook	Intact fresh	HH	Found
T1	19/12/2024	Corvid	Scavenged	GA1	Found
T8	19/12/2024	House martin	Scavenged	GA1	Found
T6	19/12/2024	Rook	Intact fresh	GA1	Found
T5	19/12/2024	Rook	Scavenged	HH	Found
T9	19/02/2025	Black-headed gull	Intact fresh	HH	Found
T8	19/02/2025	Rook	Intact decomposed	HH1	Found
T2	19/02/2025	Kestrel	Intact fresh	GA1	Found
T7	19/02/2025	Corvid	Feather spot	GA1	Found
T5	19/02/2025	Chaffinch	Intact decomposed	GA1	Found
T9	2025-04-02	Rook	intact fresh	WS1	Found
T1	2025-04-02	Sparrowhawk	feather spot	GA1	Found
T12	2025-04-02	Snipe	intact fresh	HH	Found
T8	2025-04-02	Soprano Pipistrelle	intact decomposed	GA1	Found
T2	2025-04-03	Rook	intact decomposed	HH	Found
T6	2025-04-03	Lesser Black Backed Gull	feather spot	HH	Found
T2	2025-04-03	Bat	intact decomposed	HH	Found
T7	2025-05-28	Kestrel	feather spot	HH	Missed
T2	2025-05-28	Rook	intact decomposed	WS1	Found
T11	2025-05-27	Thrush	scavenged	WS1	Found
T1	2025-05-27	Pipistrelle Spp.	intact decomposed	WS1	Found
T1	2025-05-27	Magpie	intact fresh	WS1	Found
T5	2025-05-28	Pheasant	intact fresh	GA1	Found

4.4 Collision Rates

Collision-related mortality at the wind farm was estimated using the GenEst software package (version 1.4.9; Dalthorp *et al.,* 2023). The results of carcasses found during collision monitoring surveys was input into a model, along with information on the existing wind farm and survey effort, such as 1) number of turbines, 2) the area surveyed and the 3) survey effort. This generated an estimate of mortality at the existing wind farm, which was then corrected for 4) searcher efficiency, 5) scavenger removal and 6) detection probability, based on the results of the trials.

Results

Results for Taurbeg Wind Farm, with 1) 11 turbines. The search area at each turbine base comprised a 2) 50m circle and 3) 100% of searchable area was surveyed. Surveys were conducted by trained dogs Clay, Taio, Niffler, Kizzy, Cain, Ivy, Jasper, Monty, and Ziba, with handlers Jessica Sara Barbara, Caroline Finlay, Lucy Wilde, Patrice Kerrigan and Cathal Bergin (LANTRA Qualified).

- 4) Searcher efficiency was 96% (median = 0.96 [CI 0.82-0.99]).
- 5) The median number of days a carcass persisted was 5.6.
- 6) Detection probability was 0.31 [CI 0.2-0.43]).

Birds

The model estimates with 90% confidence that between 11 and 41 bird fatalities occurred over the study period at the wind farm (estimated mortality = 22 birds [confidence intervals 10.87-40.56]. This scales to 1.83 [CI 0.91-3.38] birds per turbine per year or 0.87 [CI 0.43-1.6] birds per megawatt hour.

Bats

There were no bat fatalities found during collision monitoring surveys.

5. DISCUSSION AND CONCLUSION

Fatalities recorded at the Site were infrequent during the surveys carried out between January 2024 and May 2025. In total, seven fatalities (all birds) were recorded over a 17-month period. Bird species recorded included a corvid, chaffinch, two pheasants and an unidentified small passerine, which are all green listed in Birds of Conservation Concern in Ireland. A Skylark feather spot was found on the 12/03/2025, skylarks are amber listed in Birds of Conservation Concern in Ireland. A meadow pipit was found on the 03/04/2025, meadow pipits are red listed in Birds of Conservation Concern in Ireland.

GenEst results provided above estimated that no more than 41 bird fatalities could occur over a 17-month period on the entire site.

No bat fatalities were recorded over the 17 months of surveys at site.

Continued post-consent monitoring is proposed as part of the Proposed Lifetime Extension. The information gathered in this report has been used to inform the impact assessment in the EIAR.

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APPENDIX A

Appendix A. All data of Collision Monitoring Surveys from January 2024 to May 2025 included.

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
1	CB	25/01/2024	11.15	12:00	10	Moderate breeze	SSW	Moderate	Good	100%	No	
2	JSB	23/01/2024	10:40	11:15	11	Near gale	SW	Moderate	Good	100%	No	
3	CB	25/01/2024	09:35	10:25	10	Fresh breeze	SSW	Drizzle/mist	Good	100%	No	
5	CB	25/01/2024	08:45	09:30	10	Fresh breeze	SSW	Drizzle/mist	Good	100%	No	
6	JSB	23/01/2024	09:40	10:25	11	Strong breeze	SW	Heavy	Good	95%	No	
7	JSB	23/01/2024	08:55	09:35	11	Strong breeze	SW	Moderate	Good	85%	No	
8	CB	25/01/2024	10:30	11:10	10	Moderate breeze	SSW	Drizzle/mist	Good	100%	No	
9	CB	23/01/2024	10:40	11:25	11	Strong breeze	SW	Moderate	Good	80%	No	
10	CB	23/01/2024	10:00	10:35	10	Strong breeze	SW	Moderate	Good	80%	No	
11	CB	23/01/2024	09:10	09:55	11	Strong breeze	SW	Moderate	Good	95%	No	
12	CB	25/01/2024	12:05	13:00	10	Moderate breeze	SSW	Drizzle/mist	Good	100%	No	
1	JSB	20/02/2024	10:50	11:35	10	Moderate breeze	SW	Moderate	Good	95	No	
2	CB	20/02/2024	09:45	10:35	9	Fresh breeze	SW	Light	Good	95	No	
3	CB	20/02/2024	11:35	12:30	9	Fresh breeze	SW	Light	Good	100	No	
5	CB	20/02/2024	10:40	11:30	9	Fresh breeze	SW	Moderate	Good	100	No	
6	CB	20/02/2024	09:00	09:40	10	Fresh breeze	SW	Light	Good	95	No	
7	CB	20/02/2024	08:05	08:55	10	Moderate breeze	SW	Showers	Good	95	No	
8	CB	20/02/2024	12:35	13:30	8	Moderate breeze	SW	Drizzle/mist	Good	100	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
9	JSB	20/02/2024	09:55	10:45	9	Moderate breeze	SW	Light	Good	65	No	
10	JSB	20/02/2024	09:05	09:55	10	Moderate breeze	SW	Drizzle/mist	Good	80	No	
11	JSB	20/02/2024	08:15	09:00	10	Moderate breeze	W	None	Good	95	No	
12	JSB	20/02/2024	11:40	12:35	10	Moderate breeze	SW	Moderate	Good	95	No	
1	JSB	13/03/2024	08:05	08:50	8	Light breeze	WSW	Drizzle/mist	Good	95	No	
2	CB	13/03/2024	10:25	11:15	9	Light breeze	WSW	Drizzle/mist	Good	100	No	
3	CB	13/03/2024	09:30	10:20	9	Light breeze	WSW	Drizzle/mist	Good	100	No	
5	JSB	13/03/2024	10:00	10:55	9	Light breeze	WSW	Drizzle/mist	Good	100	No	
6	JSB	13/03/2024	11:05	12:20	9	Light breeze	WSW	Drizzle/mist	Good	95	No	
7	CB	13/03/2024	11:20	12:10	9	Light breeze	WSW	Drizzle/mist	Good	95	No	
8	JSB	13/03/2024	08:55	09:55	8	Light breeze	WSW	Drizzle/mist	Good	100	No	
9	CB	13/03/2024	07:55	08:35	9	Light breeze	WSW	Drizzle/mist	Good	70	No	
10	JSB	13/03/2024	07:15	08:00	9	Light breeze	WSW	Drizzle/mist	Good	85	No	
11	CB	13/03/2024	07:00	07:50	11	Light breeze	WSW	Light	Good	95	No	
12	CB	13/03/2024	08:40	09:25	8	Light breeze	WSW	Light	Good	90	No	
1	CB	18/04/2024	07:55	08:55	7	Light breeze	WNW	Drizzle/mist	Good	95	No	
2	JSB	18/04/2024	10:55	11:50	11	Light breeze	WNW	Drizzle/mist	Good	100	No	
3	JSB	18/04/2024	09:50	10:45	9	Gentle breeze	NW	None	Good	100	No	
5	CB	18/04/2024	09:55	10:50	10	Moderate breeze	WNW	None	Good	100	No	
6	CB	18/04/2024	10:55	11:55	10	Moderate breeze	WNW	None	Good	95	No	
7	JSB	18/04/2024	12:00	12:55	11	Light breeze	WNW	None	Good	95	No	
8	CB	18/04/2024	09:00	09:50	9	Gentle breeze	NW	None	Good	100	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
9	JSB	18/04/2024	07:50	08:45	8	Light breeze	NNW	None	Good	65	No	
10	CB	18/04/2024	07:00	07:50	5	Light breeze	NW	Drizzle/mist	Good	95	No	
11	JSB	18/04/2024	06:55	07:45	7	Gentle breeze	WNW	None	Good	95	No	
12	JSB	18/04/2024	08:50	09:45	10	Gentle breeze	NW	None	Good	100	No	
1	JSB	16/05/2024	07:05	08:10	12	Gentle breeze	E	None	Good	95	No	
2	CB	16/05/2024	09:45	10:30	18	Moderate breeze	NE	None	Good	100	Yes	
3	CB	16/05/2024	08:50	09:40	19	Gentle breeze	NE	None	Good	100	No	
5	JSB	16/05/2024	09:00	09:40	16	Gentle breeze	ESE	None	Good	100	No	
6	JSB	16/05/2024	09:50	10:30	17	Gentle breeze	ENE	None	Good	90	No	
7	CB	16/05/2024	10:40	11:40	18	Gentle breeze	ENE	None	Good	90	No	
8	JSB	16/05/2024	08:10	08:55	15	Gentle breeze	E	None	Good	90	No	
9	CB	16/05/2024	07:03	07:45	12	Gentle breeze	NE	None	Good	70	No	
10	JSB	16/05/2024	06:15	07:05	9	Gentle breeze	ESE	None	Good	70	No	
11	CB	16/05/2024	06:15	07:00	9	Gentle breeze	NE	None	Good	90	No	
12	CB	16/05/2024	07:50	08:45	15	Gentle breeze	NE	None	Good	95	No	
1	CB	20/06/2024	07:05	08:00	11	Light breeze	SW	None	Good	90	No	
2	-	-	-	-	-	-	-	-	-	-	-	Cattle and calves in area, unable to survey
3	JSB	20/06/2024	08:40	09:30	15	Gentle breeze	SW	None	Good	100	No	
5	CB	20/06/2024	08:10	09:20	12	Gentle breeze	SW	None	Good	100	No	
6	CB	20/06/2024	09:25	10:30	13	Gentle breeze	SW	None	Good	90	No	
7	JSB	20/06/2024	09:35	10:35	18	Light breeze	SW	None	Good	90	Yes	Small passerine
8	JSB, CB	20/06/2024	10:40	11:10	13	Moderate breeze	SSW	None	Good	90	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
9	JSB	20/06/2024	07:35	08:30	12	Light air	SW	None	Good	65	No	
10	CB	20/06/2024	06:10	07:00	10	Light breeze	WSW	None	Good	80	No	
11	JSB	20/06/2024	06:20	08:00	10	Light breeze	WSW	None	Good	90	Yes	Pheasant, Chaffinch
12	JSB, CB	20/06/2024	05:30	06:20	8	Light Breeze	WSW	None	Good	90	No	
1	JSB	19/07/2024	07:40	08:45	12	Moderate breeze	SW	None	Good	80	No	
2	CB	19/07/2024	09:25	10:20	15	Fresh breeze	SSW	None	Good	100	No	
3	CB	19/07/2024	08:20	09:20	14	Fresh breeze	SSW	None	Good	100	No	
5	JSB	19/07/2024	09:50	10:30	15	Moderate breeze	SSW	None	Good	95	No	
6	JSB	19/07/2024	10:40	11:40	16	Moderate breeze	SW	None	Good	95	No	
7	CB	19/07/2024	10:25	11:30	16	Moderate breeze	SSW	None	Good	90	No	
8	JSB	19/07/2024	09:50	09:50	14	Moderate breeze	WSW	None	Good	90	No	
9	CB	19/07/2024	07:35	08:15	13	Moderate breeze	S	None	Good	30	No	
10	JSB	19/07/2024	06:40	07:40	12	Moderate breeze	SW	None	Good	80	No	
11	CB	19/07/2024	06:45	07:30	12	Moderate breeze	S	None	Good	90	No	
12	JSB, CB	19/07/2024	05:50	06:40	12	Moderate breeze	SW	None	Good	85	No	
1	CF	20/08/2024	07:42	08:44	11	Fresh Breeze	W	None	Good	75	No	
2	CF	20/08/2024	09:52	10:32	12	Fresh Breeze	W	Showers	Good	100	No	
3	CF	20/08/2024	10:40	11:33	12	Fresh Breeze	W	None	Good	80	No	
5	CB	20/08/2024	11:05	11:35	13	Strong Breeze	W	None	Good	40	No	Cattle in search area, limited coverage

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
6	CF	20/08/2024	11:39	12:14	12	Strong Breeze	W	None	Good	95	No	
7	CB	20/08/2024	09:10	10:05	12	Strong breeze	W	None	Good	95	No	
8	CB	20/08/2024	08:35	09:05	11	Fresh breeze	W	Showers	Good	25	No	
9	CF	20/08/2024	08:52	09:42	11	Strong breeze	W	None	Good	50	No	
10	CB	20/08/2024	07:45	08:30	10	Fresh breeze	W	None	Good	90	No	
11	CB, CF	20/08/2024	07:00	07:40	10	Moderate breeze	W	None	Good	90	No	
12	CB	20/08/2024	10:10	11:00	12	Fresh breeze	W	None	Good	100	No	
1	LW	27/09/2024	08:32	09:05	7	Strong breeze	NNW	None	Good	70	No	
2	CB	27/09/2024	08:50	09:35	7	Strong breeze	NNW	None	Good	100	No	
3	LW	27/09/2024	10:20	10:51	8	Strong Breeze	NNW	None	Good	90	No	
5	LW	27/09/2024	10:52	11:50	11	Strong Breeze	NNW	None	Good	90	No	
6	CB	27/09/2024	09:40	10:20	7	Strong Breeze	NNW	None	Good	95	No	
7	CB	27/09/2024	10:30	11:35	10	Strong Breeze	NNW	None	Good	80	No	
8	LW	27/09/2024	09:10	10:10	7	Strong Breeze	NNW	None	Good	80	No	
9	CB	27/09/2024	08:25	08:45	6	Strong Breeze	NNW	None	Good	25	No	
10	LW	27/09/2024	07:34	08:29	6	Strong Breeze	NNW	None	Good	60	No	
11	CB	27/09/2024	07:45	08:20	6	Strong Breeze	NNW	None	Good	90	No	
12	LW,CB	27/09/2024	07:15	07:40	6	Strong Breeze	NNW	None	Good	95	No	
1	CB	17/10/2024	10:45	11:30	13	Fresh breeze	W	Showers	Good	90	No	
2	CB	17/10/2024	12:45	01:35	14	Fresh breeze	W	Showers	Good	95	No	
3	CB	17/10/2024	11:35	12:40	13	Fresh breeze	W	Showers	Good	100	No	
5	CF	17/10/2024	11:19	12:10	13	Fresh breeze	W	Showers	Good	90	No	
6	CF	17/10/2024	12:16	13:05	13	Fresh breeze	W	Showers	Good	85	No	
7	CF	17/10/2024	13:09	14:00	14	Fresh breeze	W	Showers	Good	75	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
8	CF	17/10/2024	-	-	-	-	-	-	-	-	-	Livestock present, unable to survey
9	CF	17/10/2024	10:16	10:52	13	Fresh breeze	W	Showers	Good		No	
10	CB	17/10/2024	08:50	10:30	11	Moderate breeze	W	None1	Good	80	No	
11	CF	17/10/2024	09:16	10:04	11	Moderate breeze	W	None	Good	90	No	
12	CB, CF	17/10/2024	08:00	08:45	11	Moderate breeze	W	Drizzle/mist	Good	90	No	
1	CB	29/11/2024	10:05	10:45	12	Strong breeze	SSE	Moderate	Good	70	No	
2	CB	30/11/2024	08:10	09:00	12	Strong breeze	S	Drizzle/mist	Good	100	No	
3	CB	30/11/2024	09:05	10:00	12	Strong breeze	S	Drizzle/mist	Good	100	No	
5	CB	29/11/2024	11:36	12:25	12	Strong breeze	SE	Light	Good	90	No	
6	CB	29/11/2024	12:30	13:30	13	Strong breeze	S	Moderate	Good	80	No	
7	CB	30/11/2024	10:55	11:45	12	Strong breeze	S	Moderate	Good	90	No	
8	CB	29/11/2024	10:50	11:30	12	Strong breeze	SSE	Moderate	Good	80	No	
9	CB	29/11/2024	08:30	08:50	11	Strong breeze	SSE	Heavy	Good	30	No	Garmin not tracking
10	CB	29/11/2024	08:52	09:25	12	Strong breeze	SSE	Heavy	Good	60	No	
11	CB	29/11/2024	09:27	10:00	12	Strong breeze	SSE	Heavy	Good	60	No	
12	CB	30/11/2024	10:05	10:50	12	Strong breeze	S	Drizzle/mist	Good	90	No	
1	CF	19/12/2024	11:22	12:00	3	Strong breeze	NW	Showers	Good	95	No	
2	CB	19/12/2024	12:30	13:30	6	Strong breeze	NW	Showers	Good	100	No	
3	CB	19/12/2024	11:35	12:25	5	Strong breeze	NW	Showers	Good	100	No	
5	CF	19/12/2024	13:32	14:11	6	Strong breeze	NW	Showers	Good	100	No	
6	CF	19/12/2024	14:15	15:10	6	Strong breeze	NW	Showers	Good	95	No	
7	CB	19/12/2024	13:40	14:45	6	Strong breeze	NW	Showers	Good	95	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
8	CF	19/12/2024	12:12	13:04	4	Strong breeze	NW	Showers	Good	95	No	
9	CB	19/12/2024	11:00	11:30	5	Strong breeze	NW	Showers	Good	30	No	
10	CF	19/12/2024	10:21	11:10	2	Strong breeze	NW	Showers	Good	50	No	
11	CB	19/12/2024	10:10	10:55	4	Strong breeze	NW	Showers	Good	80	No	
12	CB	19/12/2024	09:30	10:05	4	Strong breeze	NW	Showers	Good	80	No	
1	PK	29/01/2025	09:29	09:58	4	fresh breeze	N	None	Good	95	No	
2	PK	29/01/2025	10:49	11:20	4	fresh breeze	N	None	Good	95	No	
3	CB	29/01/2025	11:40	12:30	4	fresh breeze	N	None	Good	100	No	CT on ground looks like it was lifted and thrown on ground
12	PK/CB	29/01/2025	09:00	09:30	3	fresh breeze	N	None	Good	95	No	
5	CB	29/01/2025	12:40	13:40	4	fresh breeze	N	None	Good	100	No	
6	PK	29/01/2025	12:21	12:50	4	fresh breeze	N	None	Good	85	No	
7	PK	29/01/2025	11:40	12:05	4	fresh breeze	N	None	Good	85	No	
8	CB	29/01/2025	10:45	11:35	4	fresh breeze	N	None	Good	100	No	
9	CB	29/01/2025	10:15	10:40	4	fresh breeze	N	None	Good	30	No	
10	PK	29/01/2025	10:06	10:32	4	fresh breeze	N	None	Good	50	No	CT Deployed
11	CB	29/01/2025	09:35	10:10	4	fresh breeze	N	None	Good	95	No	
1	CB	19/02/2025	10:00	10:45	8	strong breeze	SSE	None	Good	90	No	
2	CB	19/02/2025	11:40	12:20	9	strong breeze	SSE	Light	Good	95	No	
3	CB	19/02/2025	10:50	11:35	9	fresh breeze	SSE	None	Good	100	No	
12	CF/CB	19/02/2025	08:50	09:20	8	strong breeze	SSE	None	Good	90	No	
5	CF	19/02/2025	12:05	12:45	9	fresh breeze	SSE	Light	Good	100	No	
6	CF	19/02/2025	12:50	13:20	9	strong breeze	SSE	Light	Good	95	No	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
7	CB	19/02/2025	12:23	13:30	9	fresh breeze	SSE	Light	Good	80	No	
8	CF	19/02/2025	11:08	11:59	9	strong breeze	SSE	None	Good	95	No	
9	CF	19/02/2025	10:10	10:59	8	strong breeze	SSE	None	Good	40	No	
10	CB	19/02/2025	09:25	09:55	8	strong breeze	SSE	None	Good	90	No	
11	CF	19/02/2025	09:19	09:59	8	strong breeze	SSE	None	Good	90	No	
12	CB/CF	12/03/2025	07:20	07:50	3	moderate breeze	N	None	Good	90	No	
11	CB	12/03/2025	07:55	08:30	3	moderate breeze	N	None	Good	90	No	
9	CB	12/03/2025	08:35	09:00	4	fresh breeze	N	None	Good	25	No	CT collected carcass still there
8	CB	12/03/2025	09:15	10:00	4	fresh breeze	N	None	Good	100	No	
5	CB	12/03/2025	10:05	10:55	5	fresh breeze	NNE	None	Good	95	Yes	
2	CB	12/03/2025	11:00	11:50	5	fresh breeze	NNE	None	Good	95	No	
7	CF	12/03/2025	11:06	11:47	5	fresh breeze	NNE	None	Good	80	No	
1	CF	12/03/2025	10:22	11:01	4	moderate breeze	NNE	None	Good	90	No	
6	CF	12/03/2025	09:51	10:19	2	moderate breeze	N	None	Good	95	No	
3	CF	12/03/2025	08:53	09:46	2	moderate breeze	N	None	Good	100	No	
10	CF	12/03/2025	08:01	08:41	2	moderate breeze	N	None	Good	90	No	
1	CB	2025-04-02	08:50	09:40	8	fresh breeze	ese	none	good	90	n	CT deployed
2	CB	2025-04-03	10:55	11:45	11	fresh breeze	ene	none	good	100	n	
3	CB	2025-04-03	09:55	10:50	5	moderate breeze	ene	none	good	100	n	
12	CB	2025-04-02	09:45	10:45	9	fresh breeze	ese	none	good	90	n	

Turbine	Staff	Date	Start Time	Finish Time	T°C	Wind Speed	Wind Direction	Rain	Visibility	Area covered	Carcass Found	Comments
5	CB	2025-04-03	07:55	08:45	6	moderate breeze	ene	none	good	95	n	not operating
6	CB	2025-04-03	08:50	09:50	6	fresh breeze	ene	none	good	95	y	
7	CB	2025-04-03	07:00	07:50	4	Fresh breeze	ne	none	good	90	y	
8	CB	2025-04-02	10:50	11:45	10	fresh breeze	ese	none	good	95	n	
9	CB	2025-04-02	08:20	08:45	7	fresh breeze	ese	none	good	30	n	
10	CB	2025-04-02	07:00	07:30	6	fresh breeze	ese	none	good	80	n	
11	CB	2025-04-02	07:35	08:15	6	fresh breeze	ese	none	good	90	n	CT recovered carcass still there
11	CB	2025-05-27	06:30	07:15	9	moderate breeze	s	moderate	good	90	n	turbines no operating
10	CB	2025-05-27	07:18	08:00	9	moderate breeze	ssw	moderate	good	70	n	vegetation thick limiting access
9	CB	2025-05-27	08:13	08:46	10	moderate breeze	ssw	heavy	good	30	n	
1	CB	2025-05-27	08:50	09:54	11	fresh breeze	ssw	heavy	good	80	n	
12	CB	2025-05-27	10:00	10:45	12	moderate breeze	wsw	showers	good	80	n	
8	CB	2025-05-28	05:55	06:45	10	moderate breeze	w	showers	good	90	n	all turbines spinning apart from t3
3	CB	2025-05-28	06:48	07:35	10	moderate breeze	w	showers	good	100	n	
5	CB	2025-05-28	07:43	08:25	11	fresh breeze	w	none	good	95	n	
2	CB	2025-05-28	08:27	09:20	11	fresh breeze	w	none	good	100	n	
6	CB	2025-05-28	09:22	09:45	12	fresh breeze	w	none	good	40	n	Cows and calves in survey area reduced coverage
7	CB	2025-05-28	09:50	10:50	12	fresh breeze	w	none	good	80	n	turbines no operating