



The Flying Stag Beetle

by
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Did you know that the French name for kite is "cerf volant"? It means "flying stag" and it is also their name for stag beetle, of course.

Well, one summer, I was determined to find out how fast stag beetles flew. To start with I had a cunning plan: to fill my pockets with colourful dried lentils to be released as I followed their flying path, Hansel and Gretel style, digital camera in hand. It simply didn't work, mostly because things just happened too fast, too unpredictably, and worse, they hardly flew in a straight line, and all the lentils ended up in the soup pot instead.

So I had to resort to the kite method, after all it is a well known kids' game throughout central Europe, as far as Romania at least. I happened to have some thin and yet very strong necklace thread, and the plan was to tie it to a male's back leg - the males fly much more readily than the females. This wasn't as easy as you might think, in fact, it was rather fiddly as the string just kept falling off, even though the beetle was mostly very still and cooperative, not aggressive at all.

Eventually I had a nice big male securely tied, and now it was just a matter of waiting for him to oblige. However, when it comes to flying, stag beetles have got their own ideas about it, and cooperating just isn't one of them.

One evening, just before 10 pm, when I came back from my monitoring (that is another story) I noticed that he was rather restless, so I decided to test my brand new kite and took him out to the garden [see photo, on the opposite page]. I was very, very lucky! Suddenly I found myself really holding on to a flying kite, round and round me; I was keeping the string length constant (1.6 meters) and rotating it with my head as the centre. It was extremely exciting, a unique kite flying sensation. At the same time, I was frantically counting aloud (no witnesses though) the number of turns it was flying round and round me. Remember, I had to find out the flying speed.





The "cerf volant" getting ready to take off, the string is just visible to the left. This male stag beetle measured 39 mm, excluding the mandibles. Photo taken in June 2005 at 10 pm.

By the 40th round my "cerf volant" was running out of puff and flying just about 30 cm from the ground, till at the 60th turn it landed. Guess how long it was in the air? It flew for 6 minutes and 33 seconds. Fantastic!

Now, let's do a rough estimate of its flying speed. First we need to calculate the distance travelled. Given that he went round in circles and that the length of the string was 1.6 metres, we can easily calculate how much he travelled in each circuit, as that is the perimeter of a circle $2 \times 1.6 \times \pi = 10$ metres. Then the total distance was $60 \times 10 = 600$ metres, more or less.

For calculating the speed, in metres per second, first one needs to convert the time it was in the air in seconds, so 6 minutes and 33 seconds, is $6 \times 60 + 33 = 393$ seconds. Are you following me? →



Last step: the average flying speed was $600\text{m} / 393\text{s} = 1.5 \text{ m/s}$, approximately. Not very fast, was it?

In practice stag beetles have vary variable flying speeds, but I've found that a good cruising speed is around 2 m/s, which is rather slow compared with some other beetles. For instance, rose chafers fly much faster.

To get the feel of this speed you should, first, train yourself to count seconds. Then the next thing would be to learn how to pace out distances, but as you probably are still growing the best thing to do is to get a tape and in your garden/pavement mark, say, 6 metres. Then with the help of a friend try to cover that distance in 4 seconds, then in 3 seconds.

Have loads of fun!

Maria

Further reading, some suggestions:

1. Hansel and Gretel - In this book Hansel and Gretel, the children of a poor woodcutter, hear their step-mother persuading their father to abandon them in the forest. They overhear them and gather white pebbles to leave themselves a trail home.
2. My family and Other Animals by Gerald Durrell - Chapter 3 - The Rose-Beetle Man is about a curious man who goes about selling various pets, including rose chafers, which "fly around his hat with desperate, deep buzzings, trying to escape from the thread tied firmly round their waists". (Must have been rather a sight!)
3. The Adventures of Tom Sawyer by Mark Twain - In Chapter V naughty Tom Sawyer lets loose a pinchbug, a kind of stag beetle, during a church service, and mayhem follows...
4. Stag Beetles for Everyone, <http://maria.fremlin.de/stagbeetles> - My website has quite a few pages that might interest you. For instance, you will be able to find out more about other stag beetle names both in English and in other languages.