

Migration phenology of Jack Snipe *Lymnocyptes minimus* at an Irish coastal wetland

Tom Cooney

42 All Saint's Road, Raheny,
Dublin D05 C627

Corresponding author:
tmcooney@gmail.com

Keywords: Ireland, Jack Snipe, *Lymnocyptes minimus*, migration phenology

Migration times of Jack Snipe *Lymnocyptes minimus* were monitored at North Bull Island in Dublin Bay during 2011/2012 to 2016/2017.

Average arrival times in autumn centred on 2 October and average departure times in spring on 23 April. Although these results were site and habitat specific, they were similar to recent migration data for Ireland. While the time series examined for Ireland and Britain were of different lengths, migration times were extraordinarily similar. The average autumn arrival date for Ireland as a whole was 16 September while that for Britain was 23 September, and departure times in spring for Ireland centred on 30 April, one day later than in Britain. The close agreement suggests that migration times across both islands possibly occur synchronously. Other recently generated data for Ireland provides tantalising evidence that passage migration may take place and that Jack Snipe could be more frequent in upland areas than previously suspected. In both instances greater clarity will only be possible through increased observer effort and higher detection rates of this enigmatic species.



Introduction

Jack Snipe *Lymnocyptes minimus* are difficult to detect in winter largely due to their solitary behaviour, nocturnal or crepuscular habits, cryptic colouration and reluctance to take to the wing when disturbed. Therefore, it is not surprising that there are no reliable estimates of the winter population in Ireland (Crowe *et al.* 2008). The source of information on their migration phenology has changed little for over a century, as most data were, and still are, generated by hunters or through casual observations by birdwatchers (Thompson 1850, Ussher & Warren 1900, *Irish Birding* 2017). In autumn, earliest migrants are thought to arrive in Ireland during October and November with a return passage in April (Lack 1986, Hutchinson 1989). There is evidence from ringing recoveries that autumn passage migration takes place in

Britain, but not in Ireland (Smiddy 2002). In winter, Jack Snipe appear to be widely but thinly distributed across much of Ireland with highest densities in counties along the west coast (Balmer *et al.* 2013). They are mainly reported from lowland habitats with low sparse vegetation, muddy substrates and fresh or brackish water (Olivier 2008).

Most wader migration times and population trends are relatively easy to monitor as the species are gregarious and are easy to locate and record. Monitoring data have demonstrated that many species are altering the timing of their migrations, and their breeding and wintering distributional ranges, in response to changing climatic conditions (Rehfishch *et al.* 2004, MacLean *et al.* 2008, Godet *et al.* 2011).

Plate 235. Jack Snipe (Tony Hisgett, Wiki Commons).

Unfortunately, due to their secretive nature, no such data exist for Jack Snipe and therefore their true status in Ireland is unknown. This lack of data is a conservation concern as it is not known if unrecorded population declines are occurring (Smiddy 2002) or if this species is advancing or delaying migration times in response to climate change. The objective of this study was to generate baseline data on arrival and departure times of Jack Snipe at a wetland on the east coast of Ireland. The results are compared to new data for Ireland and published data from Britain. Other aspects of their migrations and occurrences in Ireland are also discussed.

Study area

The study site was a small section of Mediterranean salt meadow (*Juncetalia maritimi*) on North Bull Island (53.3705° N, 6.1440° W) on the northern shore of Dublin Bay, Ireland. This habitat was situated between Atlantic salt meadow (*Glauco-Puccinellietalia maritimae*) and low fixed dunes dominated by Marram Grass *Ammophila arenaria*. The study area was broadly rectangular in shape, approximately 300 m x 40 m, and covered an area of 1.3 ha. Vegetation cover was dominated by Sea Rush *Juncus maritimus* which was thinnest on the margins of the area where small shallow muddy patches and pools were frequent. This particular habitat was selected for this study because it has been known to the author as a regular site for Jack Snipe during migration times for over four decades.

Methods

There are no recommended methods for field recording of migratory Jack Snipe. In this study, earliest arrivals and latest departures were recorded by walking a single line through the site two to four times weekly from late August to mid-October and again from late March to mid-May during 2011/2012 to

2016/2017. This line transect route was walked in a zig-zag manner to maximise coverage. This method was used because it was quick and easy for one observer to complete and is considered suitable for open, uniform or species poor habitats and is efficient in terms of data gathered (Bibby *et al.* 1992). Although it was likely that some birds may have occasionally evaded detection, it is worth noting that Pedersen (1988) demonstrated that most Jack Snipe will flush at a distance of less than 6 m. It was planned that by systematically surveying the site at North Bull Island a pattern would eventually emerge. Surveys were not undertaken during severe weather or extreme high tides.

For comparative purposes, earliest arrival and departure times for Ireland over the same time period were extracted from the *Irish Birding* website (www.irishbirding.com). This popular website reports bird sightings for the entire island of Ireland. A record for a single bird in County Mayo on 2 June 2015 was omitted from the Irish calculations as the mid-summer date suggests it may have been summering in that area. Comparisons were also made with data from Britain spanning a longer period of a total of 34 years (Sparks & Mason 2004). Calendar dates were converted to Julian days (DOY = Day of Year) with the first week of the year starting with Julian day = 1. Data were adjusted for the 2012 and 2016 leap years.

Results

Average arrival times at North Bull Island were centred on 2 October with departure times centred on 23 April (Table 1). The earliest recorded arrival was on 18 September 2012 and latest departure on 8 May 2015. Duration of stay in winter was, on average, 202 days. For the island of Ireland as a whole over the same time period, the average arrival date was earlier, on 16 September, while the average departure date was only seven days later than that on North Bull Island, on 30 April

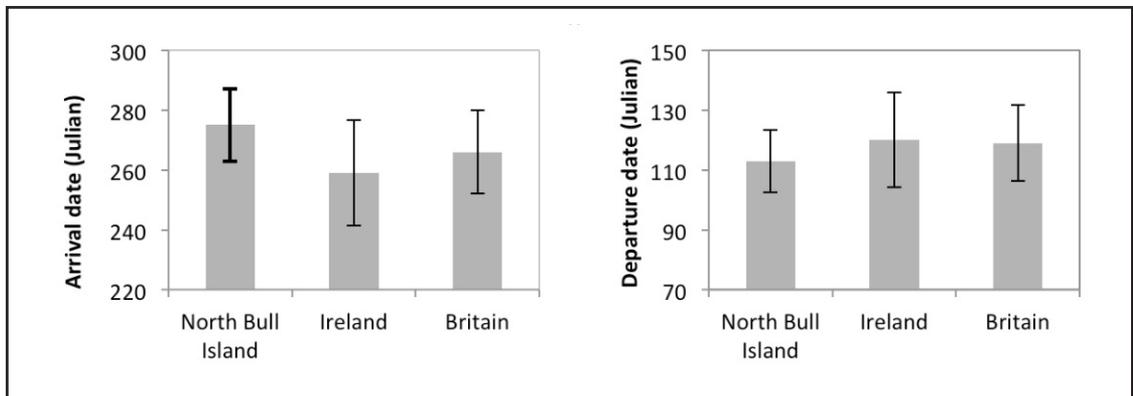


Figure 1. Jack Snipe mean arrival and departure times (+/- sd).

Table 1. Mean dates, standard deviations (sd) of arrivals, departures and duration of stay of Jack Snipe at North Bull Island, 2011/2012 to 2016/2017 (DOY = Day of Year; see Methods).

Season	Arrival date		Departure date		Duration of stay	
	Date	DOY	Date	DOY	Days	
2011/2012	30-Sep	273	23-Apr	114	206	
2012/2013	18-Sep	262	27-Apr	117	220	
2013/2014	18-Oct	291	24-Apr	114	188	
2014/2015	15-Oct	288	08-May	128	205	
2015/2016	02-Oct	275	15-Apr	106	196	
2016/2017	19-Sep	263	07-Apr	97	199	
Average	02-Oct	275	23-Apr	113	202	
sd		12.2		10.5	10.9	

Table 2. Mean dates, standard deviations (sd) of arrivals, departures and duration of stay of Jack Snipe in Ireland 2011/2012 to 2016/2017 (DOY = Day of Year; see Methods).

Season	Arrival date		Departure date		Duration of stay	
	Date	DOY	Date	DOY	Days	
2011/2012	08-Oct	281	26-Apr	117	201	
2012/2013	19-Sep	263	15-Apr	105	207	
2013/2014	08-Sep	251	17-May	137	251	
2014/2015	25-Sep	268	08-May	128	225	
2015/2016	19-Sep	262	15-Apr	106	209	
2016/2017	16-Aug	229	07-May	127	263	
Average	16-Sep	259	30-Apr	120	226	
sd		17.6		12.9	25.6	

Table 3. Mean DOY, standard deviations (sd) of arrivals, departures and duration of stay of Jack Snipe at North Bull Island, Ireland and Britain (DOY = Day of Year; see Methods).

Site	Arrival date		Departure date		Duration of stay	
	DOY	sd	DOY	sd	Mean days	sd
North Bull Island ¹	275	12.2	113	10.5	202	10.9
Ireland ²	259	17.6	120	12.9	226	25.6
Britain ³	266	14.0	119	12.8	219	23.5

¹ this study; ² Irish Birding (2017); ³ Sparks & Mason (2004)

(Table 2). The earliest arrival date for Ireland was 16 August 2016 and the latest departure date was 17 May 2014. Average duration of stay was 226 days, 24 days longer than for North Bull Island. The Irish and British data were also very similar with average arrival times for Britain being seven days later than for Ireland and average departure times one day earlier (Table 3, Figure 1). The average duration of stay for Britain was 219 days, seven days less than for Ireland. The datasets for North Bull Island and Ireland were considered too short for trend analyses.

Discussion

This study has identified average arrival and departure times of migratory Jack Snipe at North Bull Island and in Ireland for the first time. The study at North Bull Island has also demonstrated that it is possible to generate migration data by systematic field recording at a specific location as the results were generally comparable to data generated in Ireland and Britain as a whole. However, it is acknowledged that the process of generating these data was very time consuming as

multiple visits over long periods in autumn and spring were required before the first and last migrant birds were recorded. The results for North Bull Island were also clearly site and habitat specific and this may account for slight discrepancies between them and the Irish and British data. It is likely that an improved methodology, or the use of a method for two observers (Jackson 2004), and a longer time series of data from a variety of habitats would produce results even closer to those for the whole of Ireland and Britain.

The metrics generated from the Irish and British data were remarkably similar with only seven days separating arrival times and duration of stay, and only one day separating departure times. This suggests that the timing of migration occurs synchronously across both islands. This is not too surprising as ringing recoveries indicate that birds from the same part of the breeding range in northern Europe move southwest in autumn to winter in Ireland and Britain (Smiddy 2002, Robinson *et al.* 2017). It is worth noting that although trend analysis was not carried out on the Irish data, a significant trend (0.62 ± 0.27 , $P < 0.05$) was previously reported for Britain with Jack Snipe arriving six days later per decade in autumn (Sparks & Mason 2004). If timing of migrations on both islands coincide then it is not

unreasonable to suspect Irish wintering populations are also altering their migration phenology.

Adult and juvenile Jack Snipe usually remain close to their breeding areas to moult during August and September (Van Gils *et al.* 2017) and reports for the month of August in Ireland and Britain are rare (BTO/RSPB/BirdWatch Ireland/SOC/WOS 2017). Although the record on 16 August 2016 was exceptionally early, it is apparently not unique in Ireland. There are reports dating to the nineteenth century that specimens were obtained in August, although the details of these records have not been published (Ussher & Warren 1900, Kennedy *et al.* 1954). Olivier (2008) considered August occurrences 'exceptional' with only five records for France and four for Britain. With the increased popularity of birdwatching and online websites now available to record observations, it is likely that more August records will be reported in the future than previously.

Currently there is no evidence from ringing recoveries that passage migration takes place in Ireland. However, it has previously been reported that a distinct passage takes place on the southwest coast of Ireland in October, late March and April (Sharrock 1973). In recent years two more records add support to the view that passage migration may take place in



Plate 236. Jack Snipe habitat, North Bull Island, Co. Dublin (Tom Cooney).

Ireland, but records are either rare or very difficult to detect. On 30 March 2014, a bird was recorded on Great Saltee Island off the County Wexford coast (*Irish Birding* 2017). Perhaps more convincingly, a bird was observed circling the Irish research vessel R.V. *Celtic Explorer* 170 nautical miles west-south-west off the County Cork coast on 20 March 2016 (Niall T. Keogh personal communication). The direction that the bird flew was not noted but based on the date and location it is reasonable to conclude it was on passage. Considering that so little is known about the migration patterns of Jack Snipe in Ireland, both records are considered noteworthy. They could potentially represent the first evidence of a previously undetected migration pattern of Jack Snipe that may have wintered further south in France, North or West Africa. If this proves to be the case, it would not be unique as a Water Rail *Rallus aquaticus* was recorded on the same date in 2016. Other wader species recorded 'at sea' on migration in spring off the coast of Ireland include Northern Lapwing *Vanellus vanellus*, Common Snipe *Gallinago gallinago*, Whimbrel *Numenius phaeopus*, European Golden Plover *Pluvialis apricaria*, Icelandic Black-tailed Godwit *Limosa limosa* and Eurasian Oystercatcher *Haematopus ostralegus* (Niall T. Keogh personal communication). Species recorded at other times include Ruddy Turnstone *Arenaria interpres*, Purple Sandpiper *Calidris maritima*, Dunlin *Calidris alpina*, Ruff *Calidris pugnax* and the pelagic Grey Phalarope *Phalaropus fulicarius*. So little is known about wader migration at sea off the coast of Ireland that it was only within the last decade, using satellite transmitters and geolocators, that the much larger, more common and obvious species, Whimbrel, was proven to migrate 'at sea' to and from Iceland and West Africa (Alves *et al.* 2016).

In addition to the lack of clarity on the timing of migration there are also some questions over the habitats used by Jack Snipe in Ireland. Jack Snipe are usually associated with damp lowland wetlands and it has been suggested that they are probably absent from mountains and moorlands (Smiddy 2002). A number of recent observations raise the possibility that this might not be the case. From 2007 to 2017 there were at least six records from upland areas in Ireland (*Irish Birding* 2017). The highest locations reported were the summit of Mount Leinster 796 m (2,612 feet) on 9 October 2016 and 487 m (1,597 feet) in the Slieve Blooms on 16 March 2008. All records were in October, February, March and April. These records have to be considered in the context of the difficulties associated with finding Jack Snipe even at well-known wintering sites and observer effort in these very large and remote locations. The records, though few in number, raise the possibility that Jack Snipe occur more frequently in uplands areas than previously reported. The fact that most of these birds were recorded during known migration periods may not be entirely coincidental.

At a time when bird species, including many familiar waders, are reported to be in decline or under threat globally for a variety of reasons including climate change (BirdLife International 2017, Pearce-Higgins *et al.* 2013, 2017), it is imperative that trends in less commonly encountered species are not overlooked simply because they are difficult to observe or monitor. This is particularly relevant to Jack Snipe as they are also a quarry species in Ireland (NPWS 2017).

Acknowledgements

I thank Joe Doolan for permission to use data from the *Irish Birding* website and Stephen Aylmer for his co-operation throughout this survey. Niall T. Keogh provided information on wader species observed from research vessels off the Irish coast and Guy-Noël Olivier corresponded on specific topics. I thank Eleanor Jennings who read transcripts of this paper and suggested numerous improvements. I also wish to thank an anonymous reviewer and Patrick Smiddy for making improvement to the final text.

References

- Alves, J.A., Dias, M.P., Méndez, V., Katrínardóttir, B. & Gunnarsson, T.G. 2016. Very rapid long-distance sea crossing by a migratory bird. *Science Reports* 6: 38154; doi: 10.1038/srep38154.
- Balmer, D.E., Gillings, S., Caffery, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. 2013. *Bird Atlas 2007-2011: the breeding and wintering birds of Britain and Ireland*. BTO Books, Thetford.
- Bibby, C.J., Burgess, N.D. & Hill, D.A. 1992. *Bird Census Techniques*. Academic Press, London.
- BirdLife International. 2017. *Spotlight on Threatened Birds*. Available at: <http://datazone.birdlife.org/sowb/spotthreatbirds>.
- BTO/RSPB/BirdWatch Ireland/SOC/WOS. 2017. *BirdTrack*. Available at: www.birdtrack.net.
- Crowe, O., Austin, G.E., Colhoun, K., Cranswick, P., Kershaw, M. & Musgrove, A.J. 2008. Estimates and trends of waterbird numbers wintering in Ireland, 1994/95-2003/04. *Bird Study* 55: 66-77.
- Godet, L., Jaffré, M. & Devictor, V. 2011. Waders in winter: long-term changes of migratory bird assemblages facing climate change. *Biological Letters* 7: 714-717.
- Hutchinson, C.D. 1989. *Birds in Ireland*. Poyser, Calton.
- Irish Birding. 2017. Available at: www.irishbirding.com.
- Jackson, S.F. 2004. *Monitoring Methods for Non-breeding Snipe*. BTO Research Report No. 355. BTO, Thetford.
- Kennedy, P.G., Ruttledge, R.F. & Scroope, C.F. 1954. *The Birds of Ireland*. Oliver & Boyd, Edinburgh & London.
- Lack, P. 1986. *The Atlas of Wintering Birds in Britain and Ireland*. Poyser, Calton.
- MacLean, I.M.D., Austin, G.E., Rehfish, M.M., Blew, J., Crowe, O., Delany, S., Devos, K., Deceuninck, B., Günther, K., Laursen, K., Van Roomen, M. & Wahl, J. 2008. Climate change causes rapid changes in the distribution and site abundance of birds in winter. *Global Change Biology* 14: 2489-2500.
- NPWS. 2017. *Open Seasons Order*. Available at: <https://www.npws.ie/>.
- Olivier, G.-N. (ed). 2008. *The Jack Snipe *Lymnocyrtus minimus**. OMPO/CICB, Paris.

- Pearce-Higgins, J.W. & Holt, C.A. 2013. Impacts of climate change on waterbirds. *MCCIP Science Review* 2013: 149-154.
- Pearce-Higgins, J.W., Browne, D., Douglas, D., Alves, J.A., Bellio, M., Bocher, P., Buchanan, G.M., Clay, R.P., Conkin, J., Crockford, N., Dann, P., Elts, J., Friis, C., Fuller, R.A., Gill, J.A., Gosbell, K., Johnston, J.A., Marques-Ferrando, R., Masero, J.A., Melville, D.S., Millington, S., Minton, C., Mundkur, T., Nol, E., Pehlak, H., Piersma, T., Robin, F., Rogers, D.I., Ruthrauff, D.R., Senner, N.R., Shah, J.N., Sheldon, R.D., Soloviev, S.A., Tomkovich, P.S. & Verkuil, Y.I. 2017. A global threats overview for Numeniini populations: synthesising expert knowledge for a group of declining migratory birds. *Bird Conservation International* 27: 6-34.
- Pedersen, M.B. 1988. Anti-predator responses by Jack Snipe to human interference. *Wader Study Group Bulletin* 54: 28.
- Rehfisch, M.M., Austin, G.E., Freeman, S.N., Armitage, M.J.S. & Burton, N.H.K. 2004. The possible impact of climate change on the future distributions and numbers of waders on Britain's non-estuarine coast. *Ibis* 146: 70-81.
- Robinson, R.A., Leech, D.I. & Clark, J.A. 2017. *The Online Demography Report: bird ringing and nest recording in Britain and Ireland in 2016*. BTO, Thetford (<http://www.bto.org/ringing-report>, created on 10-August-2017).
- Sharrock, J.T.R. (ed). 1973. *The Natural History of Cape Clear Island*. Poyser, Berkhamstead.
- Smiddy, P. 2002. Jack Snipe *Lymnocyptes minimus*. In Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (eds). *The Migration Atlas: movements of the birds of Britain and Ireland*. pp. 314-315. Poyser, Calton.
- Sparks, T.M. & Mason, C.F. 2004. Can we detect change in the phenology of winter migrant birds in Britain? *Ibis* 146 (Supplement 1): 57-60.
- Thompson, W. 1850. *The Natural History of Ireland*. Volume 2. Reeve, Benham & Reeve, London.
- Ussher, R.J. & Warren, R. 1900. *The Birds of Ireland*. Gurney & Jackson, London.
- Van Gils, J., Wiersma, P. & Kirwan, G.M. 2017. Jack Snipe (*Lymnocyptes minimus*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. & de Juana, E. (eds). *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. Retrieved from <http://www.hbw.com/node/53869>.