



British Hang Gliding and Paragliding Association

BHPA Electronic Conspicuity position paper August 2022.

Summary.

Hang gliders and paragliders are the lightest and most portable types of manned aircraft. The UK hang glider and paraglider fleet represents well over a quarter of the UK's manned General Aviation fleet. These aircraft require no national licence, no hangarage, are cheap to purchase and maintain, and can be flown both unpowered and powered. The UK and many other European countries continue to experience healthy participation in these airsports (particularly in paragliding).

Hang gliding and paragliding are not new aviation activities. Hang gliding experienced exponential growth in the '70s and '80s in the UK. Paragliding overtook hang gliding in popularity in the '90s and it remains the more practised sport. Hang gliding and paragliding have long fallen under a misconception that they are practised by a few, the activities constrained by the performance of the aircraft to operating only in a handful of locations.

This paper has been written to highlight to statutory bodies and to pilots the extent of hang gliding and paragliding in the UK - particularly in response to the intended integration of RPAS (drones) into UK airspace, the issues surrounding the detection by these aircraft of hang gliders and paragliders, and to outline the issues specific to hang gliders and paragliders concerning the move towards adoption of Electronic Conspicuity.

BHPA - background.

The British Hang Gliding and Paragliding Association (BHPA) is the governing body for hang gliding and paragliding in the UK. The BHPA has a long history of effective self-regulation (over 40 years) and a robust training, qualification and continuous education system through its registered schools and clubs. Its members benefit from insurance that not only provides third party cover to individual members and training operations, but also indemnifies the owners of land used for flying activities.

The BHPA has over 7,000 members who predominantly fly hang gliders and paragliders (or their motorised variants). Members also fly parascenders, microlight aircraft and single seat deregulated aircraft (SSDRs).

By far the greatest proportion of UK-based hang glider and paraglider pilots are BHPA members (estimated to be over 90%). However, a percentage of powered paraglider (paramotor) pilots are not members (estimated to be above 50% at the time of writing). They are self-taught or have been trained at an establishment independent of the BHPA, with no oversight of its training standards. The BHPA operates a high-standards training environment. Its student pilots are trained at schools that are regularly inspected. Pilot training includes instruction and examination on airlaw and navigation. Continuity training for BHPA qualified pilots is provided through the Association's nationwide network of clubs and schools.

Syndicate ownership of hang gliders and paragliders is non-existent, so it is reasonable to say that every BHPA member owns at least one aircraft. Many BHPA members own more than one aircraft. The BHPA estimates a total active fleet size for UK hang gliders and paragliders (including powered variants) of over 10,000 aircraft.

Hang gliding and paragliding are inexpensive forms of flight. There is a strong second-hand market in the UK and a complete aircraft can be purchased for less than £1,000.

Hang gliding and paragliding - regulatory background.

Hang gliding and paragliding are deregulated forms of aviation in the United Kingdom and are Non-Part 21 Aircraft (EASA Annex I aircraft). There is no legal requirement to register hang gliders and paragliders on the UK national aircraft registration database, and no requirement to hold a national pilot's licence in order to fly them.

UK areas of operation.

Hang gliders and paragliders are not limited to operating from airfields. They operate anywhere in the Open FIR¹. They can be foot-launched from hills, windward cliffs and mountains. They can be towed into the air, either by a ground-based winch or by an aerotow from a microlight aircraft. They can launch using a power unit from any reasonably flat area such as an airfield, sports field or farmland. They can be transported by foot, by car or by public transport and easily carried by hand to take-off areas.

Flights take place from ground level to cloudbase, although significant portion of flight activity takes place within 500ft of the ground. Unpowered flights of hundreds of kilometres can be made using thermic lift (the current UK cross country record for an unpowered paraglider stands at over 300km). The image Fig. 1 (see page 4) illustrates the large number of unpowered paraglider cross-country flights made in Great Britain by BHPA members in a typical year. This counters the misconception that hang gliders and paragliders are only found close to launch points. If hang gliders and powered flights are added (powered hang gliders and powered paragliders) the image is significantly more densely covered, effectively covering the whole of UK Class G airspace.

The BHPA has 900 sites registered on its sites database, however the unique portability of these aircraft enables pilots to travel with their aircraft and equipment to remote locations and take off from any small open area (with appropriate permissions, as required).

Non-powered hang gliders and paragliders exploit air currents to prolong flight, so they do not fly in straight lines. Flight plans are largely dictated by the ever-changing local air conditions. Because of the ability of these aircraft to land in very confined areas, pilots can recover to soaring flight from extremely low altitudes. Recoveries of several thousand feet (to cloudbase) are frequently made from just 300 feet above the ground.

Because of their low speed, hang gliders and paragliders fly in close proximity to each other. It is not uncommon for 50 hang gliders and paragliders to be found in one thermal or soaring a ridge. A trace of a gaggle of hang gliders and paragliders thermalling to cloudbase would appear chaotic to an Air Traffic Controller, with single or multiple aircraft turning in a tight radius (tens of metres) around a core of lift. This is a standard pattern in gliding flight where the principle of "see and avoid" in VMC is used to detect potential airborne conflicts. Pilots are trained to fly in these close proximity situations using international rules of the air and soaring conventions based on these rules. It is well established that the greatest mid-air collision risk is another hang glider or paraglider. However, records show that these occurrences are very rare. Collisions between hang gliders or paragliders and other types are unknown.

It is of concern to the BHPA that our data on pilot numbers, locations and extent of flying operations is all too often incorrectly applied or simply dismissed as being confined to a low number of small defined areas. The BHPA endeavours to present a real-world picture of our activities to the CAA, DfT and other interested bodies at every available opportunity. In fact, we have identified to the CAA that on a good day in a defined area² of the southeast of England, there may be as many as 2,200 hang glider and paraglider flights taking place, including local flights, training flights and cross-country flights by unpowered and powered hang gliders and paragliders.

On-board equipment.

Hang gliders and paragliders (including their powered variants - powered hang gliders and powered paragliders) are open cockpit aircraft with no electrical system. They do not routinely carry radios, nor have licences in place to talk to Air Traffic Control.

There is a buoyant market in hang gliding and paragliding-specific flight computers that can be used for flight planning and navigation en-route. These are mobile phone sized, light weight (c. 200g) and self-contained

¹ Aeronautical Information Publication (AIP ENR 1 at 5.5.2) published by NATS on behalf of the CAA.

² An area of approx. 3420 square NM defined by CAA, for purposes of a CAA EC Working Group density study (March 2019).

with their own internal GPS and barometer, powered by an internal battery. Some of these devices are equipped with FLARM technology for position broadcast.

Electronic Conspicuity (EC).

At every opportunity, the BHPA has highlighted that mandating EC would not work for hang gliders and paragliders, for the following reasons:

- 1) There is no ADS-B device currently on the market that has been demonstrated to be fully compatible and effective with cockpit-less aircraft such as hang gliders and paragliders. Tested devices reveal sporadic broadcast reception below 500ft AGL and/or in hilly or mountainous areas.
- 2) As paraglider harnesses are worn by the pilot they offer very little scope for EC device antenna installation away from the pilot's body. Significant signal blocking / obscuration by the pilot's body has been noted in preliminary trials (unpowered paraglider and powered paraglider equipped with a CAP 1391 ADS-B device).
- 3) EC in its current form brings little or no benefit to the majority of hang gliders and paragliders. We fly in close proximity to other hang gliders and paragliders and maintain a good lookout and separation using 'see and avoid'.
- 4) Using a screen instead of good lookout will increase the risk of mid-air collisions.
- 5) EC broadcasts from gaggles of hang gliders and paragliders may cause signal saturation and are therefore likely to be filtered out, substantially increasing the risk of a mid-air collision with aircraft that are heavier and faster.
- 6) Given the low speed of hang gliders and paragliders, EC provides no opportunity for the hang glider or paraglider pilot to take any action to avoid a collision with a faster moving aircraft.
- 7) The BHPA supports voluntary EC device equipage with an emphasis on interoperability between EC device platforms being essential.
- 8) The effect of legislation to mandate EC would drive a percentage of hang glider and paraglider pilots to operate 'rogue'.
- 9) BHPA members participated in the DfT/CAA EC rebate scheme and over 10% of the BHPA membership purchased an EC device with assistance from the scheme. The greatest majority of hang glider and paraglider pilots have purchased a device equipped with FLARM, to enhance the traffic situational awareness of the operators of heavier / faster aircraft, so they may take action to deconflict with the hang glider / paraglider.
- 10) The BHPA requests the evaluation of FLARM as an EC option to enable hang gliders and paragliders to access TMZs. An allowance such as this may be a driver for further EC device uptake amongst the hang gliding and paragliding population.
- 11) The BHPA is participating in the 978MHz Portable Obstruction Beacon trial. As hang gliders and paragliders can be found anywhere in the Open FIR it is important to note that a beacon does not enable detection of hang gliders and paragliders who have left the area singly or in a gaggle to fly cross country. There is a significant risk that the pilot of an aircraft detecting an obstruction beacon goes "head-in-cockpit" to navigate a way around the beacon, presuming that all non-pinging aircraft are inside the "bubble" of the beacon. There is also a potential issue as to the sizing of the "bubble", as the area of local soaring can vary from any area with a diameter of 200 metres to an ellipse two nautical miles long (or more), with similarly variable vertical dimensions.
- 12) The BHPA is a member of the European Hang Gliding and Paragliding Union (EHPU), a body representing over 110,000 hang glider and paraglider pilots in 21 European countries. The EHPU supports the proposal in EASA's NPA 2021-14: to assess the suitability of mobile telephones as position indicators so that RPAS can detect and avoid airspace users flying hang gliders and paragliders.

The BHPA supports a proportional, benefit-driven and risk and evidence based approach to EC for General Aviation, the costs being borne by the beneficiary. It is the newcomer to airspace usage who will tend to have the greatest benefit.

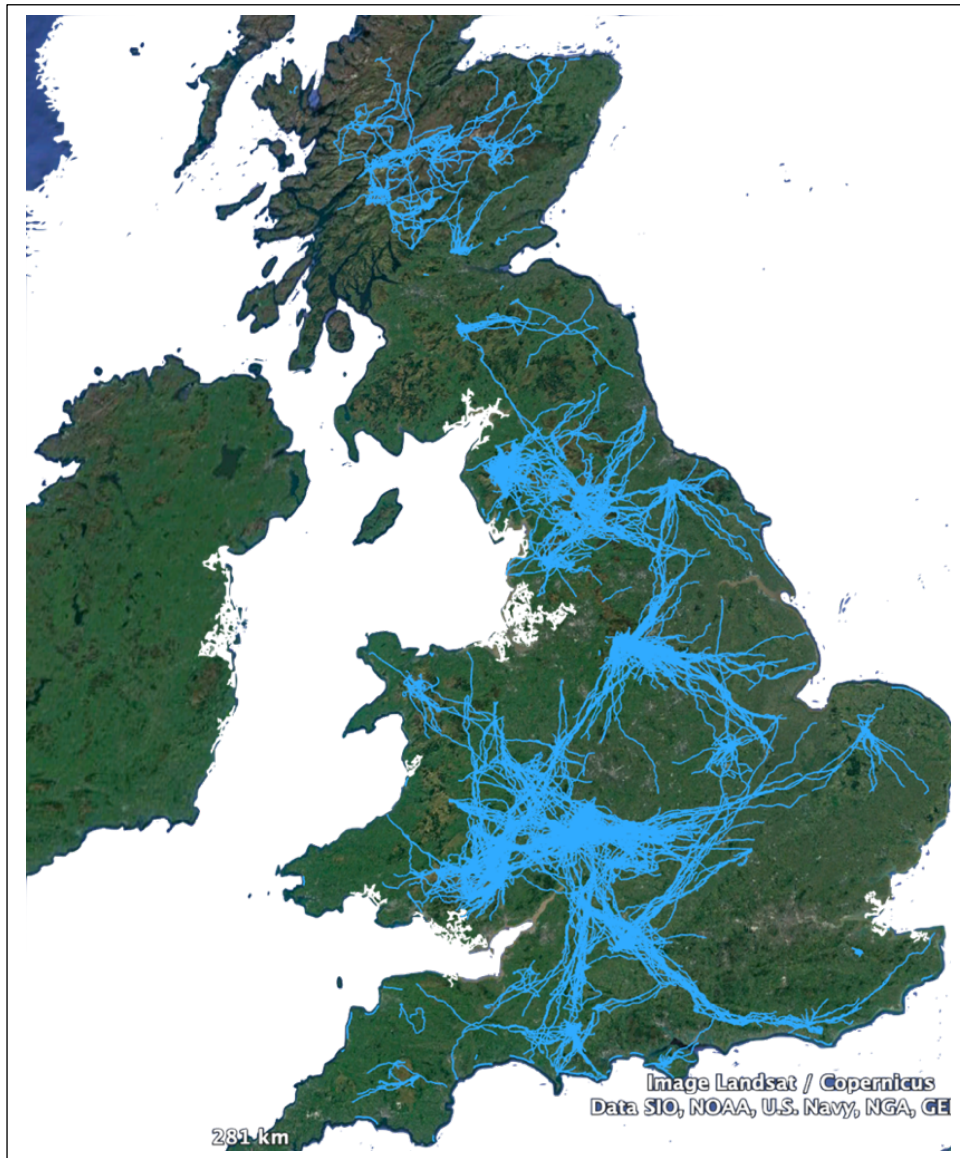


Fig. 1: paraglider (unpowered) cross country flights in Great Britain in a typical year. Each line represents a flight route.

Further information - the following photographs illustrate some of the aircraft types flown by BHPA members:



Hang gliders (unpowered).



Paraglider (unpowered).



Powered paraglider (paramotor).