

**St Mary's Lands  
Warwick**

**Study of Ground Nesting Birds and Potential  
Effects of User Activities  
e.g. Model Plane Flying/Dog Walking**

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**Final-C**

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**Produced by**  
*Ecology and Land Management*  
**For Plincke Landscape on behalf of  
Warwick District Council**



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## Introduction

- 1.1 Ecology and Land Management were commissioned by Plincke Landscape on behalf of Warwick District Council to undertake a study of the potential effects of user activities on ground nesting birds at St Mary's Lands. In particular, activities such as model plane flying, dog walking and horse racing.
- 1.2 This report is part of a larger study of ecological importance and biodiversity strategy of St Mary's Lands and potential impact of existing leisure and commercial activities. The findings of this study have assessed the continued usage of the site by wildlife as well as the effects of some recreational activities on ground nesting birds in particular skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*).
- 1.3 All wild birds (birds in a wild state resident or visiting Great Britain) and their nests and eggs are protected under the Wildlife & Countryside Act (WCA), 1981. Particular emphasis is given to the protection of breeding birds. With certain exceptions, it is an offence to intentionally kill, injure or take wild birds, take, damage or destroy the nest of wild birds while in use or being built, take or destroy the eggs of wild birds, disturb wild birds listed in Schedule 1 when nest building or at a nest containing eggs or young or disturb dependent young of wild birds.
- 1.4 Ground nesting birds at St Mary's Lands include two species of conservation concern. Skylark, which is on the Red list of Species of Conservation Concern. This means that the bird is globally threatened and has suffered severe UK breeding decline (at least 50%) over the past 25 years. The meadow pipit, which is on the Amber list has unfavourable conservation status in Europe. This has suffered moderate UK breeding decline (25-50%) in over the past 25 Years.

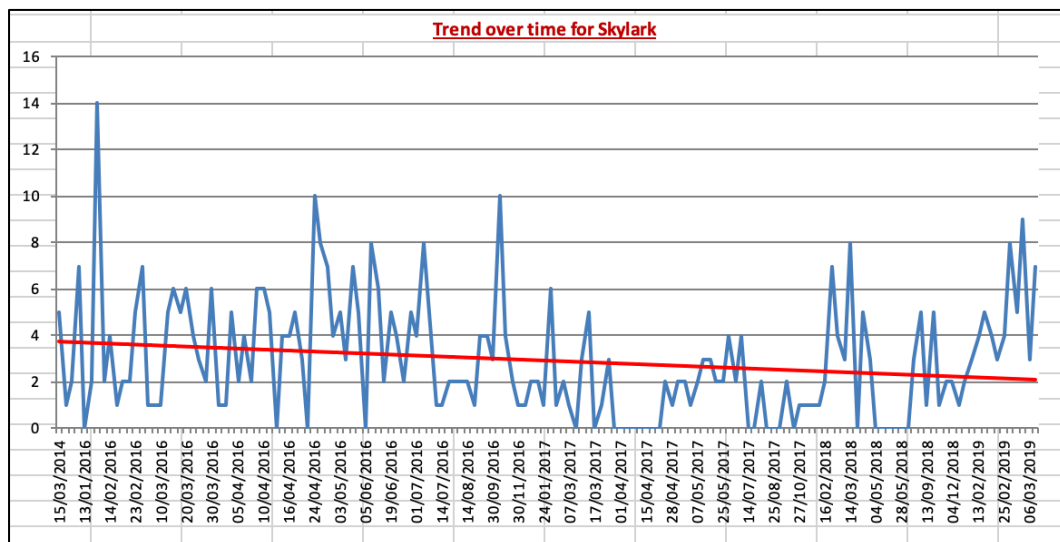
## Methodology

- 2.1 The aims of the study are:
  - 1 assess the impact of user activities in particular model plane flying on ground nesting birds
  - 2 understand the recreational use of St Mary's Lands
  - 3 inform the development of a biodiversity strategy for St Mary's Lands
- 2.2 A desk study has provided background information on recent records of the site as well as data from other similar sites and research into the effects of recreational and flying activities on ground nesting birds.
- 2.3 The bird survey has recorded existing data on bird presence as well as mapping bird territories in accordance with BTO/CBS (British Trust for Ornithology/Common Bird Census) methodology. The results of the 2019/20 survey are published in the Bird Survey report 2020.
- 2.4 The number of territories was determined from the mapped distribution of registrations for each species using standard rules for analysis as recommended by the British Trust for Ornithology. This method was used to look for differences in numbers of territories in relation to where the planes were being flown as well as across the site. Results of the census on that part of the site where model aircraft are not being flown can be used as a control for comparing with that part where they

are, providing the habitat is similar. Direct observations on the reaction of birds to the model aircraft being flown on site were also made. Incidental observations were made relating to effects of walkers and dog presence were also made.

## Desk Study

- 3.1 A previous study in 2018 observed flying and impact on ground nesting birds during November, January and June (Middlemarch 2018). Observations concluded that model flying had minor impact on ground nesting bird behaviour by temporarily preventing adults from returning to nests to feed young. However, additional activities such as informal recreation and dog walking at the site were deemed to have a higher detrimental impact.
- 3.2 A breeding bird survey 2019/20 has shown that the site supports 8 breeding pairs of skylark and 3 breeding pairs of meadow pipit. Winter records show overwintering common snipe. Full details can be found in the Bird Survey report 2020. Records over the past five years by Roland Hopkins indicate a gradual decline in breeding numbers of skylarks. This is based on observations by Roland Hopkins from 2014 to 2019.



Source: Roland Hopkins, SML Bird Records, 2019

- 3.3 The declines in skylark and meadow pipit numbers across the UK have been attributed to a change in agricultural management practices as well as intensification of grassland management. Records from West Midlands Bird Club suggest that 8+ pairs of skylark were present in 2016 and 2-4 pairs of meadow pipit with 15-25 overwintering in the rough grassland at the southern end of Lammas Field. The bird survey in 2019/20 identified 8 singing skylark males mainly associated with Lammas Field. This shows a small but gradual decline. The exact cause of this is unknown but may be caused by a number of factors.
- 3.4 A study of the effects of model flying on wildlife at Newground, Tring found that skylark held their territories throughout the season despite model planes being flown. Their flying hours were 134 compared to 150 hours flown at SML in 2015/16. During the study at Newground many species of bird were considered and skylark territories persisted (5) between 2003 and 2010 despite an increase in total flying hours from approximately 106 hours to 213 hours. This compares to logged hours at

St Mary's Lands of approximately 154 hours for 2018/19. However, at St Mary's Lands there has not been an increase in numbers of skylark. In addition, the Newground site is very rural in character and surrounded by agricultural land, which is likely to enhance the habitat for skylark. The Newground site is therefore not directly comparable to St Mary's Lands.

- 3.5 We have also conducted online research relating to the various potential effects of recreational disturbance such as those generated from model planes and walking. This is presented in the Discussion chapter.
- 3.6 In order to assess exact acoustics levels of planes, it would be necessary to appoint an acoustic specialist. However, preliminary desktop investigations suggest that noise from these RC (radio controlled) electric planes is minimal.

## Survey Data

### Bird Survey

- 4.1 A bird survey was undertaken during 2019/20 to provide essential information on breeding birds at the site. This is not a full breeding bird survey but includes enough information to provide an understanding of breeding and foraging behaviour of birds across the site. This in turn will inform the development of the biodiversity strategy.
- 4.2 Breeding bird survey visits have been conducted during the summer period on 6<sup>th</sup> April, 24<sup>th</sup> May and 26<sup>th</sup> June. A winter bird survey visits was conducted on 5<sup>th</sup> December 2019 and 15<sup>th</sup> January 2020. A total of 50 bird species with 64 territories were recorded during the 2019/20 survey. The site is assessed as being of high value for breeding and nesting bird interest. Specifically related to skylark the bird survey found 8 breeding skylark and 3 breeding meadow pipit were recorded in 2019/20. A map of bird territories and full details can be found in the Bird Survey report, 2020.
- 4.3 In order to observe ground nesting bird behaviour associated with user activity observations were undertaken during spring and summer 2019. Survey visits on site included observations of activities such as model flying, dog walking, horse racing and general recreation. Observation visits were conducted on 17<sup>th</sup> April, 24<sup>th</sup> May and 22<sup>nd</sup> June.

### Model Plane Survey

- 4.4 The flyers provide an important multigenerational recreational activity for young and old. The group is of historic interest as it has existed since 1907 (112 years). The model flyers are not a constituted group, but operate within a set of guidelines. This includes that participants' planes are electric running on Lithium batteries. They are radio controlled and can be dual controlled for training purposes. Model flying at St Mary's Land's is governed by a set of by-laws and is an open facility to any enthusiast who follows these by-laws and the guidelines for flying.

By-laws for St Mary's Lands:

*"The main provisions of the byelaws are that, unless authorised to do so by the council, a person must not:*

*Bring any vehicle into the park*

*Ride any bicycle or tricycle or similar machine*

*Allow any dog belonging to them or in their charge to remain in the park unless it is under proper control*

*Fail to clear up after any dog belonging to them or in their charge which fouls designated parts of the park*

*Drive, pitch or chip a hard golf ball except in any area set aside for the playing of golf, pitch and putt or putting*

*Ride any horse*

*Post any notice on any wall, fence or tree or on any other structure*

*Walk, run, stand, sit or lie on any flower bed, shrub or plant or on any ground in the course of preparation as a flower bed*

*Enter any ornamental lake, pond or stream or other water (except specially provided paddling pools), or pollute any such water*

*Use a power driven model boat on any area of water*

*Sell or hire, or expose for sale or hire, any article*

*Erect any tent, booth, stand or building or other structure*

*Obstruct, disturb or annoy any other person.” [www.warwickdc.gov.uk](http://www.warwickdc.gov.uk).*

- 4.5 During our observations planes circled at approximately 60m (200 feet). Take-off and landing were at shallow angles of  $< 20^\circ$ . Each flyer usually has six batteries with a maximum of 5 minutes flying time per battery. In any one session this allows for a maximum of 30 minutes flight per plane. Planes often fly at the same time and/or overlap.

- 4.6 Current flying hours are Mon-Fri (except bank holidays) 10am until 7pm or dusk whichever is earliest. Weekend 11am until 4pm. Observations were recorded on 17<sup>th</sup> April, 24<sup>th</sup> May and 22<sup>nd</sup> June.

Observations

- 4.7 Date: 17<sup>th</sup> April 2019. Time: Started survey at 1pm. Flying commenced 10 minutes later.

No of flyers: 2 flyers operating during the 1 hour observation.

Windspeed: 5-6mph Temp: 18<sup>0</sup>C Cloud Cover: 10%

Each plane flying time approximately 5 minutes.

Model planes used during observation

| Model      | Wingspan | No of times flown |
|------------|----------|-------------------|
| Cessna 182 | 1.5m     | 4 x 5 minutes     |
| Biplane    | 1.5m     | 3 x 5 minutes     |
| Henschel   | 1.5m     | 4 x 5 minutes     |

Bird Observations

| Time  | Plane Activity | Bird Activity   |
|-------|----------------|---|
| 13.10 | Cessna 182     | Skylark in air doing display flight. When the Cessna was in the air skylarks went down but meadow pipits kept flying. After a few minutes it appeared skylarks showed some habituation and would start to perform song flights again. |

| Time    | Plane Activity | Bird Activity   |
|---------|----------------|---|
| 13.30   | Biplane        | Meadow pipits in the air. Two in song flight during flying.   |
| 13.45   | Henschel       | No song flights when in the air. Much louder plane may be significant.  |
| Notes   |                | Birds of prey present include buzzard, kestrel and peregrine. These birds were not affected by model planes.  |
| Summary |                | 3 singing male skylarks seen during this visit. Skylarks were undertaking song flights at good height occasionally dropping to levels when planes were flying. Skylark were also singing at ground level when planes were flying. Meadow pipits appear to descend following change of plane then rise again into song flight during model flying. |

4.8 Date: 24<sup>th</sup> May 2019. Started survey at 11am.

No of flyers: 1

Windspeed: 10-15mph Temp: 22°C Cloud Cover: 50%

The wind was stronger than usual so the only plane in the air was the Grob.

Model planes used during observation

| Model    | Wingspan | No of times flown |
|----------|----------|-------------------|
| Red Grob | 1.5m     | 4 x 5 minutes     |

#### Bird Observations

| Time  | Plane Activity | Bird Activity  |
|-------|----------------|--|
| 11.58 | Red Grob       | 1 male skylark doing a high song flight then first plane came up. The plane did a pass and the skylark still stayed up. After second pass, the skylark dropped. A second male skylark came up to do a short song flight then went to ground again. |
| 12.21 | Red Grob       | 1 male kestrel hover hunting nearby whilst plane was up.   |
| 12.29 | Red Grob       | 1 male skylark doing song flight whilst plane was down.  |
| 12.34 | Red Grob       | Two male skylarks doing song flights at same time. Birds flew down but did not plummet. Plane came down and meadow pipit came up.  |
| Notes |                | The skylarks appeared to get used to the single plane type flown then started acting normally. This could translate into similar planes being flown in one session so birds get used to it and carry on as normal. 4-5 male skylarks counted.      |

4.9 Date: 22<sup>nd</sup> June 2019. Started survey at 2.30pm.

No of flyers: 8 flyers operating during the 1.5 hours observation.

Windspeed: 5-6 mph. Temp.: 22°C. Cloud Cover: Moderate

Model Planes used during observation

| Model         | Wingspan | No of times flown |
|---------------|----------|-------------------|
| P51 Mustang   | 1.5m     | 3 x 5 minutes     |
| Cessna 182    | 1m       | 8 x 5 minutes     |
| Red Grob      | 1.5m     | 4 x 5 minutes     |
| Beech Bonanza | 0.9m     | 3 x 5 minutes     |
| T-28 Grey     | 0.9m     | 3 x 5 minutes     |
| T-28 Yellow   | 0.9m     | 3 x 5 minutes     |



## Bird Observations

| Time  | Plane Activity  | Bird Activity   |
|-------|-----------------|---|
| 14.25 |                 | 2 skylarks in the grass at common prior to flying. 1 kestrel hunting near Gog Brook.  |
| 14.30 | Trojan          | 1 skylark flying high common. Sustained high song flight while plane in the air. Skylark showing normal behaviour with plane in flight.                 |
| 14.33 | 2 planes in air | Skylark were heard but not seen.  |
| 14.38 | Mustang         | 1 plane in the air. No birds in the air but skylarks may have been hunting.   |
| 15.08 | Multiple        | 1-2 buzzards flying high over area while planes flying.   |
| 15.31 | Multiple        | 1 skylark doing low song flight over common then went down. 2 <sup>nd</sup> skylark was seen to right of the air strip, low over grass, then went down. |
| 15.44 | Mustang         | 1 skylark in song flight at moderate height. Came down as plane came into land.   |
| 15.54 | Multiple        | 1 skylark in song flight at moderate height while plane in the air. Went down later during flight.  |

## Impact Assessment

### Disturbance to ground nesting birds

- 5.1 There are appears to be two main types of disturbance to ground nesting birds.
- 1 Birds doing lower display flights or abandoning display/song flights due to disturbance by flying model planes. This could potentially have an impact on birds holding their territory.
  - 2 Birds being flushed from ground into the sky due to disturbance by walkers and dogs. This could have an impact on birds feeding and caring for their brood as well as predation on eggs, chicks and adults.
- 5.2 During our first visit on 17<sup>th</sup> April skylark were singing in the sky prior to flying. When the Cessna was in the air skylarks doing display flights went down but meadow pipits kept flying. After a while it appeared skylarks showed some habituation and would start to fly again. The biplane was slightly louder and it took the skylarks longer to get used to it. The Henschel was the loudest and we did not see skylarks fly during this plane's flying time. During the May observations we observed the larger Red Grob. The skylarks appeared to get used to the single plane type flown then started acting normally. This could translate into similar planes being flown in one session so birds get used to it and carry on as normal. In June when the Mustang was in the air the skylark seemed to be doing lower display/song flights. Some planes seemed to cause the skylarks to do lower display/song flight. The meadow pipits seemed less disturbed by flying planes. The different engines seemed to be a factor.
- 5.3 Other data from Roland Hopkins observed yellow biplane flying on 20<sup>th</sup> April at 13.00 to 13.45 out onto the edge of the flying zone. There were no skylarks doing song flights but two meadow pipits in the air. On 21<sup>st</sup> April at 14.00 to 14.45 Roland

observed 6 flyers with 2-3 planes in the air. There were no meadow pipits or skylarks doing display/song flights. It was a very hot day. No dog walkers seen.

- 5.4 The display/song flight length and the time planes are in the air coincide. It is therefore likely to be a factor that display flights tend to be between 2 and 5 minutes, a similar time to the time planes are in the air. This may distort the effect of the flying activity on display/song flights as birds would naturally go down after 2 – 5 minutes.

#### Flying rules

- 5.5 Regular flyers are known and monitored by Laurie Barton. To date there are 23 flyers known to the group. The actual flying rules may be difficult to control and there is likely to be some visitors that do not adhere to these. In the summer of 2019 Roland Hopkins observed a model helicopter on Sunday 14<sup>th</sup> July at 14.00 (silent flights only) and a model plane at 18.30 after permitted hours.

#### Dog walkers

- 5.6 Throughout our observations dog walkers continued to use paths crossing the grassland where skylarks breed. Many dogs are off the lead. We observed skylark being flushed from the grass on several occasions. There was tape in place to demarcate the sensitive areas but this is at times ignored.

#### Race meetings

- 5.7 On 10<sup>th</sup> April we observed activities during a race meeting. Parking was restricted to the top of the hill and the overflow area was not used on this day. There appeared to be no impact on ground nesting birds. Skylarks were seen doing display flights and meadow pipits were out in the low sward grassland.

#### **Other factors**

##### Birds of Prey

- 5.8 During our observations we observed both male and female kestrels hunting across the field. A pair of peregrines marking their territory during the observation time across the eastern side of the field was also observed on the 17<sup>th</sup> April. Skylarks did not display song flights when birds of prey were close by. The presence of birds of prey may also have an effect on length and number of display/song flights seen.

## Research on model planes and birds

- 6.1 Although there are a number of studies that investigate the effects of model planes on birds the individual situation and approach to the studies often lead to results that are not directly comparable. Nevertheless, some of the effects found are worth mentioning here as they provide an aspect of effects studied elsewhere. There seems to be strong evidence that model planes can cause birds to take flight and also cause physiological changes, which may affect their life expectancy, reproduction rate and ultimately population size (Kempf & Huppop, 1996). “Even if the meadow birds in this study region appeared to have grown accustomed to the model aircraft to a certain extent, the flying of model aircraft still frequently led to disturbances, especially in combination with people and dogs running around” (Ref.: Kempf & Huppop, 1996).
- 6.2 Relating this to skylark and meadow pipit at St Mary’s Lands we have observed direct response from birds going to ground during flying. This would have the most significant effect during the breeding season when birds are rearing chicks and holding territories. Although flyers statistics suggest that flyers are present for only 97% of available daylight hours, it is important that we encourage flyers to avoid sensitive times of day and year. This together with preventing walker and dog access to sensitive areas and ensuring there are no events close to the nesting areas during the sensitive period.
- Research on noise
- 6.3 There is limited published research on the effect of noise on ground nesting skylark. Research on other species shows a variety of effects caused by noise of varying levels. We are looking for a reaction to noise, such as descent from display/song flight or flushing from nest. Research has shown that noise that causes irregular changes of volume and frequency plays an important part in the disturbance effect. This was evident when flying just one plane compared to multiple as birds tended to habituate fairly quickly to one plane but took longer to adjust when several planes were being flown.
- Research on altitude
- 6.4 In general, research shows that an airplane travelling at high speed in a straight trajectory has less impact on birds than a slow airplane flying in a curved trajectory. The indication is therefore that slower model planes changing direction has more impact than fast moving plane flying past. Many authors recommend maximum possible flight altitudes for airplanes to avoid disturbances of birds or mammals. The minimum altitude figures range between 150 and 750m. Most experts recommend a flight altitude of at least 500 m. However, these altitude recommendations are generally not related to model planes and we cannot draw any final conclusions from this research relating to St Mary’s Lands.
- Combination of factors
- 6.5 A stronger reaction is often observed in combination with several sources of disturbance (stimulus summation). So for example, where planes are flying at the same time as dogs are roaming or people are walking through the grassland, this would cause a stronger reaction compared to only one effect alone. This was evident

during observations as planes tend to cause birds to perform lower song flight whereas dogs and walkers tend to flush birds from their nests.

#### Stimulus independent factors

- 6.6 Birds may also react differently at different times of weather, time of day and season. Early in the season breeding birds are less willing to leave the nest and therefore react differently to disturbances. Similarly, the willingness of parent birds to take risks may increase in the course of the day or with advancing incubation and rearing of chicks. During the wing moulting period, when birds are incapable of flight, they appear to show substantially greater sensitivity in their reactions to airplanes than at other times. It is clear that birds are very actively feeding chicks during the morning and evening periods as well as displaying during the breeding season making these times the most sensitive.

#### Habituation

- 6.7 Almost all authors report on habituation effects. It would seem that the frequency and above all the regularity with which an airplane flies past have a decisive influence on the reactions of birds. But there are limits to the capacity for habituation. The uneven and unpredictable movements of model airplanes do not generally allow any habituation (ref.: Kempf & Huppopp, 1996). Nevertheless, what we observed appeared to show limited degree of habituation. Importantly, there is a consensus of agreement that there should be no flying over sensitive and threatened areas during the most sensitive times of day and year.
- 6.8 Dogs have been shown to cause a greater behavioural reaction than walkers alone – a study in 2009 by the University of Hull for the Humber Nature Partnership, revealed that dog walking caused significant disruption to water birds, with off-lead dogs causing more disruption than any other activity on the Humber coast except for low flying jet aircraft, which cannot be directly compared with this study.

#### Conclusion

- 7.1 There is a cumulative impact on breeding skylark and meadow pipit at this site. The main causes observed were impact from dogs walkers going through areas of nesting and impact from model plane flying. There may be other activities that affect ground nesting birds and these could be identified during future monitoring.
- 7.2 Although, the area was taped off dog walking remains a significant concern during the bird breeding season, as dogs are still getting into sensitive nesting area, which leads to high impact from disturbance of nests and potential predation of eggs, young and adult birds. It is therefore essential that fencing is strengthened to ensure dogs cannot get through and signage is enhanced to provide suitable reminders and requests to the public that the area must be left undisturbed.
- 7.3 There appears to be low/medium impact from model planes by causing temporary disturbance to skylark display/song flights. The skylarks are generally doing lower display/song flights when planes are flying. There appears to be some habituation and skylarks seem to have modified their behaviour to the planes. The ground nesting birds show limited habituation to the model aircraft and they have not stopped breeding at this traditional site. However, any changes could be detrimental and should be closely monitored. The relatively short bursts of activity from model flying through the year leads to a relatively small number of daylight hours being

affected in the nesting season. Records of past flying hours show that summer months are usually the busiest flying months and this is also the most sensitive period for ground nesting birds. Although October and November can also be busy. See Appendix III for recent data on flying. This needs to be taken into consideration when establishing flying hours. In summary, there is a low/medium impact from model planes on skylark behaviour mainly affecting their ability to perform high song/display flights when planes are in the air.

- 7.4 We therefore recommend that the effects of dog walking and flying should be minimised where possible. This can be done by restricting access to sensitive areas for dogs and ensuring that flying is restricted during the breeding season by allowing birds time to rear their chicks and defend territories in the morning and evening. The Model of planes allowed should remain as listed in the current rules and there should be no drones or helicopters used.
- 7.5 It is clear that the cumulative effect of a range of activities is likely to cause a stronger reaction compared to only one effect alone. Disturbance to ground nesting skylark is a cumulative effect and it is tackling each and every effect that will minimise disturbance to nesting and rearing of chicks and therefore provide increased opportunity for these species to succeed and increase in numbers.

#### Recommendations

##### Demarking sensitive area

- 8.1 It is recommended that as an immediate action there should be notices for dog walkers and a strengthened demarcation of nesting habitat to discourage dogs into the ground nesting sites using appropriate temporary fencing. It is essential to implement seasonal restrictions in the most sensitive area of the site to allow ground nesting birds to successfully complete breeding without significant disturbance.
- 8.2 Visitors should be encouraged to stay on certain routes that avoid sensitive areas. These routes should be clearly defined so that it is easy to follow and signage should inform people about the reasons for sticking to marked routes. Well established desire lines should where possible be kept open to avoid other routes becoming established, creating even more disturbance.

##### Flying times

- 8.3 In order to ensure that the main times for display/song flight are protected it is proposed flying hours are set to avoid main activity early morning and prior to sunset during the sensitive season subsequent times are proposed for extended hours as shown below:

**1<sup>st</sup> April to 15<sup>th</sup> August (Main breeding season and before grass is cut):**

**Every day: 11am until 7pm.**

**16<sup>th</sup> August to 31<sup>st</sup> March (after grass has been cut):**

**Every day: 10am until 1 hour before sunset.**

##### Flying Area

- 8.4 Two options have been put forward for the flying area as follows:

Option 1 – Flying area remains in situ and flying hours are adjusted.

Option 2 – Flying area is moved to western side of golf course

- 8.5 Moving the strip to the western side of the golf course is likely to immediately reduce impact on existing skylark breeding population at Lammas Fields. However, there are other considerations such as potential impact on little owl daytime roosting, loss of trees that could support kestrel and buzzard seen flying across the site as well as kingfisher and little owl along Gog Brook. The proposed airspace and location of the strip should be carefully considered.
- 8.6 In terms of flying hours at the new strip this would depend on the circuit and how close this gets the woodland/hedgerow boundaries as well as overlapping into existing skylark territory and how far it will extend towards the Gog Brook corridor as this is a very important corridor for birds. Assuming that the circuit is contained within the boundaries of the existing golf course we would tentatively recommend the following:

**Every day throughout the year: 10am to sunset.**

- 8.7 However, this recommendation is precautionary until we see the exact proposal for the circuit.

Flying Rules

- 8.8 In addition to existing rules, which are available in Appendix II flyers should be encouraged to avoid flying low near ground nesting birds to avoid potential collision and flushing of birds from nests.

Dog walking Survey

- 8.9 It may be possible to conduct a survey of the numbers of dog owners who use the site and how they use it in order to identify any significant benefits and/or problems that arise from this use. The survey should be evidence based and used as a baseline for further discussions relating to impact/benefits from dog walkers. The survey should consider motives and expectations of dog walkers to ensure that management operations and protective measures are as far as possible in sympathy with their aspirations.

Communication

- 8.10 It is important to establish effective communication between dog owners and the management team to ensure everyone feels engaged and welcome. This would encourage understanding and co-operation to support aims of the site and desired behaviours.

Possible communication should be:

- 1 Realistic, fair and proportionate
- 2 Confined to specific locations where they are required
- 3 Clearly state the reason for the request

Signage

- 8.11 Signage should include wording such as:

- 1 Dogs harm ground nesting birds
- 2 Help your dog help wildlife
- 3 Skylarks nest here – please keep your dog on a lead
- 4 Do not feed the birds

#### Creating access

- 8.12 Different types of access routes can be created to allow for all activities. For example:

- 1 Routes for dogs on lead
- 2 Routes for dogs off lead
- 3 Routes for no dogs

- 8.13 These routes should be accompanied by clear codes of practice whereby the restrictions are defined e.g. if dogs are required to be on a short lead and under 'close control', specify what this means (e.g. less than two metres lead length and meaning that a dog responds immediately to commands and is kept close at heel). Where possible, provide alternative areas nearby where dogs may be exercised safely off-lead without threat to wildlife when closing areas off completely to dog walkers.

#### Dog Litter

- 8.14 It is important to provide bins for dog waste. This makes dog walkers feel welcome and encourages them to clear their dogs waste. However, it is clear that often bags are left in inappropriate places possibly due to bins being too far away. In this situation, it may be sensible to encourage owners to clear the mess to one side, off main paths, rather than picking it up to avoid owners leaving bags hanging from tree branches and in hedges.

#### Other activities

- 8.15 Community events such as fireworks, running, cycling, horse racing should be carefully controlled to ensure they do not occur where birds are nesting.

#### General Recommendations essential for ground nesting birds at the site

- 8.16 Clear signage and fencing during peak breeding season (April to August).

Create further areas with suitable habitat for nesting.

Ensure flyers are fully briefed prior to using the land.

#### Monitoring

- 8.17 Where possible and resources allow there should be further monitoring of bird populations at St Mary's Lands in particular to monitor the effects of introduced measures to protect breeding birds.

## Skylark Habitat and Behaviour

## Habitat and Breeding

- i The centre of Lammas Fields provide suitable habitat within which skylarks can hide their nests and raise their young. Skylarks lay 2-6 eggs (usually 3 or 4) and incubate them for about 10-13 days. Chicks leave the nest after about 8 days but the parents continue to feed them until they are about 20 days old at which point they can fly.

## Breeding

- ii Male and female skylark raise their young in a season. The nest is a simple lined scrape on the ground within tall grassland. The eggs are incubated for 11 days and the young leave the nest sometimes after only 8 days. They are looked after for approximately 25 days after hatching, after which they are sent out, with juvenile plumage, into the wild to fend for themselves.

## Feeding

- iii Skylarks have been observed to make approximately 30 feeding trips per day each lasting between 10 and 12 minutes.

## Territory

Skylarks are known to use scrapes to defend territories.

## Display Sung/Flight

- iv It is usually sung in a display-flight. The sound starts just after the bird lifts off at a steep angle to the ground, continues on its rise to 50 m or more, is maintained for a period of hovering (at 10-12 wing-beats per second), and accompanies the display's slow, spiralling descent. Only for the final plummet to earth does the Skylark's song fall silent, so that the bird can reach the ground with a degree of privacy.
- v Research has shown that the average display flight lasts for 2½ minutes up to a maximum of 5 minutes. The reason, for hearing continuous skylark song at the end of a summer afternoon is that Skylarks often hold contiguous territories, and one male may simply follow another into the sky, without any interval. The males, who mainly sing, are under pressure to keep singing to maintain their territorial boundaries. If a dangerous predator such as a Merlin attacks, the boldest males carry on singing regardless of the risk, and it is shown these suffer fewer casualties as a result.



Warwick RC Model Group Rules

CURRENT RULES

We have two sites where you are welcome to fly model aircraft; one at Warwick Racecourse and one at Newbold Comyn.

These sites are also used by other visitors taking part in a variety of different activities. Flyers are expected to behave in a way that does not unduly disturb other users of the site or nearby residents.

We have set out some rules that are designed to ensure the safety of everyone visiting the area and the comfort of nearby residents, whilst still allowing model flyers to enjoy their hobby. If you fly at one of our sites you must adhere to the rules below.

Rules of flying

Flying should take place only within the flying areas shown on the plans below. Flyers must make every effort to ensure that models do not stray beyond this.

These are public areas and flyers must give priority to other visitors at all times

All flyers must be current members of the British Model Flyers Association (BMFA) and covered by a minimum of £5 million public liability insurance. Evidence of BMFA membership must be available for inspection by council officers at all times whilst flying

Only models of less than 7kg may be flown

Flyers must at all times comply with Civil Aviation Authority's Air Navigation Order and code of practice CAP 658 "Model Aircraft: A Guide to Safe Flying"

All models flown must be fitted with an appropriate silencer and operated in a manner which minimises the potential to cause noise nuisance. Flyers causing a noise nuisance to neighbouring residents may be asked to cease flying

Flying times

Flying may only take place during the following times:

Monday - Friday (excluding bank holidays): 10:00am to 7:00pm

Weekends and bank holidays: 11:00am to 4:00pm

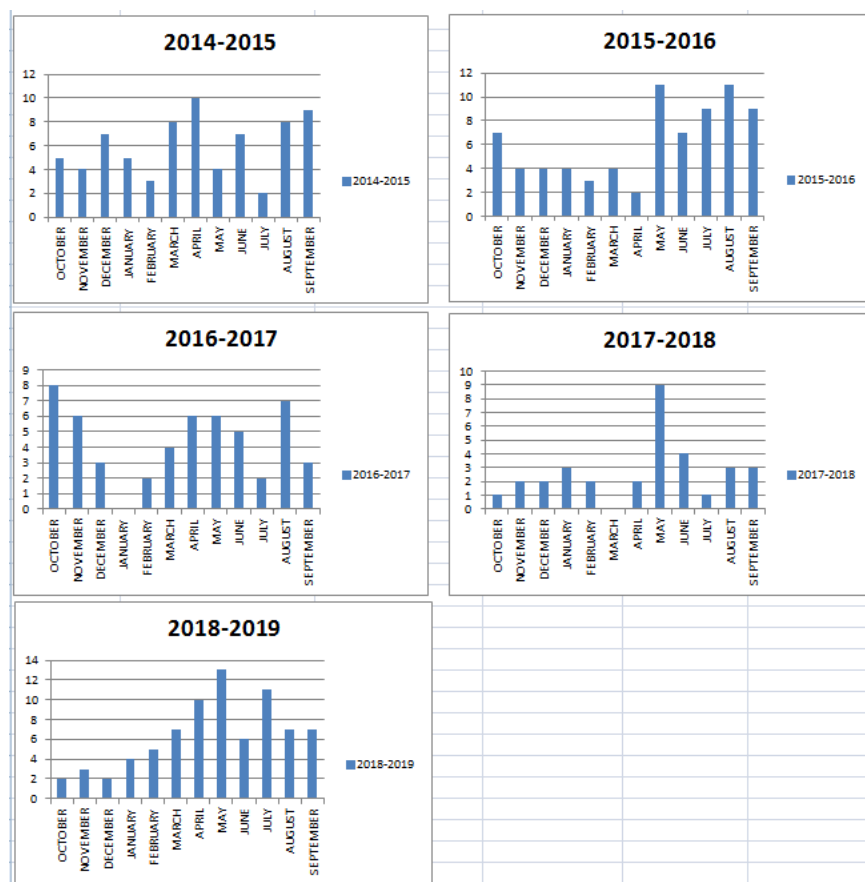
Additional restrictions at Warwick Racecourse

At Warwick Racecourse, the following additional restrictions on flying times apply:

On Wednesdays and Sundays only silent flight is permitted - no powered flight

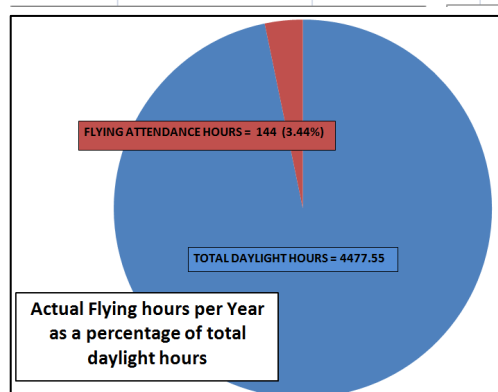
Flying is not permitted during race meetings

## Data from Warwick RC Model Group



| Times flown per month each year |           |           |           |           |           |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|
| Month                           | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 |
| OCTOBER                         | 5         | 7         | 8         | 1         | 2         |
| NOVEMBER                        | 4         | 4         | 6         | 2         | 3         |
| DECEMBER                        | 7         | 4         | 3         | 2         | 2         |
| JANUARY                         | 5         | 4         | ??        | 3         | 4         |
| FEBRUARY                        | 3         | 3         | 2         | 2         | 5         |
| MARCH                           | 8         | 4         | 4         | 0         | 7         |
| APRIL                           | 10        | 2         | 6         | 2         | 10        |
| MAY                             | 4         | 11        | 6         | 9         | 13        |
| JUNE                            | 7         | 7         | 5         | 4         | 6         |
| JULY                            | 2         | 9         | 2         | 1         | 11        |
| AUGUST                          | 8         | 11        | 7         | 3         | 7         |
| SEPTEMBER                       | 9         | 9         | 3         | 3         | 7         |
| TOTALS:                         | 72        | 75        | 52        | 32        | 77        |

Estimated



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#### Disclaimer

This report does not provide legal advice. Natural England is responsible for enforcing laws that protect wildlife and the natural environment. Any queries relating to interpretation of the law should be directed to Natural England. By receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

Ecology and Land Management works towards the policy of 'best practice' advocated by the Chartered Institute of Ecology and Environmental Management (CIEEM), the Chartered Landscape Institute, the Chartered Institute for the Environment as well as a number of specialist organisations working towards the conservation of protected species.

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