"It is a **privilege** to share the planet with them"

Colin Tudge

For more #wasplove visit the lab group at
www.sumnerlab.co.uk

And follow Seirian on Twitter
@WaspWoman

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The Sumner Group
School of Biological Sciences

What's the point of wasps?

Why it's time to stop worrying and love the wasps
Life Sciences Launch | 6th October 2014

‘What’s the point of wasps?’

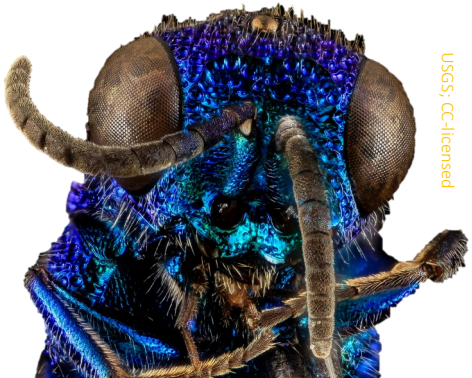
We at the Sumner Group (University of Bristol) are fighting a battle against spheksophobia. Read on to find out why...

1 Wasps are beautiful

USGS; CC-licensed

Your common garden wasp—lovely though it is—ain’t the only good-looking wasp on the block.

G. Wise; CC-licensed



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...and lastly, they are inspiring animals! 11

Wikimedia

*We hope you agree that wasps not only make the world go round, but are **fascinating** in their own right. Next time your picnic is besieged by hungry wasps, spare a thought for these wonders of evolution buzzing around the jam—and learn to love them too!*

The Sumner Group

School of Biological Sciences (University of Bristol)

200,000

The number of wasp species known to science. The real number may be double this.

2

Wasps gave us paper

Around the first century BCE, a Chinese eunuch called Cai Lun noticed a paper-wasp assembling a nest in his garden. Inspired, he mulched wood and fishing nets, and ushered in the era of paper—an idea that flowed west via the Silk Road and is arguably responsible for the entire history of the last two millennia...

3

Wasps are remarkable

The third smallest insect in the world – the wasp Megaphragma mymaripenne *– is smaller than an amoeba. Its poky brain has thousands of neurones without nuclei – a wonder of neuroscience…*

4 They are illuminating many mysteries of how animal societies evolve

E. Bell (Bristol)

Our lab uses primitively-eusocial wasps to explore and solve some fascinating enigmas in evolutionary biology. We're discovering amazing things about the genomics underlying complex animal societies, and shedding light on some spectacular behaviours. Social evolution is at the very heart of modern biology — and for decades studying wasps has allowed scientists to make truly remarkable discoveries.

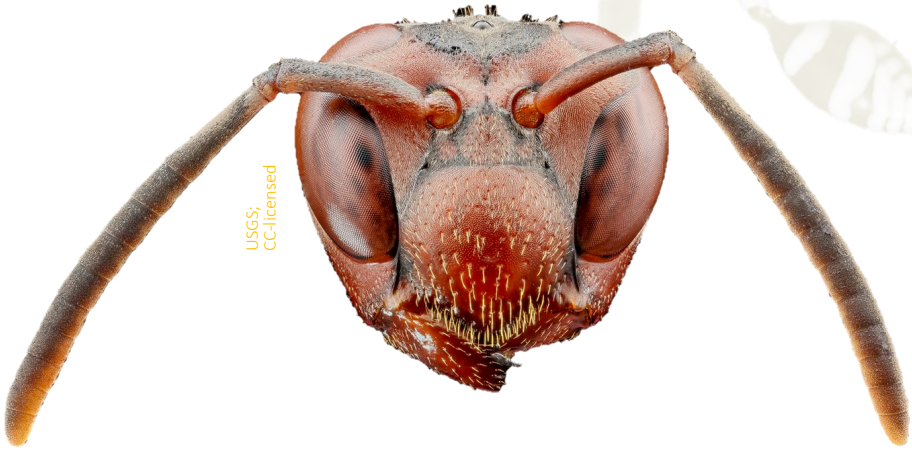
(This photo of Polistes paper -wasps comes from our PhD student Emily Bell during her fieldwork in Panama.)

Genomics in the wild

Our research at Bristol exploits the remarkable range of social wasps to understand how genomes produce phenotypic and behavioural ***diversity****, and determine what facets of this diversity account for an individual's* ***behaviour****. We address this at proximate and ultimate levels through integrating genetics, genomics, transcriptomics, epigenetics with behavioural ecology on wild populations of non-model organisms.*

9 Wasps are artists

Wasps create truly spectacular works of art. The potter-wasps, for instance, craft beautiful and tiny clay pots, inside which the young grow.



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They are brilliantly adapted to social living 10

It's recently been argued that the huge eyes of wasps are remarkable adaptations to allow their owners to absorb all the sights needed for advanced social communication...

8

Wasps control our pests

Wasps are crucial for suppressing pest populations, both as predators and parasitoids. So much so, in fact, that humanity now uses wasps deliberately—releasing them amongst the crops—to tackle otherwise catastrophic insects.

...and work for the Eden Project

If you've ever visited the Eden Project, you might have noticed little paper packets hanging from the trees. Within lurk the eggs of a useful monster, the tiny wasp Encarsia formosa, *which are dispatched into the biomes to track down their pestilential prey.*

What do we study?

At Bristol, we use state-of-the-art techniques to investigate a cornucopia of fascinating questions. Here are a few of our current projects:

the lives of males

In social insects, males are often regarded as serving one function — to mate — such that they are nothing more than 'flying sperm', and therefore a drain on colony resources. ***But is this true?*** *Our PhD student Robin Southon aims to uncover how males may be much more involved — exploring* ***male helping behaviour*** *and changes in female behaviour through mating...*

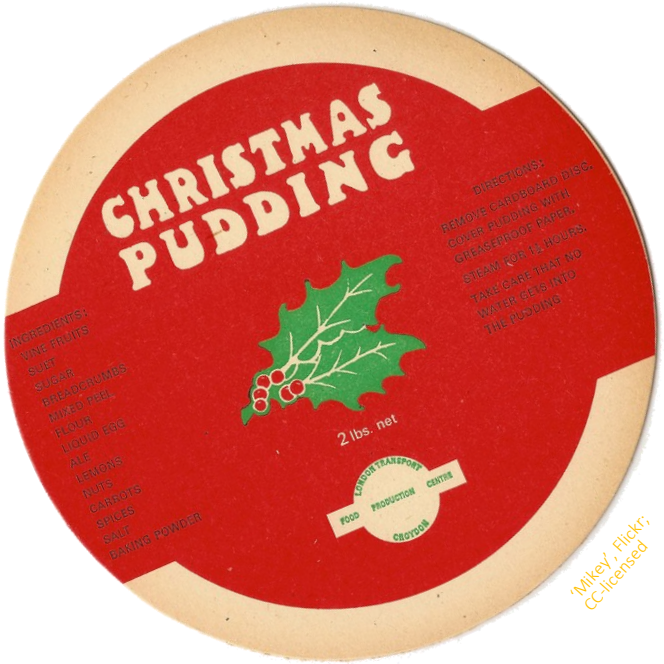
evolution of castes

The most elaborate animal societies have ***distinct 'castes'****, with their own morphology and behaviour. To understand how this evolved, our PhD student Emily Bell uses paper-wasps in Spain and Panama, unravelling the strange changes that can carry societies towards such extraordinarily sophisticated* ***division of labour****.*

weird movement

By attaching ***radio-tags*** *to wasps in Panama, we revealed that 50% of individuals work for foreign nests — a result not predicted by standard evolutionary theory. Our PhD student Patrick Kennedy is now investigating the adaptive reason for this mysterious 'drifting' behaviour.*

5 Wasps give us figgy pudding



'Mikey', Flickr, CC-licensed

For over thirty million years, figs have been pollinated by… fig-wasps! Which means, of course, that we have wasps to thank for Christmas meals. Fig-wasps aren't the only pollinators, and, in fact, wasps are important pollinators across a huge number of plant species.

6 We tell great stories about wasps

Wasps have featured to a surprising degree in our myths and legends. Our favourite must be the African myth of 'Bokele and the Sun', in which Bokele, a child born into a world of darkness, vows to steal back the Sun from a wicked magician. Bokele is aided by a whole menagerie of willing animal warriers—but the ones who really save the day are the wasps, sacrificing themselves to allow Bokele to flee with his prize.

And sometimes we even eat them 7

In Venezuela, it's not uncommon to harvest the combs of paper-wasps and eat the larvae. In Japan, larvae soaked in honey is a common delicacy. And in the little city of Omachi, a society of wasp enthusiasts has started baking wasp crackers. Spheksophagous cuisine is all the rage!