Meenbog Windfarm EIAR Co. Donegal

Birds Technical Appendix 7.3



Planning & Environmental Consultants

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Table 1: Vantage Point Survey Effort Summary Table.

Data Set (Seasons)	Months	Effort/month	Total hours per VP
2015 Breeding Season (4VPs)	Apr-Sep	6 hours/VP/month	36.75
2015/2016 Non-Breeding Season (4VPs)	Oct-Mar	6 hours/VP/month	35.75
2016 Breeding Season (5VPs)	Apr-Sep	6 hours/VP/month	37.4
2016/2017 Non-Breeding Season (5VPs)	Oct-Mar	6 hours/VP/month	36.8
2017 Breeding Season (5VPs)	Apr-Sep	6 hours/VP/month	36
All vantage point watches had the required 6 hou	ur minimum per vantage point (VF)	

Table 2: Monthly distribution of flight activity recorded for the target species during the vantage point watches.

Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Whooper Swan	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	1	0	0	0	0	0	0	0	0	1
		bird-secs	0	0	0	10	0	0	0	0	0	0	0	0	10
	2017	records	0	0	0	0	0	0	0	0	0				0
		bird-secs	0	0	0	0	0	0	0	0	0				0
Golden Plover	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	1	0	0	0	0	0	0	0	0				1
		bird-secs	25	0	0	0	0	0	0	0	0				25
Merlin	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	1	1	0	1	0	0	3
		bird-secs	0	0	0	0	0	0	9	32	0	10	0	0	51
	2017	records	0	0	0	0	0	0	0	0	0				0
		bird-secs	0	0	0	0	0	0	0	0	0				0
Hen Harrier	2015	records				2	0	0	0	0	0	0	0	0	2
		bird-secs				170	0	0	0	0	0	0	0	0	170
	2016	records	0	0	0	0	0	0	0	0	0	1	0	1	2
		bird-secs	0	0	0	0	0	0	0	0	0	30	0	27	57
	2017	records	0	0	0	0	0	0	1	0	0				1
		bird-secs	0	0	0	0	0	0	25	0	0				25

Table 2: Monthly distribution of flight activity recorded for the target species during the vantage point watches.

Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Goshawk	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	0	1	0	0	0	0	0	0				1
		bird-secs	0	0	130	0	0	0	0	0	0				130
Golden Eagle	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	1	0	0	0	0	0	0	0	0	1
		bird-secs	0	0	0	26	0	0	0	0	0	0	0	0	26
	2017	records	0	0	0	0	0	0	0	0	0				0
		bird-secs	0	0	0	0	0	0	0	0	0				0
Lesser Black-	2015	records				0	0	0	0	0	0	0	0	0	0
backed Gull		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	0	0	0	0	1	0	0	0				1
		bird-secs	0	0	0	0	0	80	0	0	0				80
Red Grouse	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	1	0	0	1
		bird-secs	0	0	0	0	0	0	0	0	0	15	0	0	15
	2017	records	0	0	0	0	0	0	0	0	0				0
		bird-secs	0	0	0	0	0	0	0	0	0				0

Table 2: Monthly distribution of flight activity recorded for the target species during the vantage point watches.

Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Woodcock	2015	records				0	0	0	0	0	0	0	0	2	2
		bird-secs				0	0	0	0	0	0	0	0	10	10
	2016	records	0	0	0	0	0	1	0	0	0	0	0	0	1
		bird-secs	0	0	0	0	0	16	0	0	0	0	0	0	16
	2017	records	1	0	0	2	1	0	0	0	0				4
		bird-secs	5	0	0	9	600	0	0	0	0				614
Wigeon	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	1	0	0	0	0	0	0	0				1
		bird-secs	0	20	0	0	0	0	0	0	0				20
Buzzard	2015	records				0	0	0	0	6	1	0	0	0	7
		bird-secs				0	0	0	0	1,171	180	0	0	0	1351
	2016	records	0	0	0	6	4	4	6	1	2	0	0	0	23
		bird-secs	0	0	0	716	285	337	369	40	32	0	0	0	1779
	2017	records	0	0	0	0	0	7	2	1	1				11
		bird-secs	0	0	0	0	0	1,590	25	69	360				2044
Sparrowhawk	2015	records				0	0	0	0	0	0	0	0	0	0
		bird-secs				0	0	0	0	0	0	0	0	0	0
	2016	records	0	0	0	1	1	2	0	3	0	0	1	0	8
		bird-secs	0	0	0	15	23	39	0	84	0	0	10	0	171
	2017	records	2	0	2	0	1	0	2	1	2				10
		bird-secs	15	0	40	0	20	0	125	45	260				505

Table 2: Monthly distribution of flight activity recorded for the target species during the vantage point watches.

Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Kestrel	2015	records				0	0	1	0	1	1	0	0	1	4
		bird-secs				0	0	5	0	5	6	0	0	8	24
	2016	records	0	0	0	0	1	1	0	0	0	1	0	0	3
		bird-secs	0	0	0	0	50	31	0	0	0	300	0	0	381
	2017	records	0	0	0	1	0	0	0	0	2				3
		bird-secs	0	0	0	75	0	0	0	0	1,960				2035

Based on analysis of all flight activity data, including data from VPs 1, 2, 3, 4 & 18, and observations of flights below and above the collision risk height band. Survey period = April 2015 - September 2017 (Shaded Cells were months not surveyed).

Table 3: Observations at PCH for target species during vantage point watches

Species	Values	VP1	VP2	VP3	VP4	VP18	Totals
Whooper Swan	Obervations (All Bands)	0	0	1	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Golden Plover	Obervations (All Bands)	0	0	0	1	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	25	0	25
Merlin	Obervations (All Bands)	0	0	1	1	1	3
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Hen Harrier	Obervations (All Bands)	0	1	1	2	1	5
	Duration in PCH (Band 3, in Seconds)	0	0	20	110	0	130
Goshawk	Obervations (All Bands)	0	0	1	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Golden Eagle	Obervations (All Bands)	1	0	0	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Lesser Black-backed Gull	Obervations (All Bands)	0	0	1	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	80	0	0	80
Red Grouse	Obervations (All Bands)	1	0	0	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Woodcock	Obervations (All Bands)	2	3	1	1	0	7
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Wigeon	Obervations (All Bands)	0	1	0	0	0	1
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	0	0
Buzzard	Obervations (All Bands)	9	10	6	9	7	41
	Duration in PCH (Band 3, in Seconds)	1,302	295	824	886	194	3,501
Sparrowhawk	Obervations (All Bands)	1	4	3	5	5	18
	Duration in PCH (Band 3, in Seconds)	0	0	0	0	35	35
Kestrel	Obervations (All Bands)	3	1	1	4	1	10
	Duration in PCH (Band 3, in Seconds)	188	40	5	11	0	244
Based on analysis of all fligh	t data at PCH for each target species during	each of the 5 c	ifferent VP lo	cations			

Table 4: Monthly distribution of flight activity recorded for the target species during the vantage point watch at the Commuting/Migratory Bird VP of the Barnesmore Gap

Barnesmore Gap															Taral
Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals for each year
Whooper Swan	2015	records										5	3	0	8
		bird-secs										1,560	970	0	2530
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	0	0	0	0	0	0	0	0				0
		bird-secs	0	0	0	0	0	0	0	0	0				0
Golden Plover	2015	records										0	0	0	0
		bird-secs										0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	1	0	0	0	0	0	0	0				1
		bird-secs	0	20	0	0	0	0	0	0	0				20
Peregrine	2015	records										0	0	0	0
		bird-secs										0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	1	0	0	0	0	0	0	0				1
		bird-secs	0	0	0	0	0	0	0	0	0				0

Table 4: Monthly distribution of flight activity recorded for the target species during the vantage point watch at the Commuting/Migratory Bird VP of the Barnesmore Gap

Species	Year	Standardised	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals for each year
Herring Gull	2015	records										0	0	0	0
		bird-secs										0	0	0	0
	2016	records	0	0	0	0	0	0	0	0	0	0	0	0	0
		bird-secs	0	0	0	0	0	0	0	0	0	0	0	0	0
	2017	records	0	0	0	3	0	0	0	0	0				3
		bird-secs	0	0	0	0	0	0	0	0	0				0

Based on analysis of all flight activity data and observations of flights below and above the collision risk height band. Survey period = October 2015 - September 2017 (Shaded Cells were months not surveyed).

Table 5: Monthly distribution of breeding activity for all birds on site in the 2017 Breeding Season

Territory ID	Species	Acitivty April	Activity May	Activity June	Activity July
1P01	Meadow Pipit		Displaying		
1P02	Meadow Pipit	Alarm Call	Displaying		Alarm Call
1P03	Meadow Pipit		Alarm Call	Alarm Call	
1P04	Meadow Pipit				Alarm Call
1P05	Meadow Pipit		Displaying		
1P06	Meadow Pipit		Displaying		
1P07	Meadow Pipit		Displaying		
1P08	Meadow Pipit				Displaying
1P09	Meadow Pipit			Alarm Call	
1P10	Meadow Pipit				Alarm Call
1P11	Meadow Pipit			Alarm Call	
1P12	Meadow Pipit			Displaying/Alarm	
1P13	Meadow Pipit		Displaying		
1P14	Meadow Pipit		Alarm Call		
1P15	Meadow Pipit		Pair Alarm		
IP16	Meadow Pipit	2 Pairs Alarm			
P17	Meadow Pipit				Displaying
1P18	Meadow Pipit				Pair Alarm Call
1P19	Meadow Pipit				Displaying
1P20	Meadow Pipit		Displaying		
1P21	Meadow Pipit				Three Alarm Calls
1P22	Meadow Pipit			Alarm Call	
1P23	Meadow Pipit				Alarm Call
1P24	Meadow Pipit				Displaying
G01	Red Grouse	Displaying			

Table 6: All Red Grouse Surveys Across the site for the 2015, 2016 & 2017 Seasons

Map Reference No.	Date	Time of observation	Species Name	No. of birds	Habitat and Activity	Comments
	16/03/2015					NO sightings
	17/03/2015					NO sightings
RG01	29/03/2016	14:44:00	Red Grouse	1	FLUSHED	FLUSHED ON APPROACH BEFORE BROADCAST, TWO BIRDS, ONE MALE CALLING BIRD
RG02	29/03/2016	14:44:00	Red Grouse	1	FLUSHED	FLUSHED ON APPROACH BEFORE BROADCAST, TWO BIRDS, SECOND BIRD SILENT.
RG03	29/03/2016	14:50:00	Red Grouse	1	FLUSHED	FLUSHED ON RETURN FROM END OF TRANSECT LINE, POSSIBLE SAME BIRD AS EARLIER. MALE CALL WHILE FLYING AWAY.
	14/03/2017					NO sightings
	15/03/2017					NO sightings
All Data including sur	vevs with no red a	rouse observation	s for the 2015 2016	& 2017 surv	/evs	

Table 7: Monthly distribution of flight activity and observations recorded for the target species during Breeding Raptor Surveys.

Species	Year	Standardised	Apr	May	Jun	Jul	Totals
	2015	No. of observations					
			0	0		0	0
Buzzard	2016	No. of observations					
	2015		3	0	1	1	5
	2017	No. of observations		,			
	2015	No. of observations	2	4	0	2	8
	2015	No. of observations					0
	2016	No. of observations	0	0		0	0
Golden Eagle	2010	No. of observations	0	0	0	0	0
	2017	No. of observations	0	0	0	0	0
	2017	No. of observations	0	0	1	2	3
	2015	No. of observations	U	U			3
	2013	ivo. or observations	0	0		1	1
	2016	No. of observations	U	U		•	•
Hen Harrier	20.0		2	0	0	0	2
	2017	No. of observations					_
			0	0	0	1	1
	2015	No. of observations					
			0	0		0	0
IZ 1 1	2016	No. of observations					
Kestrel			0	0	0	0	0
	2017	No. of observations					
			0	0	1	2	3
	2015	No. of observations					
			0	0		0	0
	2016	No. of observations					
Merlin			1	0	0	0	1
	2017	No. of observations					
			1	0	0	1	2

Table 7: Monthly distribution of flight activity and observations recorded for the target species during Breeding Raptor Surveys.

Species	Year	Standardised	Apr	May	Jun	Jul	Totals
	2015	No. of observations	0	0		0	0
Peregrine Falcon	2016	No. of observations	0	0		0	0
Peregrine Faccon			0	0	0	0	0
	2017	No. of observations					
			0	1	1	1	3
	2015	No. of observations	0	0		0	0
Sparrowhawk	2016	No. of observations	1	0	0	0	1
	2017	No. of observations	1	U	U	U	1
			2	1	0	0	3

Based on analysis of all flight activity data and observations. Survey period = April - July for 2016 & 2017. 2015 months surveyed were April, May, and July (Shaded Cells were months not surveyed).

Table 8: Woodcock Surveys

Map Reference No.	Date	Obs no.	Time of observation	Species	No. birds	Habitat and Activity	Comments
WK01	27/05/2016	1	21:10:00	Woodcock	1	WD4, (Conifer plantation)	Roding and calling over mature woodland around vp18
	08/06/2016						NO OBSERVATIONS
	22/06/2017						NO OBSERVATIONS
	24/06/2017						NO OBSERVATIONS
	27/06/2017						NO OBSERVATIONS
	20/06/2017						NO OBSERVATIONS
	21/06/2017						NO OBSERVATIONS

Inclusive of all woodcock surveys including dates when there were no observations of woodcock. Only Observation was on the 27/05/2016 as shown above.

Table 9: Whooper Swan Observations during 2016 & 2017 Waterfowl Surveys

Location	GIS Location Code	Year	Standardised	Jan	Feb	Mar	Apr	May	Aug	Sep	Oct	Nov	Dec	Totals for each year
Lough Bradan	32	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	9	0	0	0	0	0				9
Lough Cuill	29	2016	No. of Individuals				0	0	0	0	2	2	0	4
		2017	No. of Individuals	8	0	0	0	0	0	0				8
Lough Eske	1	2016	No. of Individuals				1	2	0	0	0	0	0	3
		2017	No. of Individuals	0	0	8	0	0	0	0				8
Lough Mourne	20	2016	No. of Individuals				0	0	0	0	13	0	0	13
		2017	No. of Individuals	0	0	0	0	0	0	0				0
Lough Shinnagh	21	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	6	0	0	0	0	0	0				6

All Whooper Swan individuals observed during all Waterfowl Surveys. Waterfowl Surveys were only carried out in 2016 and 2017. Shaded cells = Months which were not surveyed. June and July were not surveyed either year. Whooper Swan were only observed on these five lakes.

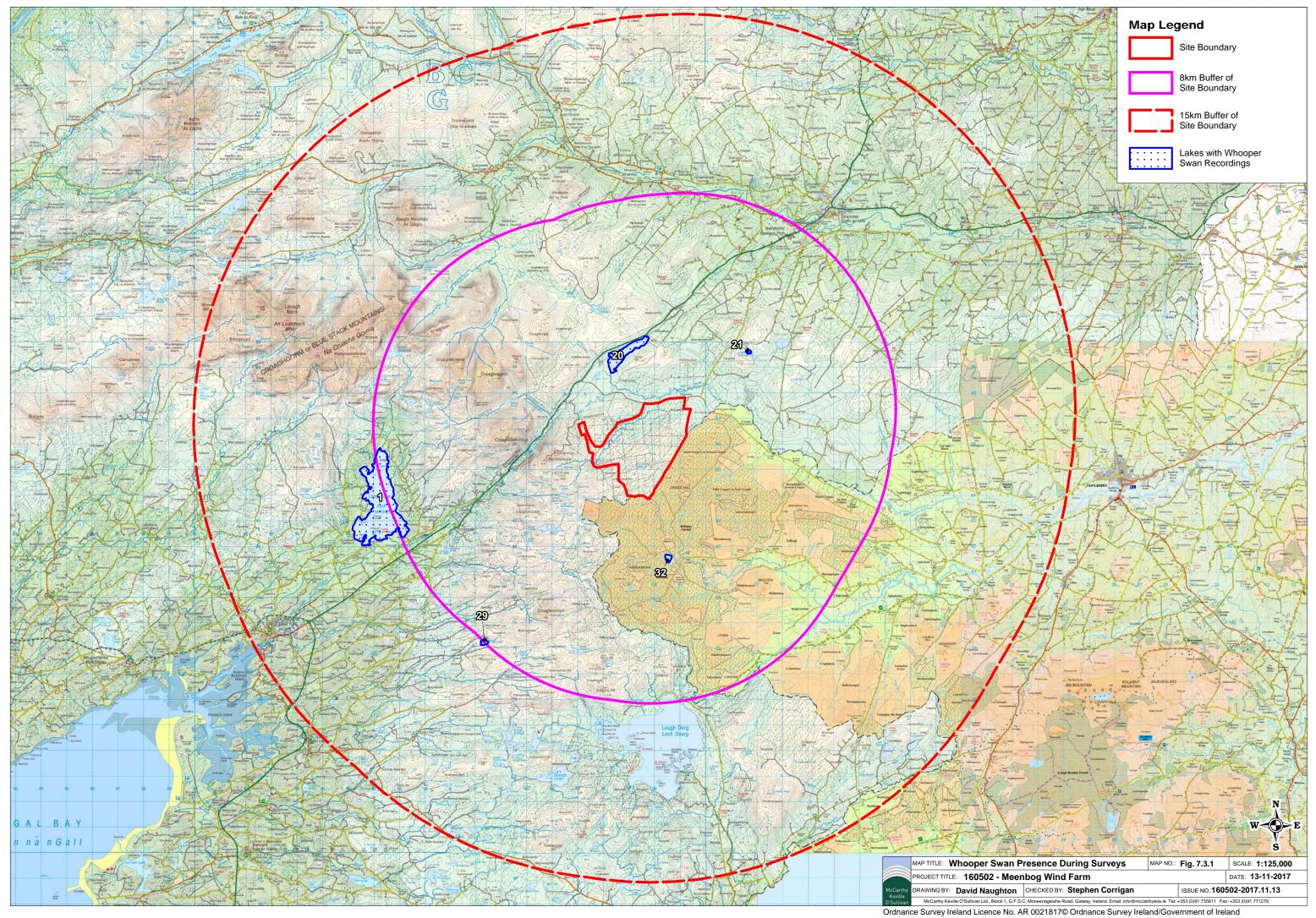


Table 10: Golden Plover Observations during Waterfowl Surveys

Location	GIS Location Code	Year	Standardised	Jan	Feb	Mar	Apr	May	Aug	Sep	Oct	Nov	Dec	Totals for each year
Lough Derg	23	2016	No. of Individuals				21	0	0	0	0	0	0	21
		2017	No. of Individuals	0	0	0	0	0	0	0				0
Lough Golagh (North)	6	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	0	18	0	0	0	0				18
Lough Golagh (South)	27	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	0	0	1	0	0	0				1
Lough Innaghacho	18	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	1	0	0	0	0	0	0				1
Loughnaweelagh	11	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	2	0	0	0	0	0	0				2
Meenabrock Lough	10	2016	No. of Individuals				0	0	0	0	0	0	42	42
		2017	No. of Individuals	14	60	0	0	0	0	0				74
Pettigo Plateau SPA	36	2016	No. of Individuals				1	0	0	0	0	0	0	1
		2017	No. of Individuals	0	0	0	0	0	0	0				0

All Golden Plover individuals observed during all Waterfowl Surveys. Waterfowl Surveys were only carried out in 2016 and 2017. Shaded cells = Months which were not surveyed. June and July were not surveyed either year. Golden Plover were only observed on these seven lakes.

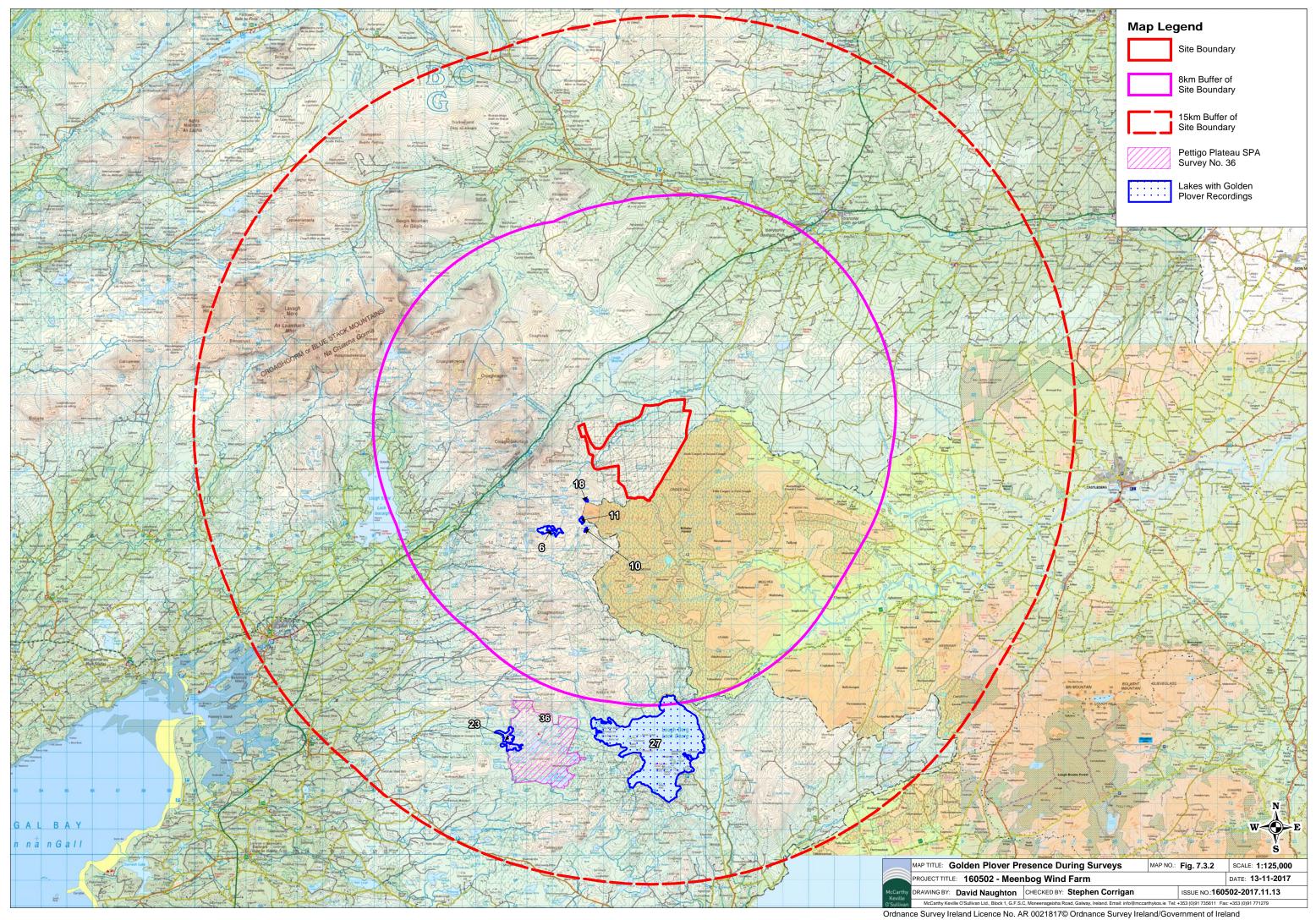


Table 11: Lesser Black-backed Gull Observations during Waterfowl Surveys

Location	GIS Location Code	Year	Standardised	Jan	Feb	Mar	Apr	May	Aug	Sep	0ct	Nov	Dec	Totals for each year
Lough Eske	1	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	0	0	3	7	0	0				10
Lough Slug	5	2016	No. of Individuals				0	10	0	0	0	0	0	10
		2017	No. of Individuals	0	0	0	0	0	0	0				0
Trusk Lough	22	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	0	0	0	3	0	0				3
Lough Derg	23	2016	No. of Individuals				0	21	0	0	0	0	0	21
		2017	No. of Individuals	0	0	0	0	0	0	0				0

All Lesser Black-backed Gull individuals observed during all Waterfowl Surveys. Waterfowl Surveys were only carried out in 2016 and 2017. Shaded cells = Months which were not surveyed. June and July were not surveyed either year. Lesser Black-backed Gull were only observed on these four lakes throughout all waterfowl surveys in 2016 and 2017.

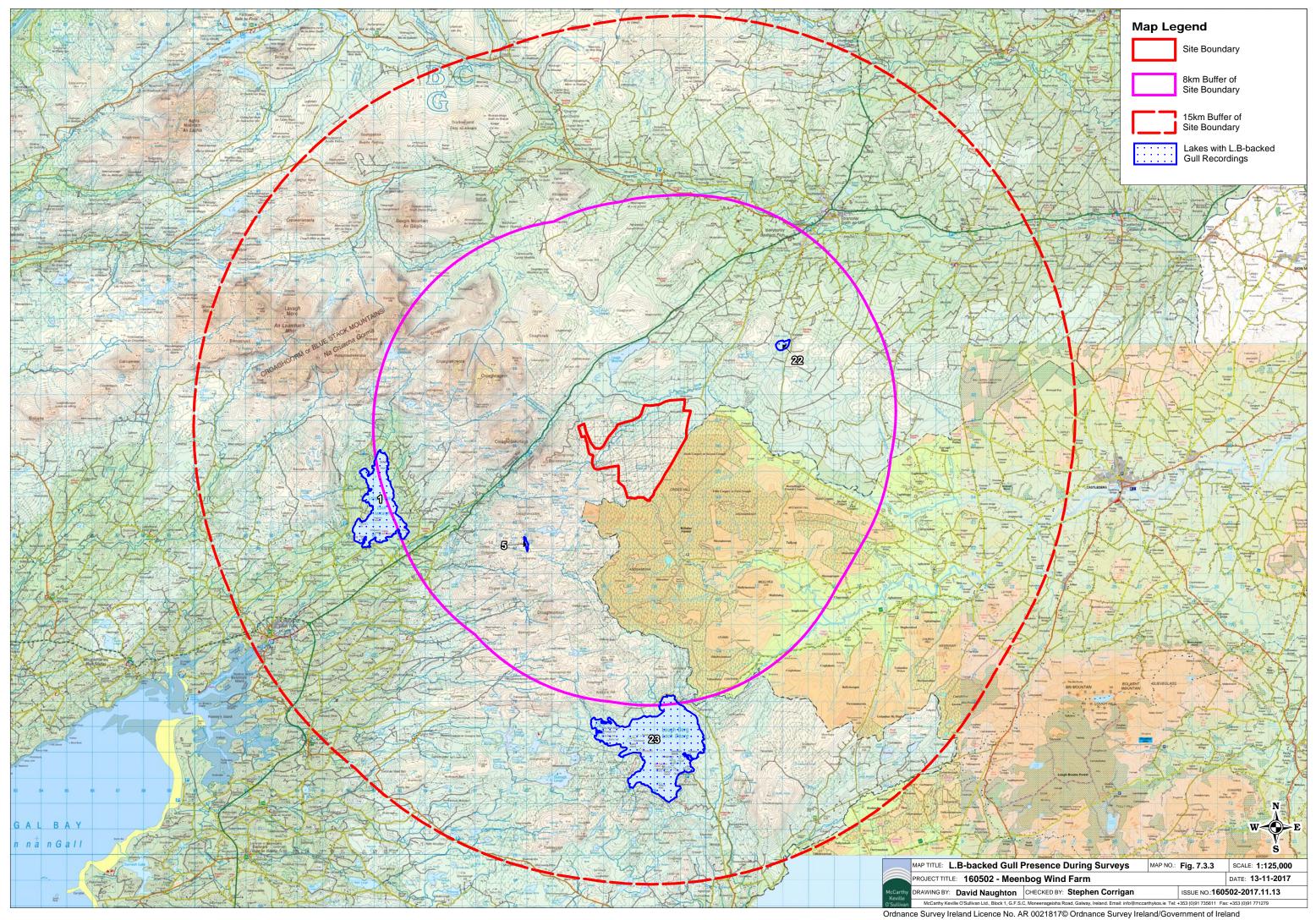


Table 12: Herring Gull Observations during Waterfowl Surveys

Location	GIS Location Code	Year	Standardised	Jan	Feb	Mar	Apr	May	Aug	Sep	Oct	Nov	Dec	Totals for each year
Lough Eske	1	2016	No. of Individuals				0	0	0	0	0	0	0	0
		2017	No. of Individuals	0	0	2	0	0	0	0				2

All Hering Gull individuals observed during all Waterfowl Surveys. Waterfowl Surveys were only carried out in 2016 and 2017. Shaded cells = Months which were not surveyed. June and July were not surveyed either year. A Herring Gull pair was observed only on this lake throughout all waterfowl surveys in 2016 and 2017.

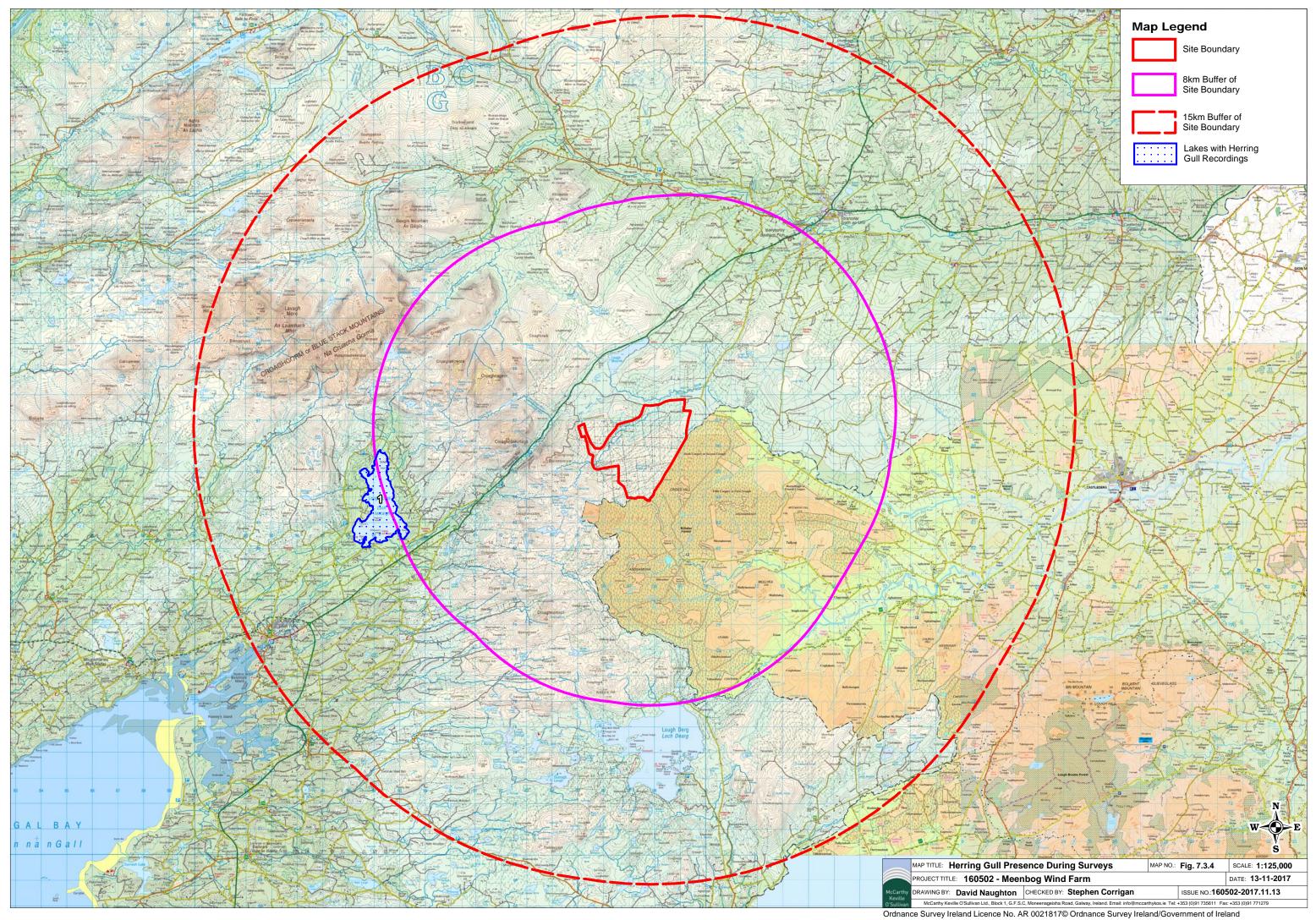


Table 13: Wigeon Observations during Waterfowl Surveys

Location	GIS Location Code	Year	Standardised	Jan	Feb	Mar	Apr	May	Aug	Sep	Oct	Nov	Dec	Totals for each year
Lough Mourne	20	2016	No. of Individuals				0	0	0	0	2	0	0	2
		2017	No. of Individuals	0	0	0	0	0	0	0				0
Trusk Lough	22	2016	No. of Individuals				0	0	0	1	0	0	0	1
		2017	No. of Individuals	0	0	0	0	0	0	0				0

All Wigeon individuals observed during all Waterfowl Surveys. Waterfowl Surveys were only carried out in 2016 and 2017. Shaded cells = Months which were not surveyed. June and July were not surveyed either year. Wigeon were only observed on these two lakes throughout all waterfowl surveys in 2016 and 2017.

