James Michael Carpenter

**Curriculum Vitae**

(November 2018)

**Positions**: Peter J. Solomon Family Curator, Hymenoptera,
American Museum of Natural History (2010-present);
Associate Curator (1992-1995); Curator (1995-2010)

Chair, Division of Invertebrate Zoology
American Museum of Natural History (2012-present)

Professor, Richard Gilder Graduate School
American Museum of Natural History (2008-present)

Adjunct Professor, City College of New York (1996-present)

Adjunct Senior Research Scientist, Earth Institute Center for Environmental Sustainability, Columbia University (2001-present)

Fellow, California Academy of Sciences (2004-present)

Graduate Faculty Scholar, University of Central Florida (2016-present)

Assistant Professor of Biology, Harvard University, and Assistant Curator in Entomology, Museum of Comparative Zoology (1984-1988); Associate Professor and Curator (1988-1991)

Adjunct Professor, Department of Entomology, Cornell University (1995-2011)

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**Personal:** Born 24 January 1956, Youngstown, Ohio
Citizen of the U. S. A.
Married to Amy Rachel Davidson 17 November 1993

**Education:** Michigan State University, 1974-1977, B.S. in Entomology
Cornell University, 1977-1983, Ph.D. in Entomology
Dissertation title: Phylogenetic Studies in Vespoidea (Hymenoptera)
Smithsonian Institution, 1983-1984, Postdoctoral Fellow

**Research Interests**

Phylogenetic relationships, taxonomy and behavior of Hymenoptera, especially Vespidae

Cladistic theory; quantitative phylogenetic methods; applications of cladistic analysis

**Society Affiliations and Service**

American Association for Zoological Nomenclature; Entomological Society of America; International Society of Hymenopterists (Secretary, 1988-1992; President-elect, 1995-1996; President, 1996-1998); International Union for the Study of Social Insects; New York Entomological Society; Society of Systematic Biologists (Council, 1988-1990); Willi Hennig Society (Fellow *honoris causa*; President, 1996-1998; Council, 1994-1996, 1998-2015, 2016-2017; Council Liaison to annual meeting, 2003, 2015; Nominating Committee and Scrutineer, annual election, multiple times)

Advisory Council, *Zoologica Scripta* (1999-present); Associate Editor, *Revista Brasileira de Entomologia* (2016-present; International Editorial Board, 2002-2013); Associate Editor, *Systematic* *Zoology* (1986-1987); Associate Editor, *Zoologia* (2016-present); Editor, *Cladistics* (1988-1990, Editor-in-Chief, 2005-2007, Administrative Editor, 2008-present); Editor, *Journal of the New York Entomological Society* (1993-1998); Editorial Advisory Board, *Sociobiology* (2012-present); Editorial Board, *Entomological Science* (2004-2019); Editorial Board, *Systematic Entomology* (1999-present); Editorial Board, *Tap chi Sinh hoc (Journal of Biological Studies)* (2016-2020); Editorial Board, *Thomas Say Publications in Entomology* (1988-1993); Editorial Board, *Terrestrial Arthropod Reviews* (2010-2012); Editorial Board, *Zoological Systematics* (2016-present); Scientific Board, *Zoosystema* (2007-present)

Member, Social Insects Specialist Group, Species Survival Commission, IUCN (2002-2005)

**Curatorial Experience**

Research on Vespidae at the following major collections:

Academy of Natural Sciences of Philadelphia; Albany Museum, Grahamstown; American Entomological Institute, Gainesville; American Museum of Natural History, New York; Australian Museum, Sydney; Australian National Insect Collection, Canberra; Bernice P. Bishop Museum, Honolulu; Bohart Museum of Entomology, University of California at Davis; Brackenridge Field Laboratory, University of Texas, Austin; British Museum (Natural History), London; California Academy of Sciences, San Francisco; Canadian National Insect Collection, Ottawa; Carnegie Museum of Natural History, Pittsburgh; Coleção de Entomologia Pe. Jesus Santiago Moure, Departamento de Zoologia da Universidade Federal do Parana, Curitiba; Cornell University; Eidgenössische Technische Hochschule, Zürich; Finnish Museum of Natural History, Helsinki; Florida State Collection of Arthropods, Gainesville; Hope Entomological Collections, Oxford; Institute for Ecology and Biological Resources, Hanoi; Instituto de Biodiversidad, San Jose, Costa Rica; Instituto Miguel Lillo, Tucumán; Instituto Nacional de Pequisas da Amazônia, Manaus; MacLeay Museum, Sydney; Michigan State University; Musée Royal de l’Afrique Central, Tervuren; Museo Argentino de Ciencias Naturales “Bernardino Rivadavia,” Buenos Aires; Museo Civico di Storia Naturale, Venezia; Museo de Historia Natural “Noel Kempff Mercado,” Santa Cruz, Bolivia; Museo di Zoologia “La Specola” degli Università di Firenze; Museo Nacional de Historia Natural del Paraguay; Museo Nacional de La Plata, La Plata; Museo Regionale di Scienze Naturali di Torino; Museo Zoologico, Università degli Studi di Napoli Frederico II; Museu de Ciències Naturals de Barcelona; Museu Nacional, Rio de Janeiro; Museu Paraense Emílio Goeldi, Belém; Museu de Zoologia da Universidade de São Paulo; Museum of Biological Diversity, Ohio State University; Museum of Comparative Zoology, Harvard University; Muséum d’Histoire Naturelle, Genève; Muséum National d’Histoire Naturelle, Paris; Museum für Naturkunde der Humboldt-Universität, Berlin; Museum Victoria, Melbourne; Nationaal Natuurhistorisch Museum, Leiden; National Science Museum, Tokyo; Natural History Laboratory, Ibaraki University; Naturhistorisches Museum Bern; Naturhistorisches Museum Wien; Naturhistoriska Riksmuseet, Stockholm; Naturmuseum Senckenberg, Frankfurt am Main; Oregon State University; Queensland Museum, Brisbane; Raffles Museum of Biodiversity Research, National University of Singapore; Royal Ontario Museum, Toronto; Snow Entomological Museum, Lawrence; South African Museum, Cape Town; South African National Collection of Insects, Pretoria; South Australian Museum, Adelaide; Staatliches Museum für Naturkunde in Stuttgart; Texas A&M University, College Station; Transvaal Museum, Pretoria; United States National Museum, Washington; Universidad Nacional Autonóma de México, Mexico City; Universidad de Costa Rica, San Jose; Universidad Nacional San Antonio Abad de Cusco; Universidade de São Paulo, Ribeirão Preto; Universidade Estadual de Feira de Santana; Universidade Estadual Paulista, São José do Rio Preto; Universidade Federal de Lavras; Universidade Federal do Espiríto Santo, Vitória; University of Adelaide; University of Alaska Museum; University of California at Berkeley; University of California at Riverside; University of Queensland, Brisbane; Western Australian Museum, Perth; Zoological Institute, Chinese Academy of Sciences, Beijing

**Fieldwork**

Costa Rica (December 1979–January 1980), Suriname (January–February 1982), Trinidad (June–July 1982), Holland (June 1983), Jamaica (February–March 1984), Peru (December 1984–January 1985), Venezuela (May 1985), South Africa (December 1985–January 1986); Australia (December 1986–January 1987); Argentina (January 1989); Malaysia and Australia (August–September 1990); Costa Rica, Panama, Ecuador, Peru, Bolivia and Argentina (December 1990–January 1991); Argentina (September 1992); Chile (February 1994); Mongolia and China (June–July 1994); Argentina (September 1994); Costa Rica and Panama (March 1996); Italy (August 1996); Guyane (September–October 1996); South Africa (November–December 1996); Peru, Colombia and Brazil (April–May 1997); Brazil (July 1997); Brazil (November 1997); Puerto Rico (January 1998); Vietnam (April–May 1998); Central African Republic (July 1998); Brazil (September–October 1998); Australia (January 1999); Peru (March 1999); Mongolia (July–August 1999); Peru (March 2000); Vietnam (April–May 2000); Japan (July–August 2000); Egypt (September 2000); Mexico (October 2000); Peru (March 2001); Egypt (May–June 2001); Australia (January–February 2002); Peru (March 2002); Japan (July 2002); Australia (February 2004); Argentina (December 2004); Switzerland (July–August 2005); South Africa (January–February 2006); Paraguay (January–February 2007); France (June 2007); Japan (August 2007); Belize (April–May 2008); Puerto Rico (November–December 2008); Australia (February–March 2009); Singapore and Malaysia (June–July 2009); Hawaii (May 2010); Hungary (June 2010); Italy (September 2010); Spain (May 2011); Brazil (August 2011); Brazil (July 2013); Australia (November 2013); Peru (July 2014); Brazil (February 2015); Alaska (July–August 2015); Alaska (August 2016); Alaska (July–August 2017); also widespread collecting in the contiguous states of the U. S. A.

**Educational Activities**

**Teaching Experience**

Richard Gilder Graduate School Courses

Independent Study: Advanced Taxonomy of Hymenoptera (2011)

Insect Taxonomy (2012, 2016)

Independent Study: Phylogeny and behavior: Theory and practice (2013)

Independent Study: Morphological Character Coding (2014)

Independent Study: Nesting Biology of Aculeate Hymenoptera (2015)

Harvard University Courses 1985-1991

Cladistics

Introduction to Insect Evolution and Diversity

Quantitative Systematics

Principles of Biodiversity

International Workshops

Análisis Filogenética: Teoría y Práctica (Tucumán; Argentina, March 11-15, 2002)

Phylogenetic Analysis: Theory and Practice (Průhonice, Czech Republic, September 4-7, 2006)

III Workshop em Sistemática Filogenética (São José do Rio Preto, Brazil, July 25-28, 2011)

Mini-curso de taxonomia de vespas (Manaus, Brazil, July 1-3, 2013)

N.E.S.H. – Núcleo de Excelência em Sistemática de Hymenoptera: Hymenoptera Genera Courses (Vitoría, Brazil, July8-12, 2013)

I Curso Sobre Vespas Neotropicais (Hymenoptera, Vespidae) (Lavras, Brazil, February 23-26, 2015)

**Graduate committees**

 (\* indicates major advisor)

Richard Gilder Graduate School: Philip Barden, Jeremy Frank\*, Anna Holden\*, Ansel Payne\*, Bernardo Santos\*, Carly Tribull\*

Partner Universities

City University of New York: Edmundo Gonzalez, Christine Johnson\*, Ellen Zimmerli

Department of Entomology, Cornell University: Roberto Keller\*, Ted Schultz, Karen Sime

Non-Partner Universities

Department of Organismal and Evolutionary Biology, Harvard University: Glenn Adelson, Marc Allard\*, Gabriela Chavarría\*, David Maddison, Santiago Madriñan, Mark Moffett, William Piel, Kenneth Rice, Mark Skinner, Elizabeth Taylor, Leeanne Tennant, John Tobin, Ward Wheeler

Department of Ecology and Evolution, State University of New York at Stony Brook: Ines Horovitz

Hazara University, Pakistan: Muzafar Shah

Instituto de Biociências, Letras e Ciências Exatas, Universidade Estadual Paulista, Brazil: Yuri Grandinete

Instituto Nacional de Pesquisas da Amazônia, Brazil: Alexandre Somavilla

Museum National d’Histoire Naturelle, France: Adrien Perrard

Natural History Laboratory, Ibaraki University, Japan: Lien P. T. Nguyen, Fuki Saito

Programa de Pós-graduação em Ciências Biológicas, Universidade Federal do Paraná, Brazil: Marcel G. Hermes

University of Central Florida: Patrick Piekarski

University of Poonch, Pakistan: Muhammed Qasim

University of Saskatchewan, Canada: Patrick Piekarski

**Postdoctoral Advisees**

Adrien Perrard, Federico Lopez-Osorio (Gerstner Fellows)

Donat Agosti, Jacques Dubois, Mar Ferrer-Suay, Zhiwei Liu, Susanne Schulmeister, John Wenzel (Kalbfleisch Fellows)

Kurt Pickett (Roosevelt Fellow)

**Masters Students**

Jeremy Law (Columbia University)

Adrien Perrard (Annette Kade Fellow)

**Undergraduate Interns**

Julia Howard (NSF Grant DEB-0843505)

Stephanie Mindlin, Estelle Perera, Eve Zaritsky (AMNH REU program)

**High School Interns**

Jeremy Frank (Scarsdale High School)

**Fellowships and Grants**

Elected to Beta Beta Beta, Michigan State University Chapter, 1976

National Science Foundation Graduate Fellowship, 1977-1980

CanaColl Foundation: Research Grant for Curatorial Study (for curation at Biosystematics Research Institute), 1980

Explorers Club: Grant in Aid of Exploration (for fieldwork in Suriname), 1982

Sigma Xi: Grant in Aid of Research (for fieldwork in Suriname), 1982

Grace H. Griswold Research Award (Cornell University; for fieldwork in Suriname), 1982

CanaColl Foundation: Research grant for Curatorial Study (for curation at Biosystematics Research Institute), 1982

Elected to Sigma Xi, Cornell University Chapter, 1982

Cornell University: Graduate Fellowship, 1982

National Science Foundation Dissertation Improvement Grant BSR-8216994: “Systematics of Vespidae (Hymenoptera),” 1983; Co-PI with G. C. Eickwort

Smithsonian Postdoctoral Fellowship, 1983-1984

William F. Milton Fund Grant: “Phylogeny and biogeography of the Masarinae (Hymenoptera: Vespidae),” 1985

Fulbright Collaborative Research Grant (Institute of International Education; for study in England), 1985-1986

National Science Foundation Grant BSR-8508055: “The phylogenetic system of the Vespidae: The Masarinae (Hymenoptera),” 1985-1988

National Science Foundation Grant BSR-8617129: “Improvement of the insect collections of the Museum of Comparative Zoology,” 1987-1989; Co-PI with E. O. Wilson and M. D. Bowers

Barbour Fund Grant (Museum of Comparative Zoology; for fieldwork in Argentina)

National Science Foundation Grant BSR-8817608: “The phylogenetic system of the Vespidae: The Polistinae (Hymenoptera),” 1989-1990

National Science Foundation Research Experiences for Undergraduates Grant DIR-8901004: “An interdisciplinary program in ecology and evolution,” 1989-1992; Co-PI with B. Waldman, S. N. Austad, W. H. Bossert and M. D. Bowers

Barbour Fund Grant, 1990 (Museum of Comparative Zoology; for fieldwork in Malaysia and Australia)

National Science Foundation Grant BSR-8915774: “Computerization of the insect collections of the Museum of Comparative Zoology,” 1990-1992; Co-PI with E. O. Wilson

National Science Foundation Grant BSR-9006102: “The phylogenetic system of the Vespidae: The Polistinae (Hymenoptera)” (renewal), 1990-1993

National Science Foundation Grant DEB-9207624: “Relationships and classification of primitive hexapods and insects,” 1992-1994; Co-PI with Ward C. Wheeler

National Science Foundation Grant DEB-9220342: “Arthropod collection improvement at the American Museum of Natural History,” 1994-1997; Co-PI with Norman I. Platnick and Randall T. Schuh

Center for Biodiversity and Conservation Research Grant: “The diversity of social insects in the coastal rainforest of Brazil,” 1996-1997; Co-PI with Donat Agosti, Carlos Roberto Brandão and Jacques H. Delabie

National Geographic Society Grant 5951-97: “Diversity of of ants and social wasps in the coastal rainforest of Brazil,” 1997-1998; Co-PI with Donat Agosti, Carlos R. Brandão and Jacques H. Delabie

Center for Biodiversity and Conservation Research Grant: “Quantitative Comparison of Social Insect Biodiversity at three sites in the Atlantic Forest of Brazil,” 1997-1998; Co-PI with Donat Agosti, Carlos R. Brandão and Jacques H. Delabie

Center for Biodiversity and Conservation Research Grant: “Biological Investigations in the Congo Basin Rainforest: Systematic Inventories and Conservation Education at Dzanga-Sangha, Central African Republic,” 1998; Co-PI with Joel Cracraft, Nancy Simmons and Paula Mikkelsen

National Science Foundation Grant DEB-9870232: “Collaborative research: Multi-taxa inventory of threatened conservation areas in Vietnam,” 1998-2003; Co-PI with Eleanor Sterling and Dan Harder

Japan Society for the Promotion of Science Invitation Fellowship for Research in Japan S-00147, July 2000

Center for Biodiversity and Conservation Research Grant, under NASA award NAG5-8543: “The Biodiversity and Conservation of Siwa and Western Qattâra Depression, Egypt,” 2000-2001; Co-PI with Donat Agosti, Sasan Saatchi and Mostafa Saleh

National Science Foundation Grant EF-0341708: “AToL: Collaborative research: Large-scale phylogeny of Hymenoptera,” 2003-2008; Co-PI with Michael Sharkey, John Heraty and Michael Engel

Elected as Honorary Fellow, Californian Academy of Sciences, July 2004; Fellow from 2013

National Science Foundation Grant DBI-0446968: “Curation of the wasp nest collection of the American Museum of Natural History,” 2005-2007; Co-PI with Lisa Kronthal

National Science Foundation Grant DEB-0542640: “Phylogeny of the New World *Polistes* (Hymenoptera: Vespidae; Polistinae, *Polistes*, *Aphanilopterus*) based on combined morphological, molecular and behavioral evidence,” 2006-2009; Co-PI with Kurt Pickett and Ward Wheeler

Japan Society for the Promotion of Science Invitation Fellowship for Research in Japan S-07113, July-August 2007

National Science Foundation Grant DEB-0843505: “Taxonomy, phylogenetics, behavior and proteomics of the social wasp superorganisms (Hymenoptera: Vespidae; Vespinae)),” 2009-2014; Co-PI with Bryan Ballif

Elected as Fellow *honoris causa*, Willi Hennig Society, June 2012

Stavros Niarchos Foundation: “Coevolution of pollen wasps and their plant hosts in Australia,” (for fieldwork in Australia), 2013

National Science Foundation, “Dissertation Research: A global molecular phylogeny of the problematic genus *Epyris* (Hymenoptera: Bethylidae),” for dissertation research by Carly Tribull, 2015-2016

National Science Foundation, “Dissertation Research: Evolution of convergent functional systems in a hyperdiverse clade of parasitic wasps (Hymenoptera, Ichneumonidae, Cryptini),” for dissertation research by Bernardo Santos, 2015-2016

**Publications**

**Scientific Articles**

Alcock, J., J. Carpenter, G. C. Eickwort, A. W. Hook, J. W. Krispyn and R. W. Matthews. 1979. Observations on the mating behavior of the empidid fly *Rhamphomyia pectoris* (Diptera). *Journal of the Georgia Entomological Society* 14 (4): 351-354.

Eickwort, G. C., R. W. Matthews and J. Carpenter. 1981. Observations on the nesting behavior of *Megachile rubi* and *M. texana* with a discussion of the significance of soil nesting in the evolution of megachilid bees (Hymenoptera: Megachilidae). *Journal of the Kansas Entomological Society* 54 (3): 557-570.

Carpenter, J. M. 1981 (1982). The phylogenetic relationships and natural classification of the Vespoidea (Hymenoptera). *Systematic Entomology* 7: 11-38.

Carpenter, J. M. 1982. Vespoidea, Masaridae, Eumenidae, Vespidae. *In* Parker, S. (ed.), *Taxonomy and Classification of Living Organisms*: 676-677. McGraw-Hill Co., New York.

Carpenter, J. M. and K. G. Ross. 1984. Colony composition in four species of Polistinae from Suriname, with a description of the larva of *Brachygastra scutellaris* (Hymenoptera: Vespidae). *Psyche* 91: 237-250.

Carpenter, J. M. and J. M. Cumming. 1985. A character analysis of the North American potter wasps (Hymenoptera: Vespidae; Eumeninae). *Journal of Natural History* 19 (5): 877-916.

Carpenter, J. M. 1986. Cladistics of the Chrysidoidea (Hymenoptera). *Journal of the New York Entomological Society* 94 (3): 303-330.

Carpenter, J. M. 1986. The genus *Pachodynerus* in North America (Hymenoptera: Vespidae; Eumeninae). *Proceedings of the Entomological Society of Washington* 88 (3): 572-577.

Carpenter, J. M. 1986. A synonymic generic checklist of the Eumeninae (Hymenoptera: Vespidae). *Psyche* 93: 61-90.

Carpenter, J. M. 1987. The identity of *Odynerus scudderi* Cameron and *O*? *bradleyi* Cameron (Hymenoptera: Vespidae; Eumeninae). *Psyche* 94: 77-80.

Carpenter, J. M. 1987. On “The evolutionary genetics of social wasps” and the phylogeny of the Vespinae (Hymenoptera, Vespidae). *Insectes Sociaux* 34 (1): 58-64.

Carpenter, J. M. 1987. Phylogenetic relationships and classification of the Vespinae (Hymenoptera: Vespidae). *Systematic Entomology* 12: 413-431.

Carpenter, J. M. 1988. The phylogenetic system of the Stenogastrinae (Hymenoptera: Vespidae). *Journal of the New York Entomological Society* 96 (2): 140-175.

Carpenter, J. M. 1988 (1987). A review of the subspecies concept in the eumenine genus *Zeta* (Hymenoptera: Vespidae). *Psyche* 94: 253-259.

Carpenter, J. M. and M. C. Day. 1988. Nomenclatural notes on Polistinae (Hymenoptera: Vespidae). *Proceedings of the Washington Entomological Society* 90 (3): 323-328.

Carpenter, J. M. 1988. Choosing among multiple equally parsimonious cladograms. *Cladistics* 4 (3): 291-296.

Carpenter, J. M. and J. W. Wenzel. 1988. A new species and nest type of *Mischocyttarus* from Costa Rica (Hymenoptera: Vespidae; Polistinae), with descriptions of nests of three related species. *Psyche* 95: 89-99.

Carpenter, J. M. 1989. Testing scenarios: Wasp social behavior. *Cladistics* 5 (2): 131-144.

Carpenter, J. M. 1989 (1988). The phylogenetic system of the Gayellini (Hymenoptera: Vespidae; Masarinae). *Psyche* 95: 211-241.

Carpenter, J. M. and J. W. Wenzel. 1990 (1989). Synonymy of the genera *Protopolybia* and *Pseudochartergus* (Hymenoptera: Vespidae; Polistinae). *Psyche* 96: 177-186.

Carpenter, J. M. and A. P. Rasnitsyn. 1990. Mesozoic Vespidae. *Psyche* 97: 1-20.

Vecht, J. van der and J. M. Carpenter. 1990. A catalogue of the genera of the Vespidae (Hymenoptera). *Zoologische Verhandelingen*, *Leiden* 260: 3-62.

Carpenter, J. M. 1990. Of genetic distances and social wasps. *Systematic Zoology* 39 (4): 391-397.

Ross, K. G. and J. M. Carpenter. 1991. Phylogenetic analysis and the evolution of queen number in eusocial Hymenoptera. *Journal of Evolutionary Biology* 4: 117-130.

Carpenter, J. M. 1991. Phylogenetic relationships and the origin of social behavior in the Vespidae. *In* Ross, K. G. and R. W. Matthews (eds.), *The Social Biology of Wasps*: 7-32. Cornell University Press, Ithaca.

Ross, K. G. and J. M. Carpenter. 1991. Population genetic structure, relatedness, and breeding systems. *In* Ross, K. G. and R. W. Matthews (eds.), *The Social Biology of Wasps*: 451-479. Cornell University Press, Ithaca.

Carpenter, J. M. and J. van der Vecht. 1991. A study of the Vespidae described by William J. Fox (Insecta: Hymenoptera), with assessment of taxonomic implications. *Annals of the Carnegie Museum of Natural History* 60 (3): 211-241.

Thorne, B. L. and J. M. Carpenter. 1992. Phylogeny of the Dictyoptera. *Systematic Entomology* 17: 253-268.

Carpenter, J. M. 1992. Random cladistics. *Cladistics* 8 (2): 147-153.

Carpenter, J. M. 1992. Distances, assumptions and social wasps. *Cladistics* 8 (2): 155-160.

Carpenter, J. M. 1993. Biogeographic patterns in the Vespidae (Hymenoptera): Two views of Africa and South America. *In* Goldblatt, P. (ed.), *Biological Relationships between Africa and South America*: 139-155. Yale University Press, New Haven.

Brothers, D. J. and J. M. Carpenter. 1993. Phylogeny of Aculeata: Chrysidoidea and Vespoidea (Hymenoptera). *Journal of Hymenoptera Research* 2 (1): 227-304.

Carpenter, J. M., J. E. Strassmann, S. Turillazzi, C. R. Hughes, C. R. Solís and R. Cervo. 1993. Phylogenetic relationships among paper wasp social parasites and their hosts (Hymenoptera: Vespidae; Polistinae). *Cladistics* 9 (2): 129-146.

Nixon, K. C. and J. M. Carpenter. 1993. On outgroups. *Cladistics* 9 (4): 413-426.

Wenzel, J. W. and J. M. Carpenter. 1994. Comparing methods: Adaptive traits and tests of adaptation. *In* Eggleton, P. and R. I. Vane-Wright (eds.), *Phylogenetics and Ecology*: 79-101. Academic Press, London.

Turillazzi, S., E. Francescato, A. Baldini Tosti and J. M. Carpenter. 1994. A distinct castedifference in Polybioides tabidus (Fabricius) (Hymenoptera: Vespidae). Insectes Sociaux 41: 327-330.

Morrone, J. J. and J. M. Carpenter. 1994. In search of a method for cladistic biogeography: An empirical comparison of component analysis, Brooks Parsimony analysis, and three-area statements. Cladistics 10 (2): 99-153.

Carpenter, J. M. 1994. Successive weighting, reliability and evidence. Cladistics 10 (2): 215-220.

Chavarría, G. and J. M. Carpenter. 1994. “Total evidence” and the evolution of highly social bees. Cladistics 10 (3): 229-258.

West-Eberhard, M. J., J. M. Carpenter and P. E. Hanson. 1995. The vespid wasps (Vespidae). *In* Hanson, P. and I. Gauld, (eds.), The Hymenoptera of Costa Rica: 561-587. The Natural History Museum, London.

Silveira, O. T. and J. M. Carpenter. 1996 (1995). *Protopolybia bituberculata*, a new neotropical social wasp (Hymenoptera, Vespidae: Polistinae). *Journal of the New York Entomological Society* 103 (1): 48-54.

Silveira, O. T. and J. M. Carpenter. 1996 (1995). A new species of *Agelaia* Lepeletier from Brazilian Amazonia (Hymenoptera, Vespidae, Polistinae). *Journal of the New York Entomological Society* 103 (1): 69-72.

Carpenter, J. M. 1996. Phylogeny and biogeography of Polistes. In Turillazzi, S. and M. J. West-Eberhard (eds.), Natural History and Evolution of Paper-Wasps: 18-57. Oxford University Press, Oxford.

Allard, M. W. and J. M. Carpenter. 1996. A rational choice for character weighting in parsimony analyses of eutherian mammal orders. In Nei, M. and N. Takahata (eds.), *Current Topics on Molecular Evolution*: 53-60. Institute of Molecular Evolutionary Genetics, Pennsylvania State University, and Graduate School for Advanced Studies, Hayama.

Farris, J. S., M. Källersjö, V. A. Albert, M. Allard, A. Anderberg, B. Bowditch, C. Bult, J. M. Carpenter, T. M. Crowe, J. De Laet, K Fitzhugh, D. Frost, P. Goloboff, C. J. Humphries, U. Jondelius, D.Judd, P. O. Karis, D. Lipscomb, M. Luckow, D. Mindell, J. Muona, K. Nixon, W. Presch, O. Seberg, M. E. Siddall, L. Struwe, A. Tehler, J. Wenzel, Q. Wheeler and W. Wheeler. 1996 (1995). Explanation. *Cladistics* 11 (2): 211-218.

Carpenter, J. M., J. W. Wenzel and J. Kojima. 1996. Synonymy of the genus *Occipitalia* Richards, 1978, with *Clypearia* Saussure, 1854 (Hymenoptera: Vespidae; Polistinae, Epiponini). *Journal of Hymenoptera Research* 5: 157-165.

Judd, T. M. and J. M. Carpenter. 1996. *Polistes dominulus* (Hymenoptera: Vespidae) found in Michigan. *Great Lakes Entomologist* 29 (1): 45-46.

Carpenter, J. M. 1996. Distributional checklist of the species of the genus *Polistes* (Hymenoptera: Vespidae; Polistinae, Polistini). *American Museum Novitates* 3188: 1-39.

Carpenter, J. M. 1997 (1996). Generic classification of the Australian pollen wasps (Hymenoptera: Vespidae; Masarinae). *Journal of the Kansas Entomological Society* 69 (4), supplement: 384-400.

Carpenter, J. M. 1996. Uninformative bootstrapping. Cladistics 12 (2): 177-181.

Allard, M. W. and J. M. Carpenter. 1996. On weighting and congruence. Cladistics 12 (3): 183-198.

Nixon, K. C. and J. M. Carpenter. 1996. On simultaneous analysis. Cladistics 12 (3): 221-241.

Whiting, M. F., J. C. Carpenter, Q. D. Wheeler and W. C. Wheeler. 1997. The Strepsiptera problem: Phylogeny of the holometabolous insect orders inferred from 18S and 28S ribosomal DNA sequences and morphology. *Systematic Biology* 46 (1): 1-68.

Kojima, J. and J. M. Carpenter. 1997. Catalog of species in the polistine tribe Ropalidiini (Hymenoptera: Vespidae). *American Museum Novitates* 3199: 1-96.

Nixon, K. C. and J. M. Carpenter. 1997 (1996). On consensus, collapsibility and clade concordance. Cladistics 12 (4): 305-321.

Carpenter, J. M. 1997. Phylogenetic relationships among European *Polistes* and the evolution of social parasitism (Hymenoptera: Vespidae, Polistinae). *Mémoires du Muséum National d’Histoire Naturelle* 173: 135-161.

Carpenter, J. M. and J. Kojima. 1997 (1996). Checklist of the species in the subfamily Stenogastrinae (Hymenoptera: Vespidae). *Journal of the New York Entomological Society* 104 (1-2): 21-36.

Carpenter, J. M. and D. A. Grimaldi. 1997. Social wasps in amber. *American Museum Novitates* 3203: 1-7.

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## Other Electronic Media

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Carpenter, J. M. and O. M. Marques. 2001. Contribuicão ao estudo dos vespídeos do Brasil. (Insecta, Hymenoptera, Vespoidea, Vespidae). Versão 1.0. Universidade Federal da Bahia Publicações Digitais 2.

**Eponymy**

Apidae: Apinae; Meliponini

*Lisotrigona carpenteri* Engel, 2000

Bethylidae: Pristocerinae

*Trichiscus jimi* Azevedo, 2014

Vespidae: Eumeninae

*Euodynerus (Euodynerus) jimcarpenteri* Genaro, 2004

*Pachodynerus* *carpenteri* Willink and Roig-Alsina, 1998

*Pararhaphidoglossa carpenteri* Cooper, 2013

*Pareumenes* (*Pareumenoides*) *carpenteri* Gusenleitner, 2012

*Pseudalastor* *carpenteri* Borsato, 2003

*Pseudodynerus* *carpenteri* Hermes and Melo, 2008

*Zethus (Zethoides) carpenteri* Stange, 1997

Vespidae: Masarinae

*Quartinia carpenteri* Gess, 2012

Vespidae: Stenogastrinae

*Parischnogaster carpenteri* Selis, 2018