Your chance to live forever in spider form

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(PhysOrg.com) -- A University of Manchester scientist is offering the public the chance to name a new species of spider, which has been fossilised in amber for millions of years.

There is also the opportunity to name a new species of lacebug (Hemiptera) and a new species of lacewing (Neuroptera), each name for the price of a donation of £5,000 or more to David Penney's research.

Dr Penney is a visiting academic at the Faculty of Life Sciences and as such, his work is voluntary. He hopes the naming project will not only raise funds, it will increase awareness of the International Year of Biodiversity. The United Nations has named 2010 the year of biodiversity to celebrate the diversity of life on Earth and recognise its significance in sustaining the natural living systems or ecosystems that

provide us with food, fuel, health, wealth, and other vital services.

Dr Penney travels the world investigating spiders and other insects which have been fossilised in amber. The amber pieces are found in a variety of locations from the Dominican Republic, Canada and the Baltic region to Spain, France, Lebanon and Australia and some date back 130 million years.

“Fossils in amber provide a unique snapshot of the past - you are seeing what happened there at that time,” he explains.

“Creatures will have been going about their business, say on a tree trunk, before being engulfed by a flow of sticky resin, so you see frozen behaviour. There may be hundreds of inclusions in one piece of amber and they all died at the same time, together, whole communities in a single moment in time. They are preserved with such life-like fidelity it’s like a photo of the prehistoric forest life. With skeletons of dinosaurs, you just don’t get that same degree of information.”

In fact, there is one piece of Baltic amber containing two Oonopidae spiders mating from almost 50 million years ago - a snapshot indeed.

Dr Penney has discovered and described several new species on his travels and through other people sending specimens to him and was planning to name his latest after his two-year-old daughter Siri, but decided to auction the name to further fund his work and raise the profile of biodiversity research in general.

“Earth is currently in the throes of the sixth mass extinction event (the last one eliminated the dinosaurs), with an estimated loss of three species every hour,” Dr Penney says.

“Many fossils in amber provide us with a picture of ecosystems prior to

previous extinction events. Thus, the importance of researching fossils in amber is that they can provide us with clues to the consequences of global ecosystem change over long periods of geological time.

“I use a combined palaeontological and zoological approach to compare the fossils - their identity, ecology and biogeography - with living species.”

He adds: “I first got into this work as a small boy. I was in my dad’s garage and saw two things hanging down from the ceiling. I got a ladder and took them down to examine them. I poked them, they moved. I asked my dad and mum what they were - they didn’t know and told me to ask a neighbour who was knowledgeable about wildlife. He told me they were chrysalises and to keep them in a box. When they hatched into butterflies (albeit common cabbage whites), that was it, I was hooked. Every day I was knocking on my neighbour’s door with more and more finds.

“The natural world is a wonderful thing - it will give you a lifelong interest; you will never know everything; it will entertain and enthuse you until your dying day. If you are lucky enough to be in a position where you can document your findings for future generations it becomes even more rewarding.”

Dr Penney graduated with a Zoology degree in 1994 before getting his PhD in palaeontology specialising in fossilised spiders in amber, both at The University of Manchester. He stayed at Manchester to do post-doc research for four years before moving to West Africa for three years, where he undertook research in the dwindling tropical forests. In 2004 he was in the Guinness Book of Records for identifying the oldest fossilised spider in amber: a 130-million-year-old specimen from the Lebanon. He has written several books on his subject and now holds an honorary position in Richard Preziosi’s lab at the Faculty of Life

Sciences.

The spider and the insect names will include the name of the genus followed by the name chosen by the donor, although there are certain conventions. For example, Dr Penney named one new species Oonops seldeni after his PhD supervisor Paul Selden (the “i” denotes that it is named after a male). He named another species Mysmenipopsis lisseycoleyae after another mentor, Professor Phyllis D. Coley from the University of Utah (the “ae” denotes that it is named after a female).

“The spider and insects are tiny, around 3mm long,” Dr Penney says.

“But if you look under a microscope, the lacebug and lacewing are particularly beautiful, so delicate, like tiny doilies, and the spider has a remarkable and characteristic nose-like structure. The latter has been imaged with the latest x-ray computed tomography technology in the Department of Material Sciences.

“This is a unique opportunity. The donor can name the species after him or herself, after their child, after anything they are passionate about…and that name (and its derivation) will remain in the annals of science forever.

“We won’t be here in 50 millions years time. The planet is going to change, the forests that we are currently striving so hard to conserve will be gone, some will leave their legacies as fossils preserved in amber, while other forests will grow elsewhere. The planet will survive…it always does… but we will be extinct. That will happen, it cannot be stopped, but humans are accelerating the process through greed and negligence.

“This is a unique chance to make a contribution to important research aimed at understanding the consequences of global ecosystem change.”