

**OXLEAS WOOD APIARY**

**RISK ASSESSMENT**

RELATING TO THE

**HONEY BEE APIARY**

LOCATED AT

**OXLEAS WOOD CENTRE, CROWN WOODS LANE, LONDON SE18 3JA**

**REF N<sup>o</sup> R1000-A2**

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# OXLEAS APIARY RISK ASSESSMENT

## Apiary Site

The Oxleas Apiary is located within the grounds of the Royal Borough of Greenwich (RBG) *Parks and Open Spaces Department* depot sited off Crown Woods Lane. The depot includes offices and storage for equipment and vehicles and is not normally directly accessible to members of the public.

The Apiary hives are strung out in a row alongside a 3m high brickwork wall to the south, open lawn and shrubbery to the north, and to the rear (east) of the RBG office building. The nearest residential buildings are approximately 50 to 60m to the north-west located beyond a dense screen of shrubbery and trees.

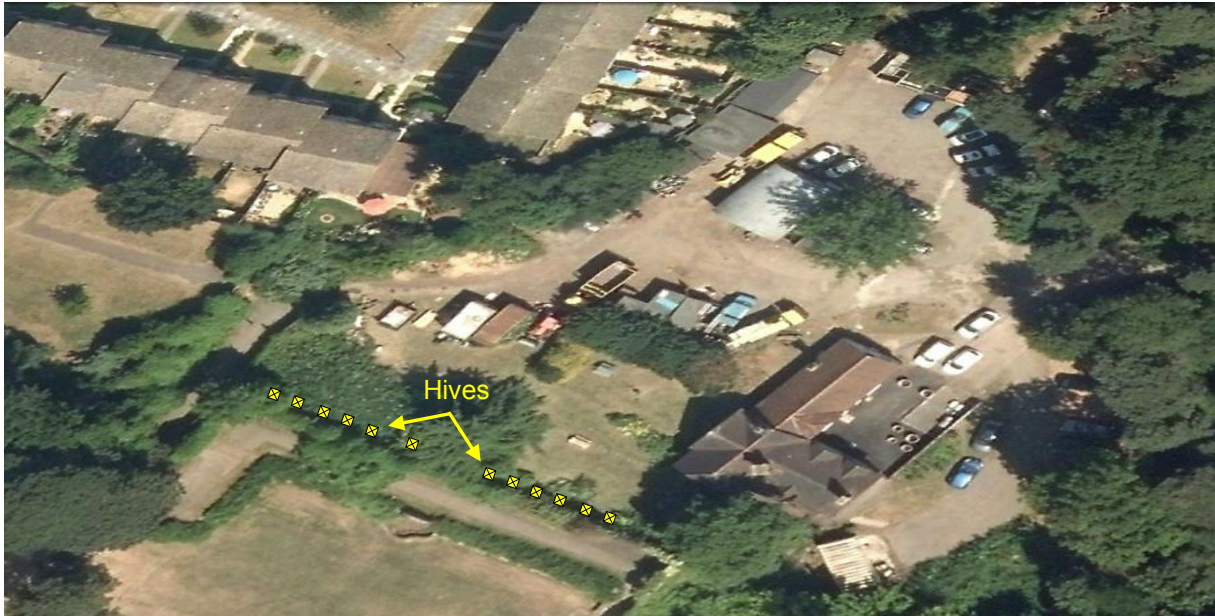


FIGURE 1 APIARY SITING

## Hives and Bee Colonies

Throughout the beekeeping season, from mid-April to late-September, the apiary will comprise a dozen or so honey production hives each containing an autonomous colony of *Apis mellifera* (honey bees) – at the height of the beekeeping season each hive colony will contain about 20,000 to 40,000 or more female but infertile worker bees, 1,000 or so male drone bees, and a single fertile Queen.

British Standard National hives are used throughout the Apiary. National hives are assembled from unpainted cedar (brood and super) boxes or chambers loosely assembled rising from a floor and capped with a crown board and roof, with a single flying entrance slot along one side of the brood chamber at the base of the hive. For overwintering the hive is reduced to a brood chamber and super but as the season develops extra super boxes are added for honey and pollen storage – at the height of the season a typical honey production hive will comprise a single brood with up to 6 supers of 460 by 460mm plan dimension and up to 1.250m overall height.

During the Queen reproduction season (late-April through to mid-June) the hive stands will be supplemented with six or so Queen breeding nuclei housed in smaller hives or ‘nukes’ – each nuclei will contain around 1000 to 2000 nursery female bees, a number of Queen bees at various stages of development, and a few drones.

## Bee Flying and Foraging Activities

Foraging bees from the production hives are intensely active, weather permitting, during mid-summer months but enter dormancy to overwinter within the hive from around late October through to April the following year. Honey bees cease foraging flights at air temperatures below 10° to 13°C, although on a bright winter’s day the bees will take short flights, usually to defecate away from the hive.

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Foraging bees depart and re-enter the hive in direct flight paths, mainly leaving and approaching the hive orthogonally to the hive entrance slit with a trajectory of about 30° to 40° usually reaching a level flying height of 3+ metres before turning to a general heading for the foraging patch. This well-established departure and approach pattern means that the bees are above pedestrian height within a few metres of the hive entrance – in the early morning and later afternoon (dusk) the approaching bees will adopt an orientation flight pattern, comprising a slow zigzagging across the entrance of the hive in order to reinforce the pattern recognition of the hive and its entrance.

## Swarming

From late April through to June, again depending on the weather, the individual colonies or stocks of bees develop a communal urge to swarm – one important management function of the apiary is to deter and/or positively utilise swarming in the Queen rearing process.

Swarming results when the colony sets a series of Queen cells each of which contains the active lava stage of a virgin Queen and, once the first of these Queen cells is sealed or capped, about one-third of the colony swarms from the hive, taking with it the old, parent Queen. The emerging swarm settles locally, usually within 100 to 200 metres of the parent hive, remaining in a tight cluster for a day or so before alighting either making a beeline for a new, predetermined hive site up to 4 kilometres distance or, not that infrequently, extinguishing the parent queen and returning to the parent hive. During both phases of the swarming process the bees, although caught up in an apparent frenzy of activity, are not at all aggressive.

The first of the virgin Queens to emerge from the sealed incubating brood cell in the parent hive will set about stinging to death all of her sisters trapped in their sealed brood cells then, within a few days, she will embark upon her mating flight where she will be successively inseminated by up to 20 or so drones. Following this single mating session the fertile queen will return to the hive where she will remain egg laying until she herself emerges from the hive with a swarm – the Queen might remain in the hive for at least one season or possibly up to four years, although most beekeepers will replace queens every second or third year.

## Access to the Apiary

The underlying *defence-in-depth* strategy for the apiary is, first, its isolation in an infrequently visited location; and, second, that visitors will only be encouraged to access locations nearby the apiary following a short verbal induction course by and under the direct supervision of the Beekeeper.

The apiary is to be used for practical, *hands-on* beekeeping experience as part of the *Introduction to Beekeeping* course provided by the Beekeeper. Participants in the sessions will be closely supervised by the Beekeeper with group numbers limited to five individuals – beekeeping suits and gloves will be provided by the Beekeeper.

Members of RBG staff undertaking work/maintenance activities nearby the apiary should consult with the Beekeeper over any concerns and health and safety issues. The beekeeper will cut and/or trim the grass and vegetation in the immediate locality of the hive stands and in the areas under of any low flight paths.

## Administrative Details

The apiary is registered under the Department for Environment, Food and Rural Affairs (DEFRA), Food and Environment Research Agency (FERA) BeeBase, Apiary Identification N° 109589, BeeBase id No 48188.

The Beekeeper is John Large on 07971 088086 and 020 8317 2860, [largeassociates@largeassociates.com](mailto:largeassociates@largeassociates.com).

John Large is registered under the *Disclosure and Barring Service*, Certificate N° 001426495310.

## Risk Assessment Scope and Application

This *Risk Assessment* does not apply to i) the movement of bee colonies and equipment to and from the Crown Woods Lane depot, and ii) wild bees, bee swarms not originating from the Oxleas Apiary and iii) other insects.

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**TABLE 1 RISK ASSESSMENT – FIXED APIARY SITE CROWN LANE DEPOT OXLEAS WOOD**

HAZARD	LIKELIHOOD	POTENTIAL CONSEQUENCES	CRITICAL GROUP	MITIGATION ACTION IN PLACE	FURTHER ACTIONS REQUIRED	NOTES
Bee Stinging: generally single sting, rarely multiple stinging	Probable <sup>†</sup>	a) Minor: Discomfort and/or swelling b) Major: Allergic reaction major injury <sup>††</sup> c) Fatal: Anaphylactic reaction <sup>††</sup>	i) Visitors <sup>§</sup>  ii) RBG Workforce <sup>¶</sup>	i) Apiary sited in limited access area with no access to visitors without supervision – hives located away from any unsupervised visitor and/or workplace access area.  ii) RBG workforce accessing the general apiary area should avoid presence in front of the hives and in the immediate flight path of the bees – grass trimmers and other mechanical devices should be used with caution – the beekeeper will regularly cut and/or trim the grassed areas immediately in front of the hive stands and at other localities of established flight paths.  Where appropriate, Emergency Services call out procedures already in place for other potential major injury incidents on the RBG Depot site.	i) To deter visitor access, display suitable ‘ <i>Bees at Work – No Access</i> ’ or similar sign on entrance to apiary area.  ii) A medium-sized bee suit and gloves to be made available to all pre-arranged visitors.  ‘ <i>Advice on Treating Stings</i> ’ pamphlet to be made available.	Honey bee sting identifiable with barbed lancet and poison sac remaining in situ after departure of stinging bee – sting remnants should be immediately removed by sliding a fingernail or similar (ie credit card) under the sting protrusion. Any stinging, even mild, should be entered into the Health & Safety Incident Log. <sup>§</sup>

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Vandalism	Improbable		i) Vandals ii) Volunteers	i) Apiary located in isolated area. ii) Call in beekeeper to assess damage and restore apiary to function.	i) Requires tie-down straps over hives.	
Hive Lifting Injury	Unlikely		i) Beekeeper ii) Volunteers		Ensure all visitors likely to be involved with the apiary have basic manual-handling instruction and training – visitors encourage to wear toe protector footwear	
Bee and Hive Treatments – health hazard	Improbable		i) Beekeeper	i) Chemical treatments to be applied only by the Beekeeper.	Chemical treatments and doses to be stored off-site securely. Storage and Treatment Process to comply with COSHH assessments	
Fire set by Smoker	Unlikely		i) Beekeeper ii) Visitors	ii) Visitor use of smoker to be closely supervised by Beekeeper.	Smoker nozzle to be corked when not in use.	
General Cuts and Scrapes	Probable		i) Beekeeper ii) Visitors		General First Aid box maintained on site.	

+ The probably of any one individual being stung during the course of the active bee and insect flying season is high and, of course, it could be a stinging from another insect species, such as wasps, bumble bees, etc..

++ Major Injury and Fatal reactions are extremely rare.

§ Where practicable, a photographic record of the stung area should be taken before the barbed sting is removed, although sting removal should not be unnecessarily delayed for this purpose alone.

§§ 'Visitors' are defined to be members of the public who may be in the general area of the apiary.

¶ 'Volunteers' are defined to be regular participants in activities at the Farm, who may access the general apiary area for maintenance, etc.

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## GENERAL ADVICE ON TREATING STINGS

Many flying insects have ovipositors adapted for defensive stinging – common amongst these are the various species of order *hymenoptera*, particularly the sub-order *apocrita* including bumblebees, wasps and honey bees. The highly evolved social honey bee (*A. mellifera*) is capable of stinging en masse with individual bees leaving a trace pheromone at the sting site to guide in and stimulate other bees to sting. Uniquely amongst the *hymenoptera* insects the *A. mellifera* worker bee has a strongly barbed sting that detaches from the stinging bee and remains lodged in the victim into which it continues to autonomously pump venom.



Bumble Bee



Female Worker Honey Bee



Wasp



Male Drone Honey Bee  
Non Stinging

The honey bee sting is connected to a venom sac, is a modified egg-laying tube so only female (queen and worker) honeybees have the capability to sting. Since the single queen in the colony only leaves the hive of two occasions throughout her entire life cycle, if it is a honey bee sting then it is more than likely that it has been rendered by a worker bee.

Most stinging insects can sting more than once, the exception is the honeybee (the female worker bee) that has a barbed sting lancets that embed in and secure to the victim's skin tissue. When the worker bee escapes after stinging a person, the sting and attached venom sac are ripped out of the bee and stay in the victim's skin, leaving the bee to perish shortly afterwards. Unless removed immediately following the stinging, the remnants of the bee will continue to produce and pump sting venom into the victim for some time (20 minutes or more) following the stinging.

Bee stings differ from insect bites and the venom or toxin injected with the sting varies with the species of stinging insect and, because of this, the body's reaction is likely to differ significantly from one species to another. If it is a honey bee sting then the sting and its venom sac remain attached to the victim after the bee has flown away, but other insects leave little or no immediate physical trace other than the sharp 'hot' pain that may last a few minutes until subsiding to a dull ache. The principal active component of a bee sting is *melitten* comprising a complex of 29 amino acids, the swelling and reddening of the sting site is the result of the victim's body reacting to the *melitten* by delivering excess fluid to the locality to flush away the venom – if it is not the first time that the victim has been stung by that particular species of insect, then the immune system is likely to recognise the venom and enhance the fluid disposal procedure.

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Most people will have only a **localised reaction** to a bee sting with the skin is reddened and painful. Swelling and/or itching may also occur, but the pain usually disappears over a few hours. In the so-called large local reaction to an insect sting, the swelling, redness, and pain may persist for up to a week. Areas adjacent to the site of the skin may also be involved in the large local reaction.

In a **systemic allergic reaction**, the entire body is affected. The victim may develop hives, redness, or swelling at sites on the body distant from the site of the sting. Symptoms can also include vomiting, nausea, diarrhoea, and/or dizziness.

In **anaphylactic reactions**, victims experience wheezing, difficulty breathing, and a drop in blood pressure that may lead to shock if not treated promptly. These types of reactions usually occur within minutes of the bee sting. Since most people who have allergies to bee stings will have a worsened reaction to every subsequent sting, these individuals are likely to know of their vulnerability to stinging.

Seek medical assistance and emergency treatment if the stung individual presents any of the following immediately after being stung:

- excessive swelling or itching anywhere else on your body
- a skin reaction anywhere else, particularly pale or flushed (red or blotchy) skin
- wheezing or difficulty breathing
- a headache
- nausea, vomiting or diarrhoea
- a fast heart rate
- dizziness or feeling faint
- difficulty swallowing (dysphagia)
- confusion, anxiety or agitation

For more detailed and authoritative advice refer to the NHS Choices website:

<http://www.nhs.uk/conditions/Stings-insect/Pages/Introduction.aspx>

Immediate action of responders is to locate the sting site and remove the remnants of sting. For a honeybee worker sting this is a venom sac of whitish tissue about 2mm in diameter – do this by scraping the sting to one side by catching it under a finger nail or with a hard edged object, such as a credit card, and do this quickly because the sting will remain active pumping in venom for several minutes - do not squeeze the venom sac because this could inject more venom into the wound.

There are many anecdotal remedies claimed to effect relief of the localised pain and swelling from insect stings and bites - cooling the immediate injury area with a wet cloth or ice pack to reduce the local circulation is probably as effective as any. A number of proprietary and non-prescription antihistamine treatments are readily available at pharmaceutical suppliers.

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