

APPENDIX E
WINTER CHOUGH SURVEY REPORT

Winter Chough Survey Report 2019/2020

Dursey Island Chough
Survey, Co. Cork





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1. INTRODUCTION

McCarthy Keville O’Sullivan (MKO) were appointed to carry out winter chough surveys at Dursey Island, County Cork during the period from December 2019 to March 2020 inclusive. The proposed development consists of an upgrade to the existing cable car running from the mainland at Ballaghboy to Dursey Island, across the Dursey Sound, and a visitor centre. Dursey Island is approximately 5.6 km² and is located off the coast of Lambes Head, County Cork. See Figure 1 in Appendix 2 for a map showing the location of the survey area.

This report describes the ornithological survey methods employed and survey data collected at Dursey Island, Co. Cork for the period from December 2019 to March 2020 inclusive. These surveys were targeted at monitoring chough across Dursey Island. See Figures 1 and 2 in Appendix 2 for maps of the survey study areas.

The report is supported by Technical Appendix 1 which contains the raw data from the chough surveys carried out in winter 2019/2020. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Flight lines and flocks recorded during surveys are shown in Appendix 2.

The report is structured as follows:

- An introduction providing a description of the background and statement of authority regarding ornithological works.
- A desktop study.
- A comprehensive description of the ornithological surveys carried out.
- A full description of results for all ornithological surveys carried out.
- A discussion and conclusion.

The following defines terms used in this report

- “Zones of Influence” (ZOI) for potential ornithological receptors refers to the zone within which potential effects are anticipated. ZOIs were assigned following best available guidance (SNH 2016 and McGuinness et.al 2015).

1.1 Statement of Authority

This report has been prepared by Patrick Manley (B.Sc.) an Ornithologist with MKO and Senior Ornithologist, Pdraig Cregg (M.Sc.). The field surveys were undertaken in the 2019/2020 winter season by Michael O’Clery and Pdraig Cregg, all of whom are competent experts in the field of bird surveying.

CVs for the authors of this report and all personnel who carried out survey work are provided in Appendix 3.

2. DESK STUDY

2.1 Desk Study Methods

A comprehensive desk study was undertaken prior to surveys in winter 2019 to search for any relevant information on species of conservation concern which may potentially make use of the study area. The assessment included a thorough review of the available ornithological data including:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS),
- Review of National Chough Survey Report (Gray et al., 2003),
- Review of Dursey Island Cable Car and Visitor Centre Environmental Impact Assessment Report, and
- Review of Birds of Conservation Concern (BoCCI) in Ireland 2014-2019 (Colhoun & Cummins, 2013).

2.2 Desk Study Results

2.2.1 Identification of Designated Sites within the Likely Zone of Influence

Using GIS software, sites designated for nature conservation within the potential ZOI of the proposed development were identified. The proposed development is within the Beara Peninsula Special Protection Area (SPA). The SPA is a coastal site with an area totalling 2,602ha. The SPA is situated south-west of the town of Kenmare and encompasses the high coast and sea cliffs of the western end of Beara Peninsula from Reenmore Point/Cod's Head, around the end of Dursey Island in the west and as far east as Bear Island in the south. The SPA is dominated by vegetated sea cliffs.

The full extent of Beara Peninsula SPA is illustrated in Appendix 2, Figure 3.

Table 2-1 Designated sites within likely zone of influence

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie , 28/04/2020)	Conservation Objectives	Zone of Influence Determination & Identification of Pathways for Effect
Special Protection Areas (SPA)				
Beara Peninsula SPA (004155)	Development site lies within this SPA	<ul style="list-style-type: none"> ➤ Fulmar (<i>Fulmarus glacialis</i>) [A009] ➤ Chough (<i>Pyrhocorax pyrrhocorax</i>) [A346] 	<p>This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA:</p> <p>“To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA.”</p> <p>(NPWS (2018) Conservation objectives: Beara Peninsula SPA [004155]. Version 1.</p>	<p>The proposed development site is located within the Beara Peninsula SPA.</p>

2.2.2 National Parks and Wildlife Service Article 12 Report

The Article 12 report published by the National Parks and Wildlife Service was consulted to estimate the national population of chough in Ireland. The best estimate for the number of breeding chough is 839 pairs. No data is provided for estimates on the number of wintering chough in Ireland.

2.2.3 National Chough Survey

The latest national chough survey was conducted in 2002/2003 by Gray et al. (2003). These surveys were conducted to establish the breeding population of chough in Ireland during the 2002 and 2003 breeding seasons. It was estimated that there were 838 pairs of chough breeding throughout Ireland and a total of 756 individual non-breeding birds. There was a total of 2,432 chough recorded during these surveys. Dursey Island was recorded as having 8 confirmed breeding pairs, two possible breeding pairs and a flock of 26 non-breeding birds. There was a total number of 46 chough recorded on Dursey Island during these surveys.

2.2.4 Importance of this Area to Chough

Chough is an amber-listed species (*Birds of Conservation Concern in Ireland* 2013), protected under the Irish Wildlife Acts, and listed under Annex I of the EU Birds Directive. Ireland supports over 60% of the total European chough population (Johnstone et al., 2007). The south-west of Ireland is an important area for chough. Of the 2,432 chough recorded in the 2002/2003 national chough census, 765 of these were in County Cork, and a further 767 in County Kerry (Gray et al., 2003). The south-west contains optimal coastal habitats for both breeding and wintering chough. Sixty three percent of the Irish population of chough occur in the south-west.

The Beara Peninsula SPA supports an internationally important population of chough. The SPA is characterised by marginal agricultural land with large tracts of semi-natural vegetation, in close proximity to sea cliffs. These habitats are favoured by chough for both breeding and wintering. As previously discussed, Dursey Island supports a total of 46 birds (Gray et al., 2003). Dursey Island was also surveyed between September 2003 and July 2004, with numbers of birds ranging from 13 in February/March to 61 in September (Trewby et al., 2004).

The Beara Peninsula SPA site synopsis (NPWS, 2015) identified one roost site for chough in Dursey Sound, with a flock of up to seventeen birds roosting here. The EIAR for the proposed development identified two additional potential roost sites at *Cuas na gColúr* and *Brann Righe*.

3. FIELD SURVEYS

3.1 Field Survey Methods

This section of the report describes the various field survey methods employed. Field surveys were undertaken from December 2019 – March 2020 inclusive. Field survey methodologies have been devised to survey for the bird species composition and assemblages that occur within the study area.

3.1.1 Initial Site Assessment

Based on the results of the desk study, the likely importance of the study area for chough was determined. Based on the collated information available from the above preliminary desk study and adopting a precautionary approach, a site-specific scope for the ornithological surveys was developed.

3.1.2 Chough Roost Surveys

Chough roost surveys were undertaken at three sea cliff sites to monitor for signs of occupancy. Surveys were carried out from December 2019 to March 2020. Surveys were undertaken from fixed vantage points overlooking the three potential roost sites on Dursey Island. These were *Cuas na gColúir* (an inlet on the south-eastern side of the island), the cliffs of *Brann Ríghé* (on the south-western side of the island) and the traditional communal roost on the eastern end of the island overlooking Dursey Sound (at Foilnamuck). The three potential roost sites were surveyed at dusk or dawn as per Trewby et al (2010) recommendations. Dusk surveys were undertaken from 1.5 hours before sunset until late light. For dawn surveys, the surveyor was in place 0.5 hours before sunrise until 1.5 hours after sunrise. Full details of survey effort area provided in Appendix 1 Table 1-1. Figure 1 of Appendix 2 shows the locations of the chough roost vantage point locations.

3.1.3 Walkover Surveys

Winter walkover surveys were undertaken to determine the presence of chough within areas of potential suitable habitat in the study area. In the interest of maintaining a consistent survey approach; walkover survey methods followed those outlined in the Dursey Island Cable Car and Visitor Centre Environmental Impact Assessment Report. Transect routes followed the existing tourist trails loop of the island. Chough numbers and flock foraging areas were recorded along these walked transects as encountered.

During these surveys, disturbance distances were also recorded whenever chough were flushed by the observer or by any other local disturbance event. Flushing distances are defined as ‘the distance at which a foraging bird or flock will fly off when approached by a person or group of persons’ (Keribiou et al., 2009). During these surveys, the flush distance and the number of birds flushed were recorded. The subsequent behaviour of the birds was also recorded, i.e. if the birds left the area or resettled after the disturbance event.

Survey effort, including details of survey duration and weather condition, is presented in Appendix 1, Table 1-1. Figure 2 in Appendix 1 shows the survey study area.

3.1.4 Limitations

A comprehensive suite of bird surveys was undertaken at the site between December 2019 and March 2020, as detailed in this report. However, the last scheduled winter season visit of the survey (i.e. the second visit of March 2020) was not completed due to Covid-19 restrictions on movement. This survey was not undertaken as the surveyor was not given permission to travel on Dursey Island.

3.2 Field survey results

3.2.1 Introduction

Table 3-1 shows the survey effort for the 2019/2020 winter season.

Table 3-1 Survey Effort

Date	Survey Method	Survey Duration	Surveyor
28/12/2019	Roost watch	02:05 starting at 15:00	MOC
29/12/2019	Roost watch	01:35 starting at 07:45	MOC
29/12/2019	Roost watch	01:50 starting at 15:15	MOC
29/12/2019	Transect (walking circuit of island)	03:35 starting at 09:20	MOC
16/01/2020	Roost watch	02:00 starting at 15:30	MOC
17/01/2020	Roost watch	01:20 starting at 08:05	MOC
17/01/2020	Transect (walking circuit of island)	03:10 starting at 09:25	MOC
17/01/2020	Roost watch	02:00 starting at 15:30	MOC
29/01/2020	Roost watch	02:15 starting at 15:45	MOC
30/01/2020	Roost watch	02:15 starting at 07:10	MOC
30/01/2020	Transect (walking circuit of island)	02:55 starting at 09:25	MOC
30/01/2020	Roost watch	02:15 starting at 15:50	MOC
07/02/2020	Roost watch	01:55 starting at 16:10	MOC
08/02/2020	Roost watch	01:50 starting at 07:25	MOC
08/02/2020	Transect (walking circuit of island)	01:45 starting at 09:15	MOC
08/02/2020	Roost watch	02:10 starting at 16:00	MOC
20/02/2020	Roost watch	02:00 starting at 16:30	PC
21/02/2020	Roost watch	02:00 starting at 07:15	PC
22/02/2020	Roost watch	02:00 starting at 16:30	PC
21/02/2020	Transect (walking circuit of island)	02:15 starting at 10:30	PC
10/03/2020	Roost watch	01:50 starting at 17:10	MOC
11/03/2020	Roost watch	01:45 starting at 06:30	MOC
11/03/2020	Roost watch	01:40 starting at 17:25	MOC
11/03/2020	Transect (walking circuit of island)	03:15 starting at 08:15	MOC

3.2.2 Roost Survey Results

Chough roost surveys were undertaken at three potential roost sites between December 2019 and March 2020. Surveys were undertaken twice per month in January and February and once per month in December and March.

There were 37 observations of chough during the roost surveys on Dursey Island. Thirteen of the observations were associated with roost sites at either *Brann Righe* or Foilnamuck. No roosting activity was recorded at the *Cuas na gColúr* roost site.

The largest flock contained six birds and this flock was observed roosting at *Brann Righe*. Birds were observed roosting here on two occasions, on the 20th of February 2020 (six birds) and the 11th of March 2020 (four birds).

Chough were observed roosting at Foilnamuck on two occasions, on the 29th December 2019 and the 22nd February 2020. On the 22nd of February, eight chough flew into this roost for a short time before emerging to forage on the cliff above the roost. These birds were observed later during the same watch

leaving the area, flying in the direction of *Cuas na gColúir*. On the 29th December 2019, two chough went to roost at this location.

Survey results can be found in Appendix 1, Table 1-2 and observations are presented in Figure 1.1 in Appendix 2. The exact locations of the roost sites are presented in Figure 1.2 of Appendix 2.

3.2.3 Walkover Survey Results

Walkover surveys were undertaken between December 2019 and March 2020. Surveys were undertaken twice per month during January and February and once per month in December and March.

There were 46 observations of chough during these surveys. There were 31 observations of chough foraging in improved agricultural grassland, dry-humid acid grassland and heath. The remaining fifteen observations were of birds commuting. Observations ranged from a single bird to a flock of 22.

On the 8th of February, a single flock of 22 chough were observed foraging in improved agricultural grassland. On the 21st of February a flock of eleven were observed foraging on dry-humid acid grassland. In total there were 149 individual observations of chough recorded across all survey dates. Table 3-2 below shows the number of observations of chough for each survey date, along with the total number of birds observed.

Table 3-2 Total Number of Chough Recorded per Visit

Date	Number of Observations	Number of Chough
29/12/2019	16	41
17/01/2020	9	20
30/01/2020	4	4
08/02/2020	5	31
21/02/2020	5	35
11/03/2020	7	18

Flush distances for chough were recorded on twenty occasions during the walkover surveys. The results of these observations are presented in Table 3-3 below.

Table 3-3 Disturbance Distance Results

Date	Species	Number of birds	Activity	Disturbance Distance (estimated to the nearest 10m)
29/12/2019	Chough	2	Feeding	40m
29/12/2019	Chough	2	Feeding	20m
29/12/2019	Chough	1	Feeding	30m
29/12/2019	Chough	2	Feeding	40m
17/01/2020	Chough	4	Feeding	30m
17/01/2020	Chough	1	Feeding	30m
17/01/2020	Chough	2	Feeding	20m
17/01/2020	Chough	2	Feeding	20m
17/01/2020	Chough	2	Feeding	20m
30/01/2020	Chough	1	Feeding	20m
30/01/2020	Chough	1	Feeding	30m
30/01/2020	Chough	1	Feeding	20m
08/02/2020	Chough	2	Feeding	30m
08/02/2020	Chough	22	Feeding	40m

Date	Species	Number of birds	Activity	Disturbance Distance (estimated to the nearest 10m)
08/02/2020	Chough	5	Feeding	20m
21/02/2020	Chough	8	Feeding	40m
21/02/2020	Chough	9	Feeding	30m
11/03/2020	Chough	6	Feeding	30m
11/03/2020	Chough	2	Feeding	20m
11/03/2020	Chough	2	Flying	30m

Survey results can be found in Appendix 1, Table 1-2 and observations are presented in Figure 2.1 in Appendix 2.

4. DISCUSSION

The following provides a synopsis of the findings of the surveys undertaken between December 2019 and March 2020.

Within Dursey Island, there were two roost sites identified, both of which were observed in use on two occasions by flocks of up to eight chough. These roost sites were located at *Brann Righe* and Foilnamuck. While the third roost, *Cuas na gColúr*, was not recorded to have been in active use, chough were recorded near this roost during roost surveys.

During walkover surveys, chough were observed foraging throughout much of Dursey Island. Chough foraging behaviour was observed to be strongly associated with tightly cropped, sheep grazed improved and dry-humid acid grassland. Observations ranged from a single bird to a flock of 22 birds. The majority of the chough observations were recorded along the south eastern/ leeward side of the island. This may be explained by the transect route taken. A circuit of the island was walked during the survey, the transect followed the road that runs along the south eastern side of the island and then loops back along a ridge line that follows the central axis of the island. The southwestern side of the island was not surveyed to the same extent as the rest of the island. It is possible that foraging chough went unnoticed on the southwestern side of the island.

There were twenty disturbance events recorded during the walkover surveys. Flush distances ranged from 20 metres to 40 metres. The average flush distance was 28 metres, with a median of 30 metres. This result is similar to the result reported in the Dursey Island Cable Car and Visitor Centre EIAR of 31.6m (n=49; min=10m; max=150m; median=30m).

5. CONCLUSION

There were two active chough roosts identified, one at *Brann Righe* and one at Foilnamuck. Foraging behaviour was recorded to be strongly associated with short, tightly cropped vegetation. The average recorded flush distance for chough was 28 metres. This result is consistent with the findings of the Dursey Island Cable Car and Visitor Centre EIAR.

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www.npws.ie – Distribution maps and associated information for sites designated for nature conservation by NPWS (i.e. SPAs, SACs, NHAs, pNHAs)



APPENDIX 1

**BIRD SURVEY DATA -
TECHNICAL APPENDIX**



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1. APPENDIX 1 (SURVEY DATA)

Table 1-1 Survey Effort

Date	Survey Method	VP/ transect/ area number	Survey Duration	Weather Conditions	Comments	Surveyor
28/12/2019	Roost watch	VP 1	02:05 starting at 15:00	Wind Speed and Direction: Strong Breeze, South; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	No birds roosting, though several seen feeding in vicinity. See Map 2	MOC
29/12/2019	Roost watch	VP2	01:35 starting at 07:45	Wind Speed and Direction: Strong Breeze, South; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	No birds roosting, with just 2 seen in the vicinity of the roost. Strong wind. See Map 3	MOC
29/12/2019	Roost watch	VP3	01:50 starting at 15:15	Wind Speed and Direction: Fresh Breeze, South; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 33-66 Rain: None; Frost: None; Snow: None	2 birds roosted; others seen nearby but not roosting. See Map 4	MOC
29/12/2019	Transect (walking length of island)	Transect Map 5	03:35 starting at 09:20	Wind Speed and Direction: Fresh Breeze, South; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	See Map 5	MOC
16/01/2020	Roost watch	VP1	02:00 starting at 15:30	Wind Speed and Direction: Fresh Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	No Chough seen throughout survey period	MOC
17/01/2020	Roost watch	VP2	01:20 starting at 08:05	Wind Speed and Direction: Strong Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	2 Chough certainly emerged from roost; 2 others probably emerged from roost. Map 2	MOC
17/01/2020	Transect	Transect	03:10 starting at 09:25	Wind Speed and Direction: Strong Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	20 birds noted	MOC

Date	Survey Method	VP/ transect/ area number	Survey Duration	Weather Conditions	Comments	Surveyor
17/01/2020	Roost watch	VP3	02:00 starting at 15:30	Wind Speed and Direction: Fresh Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33-66 Rain: Light Showers; Frost: None; Snow: None	4 Chough went to roost	MOC
29/01/2020	Roost watch	VP1	02:15 starting at 15:45	Wind Speed and Direction: Gentle Breeze, SW; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	One Chough seen. Map 01	MOC
30/01/2020	Roost watch	VP2	02:15 starting at 07:10	Wind Speed and Direction: Moderate Breeze, W; Visibility: Limited (<500m); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Drizzle Mist; Frost: None; Snow: None	No Chough seen	MOC
30/01/2020	Transect	Transect	02:55 starting at 09:25	Wind Speed and Direction: Gentle Breeze, W; Visibility: Poor (<km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Drizzle Mist; Frost: None; Snow: None	4 Chough seen	MOC
30/01/2020	Roost watch	VP3	02:15 starting at 15:50	Wind Speed and Direction: Fresh Breeze, SW; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Drizzle Mist; Frost: None; Snow: None	1 Chough flew NE across Dursey Sound	MOC
07/02/2020	Roost watch	VP1	01:55 starting at 16:10	Wind Speed and Direction: Strong Breeze, S; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	No Chough seen throughout survey period	MOC
08/02/2020	Roost watch	VP2	01:50 starting at 07:25	Wind Speed and Direction: Moderate Gale, SW; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	No Chough seen throughout survey period	MOC
08/02/2020	Transect	Transect	01:45 starting at 09:15	Wind Speed and Direction: Moderate Gale, SW; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	Large flock of 22 Chough, with 9 birds elsewhere	MOC
08/02/2020	Roost watch	VP3	02:10 starting at 16:00	Wind Speed and Direction: Moderate Gale, SW; Visibility: Poor (<km); Cloud Height: 150-500m; Cloud Cover %: 66-100 Rain: Heavy Rain; Frost: None; Snow: None	No Chough seen throughout survey period	MOC

Date	Survey Method	VP/ transect/ area number	Survey Duration	Weather Conditions	Comments	Surveyor
20/02/2020	Roost watch	Brann Righe roost	02:00 starting at 16:30	Wind Speed and Direction: Strong Gale, SW; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 33-66 Rain: None; Frost: None; Snow: None	chough traveling in pairs	PC
21/02/2020	Roost watch	Cuas na gColur roost	02:00 starting at 07:15	Wind Speed and Direction: Strong Gale, SW; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Heavy Rain; Frost: None; Snow: None	chough traveling in pairs	PC
22/02/2020	Roost watch	Foilnamuck roost	02:00 starting at 16:30	Wind Speed and Direction: Strong Gale, SW; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Heavy Rain; Frost: None; Snow: None		PC
21/02/2020	Transect (walking length of island)	circuit of island	02:15 starting at 10:30	Wind Speed and Direction: Strong Gale, SW; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Heavy Rain; Frost: None; Snow: None		PC
10/03/2020	Roost watch	VP 1	01:50 starting at 17:10	Wind Speed and Direction: Moderate Breeze, SW; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	1 Chough landed near roost but eventually flew W	MOC
11/03/2020	Roost watch	VP2	01:45 starting at 06:30	Wind Speed and Direction: Fresh Gale, SW; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: Light Showers; Frost: None; Snow: None	4 Chough roosted; 4 others seen were flying from other areas.	MOC
11/03/2020	Roost watch	VP3	01:40 starting at 17:25	Wind Speed and Direction: Fresh Breeze, South; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33-66 Rain: Light Showers; Frost: None; Snow: None	4 birds landed close to roost but eventually flew W across Dursey Sound to the mainland.	MOC
11/03/2020	Transect (walking length of island)	Transect Map 3	03:15 starting at 08:15	Wind Speed and Direction: Strong Breeze, SW; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66-100 Rain: None; Frost: None; Snow: None	See Map 3	MOC

Table 1-2 Chough Roost Survey Data

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/ Roosting	Notes on Activity and Habitat	Comments	Surveyor
CF001	28/12/2019	VP	15:19:00	VP 1 Map2 01	Chough	3	Feeding	Feeding GS, (Semi-natural grassland) H, (Heath and dense bracken)	Feeding by road verge. Flushed	MOC
CF002	28/12/2019	VP	15:27:00	VP 1 Map2 02	Chough	2	Flying	Flying H, (Heath and dense bracken)	Flew by roost site	MOC
CF003	28/12/2019	VP	15:36:00	VP 1 Map2 03	Chough	1	Flying	Flying H, (Heath and dense bracken)	Flew SW	MOC
CF004	28/12/2019	VP	15:37:00	VP 1 Map2 04	Chough	1	Flying	Flying H, (Heath and dense bracken)	Circled roost then flew SW	MOC
CF005	28/12/2019	VP	16:11:00	VP 1 Map2 05	Chough	2	Feeding	Feeding GS, (Semi-natural grassland) H, (Heath and dense bracken)	in flight. Then landed and Fed on coastal grassland then flew NE	MOC
CF006	29/12/2019	VP	09:01:00	VP 2 Map3 01	Chough	2	Flying	Flying H, (Heath and dense bracken)	2 Chough flew SW. strong wind and spray blowing directly onto roost area	MOC
CF007	29/12/2019	VP	15:20:00	VP 3 Map4 01	Chough	2	Flying	Flying H, (Heath and dense bracken)	2 Chough flying E	MOC
CF008	29/12/2019	VP	16:15:00	VP 3 Map4 02	Chough	2	Flying	Flying H, (Heath and dense bracken)	2 Chough feeding on short grass then flying E	MOC
CF009	29/12/2019	VP	16:34:00	VP 3 Map4 03	Chough	1	Roost	Roost H, (Heath and dense bracken)	1 Chough calling from clifftop, apparently went to roost	MOC
CF010	29/12/2019	VP	16:40:00	VP 3 Map4 04	Chough	1	Roost	Roost H, (Heath and dense bracken)	1 Chough flew to cliff and apparently went to roost. Heard calling until 16:55	MOC
CF011	17/01/2020	VP	08:19:00	VP 2 Map2 01	Chough	2	Roosting	Roosting	See Map 2	MOC
CF012	17/01/2020	VP	08:21:00	VP 2 Map2 02	Chough	2	Roosting	Roosting	See Map 2	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/ Roosting	Notes on Activity and Habitat	Comments	Surveyor
CF013	17/01/2020	VP	16:50:00	VP3 Map 4 01	Chough	2	Feeding/ Roosting	Feeding/ Roosting	see Map 4 arrived and started feeding. Then flew down cliff and roosted somewhere. Too dark to see where exactly	MOC
CF014	17/01/2020	VP	16:56:00	VP3 Map 4 02	Chough	2	Feeding/ Roosting	Feeding/ Roosting	see Map 4 joined first two and started feeding, flew down cliff and roosted. Too dark to see where exactly	MOC
CF015	29/01/2020	VP	16:54	VP1 Map 1 01	Chough	1	flying	flying	flying south west and then north	MOC
CF016	30/01/2020	VP	16:54	VP3	Chough	2	flying	flying	flew ne across Dursey Sound, at 40-50m height	MOC
CF017	20/02/2020	VP	17:27	Brann Righe roost	Chough	2	Flying	Flying GS3, (Dry-humid acid grassland)	Flew into roost	PC
CF018	20/02/2020	VP	17:36	Brann Righe roost	Chough	2	Flying	Flying GS3, (Dry-humid acid grassland)	Flew into roost	PC
CF019	20/02/2020	VP	17:45	Brann Righe roost	Chough	2	Feeding	Feeding GS3, (Dry-humid acid grassland)	Feeding on short grass above roost	PC
CF020	20/02/2020	VP	18:16	Brann Righe roost	Chough	2	Flying	Flying GS3, (Dry-humid acid grassland)	Flew into roost	PC
CF021	21/02/2020	VP	08:44	Cuas na gColer roost	Chough	3	Feeding	Feeding GA1, (Improved agricultural grassland)	foraging above cliff roost, didn't see emerge from roost but likely from this roost	PC
CF022	21/02/2020	VP	08:46	Cuas na gColer roost	Chough	2	Feeding	Feeding GA1, (Improved	flew in from opposite side of island to join first 2 birds foraging	PC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/ Roosting	Notes on Activity and Habitat	Comments	Surveyor
								agricultural grassland)		
CF023	22/02/2020	VP	16:43	Foilnamuck roost	Chough	2	Flying	Flying GA1, (Improved agricultural grassland)	Flew into roost	PC
CF024	22/02/2020	VP	16:45	Foilnamuck roost	Chough	6	Flying	Flying GA1, (Improved agricultural grassland)	Flew into roost	PC
CF025	22/02/2020	VP	16:45	Foilnamuck roost	Chough	8	Feeding	Feeding GA1, (Improved agricultural grassland)	emerged from cliff to foraging in short grass above roost for 45 mins	PC
CF026	22/02/2020	VP	17:15	Foilnamuck roost	Chough	2	Flying	Flying GA1, (Improved agricultural grassland)	flew from this roost towards Cuas na C. roost	PC
CF027	22/02/2020	VP	17:18	Foilnamuck roost	Chough	1	Flying	Flying GA1, (Improved agricultural grassland)	flew from this roost towards Cuas na C. roost	PC
CF028	22/02/2020	VP	17:45	Foilnamuck roost	Chough	3	Flying	Flying GA1, (Improved agricultural grassland)	flew SW from roost lost from view	PC
CF029	22/02/2020	VP	18:01	Foilnamuck roost	Chough	2	Flying	Flying GA1, (Improved agricultural grassland)	flew N from roost	PC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/ Roosting	Notes on Activity and Habitat	Comments	Surveyor
CF030	22/02/2020	VP	18:04	Foilnamuck roost	Chough	2	Flying	Flying GA1, (Improved agricultural grassland)	flew towards mainland	PC
CF031	10/03/2020	VP	17:34	VP1 (01)	Chough	4	Flying	Flying CS, (Sea cliffs and islets)	Flying along sea cliffs	MOC
CF032	10/03/2020	VP	17:56	VP1 (02)	Chough	3	Flying	Flying CS, (Sea cliffs and islets)	Flying along sea cliffs	MOC
CF033	10/03/2020	VP	18:09	VP1 (03)	Chough	1	Feeding	Feeding GS, (Semi-natural grassland) CS, (Sea cliffs and islets)	Landed close to roost on close-cropped coastal grass for 13 minutes then flew W	MOC
CF034	11/03/2020	VP	06:56	VP2 (01)	Chough	4	Roosting	Roosting CS, (Sea cliffs and islets)	Emerged from roost at 06:56. flew SW from cliff	MOC
CF035	11/03/2020	VP	07:05	VP2 (02)	Chough	2	Flying	Flying CS, (Sea cliffs and islets)	Flew along coastal cliff NE to SW	MOC
CF036	11/03/2020	VP	07:40	VP2 (03)	Chough	2	Flying	Flying CS, (Sea cliffs and islets) GS, (Semi-natural grassland)	Flew along coastal cliff NE to SW	MOC
CF037	11/03/2020	VP	17:55	VP3 (01)	Chough	4	Feeding	Feeding HH, (Heath) CS, (Sea cliffs and islets)	4 birds arrived on short-cropped coastal cliff at 17:55 where they flew for 12 minutes. They took off at 18:07 and flew W across Dursey Sound.	

Table 1-3 Walkover Survey Data

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
W001	29/12/2019	Walkover Transect	09:30:00	Dursey 01	Chough	4	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in grass field	MOC
W002	29/12/2019	Walkover Transect	09:35:00	Dursey 02	Chough	3	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in grass field	MOC
W003	29/12/2019	Walkover Transect	09:42:00	Dursey 03	Chough	3	Flying		Flying H, (Heath and dense bracken)	Flying SW	MOC
W004	29/12/2019	Walkover Transect	09:43:00	Dursey 04	Chough	2	Feeding	40m	Feeding GA1, (Improved agricultural grassland)	Feeding on grassy track	MOC
W005	29/12/2019	Walkover Transect	09:51:00	Dursey 05	Chough	2	Flying		Flying H, (Heath and dense bracken)	Flying SW	MOC
W006	29/12/2019	Walkover Transect	10:10:00	Dursey 06	Chough	1	Flying		Flying H, (Heath and dense bracken)	Flying SW	MOC
W007	29/12/2019	Walkover Transect	10:22:00	Dursey 07	Chough	3	Flying		Flying H, (Heath and dense bracken) GA1, (Improved	Flying S	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
									agricultural grassland)		
W008	29/12/2019	Walkover Transect	10:24:00	Dursey 08	Chough	2	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in grass field	MOC
W009	29/12/2019	Walkover Transect	10:48:00	Dursey 09	Chough	3	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in grass field	MOC
W010	29/12/2019	Walkover Transect	11:04:00	Dursey 10	Chough	4	Flying		Flying H, (Heath and dense bracken) GA1, (Improved agricultural grassland)	Flying S	MOC
W011	29/12/2019	Walkover Transect	11:16:00	Dursey 11	Chough	2	Feeding	20m	Feeding GS, (Semi-natural grassland)	Feeding by road verge	MOC
W012	29/12/2019	Walkover Transect	11:28:00	Dursey 12	Chough	2	Flying		Flying H, (Heath and dense bracken)	Flying E	MOC
W013	29/12/2019	Walkover Transect	11:41:00	Dursey 13	Chough	4	Feeding		Feeding GS, (Semi-natural grassland)	Feeding on short cliff-top grass	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
W014	29/12/2019	Walkover Transect	11:59:00	Dursey 14	Chough	3	Flying		Flying H, (Heath and dense bracken)	Flying N	MOC
W015	29/12/2019	Walkover Transect	12:15:00	Dursey 15	Chough	1	Feeding	30m	Feeding H, (Heath and dense bracken)	Feeding on short clifftop grass	MOC
W016	29/12/2019	Walkover Transect	12:31:00	Dursey 16	Chough	2	Feeding	40m	Feeding H, (Heath and dense bracken)	Feeding on short clifftop grass	MOC
W017	17/01/2020	Walkover Transect	09:05:00	3 Map 3	Chough	2	Flying		Flying GS, (Semi-natural grassland)	Flying SW	MOC
W018	17/01/2020	Walkover Transect	09:18:00	4 Map 3	Chough	4	Feeding	30m	Feeding GA1, (Improved agricultural grassland) HH, (Heath)	Feeding on grass field	MOC
W019	17/01/2020	Walkover Transect	09:22:00	5 Map 3	Chough	1	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding on grass field, flew SW	MOC
W020	17/01/2020	Walkover Transect	09:38:00	6 Map 3	Chough	1	Feeding	30m	Feeding GA1, (Improved agricultural grassland)	Feeding on grass field, flew S	MOC
W021	17/01/2020	Walkover Transect	10:16:00	7 Map 3	Chough	2	Flying		Flying GA1, (Improved	Flew SW	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
									agricultural grassland)		
W022	17/01/2020	Walkover Transect	10:50:00	8 Map 3	Chough	2	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding along track, flew W	MOC
W023	17/01/2020	Walkover Transect	11:50:00	9 Map 3	Chough	2	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding along track, flew SW	MOC
W024	17/01/2020	Walkover Transect	11:58:00	10 Map 3	Chough	4	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding on short coastal grass	MOC
W025	17/01/2020	Walkover Transect	12:15:00	11 Map 3	Chough	2	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding on short grass by cable car	MOC
W026	30/01/2020	Walkover Transect	09:36	1	Chough	1	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding on track	MOC
W027	30/01/2020	Walkover Transect	10:22	2	Chough	1	Flying		Flying HH, (Heath)	Flying SW	MOC
W028	30/01/2020	Walkover Transect	11:53	3	Chough	1	Feeding	30m	Feeding HH, (Heath) GA1, (Improved	Feeding on Heath, flew NW	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
									agricultural grassland)		
W029	30/01/2020	Walkover Transect	12:10	4	Chough	1	Feeding	20m	Feeding GA1, (Improved agricultural grassland) HH, (Heath)	Feeding on short grass, Flew N	MOC
W030	08/02/2020	Walkover Transect	09:30	1	Chough	2	Feeding	30m	Feeding GA1, (Improved agricultural grassland)	Feeding on short grass	MOC
W031	08/02/2020	Walkover Transect	09:36	2	Chough	1	Flying		Flying GA1, (Improved agricultural grassland)	Flying SW	MOC
W032	08/02/2020	Walkover Transect	10:01	3	Chough	1	Flying		Flying HH, (Heath) GA1, (Improved agricultural grassland)	Flying S	MOC
W033	08/02/2020	Walkover Transect	10:25	4	Chough	22	Feeding	40m	Feeding GA1, (Improved agricultural grassland)	Large flock feeding on grassy fields	MOC
W034	08/02/2020	Walkover Transect	10:45	5	Chough	5	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding on short grass by cable car	MOC

Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
W035	21/02/2020	Walkover Transect		mainland end of island	Chough	1	Flying		Flying GA1, (Improved agricultural grassland)		PC
W036	21/02/2020	Walkover Transect		mainland end of island	Chough	6	Feeding		Feeding GA1, (Improved agricultural grassland)		PC
W037	21/02/2020	Walkover Transect		SW end of island	Chough	11	Feeding		Feeding GS3, (Dry-humid acid grassland)		PC
W038	21/02/2020	Walkover Transect		mainland end of island	Chough	8	Feeding	40	Feeding GA1, (Improved agricultural grassland)	these are two different flocks	PC
W039	21/02/2020	Walkover Transect		mainland end of island	Chough	9	Feeding	30	Feeding GA1, (Improved agricultural grassland)	these are two different flocks	PC
W040	11/03/2020	Walkover Transect	08:32	VP2 (04) Transect	Chough	6	Feeding	30m	Feeding GS, (Semi-natural grassland)	Feeding along grass track	MOC
W041	11/03/2020	Walkover Transect	08:48	VP2 (05) Transect	Chough	3	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in field	MOC



Reference No.	Date	Survey Type	Time of observation	Location	Species	Number of birds	Feeding/Roosting	Disturbance Distance (estimated to the nearest 10m)	Notes on Activity and Habitat	Comments	Surveyor
W042	11/03/2020	Walkover Transect	09:15	VP2 (06) Transect	Chough	2	Flying		Flying GA1, (Improved agricultural grassland)	Flying SW over moorland	MOC
W043	11/03/2020	Walkover Transect	09:22	VP2 (07) Transect	Chough	1	Feeding		Feeding GA1, (Improved agricultural grassland) HH, (Heath)	Feeding near track, flew W	MOC
W044	11/03/2020	Walkover Transect	10:10	VP2 (08) Transect	Chough	2	Feeding	20m	Feeding GA1, (Improved agricultural grassland)	Feeding in grass field	MOC
W045	11/03/2020	Walkover Transect	10:35	VP2 (09) Transect	Chough	2	Feeding		Feeding GA1, (Improved agricultural grassland)	Feeding in grass field, flew S	MOC
W046	11/03/2020	Walkover Transect	10:45	VP2 (10) Transect	Chough	2	Flying	30m	Flying HH, (Heath) CS, (Sea cliffs and islets) GA1, (Improved agricultural grassland)"	Flying SW	MOC



APPENDIX 2

FIGURES




Map Legend

-  Historical Roost Sites
-  Roost Vantage Point Locations



	MAP TITLE: Chough Roost Vantage Point Locations	MAP NO.: Figure 1	SCALE: 1:25,000
	PROJECT TITLE: 191224 - Dursey Island Chough Survey		DATE: 28-04-2020
	DRAWING BY: Patrick Manley	CHECKED BY: Padraig Cregg	ISSUE NO.: 191224-2020.04.28-F
	MKO Tuam Road, Galway, Ireland, H91 VW84. +353 (0) 91 735611 www.mkoireland.ie		

Map Legend

-  Roost Vantage Point Locations
-  Chough Flights
-  Chough Flying to/from Roost

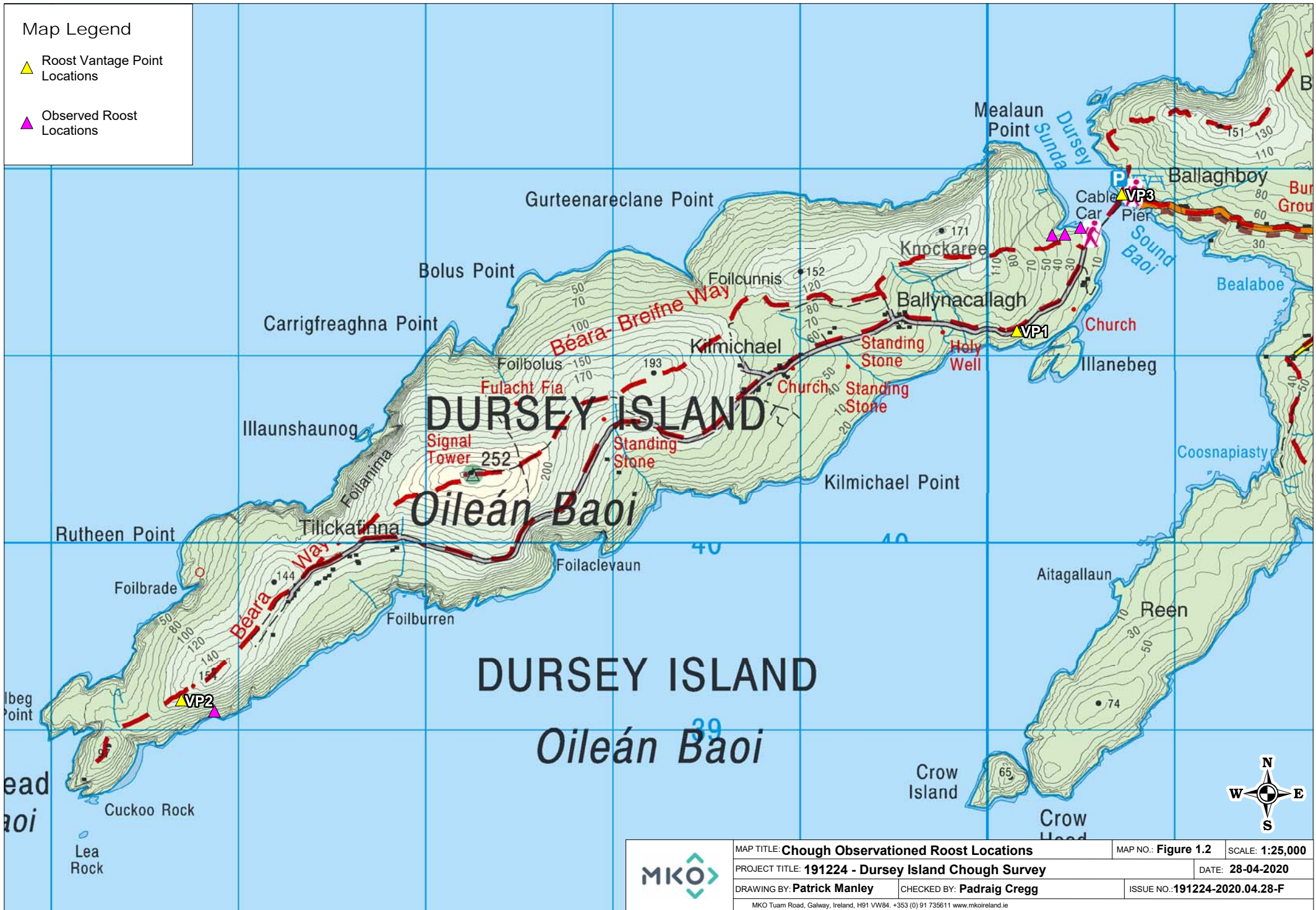


	MAP TITLE: Chough Observations - Roost Surveys	MAP NO.: Figure 1.1	SCALE: 1:25,000
	PROJECT TITLE: 191224 - Dursey Island Chough Survey		DATE: 28-04-2020
	DRAWING BY: Patrick Manley	CHECKED BY: Padraig Cregg	ISSUE NO.: 191224-2020.04.28-F
	<small>MKO Tuam Road, Galway, Ireland, H91 VW84. +353 (0) 91 735611 www.mkoireland.ie</small>		

Map Legend

▲ Roost Vantage Point Locations

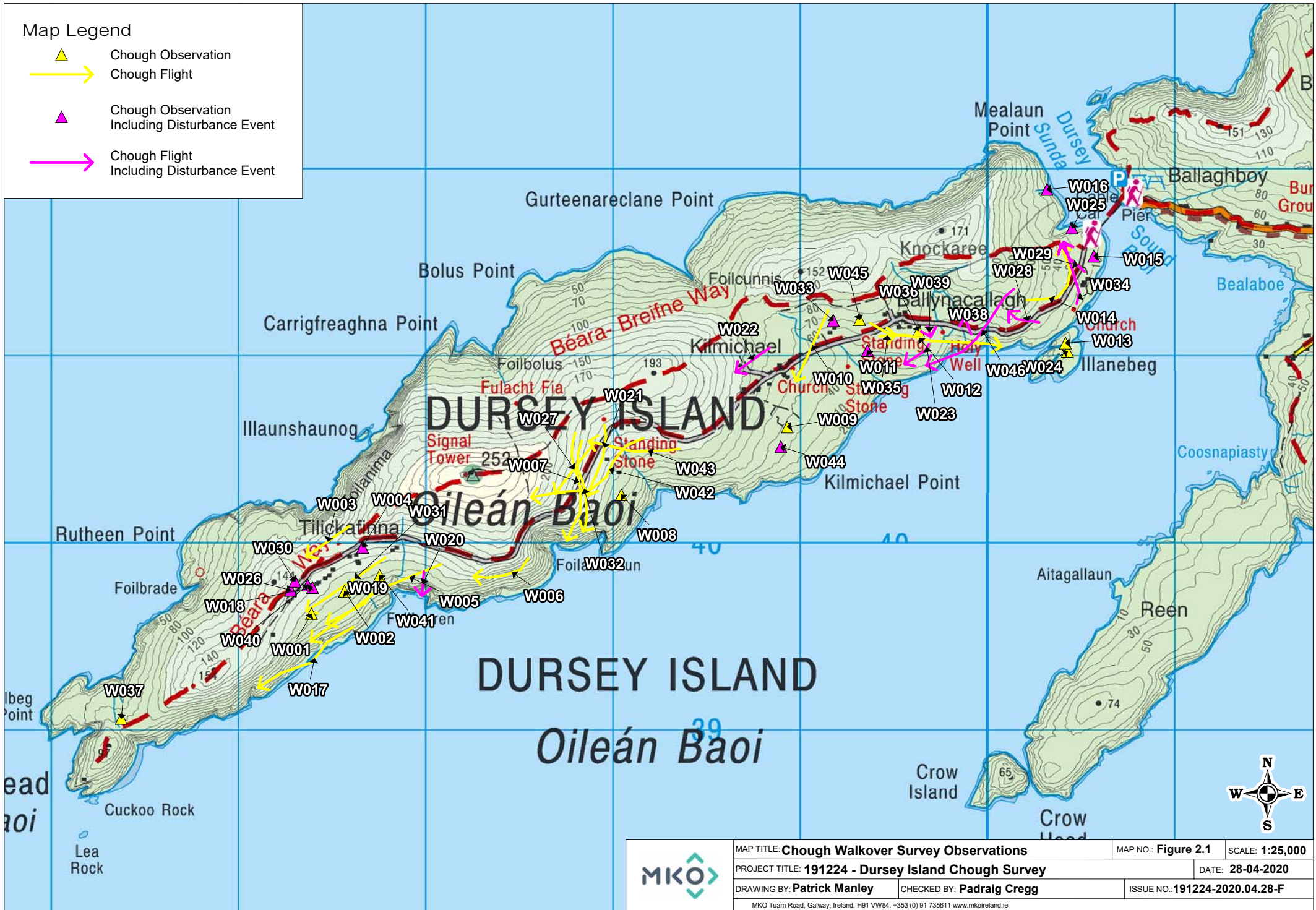
▲ Observed Roost Locations



	MAP TITLE: Chough Observationed Roost Locations	MAP NO.: Figure 1.2	SCALE: 1:25,000	
	PROJECT TITLE: 191224 - Dursey Island Chough Survey	DATE: 28-04-2020		
	DRAWING BY: Patrick Manley	CHECKED BY: Padraig Cregg	ISSUE NO.: 191224-2020.04.28-F	
	<small>MKO Tuam Road, Galway, Ireland, H91 VW84. +353 (0) 91 735611 www.mkoireland.ie</small>			

Map Legend

- ▲ Chough Observation
- Chough Flight
- ▲ Chough Observation Including Disturbance Event
- Chough Flight Including Disturbance Event

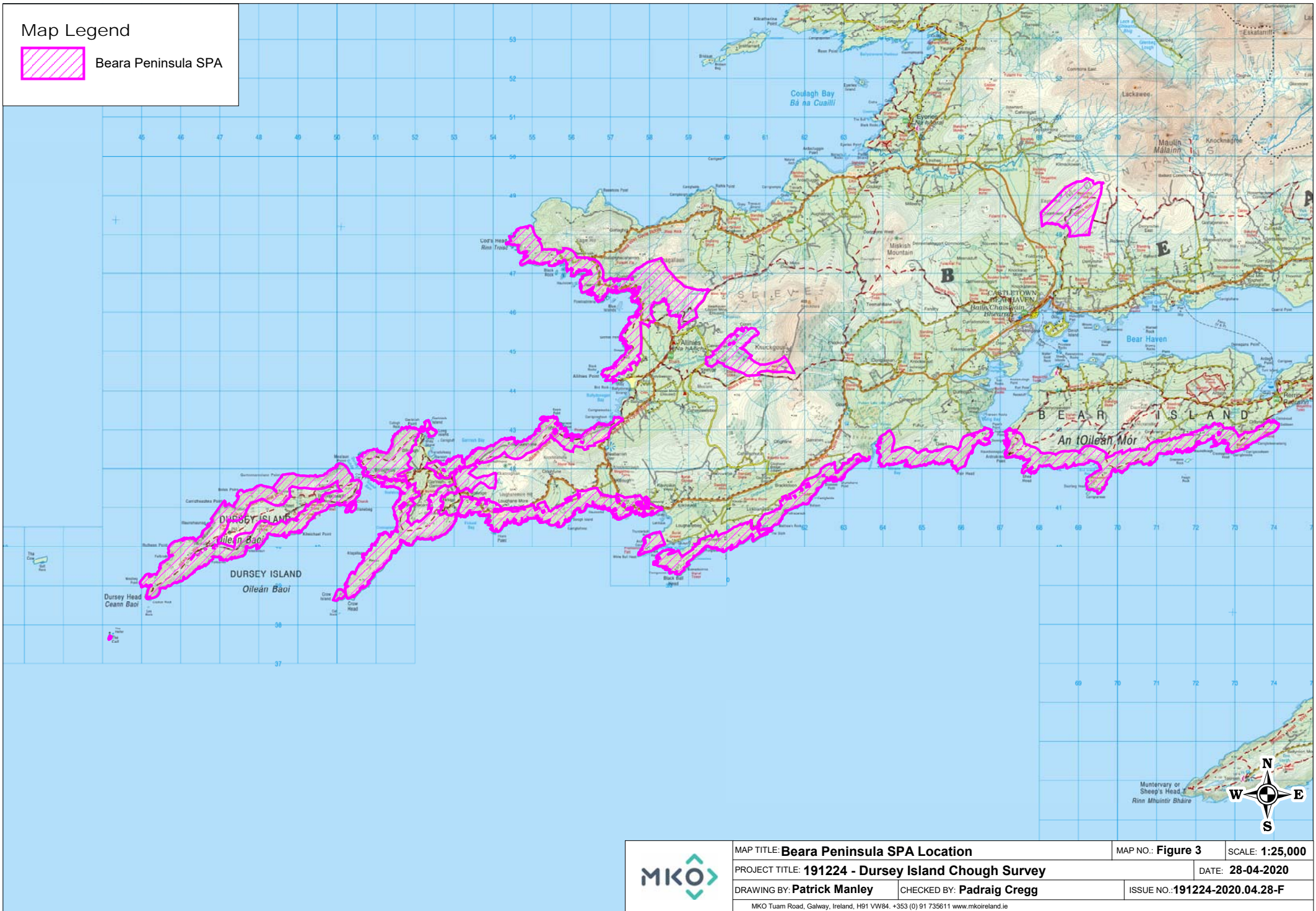


	MAP TITLE: Chough Walkover Survey Observations	MAP NO.: Figure 2.1	SCALE: 1:25,000
	PROJECT TITLE: 191224 - Dursey Island Chough Survey	DATE: 28-04-2020	
	DRAWING BY: Patrick Manley	CHECKED BY: Padraig Cregg	ISSUE NO.: 191224-2020.04.28-F
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Map Legend



Beara Peninsula SPA



	MAP TITLE: Beara Peninsula SPA Location	MAP NO.: Figure 3	SCALE: 1:25,000
	PROJECT TITLE: 191224 - Dursey Island Chough Survey	DATE: 28-04-2020	
	DRAWING BY: Patrick Manley	CHECKED BY: Padraig Cregg	ISSUE NO.: 191224-2020.04.28-F
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