

GLIDEPATH



The Journal of Wessex Soaring Association. August 2023

From the Editor

There was a bit of a lack of articles for this month's Glidepath so I have gone slightly off piste again and produced one in which I consider the aerodynamics of squirrels (yes you did read that correctly).

On the subject of pistes I have been on holiday in Switzerland during which one day we walked to the top of the Lauberhorn mountain, from which the famous downhill ski race into Wengen starts. However perhaps I am not the first club member to venture there as I found this marker post on the top. There is actually a bit of a ridge up there so some slope soaring might be possible. However it is at least an hour's walk, including 400m of climb, from the nearest lift that is operating in summer, so not very accessible.



During the July the jet stream seems to have got stuck south of the UK, bringing record breaking temperatures to southern Europe but rather wet and windy conditions here. This unfortunately led to the cancellation of the July e-soaring event but I am hoping conditions will improve for August to allow me to hold the annual Limbo event on the 13th, and Martin to hold the e-soaring event on the 20th.

From the Chair

Hi all, as everyone will have noticed, the weather is not playing along with our plans. I suppose we can be thankful that we do not have some of the extreme events that are happening elsewhere.

Just a reminder to all, that our slopes and flat field sites are available all daylight hours all year, so PLEASE take advantage of any weather window and go and fly; just getting out in nature is an excellent tonic.

E Soaring

Things are continuing to be difficult to organise so I will be keeping an eye out for any suitable gaps in the weather to organise something, this may be short notice so keep a check on your email inbox.

Thank you to Nigel and Dave for the interesting articles in last month's GP; they were both very good and excellent to see a young Mr Bennett.

Slopeside by Pete Carpenter

I have recently made a couple of changes to the slope conditions, everything is below and the those that have changed are shown in bold. Please use your own common sense and apply the countryside rules. Therefore if things look different at a site, particularly if it involves crops or livestock, please do not enter and contact me on pete.carpenter12@gmail.com or 01722 328728.

- 1) Winklebury (W to NE wind) - Available.
- 2) Norrington Down (S to SW wind) - Available.
- 3) Donkey Valley (SE wind) - Available.
- 4) Swallowcliffe (NW to NNE wind) - Available but have to park on main track until further notice.
- 5) Quarry (W to WNW wind) - Available. **Access to the original quarry slope is from the main westerly slope by hopping over the fence and walking to the 'quarry corner'. You may encounter some paragliders as they also have permission from the farmer to fly there. In this case it is best to have a friendly chat with them and see if you can agree separate airspace for models and paragliders.**
- 6) Oxo (WNW to NW wind) - Available. Parking off the main track is permitted again, but take care with soft ground.
- 7) Horses/Barbara's Field (WNW to NW wind)- Available.
- 8) Daltons 1&2 (NW to NNW wind) - Available.
- 9) Crockerton (NW to NNW wind) - Available subject to rules in slope guide.
- 10) Death Valley (SW wind) - Available until mid August
- 11) Stony Down (ESE to SE wind) - Available. Please do not overfly the parked cars on your landing approach at Stony Down, try and land from the right hand side. Code on gate padlock is 5823.
- 11) Berwick St John (SW wind) - Available. Code on gate padlock is 5823 .
- 12) East Bowl (NEE to E wind) - Available. There is a gate with a keycode, which is 7850. The shepherd is Mr.Fletcher (red Toyota pick-up) and he has asked that anyone parking on the track put a little note on the dashboard of their car, letting him know that they are a WSA member.
NB At Berwick and Quarry there is a new(ish) fence line that splits the main field and restricts the landing area to approximately 50m wide, as opposed to the whole field. Parking may also be different to before, subject to sheep being in a new fenced area. If in doubt, park before the main field and walk to the slope.

There are also a number of public slope sites, particularly in the Purbecks that anybody can fly from. A list of these is maintained on [Christchurch Club's website](#) so please have a look there for details.

Flat Field Update

1. The field number to be used is determined by the farmer to suit his activities and is liable to change periodically.
2. The current chosen field is shown by the number on the hook located on the front of the club (green) cupboard in the yard opposite the Farm House. **Leave this where it is.** NB, after a period of strong winds the number may be blown off its hook and might then be found nearby on the ground.
3. The location of the fields is shown on the numbered map to be found in the club cupboard.
4. If you are the first to arrive, take out the red sign from inside the cupboard which reads (WSA ON SITE) and slip this into the grooved slot on the front of the club cupboard.
5. On competition days take out the required equipment; tapes, cones etc. and take to the flying field.
6. After the flying is finished return any used equipment to the club cupboard and remove the "WSA ON SITE" red notice and put back in the cupboard.

Ensure that the field number remains where it is, hooked to the front of the club cupboard.

Be aware of the field condition, e.g. after rain. Do NOT leave wheel spin marks. If in doubt, park off the lane outside the field. Leave space for farm traffic.

Be aware of footpaths across the fields, Do not launch if walkers are on the paths. Do not launch if horse riders are nearby.

No low flying over power lines. **No flying over farm buildings and the cottage, AT ANY HEIGHT, or immediately upwind of the farm complex.**

Fly SAFELY at all times. Especially launching and landing. Do not launch over cars and do not approach a landing over other flyers, fly a proper circuit.

Report any problems to the flat field rep, Doug Bowmann.

On the Aerodynamics of Squirrels by Roger Crickmore

In a conversation the other day someone mentioned to me the interesting fact that squirrels are able to survive a fall from any height, provided they land on relatively soft ground. The reason they can do this is because they are quite small and when falling they deliberately spread out their limbs and tail to increase air resistance and slow their descent. This got me thinking about what the terminal velocity of a squirrel would be, and so obviously some calculations were called for.

Now the terminal velocity is reached when the force of gravity is balanced by the air resistance. A grey squirrel has a mass of about 0.5kg so the force of gravity on it is $0.5g$, where g is the acceleration due to gravity which I will take to be 10ms^{-2} . Thus the gravitational force on a squirrel is 5N (N= Newtons). The air resistance of a falling body is given by

$$\text{Resistance} = 0.5 \times \text{air density} \times \text{cross sectional area} \times \text{drag coefficient} \times \text{velocity}^2$$

A typical grey squirrel is about 25cm long with a 20 cm tail and if we assume it is an average of 10 cm wide (allowing for the legs spreading out) then it will have a cross sectional area of 450cm^2 or 0.045m^2 (we must always use SI units). Nobody has ever measured the drag coefficient of a squirrel, but for a human skydiver who makes roughly the same shape, it is 1.2 so we will assume that. The density of air is about 1.2kg/m^3 , so we have the equation.

$$5 = 0.5 \times 1.2 \times 0.045 \times 1.2 \times v^2 \text{ which gives } v = 12.4\text{ m/s or about } 28\text{ mph}$$

Now that seems rather fast and is the speed a human would reach, if jumping from a height of about 7.5 metres, which you might survive but you are going to have quite a lot of broken bones. Therefore if this fact about squirrels is true, and it does seem to be widely accepted, then they must be tough little creatures.

There is of course a number of species of so-called flying squirrels, that have a membrane which extends between their front and rear legs to further increase their cross sectional area. Most sources say that they do not truly fly by rather use their adaptation to glide from tree to tree, sometimes over distances of up to 90 metres. However I would argue that gliding is true flight and just like any glider a flying squirrel would be able to stay aloft indefinitely if they could find enough lift! By deforming their body and tail they are able to steer during the glide. Now I wonder if anybody has ever tried to make a radio controlled model of a flying squirrel, perhaps some of the 3D printing folks might like to have a go.

Limbo Event by Roger Crickmore

By popular demand I will once again be organising the annual Limbo competition on 13th August. For those members unfamiliar with the limbo it is a thermal soaring event where the real fun comes at the end of each flight. To score the model must pass through two poles about 3m high and 6m apart. This is relatively easy in calm conditions but in stronger winds it becomes rather trickier and collisions with the poles are not unknown.

The competition rules are:

Competition time is 10:30-12:30

Each competitor can have 3 attempts to score, each attempt to be declared before launch.

Target time = 8 min, seconds deducted for either over or under flying this time.

To score the entire plane must pass between the poles (without touching them) before landing

There is a 30 second bonus for spot landing

Maximum model span =2.3 metres

Launch by bungee or electric motor (100m height limit)

Any one wishing to use a bungee must provide and lay it out themselves

Timing and verification of passing between poles to be carried out by another member

Single best flight counts

In the event of any dispute the CD's decision is final !

Anyone not wishing to take part in the competition is of course welcome to come along and just fly for fun, or watch those prepared to risk denting their models in this rather unusual competition.

For Sale By Nigel Bennett

I have come to the conclusion that I have too many models and am looking to sell the following;

- 1) M60 flying wing in excellent condition. Complete with battery. Fast and agile but also will cope with light conditions.
- 2) Opterra 2 m powered flying wing. Sedate and very easy to fly. Complete with motor, ESC and Lipo. Includes carry box. Very good condition.

Sensible offers please to nigelcbennett@gmail.com

Calendar

5/6 Aug Slope Fly In

Sun 13th Aug, Limbo event, Chalbury

Sun 20th Aug E-soaring event Chalbury

2/3 Sep Slope Fly In

Sun 17th Sept E-soaring event Chalbury

0/1 Oct Slope Fly In

Tue 5th Dec, AGM

Contacts

The committee members for 2023 are;

Chairman- Martin Burr, 01202 773144, martinburr9@gmail.com

Secretary - Bill Ebdon, 01258 861612, bill.ebz@gmail.com

Treasurer and Member Secretary- Alan Butterworth, 07905 765634, ajbutterworth16@gmail.com

Glidepath Editor – Roger Crickmore, 01929 550680, roger.crickmore@btinternet.com

Flat Field Representative – Doug Bowman, 01202 416664, dougbowman@hotmail.co.uk

Slope Representative – Pete Carpenter, 01722 328728, pete.carpenter12@gmail.com

Slope Deputy– Mike Sims, 01722 326550, mike.sims1@sky.com

Flat Field Competition Director – Martin Burr, 01202 773144, martinburr9@gmail.com

Member without Portfolio - Nigel Bennett 01258 861863, nigelcbennett@googlemail.com