The impact of COVID-19 related flight reductions on bird prevalence and behaviour at Manchester Airport, UK

Lucy Budd, Professor of Air Transport Management, DMU;
George Bloor, Senior Operations Manager, Manchester Airport;
Stephen Ison, Professor of Air Transport Policy, DMU.

DE MONTFORT UNIVERSITY LEICESTER

MAG Manchester Airport

LEICESTER CASTLE BUSINESS SCHOOL
DE MONTFORT UNIVERSITY

Context

- COVID-19 pandemic and lockdowns led to dramatic reduction in ATMs at UK airports
- At MAN, ATMs declined by 67% in 2020 v 2019
- Airport ops teams @MAN reported changes in bird prevalence and behaviour

Purpose

To examine if the reduction in ATMs in 2020 affected bird prevalence and behaviour on the airfield.

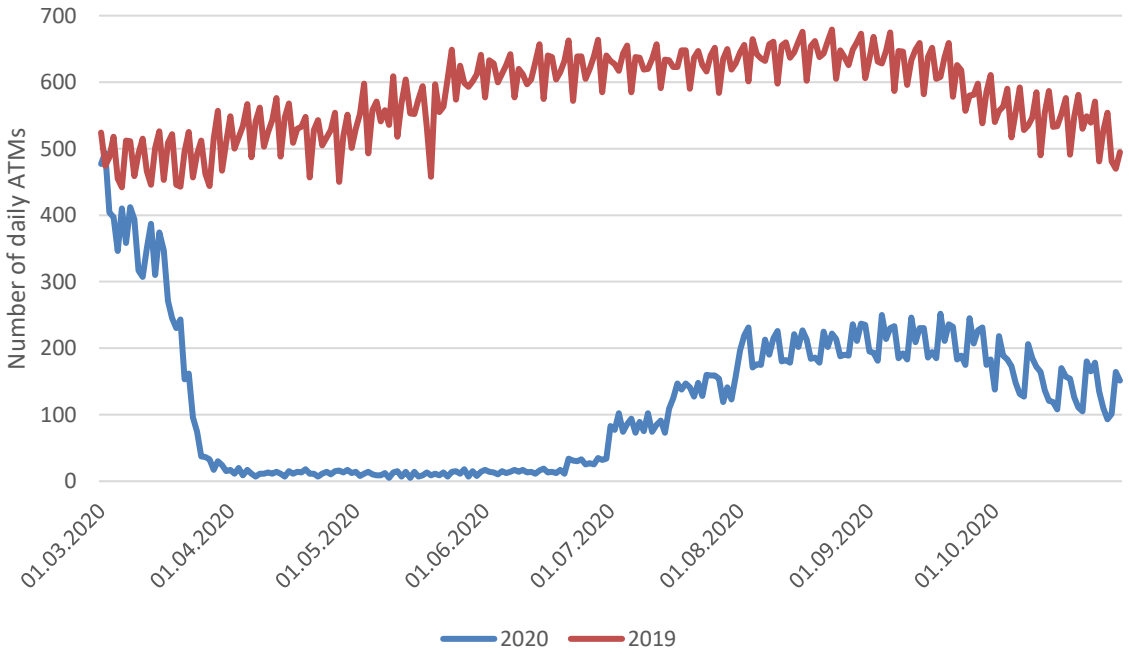
Image source: MAN Media Centre

Manchester Airport

- Owned by MAG
- 8 miles SW of Manchester City Centre
- Bordered to north and west by built up areas, rural to south and east
- 2 offset parallel runways (23R/05L and 23L/05R), 3 terminals, 158 stands
- 2019 – UK's 3 busiest pax airport - 29.4m pax (9.9% UK total) and 202,892 ATMs (CAA 2020)
- Traffic mix from bizjets to A380s – low cost, hybrid, full service, charter and bizav ops
- During pandemic – R2 closed, 2 terminals shut, only 'lifeline' services permitted (5 ATMs in one 24hr period in March 2020 v high of 679 in Aug 2019)

Image source: MAN Media Centre

Change in daily ATMs, 2019 v 2020



WHMP

- Bird risk matrix
- Management and visualisation tools
- 6 ADMs and 24 ASCOs
- Use cloud based wildlife hazard reporting system
- Real-time on field reporting
- 72 numbered Grass areas and key pieces of airfield campus and airfield assets used to categorise location

Image source: Airfield ops

View SE over R1 (R2 in distance) showing grass areas

Image source: MAN Media Centre

Airfield ornithology in 2019

- Data on ATMs and wildlife reports 1st March – 31st October inclusive for both 2019 (baseline pre-pandemic) and 2020 (pandemic) obtained and compared
- 2019 – 9,034 records, 109,081 individuals, 60 species, 93 on-field and 12 off-field locations
- Small number of species dominate – top 10 = 82% of observations, top 3 Woodpigeon (*Columba palumbus)*, Carrion Crow (*Corvus corone)* and Rook (*Corvus frugilegus*) = over 50%.
- In terms of number of birds sighted, Woodpigeon (*Columba palumbus)*, Starling (*Sturnus vulgaris)* and Rook (*Corvus frugilegus*) were most numerous
- Diurnal and spatial preferences of individual species apparent

Airfield ornithology 2020

- 5,263 records (4,968 were bird species) of c44,151 individual animals recorded.
- Top 3 bird species remained constant
  - Pheasants (*Phasianus colchicus*) appeared in top 10 for first time
  - Higher numbers of juvenile rooks were recorded
- Changes in spatial dispersal on the airfield:
  - 2020 top 10 locations = 23% of observations (over 50% in 2019)
  - 4 of the top 5 most commonly observed species in 2019 were more likely to be seen on runway locations in 2020 than in the previous year.

Note: grass cutting regime and wildlife recording and dispersal protocols unchanged y-o-y although more patrols in 2020 to mitigate increased risk from ATM inactivity

Implications, conclusions and next steps

- Potentially significant for the resumption of services post-pandemic.
- During lockdown, birds frequented (the quieter) runway areas more regularly.
- First-generation birds, raised in 2020, unused to aircraft noise and disturbance.
- Affected by externalities outside the operator's control – lack of pheasant shoots and natural variations in the weather and in predator-prey populations.

- Value in undertaking similar analysis of other airports worldwide.
- Detailed examination of prevalent species' behaviour
- Findings inform organizational appreciation of the changes in risk disruptive events pose and inform decisions relating to future processes, systems, human resourcing and training.

Reference: Budd L, Bloor G and Ison S (submitted, under review) The impact of COVID-19 related flight reductions on bird prevalence and behaviour at Manchester Airport, UK, and the implications for future airfield wildlife hazard management policy. *Research in Transportation Business and Management*

Acknowledgements: Manchester Airport and the Airfield Operations team, especially Peter Griffiths, Chris Wild and Rad Taylor

Images: Manchester Airport Airfield Operations and Manchester Airport Media Centre

DE MONTFORT UNIVERSITY LEICESTER

MAG Manchester Airport