

Biographies of Phasmatologists – 2. George Robert Gray.

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Abstract

George Robert Gray (1808-1872) was an English zoologist and author. His life and phasmid work is outlined. He described half the known species of phasmids at that time and is best known for his work on leaf insects and Australian phasmids. He also produced the first significant catalogue of world species.

Key words

Phasmida, Phasmatologist, G.R. Gray, Biography.

George Robert Gray (1808-1872)

George Robert Gray, an English zoologist and author, was born in Chelsea on 8th July 1808. He was born to a family of natural historians; his father, Samuel Gray, was a pharmacologist and botanist; his elder brother, John, went on to become Keeper of Zoology at the British Museum. In 1833 he was one of the founder members of the Entomological Society of London (now the Royal Entomological Society) and was Secretary in the first year.

Gray started work at the British Museum in 1831 and went on to become Senior Assistant of the Zoology Department. He contributed the entomological section to an English edition of Cuvier's *Animal Kingdom* in which he described his first phasmid, *Phyllium bioculatum* in 1832. He began his museum work by cataloguing insects, and published an *Entomology of Australia* (1833). In addition to his work on phasmids, Gray described many species of Lepidoptera and his book *Descriptions and Figures of some new Lepidopterous Insects chiefly from Nepal* (1846) is considered an important work.

Entomologists who are not familiar with Gray's life story may be unaware that he is most famous for his work on birds; he did relatively little work on insects. He was head of the ornithological section of the British Museum in London for forty-one years. Gray's most important publication was his *Genera of Birds* (1844-49), illustrated by David William Mitchell and Joseph Wolf, which included 46,000 references; it became a standard reference book. Gray's original description of *Locustella fasciolata* appeared in 1860, the species is commonly known as Gray's Grasshopper Warbler; the specimen had been collected by Alfred Russel Wallace in the Moluccas. Although a well known ornithologist, his contribution to phasmatology has also been recognised with three species of phasmids named after him *Haaniella grayii* (Westwood, 1859) [originally *Heteropteryx grayii*], *Diapherodes grayi* (Kaup, 1871) [originally *Aplopus grayi*], and *Anchiale grayi* (Montrouzier, 1855) [originally *Parapachymorpha grayi*].

George Gray died on 6th May 1872 at the age of 63.



The phasmids of Gray

Gray produced five publications dealing with phasmids over a period of eleven years, both the first and the last of these described new species of *Phyllium*. In addition to describing six new species of *Phyllium*, Gray is best known for his work on Australian species, and for producing a catalogue of all the known species. Prior to 1832 only 104 phasmids had been named; allowing for the fact that several species had been given two or three different names by different people, Gray more than doubled the number of known species by describing 86 new species. Perhaps more importantly, before Gray started work on phasmids only 11 genera had been described: Gray described 25 new genera.

List of phasmid genera described by Gray

<i>Acanthoderus</i> 1835: 14.	<i>Diapheromera</i> 1835: 18.	<i>Linocerus</i> 1835: 19.	<i>Prisomera</i> 1835: 15.
<i>Acrophylla</i> 1835: 38.	<i>Diura</i> 1833: 26.	<i>Pachymorpha</i> 1835: 21.	<i>Trigonoderus</i> 1833: 26.
<i>Anisomorpha</i> 1835: 18.	<i>Dinelytron</i> 1835: 27.	<i>Perlamorphus</i> 1835: 21.	<i>Tropidoderus</i> 1835: 31.
<i>Aplopus</i> 1835: 34.	<i>Extatosoma</i> 1833: 25.	<i>Phibalosoma</i> 1835: 42.	<i>Xeroderus</i> 1835: 32.
<i>Cladomorphus</i> 1835: 15.	<i>Heteronemia</i> 1835: 19.	<i>Platycrana</i> 1835: 36.	
<i>Ctenomorpha</i> 1833: 27.	<i>Heteropteryx</i> 1835: 32.	<i>Platytelus</i> 1835: 28.	
<i>Diapherodes</i> 1835: 33.	<i>Lonchodes</i> 1835: 19.	<i>Podacanthus</i> 1833: 26.	

After describing *Phyllium bioculatum* in 1832, the next 18 new species Gray described were all from Australia. Thirteen of these were described and illustrated in *Entomology of Australia, part I, The monograph of the genus Phasma* (1833), along with four new genera, and a further five species in a paper the following year. The monograph illustrated, in colour, all Australian species known at that time, a total of 16. Unfortunately, after 1833 the only new species Gray illustrated were the *Phyllium* described in his final phasmid paper.

Gray's 48 page catalogue, *Synopsis of the species of insects belonging to the family of Phasmidae* (1835) listed and described all known species in the world, in addition he described a further 62 new species. He classified 126 species and listed a further six that he was unable to place in the correct genus. It is worth stressing that of the 132 species recognised by Gray, he had described 81 of them (61%). For the 126 species Gray (1835: 11) evaluated the distribution of phasmid species with the following results:

North America	3	Polynesia.....	3
South America.....	29	Australia.....	27
West Indies.....	8	Africa	2
Europe	3	Doubtful / unknown origin	10
India, China, Malay Islands.....	41		

Below Gray's 86 species are listed alphabetically within each year group, with page numbers and plate numbers.

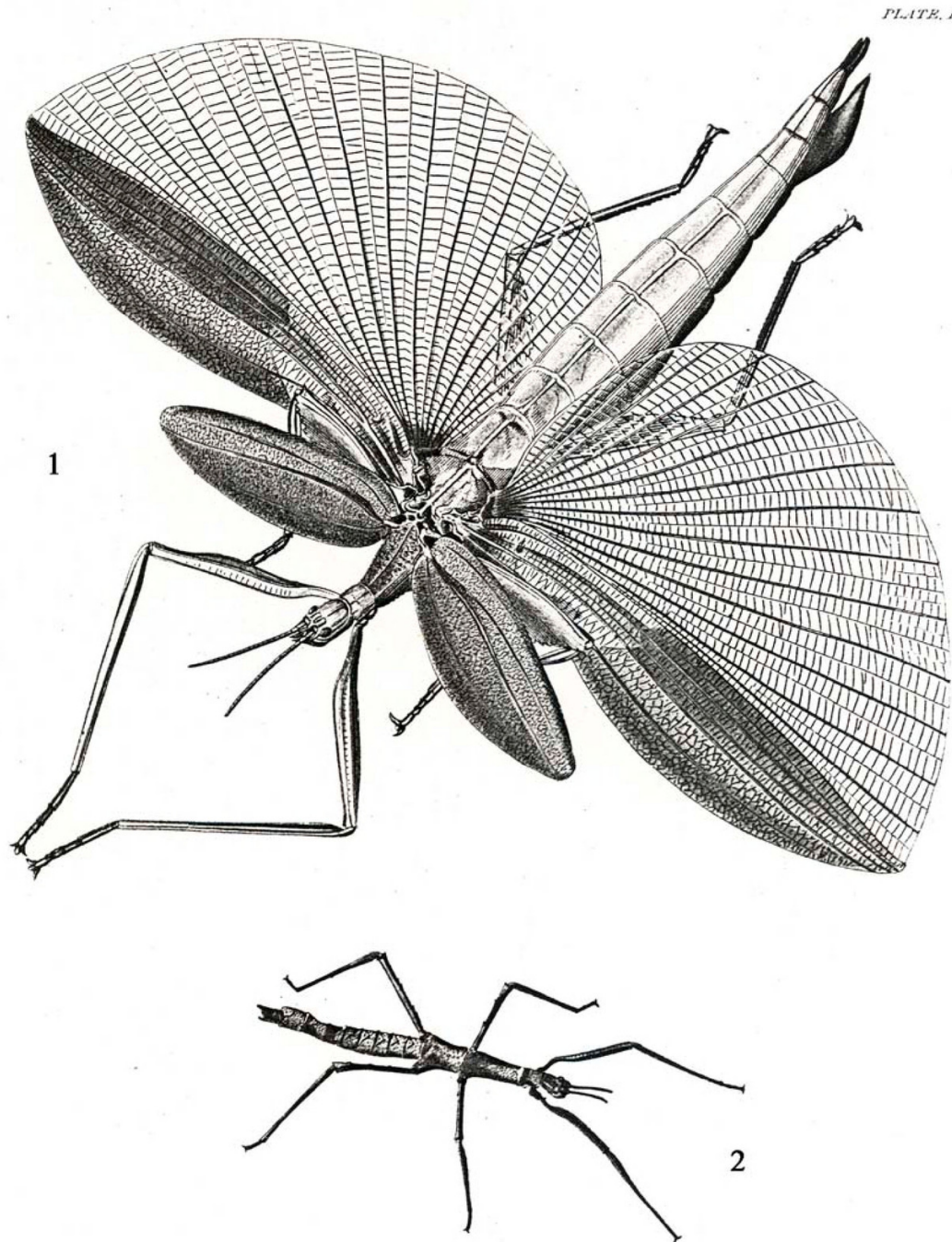
Gray, 1832

bioculatum (*Phyllium*) 191, pl. 63.3.

Gray, 1833

brunneus (*Bacillus*) 22, pl. 7.3.
childrenii (*Trigonoderus*) 18, pl. 3.1
chronus (*Diura*) 20, pl. 5.2.
coenosa (*Bacteria*) 17, pl. 2.2.
fragilis (*Bacteria*) 22, pl. 7.1.
hopii (*Extatosoma*) 23, pl. 8.1.
japetus (*Diura*) 20, pl. 5.1.

marginipennis (*Ctenomorpha*) 16, pl. 1.2.
roseipennis (*Diura*) 22, pl. 7.1.
spenicollis (*Ctenomorpha*) 16, pl. 1.1.
squalidus (*Bacillus*) 18, pl. 3.2.
typhaeus (*Diura*) 21, pl. 6.2.
typhon (*Podacanthus*) 17, pl. 2.1.



Black-and-white reproduction of Gray's plate 3 from *Entomology of Australia*, 1833 – the original plates were in colour.

Figure 1. *Trigonoderus childrenii*. Figure 2. *Bacillus squalidus*.

Gray, 1834

<i>acheron</i> (<i>Phasma</i>)	46.	<i>osiris</i> (<i>Phasma</i>)	46.
<i>briareus</i> (<i>Phasma</i>)	45.	<i>spinosum</i> (<i>Phasma</i>)	46.
<i>goliath</i> (<i>Phasma</i>)	45.		

Gray, 1835

<i>acuticorne</i> (<i>Phasma</i>)	26.	<i>lineata</i> (<i>Bacteria</i>)	17.
<i>aegyptiaca</i> (<i>Bacteria</i>)	18.	<i>longipes</i> (<i>Cladoxerus</i>)	42.
<i>affinis</i> (<i>Platycrana</i>)	37.	<i>macleayi</i> (<i>Ctenomorpha</i>)	41.
<i>annulipes</i> (<i>Platycrana</i>)	37.	<i>maculatum</i> (<i>Phasma</i>)	26.
<i>armatum</i> (<i>Phasma</i>)	26.	<i>marginatum</i> (<i>Phasma</i>)	23.
<i>beecheyi</i> (<i>Bacillus</i>)	21.	<i>mexicana</i> (<i>Heteronemia</i>)	19.
<i>bennettii</i> (<i>Phasma</i>)	25.	<i>peleus</i> (<i>Perlamorphus</i>)	22.
<i>brevipes</i> (<i>Lonchodes</i>)	19.	<i>perfoliatus</i> (<i>Cladomorphus</i>)	15.
<i>ceratocephalus</i> (<i>Cladomorphus</i>) ..	15.	<i>phyllinus</i> (<i>Cladomorphus</i>)	15.
<i>corniceps</i> (<i>Phasma</i>)	25.	<i>phyllopus</i> (<i>Prisomera</i>)	16.
<i>cornutus</i> (<i>Prisopus</i>)	43.	<i>pterodactylus</i> (<i>Lonchodes</i>)	19.
<i>dilatipes</i> (<i>Cladomorphus</i>)	15.	<i>pulverulentus</i> (<i>Diapherodes</i>)	34.
<i>donovani</i> (<i>Phyllium</i>)	31.	<i>punctata</i> (<i>Platycrana</i>)	37.
<i>dubius</i> (<i>Diapherodes</i>)	34.	<i>rafflesii</i> (<i>Platycrana</i>)	37.
<i>dumerilii</i> (<i>Acanthoderus</i>)	14.	<i>rugicollis</i> (<i>Platycrana</i>)	38.
<i>enceladus</i> (<i>Acrophylla</i>)	39.	<i>samouellei</i> (<i>Bacteria</i>)	43.
<i>fasciatum</i> (<i>Phasma</i>)	24.	<i>say</i> (<i>Diapheromera</i>)	18.
<i>flavo-maculatum</i> (<i>Phasma</i>)	25.	<i>scabricollis</i> (<i>Diapherodes</i>)	34.
<i>geniculatus</i> (<i>Lonchodes</i>)	19.	<i>serratipes</i> (<i>Cladoxerus</i>)	42.
<i>glabricollis</i> (<i>Diapherodes</i>)	27.	<i>servillei</i> (<i>Phasma</i>)	26.
<i>gorgon</i> (<i>Phyllium</i>)	31.	<i>shuckardii</i> (<i>Dinelytron</i>)	43.
<i>gracilis</i> (<i>Linocerus</i>)	20.	<i>simplicitarsis</i> (<i>Bacteria</i>)	43.
<i>grylloides</i> (<i>Dinelytron</i>)	27.	<i>spinicollis</i> (<i>Prisomera</i>)	16.
<i>haworthii</i> (<i>Ctenomorpha</i>)	41.	<i>spinipes</i> (<i>Diapherodes</i>)	34.
<i>hieroglyphicus</i> (<i>Perlamorphus</i>)	21.	<i>spinosa</i> (<i>Bacteria</i>)	43.
<i>hipponax</i> (<i>Dinelytron</i>)	27.	<i>stollii</i> (<i>Platycrana</i>)	38.
<i>hopei</i> (<i>Phasma</i>)	25.	<i>tessulata</i> (<i>Ctenomorpha</i>)	44.
<i>horridus</i> (<i>Platytelus</i>)	28.	<i>tithonus</i> (<i>Phasma</i>)	23.
<i>indica</i> (<i>Bacteria</i>)	17.	<i>unicolor</i> (<i>Phasma</i>)	25.
<i>kirbii</i> (<i>Xeroderus</i>)	32.	<i>viridiroseus</i> (<i>Podacanthus</i>)	43.
<i>lepelletieri</i> (<i>Phibalosoma</i>)	42.	<i>viridis</i> (<i>Bacteria</i>)	17.

Gray, 1843

<i>agathyrsus</i> (<i>Phyllium</i>)	122.	<i>geryon</i> (<i>Phyllium</i>)	118.
<i>bilobatum</i> (<i>Phyllium</i>)	120.	<i>scythe</i> (<i>Phyllium</i>)	123.
<i>gelomus</i> (<i>Phyllium</i>)	121.		

Gray's catalogue was the first significant catalogue of phasmids of the world and he tried to refer "...to every figure or description that exists in scientific works, whether I have myself seen individuals of the species or not" (Gray, 1835: 2 footnote). Gray gave a detailed history of the classification of phasmids but unfairly criticised Fabricius (1798) and Lichtenstein (1802) for not including all of Stoll's species. Gray was under the mistaken impression that Stoll's work was all produced in "1787" (Gray, 1835: 1) in fact part of it was not produced until 1813 (for details see Bragg, 1995); since this was long after Fabricius' and Lichtenstein's work, it was clearly impossible for them to have included these species! Gray goes on to give a detailed review of the biology of phasmids and even mentions stuffing them as a way of aiding colour preservation.

A note on authorship of *Phyllium bioculatum* Gray, 1832

Gray's first phasmid species, *Phyllium bioculatum* appeared in a book that was volume 15 of an English version of a series by the French scientist Georges Cuvier. The book was not a straightforward translation of Cuvier's because it had significant additional content.

The English series has the title: *The animal kingdom arranged in conformity with its organisation by the Baron Cuvier with supplementary additions to each order*. Two volumes, 14 and 15 of the series, dealt with insects and were marked "Volume the First" and "Volume the Second". The phasmids appear in the latter which has the main authors as Griffith & Pidgeon, and the full title *The class Insecta arranged by the Baron Cuvier, with supplementary additions to each order by Edward Griffith, F.L.S., A.S. &c. and Edward Pidgeon, Esq. and notices of new genera and species by George Gray, Esq. Volume the second*. The two volumes on insects were published in 1832 and contain new genera and species by Gray. In works with multiple authors there can be confusion over who was the author of new species. However, in this case there is a clear statement on page 780 that Gray is the author of the new taxa.

Acknowledgements

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Gray's papers online

Gray (1833) and (1834) are available on the web.

http://home.swiftdsl.com.au/~pmiller/stick_insects/papers/gray1833/

http://home.swiftdsl.com.au/~pmiller/stick_insects/papers/gray1834/



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