

**Underdown Farm
Standlake
Bat Emergence Survey**

On Behalf of:
Rebecca and Oliver Costar

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4 Acre Ecology Limited

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1. Executive Summary

- 1.1 Underdown Farm is located off The Downs Road in the civil parish of Standlake, which lies within the West Oxfordshire District of the county of Oxfordshire (Central Grid Reference SP 39252 04383).
- 1.2 There are plans to construct an extension to the two-storey house. Therefore, a Preliminary Roost Assessment was requested to inform the planning decision. This was undertaken on the 19th May 2023. A few Pipistrelle bat droppings were found at the gable end of the main roof space near to the chimney breast, therefore, the house was assessed as having low potential for roosting bats and a single bat emergence survey was recommended.
- 1.3 The dusk emergence survey was carried out 21st July 2023. Three bats emerged from the north-western gable end, confirming a minor bat roost to be present in the gable end.
- 1.4 The intended work is for a rear extension that will not directly impact the north-western gable. Therefore the works will be carried out under reasonable avoidance measures to ensure bats are not harmed during the work.
- 1.5 No other protected species are believed to be affected by the proposed works to the house.

2. Introduction

Background

- 2.1 Underdown Farm is located at the north-western edge of the civil parish of Standlake off The Downs Road, which lies within the West Oxfordshire District of the county of Oxfordshire (Central Grid Reference SP 39252 04383).
- 2.2 The site covers an area of approximately 0.75ha and consists of modern farm buildings hard standing farmyard, amenity grassland areas and a modern detached two-storey house.
- 2.3 There are plans to extend the house. Therefore, a Preliminary Roost Assessment was carried out on 24th May 2023. This found a few Pipistrelle droppings at the north-western gable, but no other evidence of bats was found.
- 2.4 It was recommended that an emergence survey was carried out to determine if a roost was present that would be affected by the rear extension.
- 2.5 Rebecca Costar commissioned 4 Acre Ecology Limited on 26th June 2023 to undertake a Dusk Bat Emergence Survey of the building to allow this report to be written.

Aims and Objectives

- 2.6 The aim of the survey was to determine whether roosting bats used or were likely absent from the building, or whether bats would be affected by the proposed works. The objective was to support a successful application for planning permission whilst maintaining the conservation status of bats within the local area.

About the Author

- 2.7 Mark Satinet has been working in the field of Wildlife Conservation and Ecology since 1992. 13 years at the Wildlife Trusts working on wider countryside habitat and species projects provided a good background in habitat surveys, species identification, habitat management advice to landowners and dealing with the public and media. He became the County Mammal Recorder for Wiltshire in 2000 and set up the Wiltshire Mammal Group in 2005. He is also a voluntary Bat Warden for Natural England and has been an active member of the Wiltshire Bat Group since 2001.
- 2.8 Since 2005 he has been a consultant ecologist, first as a Senior Ecologist at a multi-disciplinary company for a year and then the Principal Ecologist running the ecology team in a specialised ecological firm for a further four years. He is a full member of the Chartered Institute of Ecology and Environmental Management and a Chartered Environmentalist.

2.9 He now owns and runs his own company, 4 Acre Ecology Limited. He holds disturbance licences for bats, Great Crested Newts, Dormice, Barn Owls and Shrews and has held development licences for Great Crested Newts, bats, Badgers and Dormice and holds both a Bat Mitigation Class Licence and Great Crested Newt Low Impact Class Licence

3. Methodology

Desk Study

- 3.1 The previous report, “Underdown Farm, Standlake, Preliminary Roost Assessment” was used as background for this report.

Field Survey

- 3.2 Following best practice guidelines (BCT, 2016) it was determined that a single dusk emergence survey would be required to be confident that no bats were using the building to roost in.
- 3.3 For dusk surveys the surveyors arrive half an hour before sunset and continue to survey for up to two hours after sunset, to allow for late emerging bat species.
- 3.4 The building has a relatively simple roof structure, so only two surveyors were required to fully cover this.
- 3.5 Surveyors were equipped with an Echo Meter Touch attached to an I-pad for immediate identification and recording for later analysis of any unidentified bats. A Cannon XA60 infra-red camcorder and an IR light were also used to ensure bats were not missed in the declining light levels. Surveyors also had standardised recording forms, a map of the site and building, pencils, a weather writer and head-torch with replacement batteries.
- 3.6 Any registrations of bats on the detectors and/or direct observations of bats or their behaviour were noted with the time on the recording forms and a location of this on the map. As emergence from the roost was a priority, surveyors did not always see passing bats out of their line of vision and would therefore mark where they were standing when the registration occurred. Most bats were identified by the surveyors by sound and sonograms through experience, but the recordings allowed verification and identification of unknown bats where required.
- 3.7 The survey data was summarised into the number of passes by each species, the location of exit/entrance points in the building and the type of behaviour (e.g., foraging or emerging). Where direct observations of bats emerging/re-entering were made, these are depicted on a plan.

4. Legislation and Planning Policy

4.1 There are a number of tiers of legislation protecting wildlife in England and Wales. The highest tier is for those species protected by European Legislation, such as the Dormouse, Great Crested Newt, Otter and all species of bat. These are known as European Protected Species (EPS), which gain their protection from the Conservation of Habitats and Species Regulations (Habitat Regulations) 2017 (As Amended), whereby under section 43 it is an offence to

- deliberately capture, injure or kill an EPS
- deliberately disturb or take/destroy the eggs of an EPS
- damage or destroy a breeding site or resting place of an EPS

4.2 Nationally protected species are either fully protected (e.g. Water Vole, Bat) or partially protected (e.g. Adder or Smooth Newt) under the Wildlife and Countryside Act (WCA) 1981 and amendments, including the Countryside and Rights of Way Act (CRoW) 2000. Under the WCA it is an offence to:

- intentionally kill, injure or take any wild bird, take or destroy any wild bird egg or take, damage or destroy any nest while it is in use or being built
- intentionally or recklessly disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird
- intentionally or recklessly at any other time take, damage, destroy or otherwise interfere with any nest habitually used by any wild bird included in Schedule A1
- intentionally or recklessly kill, injure or take from the wild or possess all or any part of a Schedule 5 species
- intentionally or recklessly damage or destroy any structure or place which a schedule 5 species uses for shelter or protection, or disturb a schedule 5 species while it is occupying such a place
- obstruct access to any structure or place which a schedule 5 species uses for shelter or protection
- intentionally pick, uproot or destroy any wild plant included in Schedule 8

4.3 The CRoW Act 2000 added the term recklessly after intentionally in the Wildlife and Countryside Act 1981 and introduced a maximum custodial sentence of 6 months for offences.

- 4.4 The Natural Environment and Rural Communities Act 2006 (NERC) made provision about bodies concerned with the natural environment and rural communities and in connection with wildlife, sites of special scientific interest, National Parks and the Broads. Section 41 established a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity. This is known as the UK Biodiversity Action Plan (BAP) list.
- 4.5 The National Planning Policy Framework (NPPF) updated in July 2018 (Revised in July 2021) states that Planning policies and decisions should contribute to and enhance the natural and local environment by:
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
 - d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
 - e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
 - f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
- 4.6 To protect and enhance biodiversity and geodiversity, plans should:
- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
 - b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

5. Results

Desk Study

- 5.1 No protected sites designated for bats were identified within 5 km of the site. There are no nationally protected sites or local nature reserves within 2km of the site. There are no ancient woodlands within 2km of the site.
- 5.2 There have been five protected species licences issued for bats within 5km of the site. The nearest is 1.1km south-west of the site for Brown Long-eared, Common Pipistrelle, Natterer's and Soprano Pipistrelle bats. Two of the licences involve a maternity roost; 1.8km south for Common Pipistrelle and Soprano Pipistrelle and 3.1km south-east for Brown Long-eared, Soprano Pipistrelle and Whiskered.
- 5.3 The Thames Valley Environmental Records Centre (TVERC) holds 147 records of bats within 2km of the site covering at least 10 species; Bat (3), Brown Long-eared (26), Common Pipistrelle (24), Daubenton's (1), Lesser Noctule (4), Myotis sp. (5), Nathusius's Pipistrelle (1), Natterer's (4), Noctule (6), Pipistrelle Bat sp. (35), Serotine(6), Soprano Pipistrelle (27) and Western Barbastelle (2).
- 5.4 The NBN Gateway hold 76 records of bats covering at least 5 species within 5km of the site; Brown Long-eared (21) Common Pipistrelle (12), Natterer's (11), Noctule (1), Pipistrelle (5) and Soprano Pipistrelle (26).

Field Survey

Local Context

- 5.5 Underdown Farm is located at the north-western edge of the village of Standlake. The immediate landscape is one of modern farm buildings with hard standing yard and grassland. In the wider landscape the river Windrush lies to the north-east, with a gravel pit lake complex beyond. To the west is a camp site with houses and agricultural fields beyond. To the south is a mixture of agricultural fields and gravel pits, leading to the River Thames beyond, while to the east is the village of Standlake.

Dusk Emergence Survey

- 5.6 The survey was conducted on 21st July 2023, a dry, mild night with a temperature of 17° centigrade, dropping to 16°C by the end. There was a moderate wind, which dropped to a light wind by 21:30 and 20% cloud cover. Sunset was at 21:10 and there was a new moon at 15° above the south-western horizon.
- 5.7 The survey began at 20:55 and ended at 22:40. Three Soprano Pipistrelles emerged from the building.

- 5.8 The first bat recorded was a Soprano Pipistrelle that flew in from the south-west and past the building at a height of 1.5m to the north-west. At 21:34 a Soprano Pipistrelle emerged from the corner of the north-western gable and flew off to the north. At 21:45 a Soprano Pipistrelle emerged from the north-western gable soffit, 1m to the south of the chimney, with a second emerging from the same point at 21:49. They both flew off roughly towards the north-west. At 22:15 a Soprano Pipistrelle was seen flying towards the gable, but was not seen to enter.
- 5.9 There was generally a low level of bat activity throughout the evening, with mainly Soprano Pipistrelles commuting past the building.
- 5.10 There were a total of 64 registrations made by the two surveyors during the 90 minutes of the survey after sunset. This equates to 0.36 registrations per minute per surveyor, indicating a low level of bat activity.
- 5.11 Soprano Pipistrelles made up 95.3% of registrations, Common Pipistrelles 3.1% and Myotis 1.6%.

6. Discussion

- 6.1 There are no sites designated for bats within 5km of the site. There are no nationally local designated sites within 2km of the site.
- 6.2 There are records of at least 10 species of bats within 2km of the site, indicating a good range of species in the area, due to the structure of the immediate surrounding area, which offers good roosting, commuting and foraging habitat with the buildings within the village of Standlake providing potential roosting habitat and the River Windrush and the former gravel pits lakes offering good commuting and foraging habitat.
- 6.3 Ten to fifteen Pipistrelle bat dropping were found near to the chimney at the north-west gable end of the main roof space. As the building had one or more potential roost sites that could be used by individual bats opportunistically, the building was assessed as having low potential for roosting bats, with a single dusk emergence survey required to determine likely absence or prove presence of roosting bats.
- 6.4 The emergence survey demonstrated that Soprano Pipistrelles were using the northern gable end to roost in, but only by a low number (three), likely to be in an opportunist capacity.
- 6.5 As the works are an extension that will only affect the central section of the roof at the rear, with single storey extensions to either side of this, but finishing around a metre below the eaves, the roosting points will not be affected by the extension. Therefore it is proposed to undertake the work using reasonable avoidance measures, with a working method statement to ensure bats are not impacted by the works.
- 6.6 As the main bat activity around the building was commuting bats, some recommendations have been made regarding lighting around the site.
- 6.7 No other protected species are believed to be affected by the proposed works on the building.

7. Further Surveys, Recommendations and Enhancements

Further Surveys

- 7.1 Currently there is no need for further surveys, but if the work has not started by the summer of 2024, an updated emergence survey would be required to inform the works.

Recommendations

Lighting

- 7.2 There will be no direct lighting of the trees in the rear garden. Any new outdoor lighting will be;
- Less than 3 lux light level
 - Led luminaries with warm white spectrum <2700 Kelvin (To Avoid Blue / UV Elements)
 - Bollard or low-level downward directional luminaries are used and mounted on the horizontal with no upward tilt.
 - Any security lighting should not exceed 75w in power, the light should be motion activated with short timers (1 Minute), angled downwards as sharp as possible to light up the immediate area only.

Bat Working Method Statement

- 7.3 One Schwegler 1FF bat box (or similar) will be erected in suitable trees within the grounds of the house. This bat boxes will be retained on-site after the works have been completed as an enhancement to the site.
- 7.4 The strip of the roof section to be extended will be carried out during the active season for bats, between April and October, avoiding the winter hibernation period as a precaution.
- 7.5 A tool-box talk will be carried out by a qualified ecologist to inform the contractors of the method statement, the protection afforded bats, how to recognise bats and what course of action they will need to follow if a bat is found during the work.
- 7.6 Before works commence the ecologist licenced to disturb bats will inspect the internal roof space as a final check for roosting bats. A black plastic sheet will then be erected across the roof space to seal off the area to be worked on from the north-western gable end, minimising any disturbance that may occur from the works. This will remain in-place until all works to the roof are complete and the sheet removed under the supervision of a licenced bat ecologist, who will undertake a final check of the roof space.

- 7.7 The ecologist licenced to disturb bats will oversee the initial removal of tiles and bat features, such as ridge tiles and soffits. All tiles will be lifted from the roof, not slid off, to avoid injury to bats if they are present beneath, and other features removed carefully by hand after inspection by the licenced bat ecologist.

Enhancements

- 7.8 An integrated bat box will be built into the new second storey extension below the eaves on the north-western elevation.
- 7.9 Any planting of shrubs in the grounds will include flower bearing species, particularly night-flowering ones, to encourage insects that provide food for bats. Shrubs and plants such as Honeysuckle, Aubretia, Alyssum, Hazel, Hawthorn, Heather, Evening Primrose, Crab Apple, Ornamental Cherry, Hebes and Flowering Currant can be used (See www.rhs.org.uk/advice/pdfs/plants-for-bats.pdf).

8. Figures

Figure 1: Emergence Plan

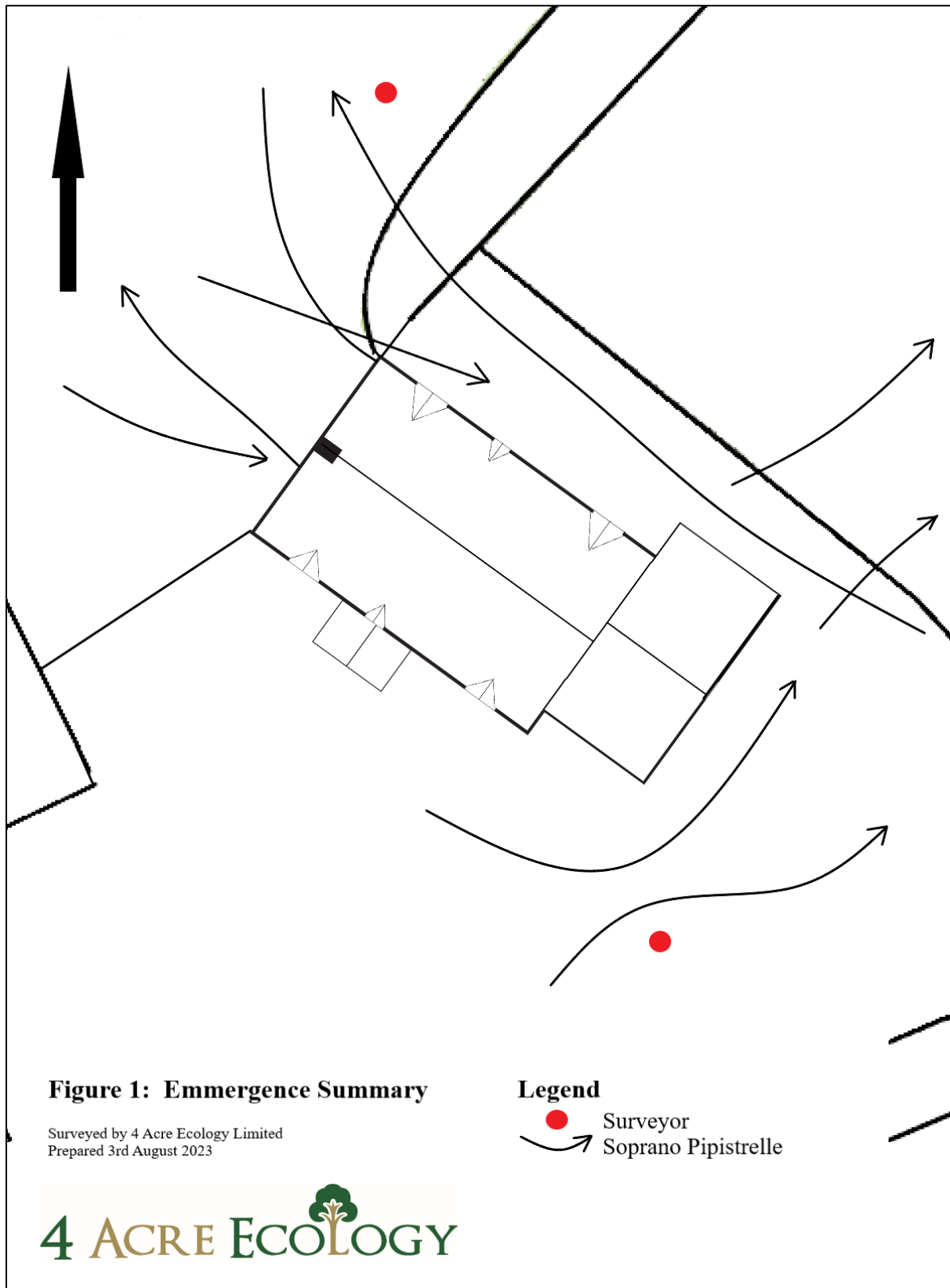


Figure 2: Images



1. House from the south



2. House from the north



3. Eastern gable ends



4. Air slit and barge board



5. Loft space with membrane and webs



6. Bat droppings caught in web by chimney



7. Bat dropping on insulation



8. Meshed slit with cobwebs

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Appendix 1: Information on British Bats

There are 18 species of bat in the UK (17 of which are known to be breeding here). They range from the tiny **Pipistrelle**, weighing in at around 5g (less than a £1 coin), to our biggest bat, the **Noctule**, which is still smaller than the palm of your hand.

All British bats eat insects exclusively, a **Pipistrelle** bat eating as many as 3,000 midges in one night, while **Long-eared** bats eat moths and **Noctule** or **Greater Horseshoes** also eat larger beetles.

The **Alcothoe** bat is the latest addition to the UK bat family, only being confirmed as a resident species in 2010 due to its similarity to the **Whiskered** and **Brandt's** bat species.

The **Daubenton's** bat is known as the 'water bat', as they fish insects from the water's surface with their large feet or tail. In England and Wales the majority of known summer colonies are in humid, more or less underground sites near water. These may be tunnels or bridges over canals and rivers, or in caves, mines and cellars. They are only occasionally found in buildings, usually old stone structures such as moated castles and waterworks.

Bats do not build nests, but use small spaces to shelter and rest in during the day, or hibernate in during winter. These places are known as roosts. There are a variety of different types of roost, from winter hibernation roosts, spring and autumn transitory roosts to summer maternity roosts. However, not all bats will roost within buildings, with the following being those most likely to:

Pipistrelle bats (both Common and Soprano species) are the most common bats in this country. They prefer to roost in very confined spaces around the outside of buildings, typically behind hanging tiles, soffits and barge boards, under roofing felt or in cavity walls. They do not usually enter roof spaces, although well-established large colonies in older buildings may do so.

Brown Long-eared bats are the third most commonly occurring species, after the two **Pipistrelle** species. They roost singly or in small groups among the roof timbers at the apex, particularly around ridge ends and chimneys, and in crevices in ridge tiles. These medium sized bats spend more time inside the roof space than many other bats, and are generally very quiet inside the roost, not leaving until after dark.

The **Serotine** bat, one of the largest bat species in the UK, is almost exclusively found roosting in houses across southern England and Wales. Rarer than **Pipistrelles** and **Brown Long-eared** bats, **Serotines** usually roost in crevices around chimneys and in cavity walls. Their favoured prey is large beetles, which they find over farmland and grassland.

Horseshoe bats, probably the most unusual looking of the UK's bats, are sometimes found roosting in houses in south-western England and Wales. **Greater** and **Lesser Horseshoe** bats hang free in the roost from their feet.

(Find further details from the Bat Conservation Trust Website at: www.bats.org.uk)