



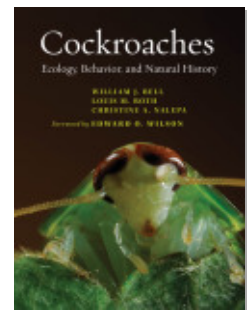
PROJECT MUSE®

---

## References

### Published by

Wilson, Edward O., et al.  
Cockroaches: Ecology, Behavior, and Natural History.  
Johns Hopkins University Press, 2007.  
Project MUSE. <https://dx.doi.org/10.1353/book.3295>.



➔ For additional information about this book  
<https://muse.jhu.edu/book/3295>

# References

- Abbott, I., T. Burbidge, K. Strehlow, A. Mellican, and A. Wills. 2003. Logging and burning impacts on cockroaches, crickets and grasshoppers, and spiders in Jarrah forest, Western Australia. *Forest Ecology and Management*. 174:383–399.
- Abbott, R.L. 1926. Contributions to the physiology of digestion in the Australian roach, *Periplaneta australasiae* Fab. *Journal of Experimental Zoology*. 44:219–253.
- Abenserg-Traun, M., G.W. Arnold, D.E. Steven, G.T. Smith, L. Atkins, J.J. Viveen, and M. Gutter. 1996a. Biodiversity indicators in semi-arid, agricultural Western Australia. *Pacific Conservation Biology*. 2:375–389.
- Abenserg-Traun, M., G.T. Smith, G.W. Arnold, and D.E. Steven. 1996b. The effects of habitat fragmentation and livestock grazing on animal communities in remnants of gimlet *Eucalyptus salubris* woodland in the Western Australian wheatbelt. I. Arthropods. *Journal of Applied Ecology*. 33:1281–1301.
- Abrams, P.A., O. Leimar, S. Nylan, and C. Wiklund. 1996. The effect of flexible growth rates on optimal sizes and developmental times in a seasonal environment. *The American Naturalist*. 147:381–395.
- Adair, E.W. 1923. Notes sur *Periplaneta americana* L. et *Blatta orientalis* L. (Orthop.). *Bulletin de la Societe Entomologique d'Égypte*. 7:18–38.
- Adams, P. 2004. Lord Howe Island wood-feeding cockroach—endangered species listing. *New South Wales National Parks and Wildlife Service, Department of Environment & Conservation (NSW)*. [www.nationalparks.nsw.gov.au/npws.nsf/Content/Panesthia\\_lata\\_endangered\\_declaration](http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Panesthia_lata_endangered_declaration). 4 February 2004.
- Adiyodi, K.P., and R.G. Adiyodi. 1974. Control mechanisms in cockroach reproduction. *Journal of Science and Industrial Research*. 33:343–358.
- Adrian, J. 1976. Gums and hydrocolloids in nutrition. *World Review of Nutrition and Dietetics*. 25:186–216.
- Aiouaz, M. 1974. Chronologie du développement embryonnaire de *Leucophaea maderae* Fabr. (Insecte, Dictyoptère). *Archives de Zoologie Experimentale et Générale*. 115:343–358.
- Akers, R.C., and W.H. Robinson. 1983. Comparison of movement behavior in three strains of German cockroach, *Blattella germanica*. *Entomologia Experimentalis et Applicata*. 34:143–147.

- Alexander, R.D. 1974. The evolution of social behavior. *Annual Review of Ecology and Systematics*. 5:325–383.
- Alling, A., M. Nelson, and S. Silverstone. 1993. Life Under Glass: The Inside Story of Biosphere 2. The Biosphere Press, Oracle, AZ. 254 pp.
- Alsop, D.W. 1970. Defensive glands of arthropods: comparative morphology of selected types. Ph.D. thesis, Cornell University, Ithaca, NY.
- Ananthasubramanian, K.S., and T.N. Ananthkrishnan. 1959. The structure of the ootheca and egg laying habits of *Corydia petiveriana* L. *Indian Journal of Entomology*. 21:59–64.
- Anderson, J. 1983. Life in the soil is a ferment of little rotters. *New Scientist*. 100:29–37.
- Anderson, J.M., and D.E. Bignell. 1980. Bacteria in the food, gut contents and feces of the litter-feeding millipede, *Glomeris marginata*. *Soil Biology and Biochemistry*. 12:251–254.
- Anderson, J.M., P. Ineson, and S.A. Huish. 1982. The effects of animal feeding activities on element release from deciduous forest litter and soil organic matter. In *New Trends in Soil Biology*. P. Lebrun, H.M. André, A. DeMedts, C. Grégoire-Wibo, and G. Wauthy, editors. International Colloquium of Soil Biology, Louvain la Neuve, Belgium. 87–100.
- Anderson, J.M., and M.J. Swift. 1983. Decomposition in tropical forests. In *Tropical Rain Forest: Ecology and Management*. S.L. Sutton, T.C. Whitmore, and A.C. Chadwick, editors. Blackwell Scientific Publications, Oxford. 287–309.
- Anderson, N.M. 1997. Phylogenetic tests of evolutionary scenarios: the evolution of flightlessness and wing polymorphism in insects. *Mémoires du Muséum National d'Histoire Naturelle*. 173:91–108.
- Andersson, M. 1984. The evolution of eusociality. *Annual Review of Ecology and Systematics*. 15:165–189.
- Anduaga, S., and G. Halffter. 1993. Nidification and feeding of *Liatonus rhinocerulus* (Bates) (Coleoptera: Scarabaeidae: Scarabaeinae). *Acta Zoologica Mexicana Nueva Serie*. 57:1–14.
- Anisyutkin, L.N. 1999. Cockroaches of the subfamily Epilamprinae (Dictyoptera, Blaberidae) from the Indochina peninsula. *Entomological Review*. 79:434–454.
- Anisyutkin, L.N. 2003. Contribution to knowledge of the cockroach subfamilies Paranauphoetinae (stat. n.), Perisphaeriinae and Panesthiinae (Dictyoptera: Blaberidae). *Zoosystematica Rossica*. 12:55–77.
- Annandale, N. 1906. Notes on the freshwater fauna of India. No. III. An Indian aquatic cockroach and beetle larva. *Journal and Proceedings of the Asiatic Society of Bengal, n.s.* 2:105–107.
- Annandale, N. 1910. Cockroaches as predatory insects. *Records of the Indian Museum*. 3:201–202.
- Appel, A.G., D.A. Rierison, and M.K. Rust. 1983. Comparative water relations and temperature sensitivity of cockroaches. *Comparative Biochemistry and Physiology*. 74A:357–361.
- Appel, A.G., and M.K. Rust. 1986. Time activity budgets and spatial distribution patterns of the smokybrown cockroach *Periplaneta fuliginosa* (Dictyoptera Blattidae). *Annals of the Entomological Society of America*. 79:104–108.
- Appel, A.G., and L.M. Smith. 2002. Biology and management of the smokybrown cockroach. *Annual Review of Entomology*. 47:33–55.
- Appel, A.G., and J.B. Tucker. 1986. Occurrence of the German cockroach *Blattella germanica* (Dictyoptera: Blattellidae) outdoors in Alabama and Texas. *Florida Entomologist*. 69:422–423.
- Archibold, O.W. 1995. Ecology of World Vegetation. Chapman and Hall, London. 510 pp.
- Arnold, J.W. 1974. Adaptive features on the tarsi of cockroaches. *International Journal of Insect Morphology and Embryology*. 3:317–334.
- Arnqvist, G., and T. Nilsson. 2000. The evolution of polyandry: multiple mating and female fitness in insects. *Animal Behaviour*. 60:145–164.
- Asahina, S. 1960. Japanese cockroaches as household pest. *Japanese Journal of Sanitary Zoology*. 4:188–190.
- Asahina, S. 1965. Taxonomic notes on Japanese Blattaria, III. On the species of the genus *Onychostylus* (in Japanese). *Japanese Journal of Sanitary Zoology*. 16:6–15.
- Asahina, S. 1971. Notes on the cockroaches of the genus *Eucorydia* from the Ryukus, Taiwan, Thailand and Nepal. *Kontyû*. 39:256–262.
- Asahina, S. 1974. The cavernicolous cockroaches of the Ryuku Islands. *Memoirs of the National Science Museum, Tokyo*. 7:145–157.
- Atkin, L., and J. Proctor. 1988. Invertebrates in the litter and soil on Volcán Barva, Costa Rica. *Journal of Tropical Ecology*. 4:307–310.
- Atkinson, T.H., P.G. Koehler, and R.S. Patterson. 1991. Catalogue and Atlas of the Cockroaches (Dictyoptera) of North America North of Mexico. *Miscellaneous Publications of the Entomological Society of America*. 78:1–86.
- Atlas, R.M., and R. Bartha. 1998. Microbial Ecology: Fundamentals and Applications. Benjamin/Cummings Science Publishing, Menlo Park, CA. 694 pp.
- Ausmus, B.S. 1977. Regulation of wood decomposition rates by arthropod and annelid populations. *Ecological Bulletin*. 25:180–192.
- Austin, A.D., and A.D. Blest. 1979. The biology of two Australian species of dinopid spider. *Journal of Zoology, London*. 189:145–156.
- Autrum, H., and W. Schneider. 1948. Vergleichende Untersuchungen über den Erschütterungssinn der Insekten. *Zeitschrift für Vergleichende Physiologie*. 31:77–88.
- Ayyad, M.A., and I. Ghabbour. 1977. Systems analysis of Mediterranean desert ecosystems of northern Egypt. *Environmental Conservation*. 4:91–102.
- Baccetti, B. 1987. Spermatozoa and phylogeny in orthopteroid insects. In *Evolutionary Biology of Orthopteroid Insects*. B.M. Baccetti, editor. John Wiley & Sons, New York. 12–112.
- Back, E.A. 1937. The increasing importance of the cockroach, *Supella supellectilium* Serv., as a pest in the United States. *Proceedings of the Entomological Society of Washington*. 39:205–213.
- Ball, E.D., E.R. Tinkham, R. Flock, and C.T. Vorhies. 1942.

- The grasshoppers and other Orthoptera of Arizona. *University of Arizona College Agricultural Experiment Station Technical Bulletin*. 93:257–373.
- Bandi, C., G. Damiani, L. Magrassi, A. Grigolo, R. Fani, and L. Sacchi. 1994. Flavobacteria as intracellular symbionts in cockroaches. *Proceedings of the Royal Society of London, Series B*. 257:43–48.
- Bandi, C., and L. Sacchi. 2000. Intracellular symbiosis in termites. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 261–273.
- Bandi, C., M. Sironi, G. Damiani, L. Magrassi, C.A. Nalepa, U. Laudani, and L. Sacchi. 1995. The establishment of intracellular symbiosis in an ancestor of cockroaches and termites. *Proceedings of the Royal Society of London, Series B*. 259:293–299.
- Bandi, C., M. Sironi, C.A. Nalepa, S. Corona, and L. Sacchi. 1997. Phylogenetically distant intracellular symbionts in termites. *Parassitologia*. 39:71–75.
- Bao, N., and W.H. Robinson. 1990. Morphology and mating configuration of genitalia of the Oriental cockroach *Blattella orientalis* L. (Blattodea: Blattellidae). *Proceedings of the Entomological Society of Washington*. 92:416–421.
- Barbier, J. 1947. Observations sur la mœurs de *Rhipidius pectinicornis* Thunbg. et description de sa larve primaire (Col. Rhipiphoridae). *Entomologiste, Paris*. 3:163–180.
- Barr, T.C.J. 1968. Cave ecology and the evolution of troglodytes. *Evolutionary Biology*. 2:35–102.
- Barr, T.C.J., and J.R. Holsinger. 1985. Speciation in cave faunas. *Annual Review of Ecology and Systematics*. 16:313–337.
- Barrios, H. 2003. Insect herbivores feeding on conspecific seedlings and trees. In *Arthropods of tropical forests. Spatio-temporal dynamics and resource use in the canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 282–290.
- Barry, D. 2002. Armed roaches? Technology goes too far. *In The Miami Herald*. 3 November 2002.
- Barth, F.G., H. Bleckmann, J. Bohnenberger, and E.A. Seyfarth. 1988. Spiders of the genus *Cupiennius* Simon 1891 (Araneae, Ctenidae). II. On the vibratory environment of a wandering spider. *Oecologia*. 77:194–201.
- Barth, R.H. 1964. The mating behavior of *Byrsotria fumigata* (Guerin) (Blattellidae, Blaberinae). *Behaviour*. 23:1–30.
- Barth, R.H. 1968a. The comparative physiology of reproductive processes in cockroaches. Part I. Mating behaviour and its endocrine control. *Advances in Reproductive Physiology*. 3:167–207.
- Barth, R.H. 1968b. The mating behavior of *Eurycotis floridana* (Walker) (Blattaria, Blattelloidea, Polyzosteriinae). *Psyche*. 75:274–284.
- Barth, R.H. 1968c. The mating behavior of *Gromphadorhina portentosa* (Schaum) (Blattaria, Blaberoidea, Blaberidae, Oxyhaloinae): an anomalous pattern for a cockroach. *Psyche*. 75:124–131.
- Barton, H.A., M.R. Taylor, and N.R. Pace. 2004. Molecular phylogenetic analysis of a bacterial community in an oligotrophic cave environment. *Geomicrobiology Journal*. 21:11–20.
- Basset, Y. 2001. Invertebrates in the canopy of tropical rain forests. How much do we really know? *Plant Ecology*. 153:87–107.
- Basset, Y., H.-P. Aberlenc, H. Barrios, and G. Curletti. 2003a. Arthropod diel activity and stratification. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the Canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 304–314.
- Basset, Y., P.M. Hammond, H. Barrios, J.D. Holloway, and S.E. Miller. 2003b. Vertical stratification of arthropod assemblages. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the Canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 17–27.
- Basset, Y., N.D. Springate, H.P. Aberlenc, and G. Delvare. 1997. A review of methods for sampling arthropods in tree canopies. In *Canopy Arthropods*. N.E. Stork, J. Adis, and R.K. Didham, editors. Chapman and Hall, London. 27–52.
- Baudoin, R. 1955. La physico-chimie des surfaces dans la vie des Arthropodes aériens, des miroirs d'eau, des rivages marins et lacustres et de la zone intercotidale. *Bulletin Biologique de la France et de la Belgique*. 89:16–164.
- BBCNews. 23 December 2004. Giant cockroach among jungle find. <http://news.bbc.co.uk/2/hi/asia-pacific/4121637.stm>.
- Beccaloni, G. 1989. Why not study cockroaches? *Amateur Entomologists' Society Bulletin*. 48:176–178.
- Beebe, W. 1925. *Jungle Days*. G.P. Putnam's Sons, New York. 201 pp.
- Beebe, W. 1951. Migration of insects (other than Lepidoptera) through Portachuelo Pass, Rancho Grande, north-central Venezuela. *Zoologica*. 36:255–266.
- Beebe, W. 1953. *Unseen Life of New York as a Naturalist Sees it*. Duell, Sloan and Pearce, New York. 165 pp.
- Bei-Bienko, G.Y. 1950. Blattodea. In *Faune de l'URSS New Series* 40. Akademiya Nauk SSSR, St. Petersburg. 332–336.
- Bei-Bienko, G.Y. 1969. *Ectobius duskei* Adel. as a characteristic inhabitant of steppes in the USSR. *Memorie della Societa Entomologica Italiana*. 48:123–128.
- Bei-Bienko, G.Y. 1970. New genera and species of cockroaches (Blattoptera) from tropical and subtropical Asia. *Entomological Review*. 48:528–548.
- Bell, W.J. 1969. Continuous and rhythmic reproductive cycle observed in *Periplaneta americana*. *Biological Bulletin*. 137:239–249.
- Bell, W.J. 1971. Starvation-induced oocyte resorption and yolk protein salvage in *Periplaneta americana*. *Journal of Insect Physiology*. 17:1099–1111.
- Bell, W.J. 1981. *The Laboratory Cockroach*. Chapman and Hall, London. 161 pp.
- Bell, W.J. 1990. Biology of the cockroach. In *Cockroaches as Models for Neurobiology: Applications in Biomedical Research*. Vol. 1. I. Huber, E.P. Masler, and B.R. Rao, editors. CRC Press, Boca Raton. 7–12.
- Bell, W.J., and K.G. Adiyodi (eds.). 1982a. *The American Cockroach*. Chapman and Hall, London. 529 pp.
- Bell, W.J., and K.G. Adiyodi. 1982b. Reproduction. In *The*

- American Cockroach. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, London. 343–370.
- Bell, W.J., and M.K. Bohm. 1975. Oosorption in insects. *Biological Reviews*. 50:373–396.
- Bell, W.J., T. Burk, and G.R. Sams. 1973. Cockroach aggregation pheromone: directional orientation. *Behavioral Biology*. 9:251–255.
- Bell, W.J., C. Parsons, and E.A. Martinko. 1972. Cockroach aggregation pheromones: analysis of aggregation tendency and species specificity (Orthoptera: Blattidae). *Journal of the Kansas Entomological Society*. 45:414–421.
- Bell, W.J., S.B. Vuturo, and M. Bennett. 1978. Endokinetic turning and programmed courtship acts of the male German cockroach. *Journal of Insect Physiology*. 24:369–374.
- Belt, T. 1874. *The Naturalist in Nicaragua*. J.M. Dent & Sons, London. 306 pp.
- Benson, E.P., and I. Huber. 1989. Oviposition behavior and site preference of the brownbanded cockroach *Supella longipalpa* (F.) (Dictyoptera: Blattellidae). *Journal of Entomological Science*. 24:84–91.
- Benton, M.J., and G.W. Storrs. 1996. Diversity in the past: comparing cladistic phylogenies and stratigraphy. In *Aspects of the Genesis and Maintenance of Biological Diversity*. M.E. Hochberg, J. Clobert, and R. Barbault, editors. Oxford University Press, Oxford. 19–40.
- Bernays, E.A. 1986. Evolutionary contrasts in insects: nutritional advantages of holometabolous development. *Physiological Entomology*. 11:377–382.
- Bernays, E.A. 1991. Evolution of insect morphology in relation to plants. *Philosophical Transactions of the Royal Society of London, Series B*. 333:257–264.
- Berrie, A.D. 1975. Detritus, micro-organisms and animals in fresh water. In *The Role of Terrestrial and Aquatic Organisms in Decomposition Processes*. J.M. Anderson and A. Macfadyen, editors. Blackwell Scientific Publications, Oxford. 323–338.
- Berthold, R.J. 1967. Behavior of the German cockroach, *Blattella germanica* (L.), in response to surface textures. *Journal of the New York Entomological Society*. 75:148–153.
- Berthold, R.J., and B.R. Wilson. 1967. Resting behavior of the German cockroach, *Blattella germanica*. *Annals of the Entomological Society of America*. 60:347–351.
- Beutel, R.G., and S.N. Gorb. 2001. Ultrastructure of attachment specializations of hexapods (Arthropoda): evolutionary patterns inferred from a revised ordinal phylogeny. *Journal of Zoological Systematics and Evolutionary Research*. 39:177–207.
- Bhoopathy, S. 1997. Microhabitat preferences among four species of cockroaches. *Journal of Nature Conservation*. 9:259–264.
- Bhoopathy, S. 1998. Incidence of parental care in the cockroach *Thorax procellana* (Saravas) (Blaberidae: Blattaria). *Current Science*. 74:248–251.
- Bidochka, M.J., R.J. St. Leger, and D.W. Roberts. 1997. Induction of novel proteins in *Manduca sexta* and *Blaberus giganteus* as a response to fungal challenge. *Journal of Invertebrate Pathology*. 70:184–189.
- Bignell, D.E. 1976. Gnawing activity, dietary carbohydrate deficiency and oothecal production in the American cockroach (*Periplaneta americana*). *Experientia*. 32:1405–1406.
- Bignell, D.E. 1977a. An experimental study of cellulose and hemicellulose degradation in the alimentary canal of the American cockroach. *Canadian Journal of Zoology*. 55:579–589.
- Bignell, D.E. 1977b. Some observations on the distribution of gut flora in the American cockroach *Periplaneta americana*. *Journal of Invertebrate Pathology*. 29:338–343.
- Bignell, D.E. 1978. Effects of cellulose in the diets of cockroaches. *Entomologia Experimentalis et Applicata*. 24:54–57.
- Bignell, D.E. 1980. An ultrastructural study and stereological analysis of the colon wall in the cockroach, *Periplaneta americana*. *Tissue & Cell*. 12:153–164.
- Bignell, D.E. 1981. Nutrition and digestion. In *The American Cockroach*. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, New York. 57–86.
- Bignell, D.E. 1984. Direct potentiometric determination of redox potentials of the gut contents in the termites, *Zootermopsis nevadensis* and *Cubitermes severus*, and 3 other arthropods. *Journal of Insect Physiology*. 30:169–174.
- Bignell, D.E. 1989. Relative assimilations of 14 C-labelled microbial tissues and 14 C-plant fibre ingested with leaf litter by the millipede *Glomeris marginata* under experimental conditions. *Soil Biology and Biochemistry*. 21:819–828.
- Bignell, D.E. 2000a. Introduction to symbiosis. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 189–208.
- Bignell, D.E. 2000b. Addition to the preface. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. xv–xvi.
- Bignell, D.E., and P. Eggleton. 2000. Termites in ecosystems. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic, Dordrecht. 363–387.
- Bijnen, F.G.C., J.H.P. Hackstein, P. Kestler, F.J.M. Harren, and J. Reuss. 1995. Fast laser photoacoustical detection of trace gases; respiration of arthropods. *Laser und Optoelektronik*. 27:68–72.
- Bijnen, F.G.C., F.J.M. Harren, J.H.P. Hackstein, and J. Reuss. 1996. Intracavity CO laser photoacoustic trace gas detection: cyclic CH<sub>4</sub>, H<sub>2</sub>O and CO<sub>2</sub> emission by cockroaches and scarab beetles. *Applied Optics*. 35:5357–5368.
- Blackburn, D.G. 1999. Viviparity and oviparity: evolution and reproductive strategies. In *Encyclopedia of Reproduction*. Vol. 4. E. Knobil and J.D. Neill, editors. Academic Press, San Diego. 994–1003.
- Blair, K.G. 1922. An entomological holiday in S. France. *Entomologist*. 55:147–151.
- Bland, R.G., D.P. Slaney, and P. Weinstein. 1998a. Antennal sensilla on cave species of Australian *Paratemnopteryx* cockroaches (Blattaria: Blattellidae). *International Journal of Insect Morphology and Embryology*. 27:83–93.
- Bland, R.G., D.P. Slaney, and P. Weinstein. 1998b. Mouthpart sensilla of cave species of Australian *Paratemnopteryx* cockroaches (Blattaria: Blattellidae). *International Journal of Insect Morphology and Embryology*. 27:291–3000.
- Blatchley, W.S. 1920. Orthoptera of Northeastern America, with Special Reference to the Faunas of Indiana and



- Florida. The Nature Publishing Company, Indianapolis. 784 pp.
- Block, W. 1991. To freeze or not to freeze? Invertebrate survival of sub-zero temperatures. *Functional Ecology*. 5:284–290.
- Blumenthal, H.J., and S. Roseman. 1957. Quantitative estimation of chitin in fungi. *Journal of Bacteriology*. 74:222–224.
- Bodenstein, D. 1953. Studies on the humoral mechanisms in growth and metamorphosis of the cockroach *Periplaneta americana*. I. Transplantations of integumental structures and experimental parabioses. *Journal of Experimental Biology*. 123:189–232.
- Bohn, H. 1987. Reversal of the left-right asymmetry in male genitalia of some Ectobiinae (Blattaria: Blattellidae) and its implications on sclerite homologization and classification. *Entomological Scandinavica* 18:293–303.
- Bohn, H. 1991a. Revision of the *Loboptera* species of Morocco (Blattaria: Blattellidae: Blattellinae). *Entomologica Scandinavica*. 22:251–295.
- Bohn, H. 1991b. Revision of the *Loboptera* species of Spain (Blattaria: Blattellidae). *Entomologica Scandinavica*. 21:369–403.
- Bohn, H. 1993. Revision of the *panteli*-group of *Phyllo-dromica* in Spain and Morocco (Blattaria: Blattellidae: Ectobiinae). *Entomologica Scandinavica*. 24:49–72.
- Bohn, H. 1999. Revision of the *carpetana*-group of *Phyllo-dromica* Fieber from Spain, Portugal and France (Insecta, Blattaria, Blattellidae, Ectobiinae). *Spixiana*. Supplement 25:1–102.
- Bolívar, I. 1901. Un nuevo orthóptero mirmecófilo *Attaphila bergi*. *Comunicaciones del Museo Nacional de Buenos Aires*. 1:331–336.
- Bordereau, C. 1985. The role of pheromones in caste differentiation. In *Caste Differentiation in Social Insects*. J.A.L. Watson, B.M. Okot-Kotber, and C. Noirot, editors. Pergamon Press, Oxford. 221–226.
- Bowden, J., and J. Phipps. 1967. Cockroaches (*Periplaneta americana* (L.)) as predators. *Entomologist's Monthly Magazine*. 103:175–176.
- Boyer, S., and C. Rivault. 2003. La Réunion and Mayotte cockroaches: impact of altitude and human activity. *Comptes Rendus Biologies*. 326:S210–S216.
- Braack, L.E.O. 1989. Arthropod inhabitants of a tropical cave “island” environment populated by bats. *Biological Conservation*. 48:77–84.
- Bracke, J.W., D.L. Cruden, and A.J. Markovetz. 1978. Effect of metronidazole on the intestinal microflora of the American cockroach, *Periplaneta americana* L. *Antimicrobial Agents and Chemotherapy*. 13:115–120.
- Bracke, J.W., D.L. Cruden, and A.J. Markovetz. 1979. Intestinal microbial flora of the American cockroach, *Periplaneta americana* L. *Applied and Environmental Microbiology*. 38:945–955.
- Bracke, J.W., and A.J. Markovetz. 1980. Transport of bacterial end products from the colon of *Periplaneta americana*. *Journal of Insect Physiology*. 26:85–89.
- Breed, M.D. 1983. Cockroach mating systems. In *Orthoptera Mating Systems*. D.T. Gwynne and G.K. Morris, editors. Westview, Boulder. 268–284.
- Breed, M.D., C.M. Hinkle, and W.J. Bell. 1975. Agonistic behavior in the German cockroach, *Blattella germanica*. *Zeitschrift für Tierpsychologie*. 39:24–32.
- Breland, O.P., C.D. Eddleman, and J.J. Biesele. 1968. Studies of insect spermatozoa. I. *Entomological News*. 79:197–216.
- Brenner, R.J., R.S. Patterson, and P.G. Koehler. 1988. Ecology, behavior and distribution of *Blattella asahinai* (Orthoptera: Blattellidae) in central Florida. *Annals of the Entomological Society of America*. 81:432–436.
- Bret, B.L., and M.H. Ross. 1985. A laboratory study of German cockroach dispersal (Dictyoptera: Blattellidae). *Proceedings of the Entomological Society of Washington*. 87:448–455.
- Bret, B.L., M.H. Ross, and G.I. Holtzman. 1983. Influence of adult females on within-shelter distribution patterns of *Blattella germanica* (Dictyoptera: Blattellidae). *Annals of the Entomological Society of America*. 76:847–852.
- Breznak, J.A. 1975. Symbiotic relationships between termites and their intestinal microbiota. *Symposia of the Society for Experimental Biology*. 29:559–580, 6 plates.
- Breznak, J.A. 1982. Biochemical aspects of symbiosis between termites and their intestinal microbiota. In *Invertebrate-Microbial Interactions*. J.M. Anderson, A.D.M. Rayner, and D.W.H. Walton, editors. Cambridge University Press, Cambridge. 173–203.
- Breznak, J.A., W.J. Brill, J.W. Mertins, and H.C. Coppel. 1973. Nitrogen fixation in termites. *Nature*. 244:577–580.
- Breznak, J.A., J.W. Mertins, and H.C. Coppel. 1974. Nitrogen fixation and methane production in a wood eating cockroach *Cryptocercus punctulatus* Scudder (Orthoptera: Blattidae). *University of Wisconsin Forestry Notes*. 184:1–2.
- Bridwell, J.C., and O.H. Swezey. 1915. Entomological notes. *Proceedings of the Hawaiian Entomological Society*. 3:55–56.
- Brodsky, A.K. 1994. *The Evolution of Insect Flight*. Oxford University Press, Oxford. 229 pp.
- Bronstein, J.L. 1994. Conditional outcomes in mutualistic interactions. *Trends in Ecology and Evolution*. 9:214–217.
- Bronstein, S.M., and W.E. Conner. 1984. Endotoxin-induced behavioral fever in the Madagascar cockroach, *Gromphadorhina portentosa*. *Journal of Insect Physiology*. 30:327–330.
- Brooks, D.R. 1996. Explanations of homoplasy at different levels of biological organization. In *Homoplasy: The Recurrence of Similarity in Evolution*. M.J. Sanderson and L. Hufford, editors. Academic Press, San Diego. 3–36.
- Brossut, R. 1970. L'interattraction chez *Blabera craniifer* Burm. (Insecta, Dictyoptera): Sécrétion d'une phéromone par les glandes mandibulaires. *Comptes rendus de l'Académie des Sciences, Paris*. 270:714–716.
- Brossut, R. 1973. Evolution du système glandulaire exocrine céphalique des Blattaria et des Isoptera. *International Journal of Insect Morphology and Embryology*. 2:35–54.
- Brossut, R. 1975. Pheromonal basis of gregarism and interattraction. In *Pheromones and Defensive Secretions in Social Insects*. C. Noirot, P.E. Howse, and G. LeMasne, editors. University of Dijon, Dijon. 67–85.
- Brossut, R. 1976. Etude morphologique de la blatte myrmecophile *Attaphila fungicola* Wheeler. *Insectes Sociaux*. 23:167–174.

- Brossut, R. 1979. Gregarism in cockroaches and in *Eublabeus* in particular. In *Chemical Ecology: Odour Communication in Animals*. F.J. Ritter, editor. Elsevier/North Holland Biochemical Press, Amsterdam. 237–246.
- Brossut, R. 1983. Allomonal secretions in cockroaches. *Journal of Chemical Ecology*. 9:143–158.
- Brossut, R., P. Dubois, and J. Rigaud. 1974. Le grégarisme chez *Blaberus craniifer*: isolement et identification de la phéromone. *Journal of Insect Physiology*. 20:529–543.
- Brossut, R., P. Dubois, J. Rigaud, and L. Sreng. 1975. Etude biochimique de la sécrétion des glandes tergaux des Blattaria. *Insect Biochemistry*. 5:719–732.
- Brossut, R., and L.M. Roth. 1977. Tergal modifications associated with abdominal glandular cells in the Blattaria. *Journal of Morphology*. 151:259–298.
- Brossut, R., and L. Sreng. 1985. L'univers chimique des blattes. *Bulletin Société Entomologique de France*. 90:1266–1280.
- Brousse-Gaury, P. 1971a. Présence de mécanorécepteurs au niveau de la poche incubatrice de *Blaberus fusca* Br. et *Leucophaea maderae* F., Dictyoptères Blaberidae. *Comptes Rendus Acad. Science Paris*. 272:2785–2787.
- Brousse-Gaury, P. 1971b. Soies mécanoréceptrices et poche incubatrice de blattes. *Bulletin Biologique*. 105:337–343.
- Brousse-Gaury, P. 1976. Glande sternale et balisage des pistes chez *Periplaneta americana* (L.). *Bulletin Biologique de la France et de la Belgique*. 110:395–420.
- Brousse-Gaury, P. 1977. Starvation and reproduction in *Periplaneta americana* L.: Control of mating behaviour in the female. In *Advances in Invertebrate Reproduction*. Vol. 1. K.G. Adiyodi and R.G. Adiyodi, editors. Peralam-Kenoth, Kerala, India. 328–343.
- Brousse-Gaury, P. 1981. Typologie et topographie des sensilles sur le tarse des mâles de *Periplaneta americana* L. (Dictyoptères, Blattidae). *Annales des Sciences Naturelles, Zoologie, Paris*. 3:69–94.
- Brousse-Gaury, P., and F. Goudey-Perriere. 1983. Spermatophore et vitellogenèse chez *Blaberus fusca* Br. (Dictyoptère, Blaberidae). *Comptes Rendus Acad. Science Paris*. 296:659–664.
- Brown, E.B. 1952. Observations on the life history of the cockroach *Ectobius panzeri* Stephens (Orth., Blattidae). *Entomologist's Monthly Magazine*. 88:209–212.
- Brown, V.K. 1973a. Aspects of the reproductive biology of three species of *Ectobius* (Dictyoptera: Blattidae). *Entomologia Experimentalis et Applicata*. 16:213–222.
- Brown, V.K. 1973b. The overwintering stages of *Ectobius lapponicus* (L.) (Dictyoptera: Blattidae). *Journal of Entomology (A)*. 48:11–24.
- Brown, V.K. 1980. Developmental strategies in *Ectobius pallidus* (Dictyoptera: Blattidae). *International Journal of Invertebrate Reproduction*. 2:85–93.
- Brown, V.K. 1983. Developmental strategies in British Dictyoptera: seasonal variation. In *Diapause and Life Cycle Strategies*. V.K. Brown and I. Hodel, editors. Dr W. Junk Publishers, The Hague. 111–125.
- Brunet, P.C.J., and P.W. Kent. 1955. Mechanism of sclerotin formation: the participation of a Beta-glucoside. *Nature*. 175:819–820.
- Buckland-Nicks, J. 1998. Prosobranch parasperm: sterile germ cells that promote paternity? *Micron*. 29:267–280.
- Burk, T., and W.J. Bell. 1973. Cockroach aggregation pheromone: inhibition of locomotion (Orthoptera: Blattidae). *Journal of the Kansas Entomological Society*. 46:36–41.
- Burley, N.T., and K. Johnson. 2002. The evolution of avian parental care. *Philosophical Transactions of the Royal Society of London B*. 357:241–250.
- Camazine, S., J.-L. Deneubourg, N.R. Franks, J. Sneyd, G. Theraulaz, and E. Bonabeau. 2001. *Self-Organization in Biological Systems*. Princeton University Press, Princeton. 538 pp.
- Camhi, J., and E.N. Johnson. 1999. High frequency steering maneuvers mediated by tactile cues: antennal wall-following in the cockroach. *Journal of Experimental Biology*. 202:631–643.
- Campbell, F.L., and M.H. Ross. 1979. On the pruning of its flagella by the German cockroach during postembryonic development. *Annals of the Entomological Society of America*. 72:580–582.
- Carne, P.B. 1978. *Dasygnathus blattocomes* sp. n. (Coleoptera: Scarabaeidae). *Journal of the Australian Entomological Society*. 17:91–93.
- Carpenter, F.M. 1947. Early insect life. *Psyche*. 54:65–85.
- Caudell, A.N. 1906. A new roach from the Philippines. *Canadian Entomologist*. 38:136.
- Cazemier, A.E., J.H.P. Hackstein, H.J.M. Op den Camp, J. Rosenberg, and C. van der Drift. 1997a. Bacteria in the intestinal tract of different species of arthropods. *Microbial Ecology*. 33:189–197.
- Cazemier, A.E., H.J.M. Op den Camp, J.H.P. Hackstein, and G.D. Vogels. 1997b. Fibre digestion in arthropods. *Comparative Biochemistry and Physiology*. 118A:101–109.
- Chapman, C.A., R.W. Wrangham, and L.J. Chapman. 1995. Ecological constraints on group size: an analysis of spider monkey and chimpanzee subgroups. *Behavioral Ecology and Sociobiology*. 36:59–70.
- Chapman, T., G. Arnqvist, J. Bangham, and L. Rowe. 2003. Sexual conflict. *Trends in Ecology & Evolution*. 18:41–47.
- Chiang, A.S., A.P. Gupta, and S.S. Han. 1988. Arthropod immune system. I. Comparative light and electron microscopic accounts of immunocytes and other hemocytes of *Blattella germanica* (Dictyoptera: Blattellidae). *Journal of Morphology*. 198:257–268.
- Chon, T.S., D. Liang, and C. Schal. 1990. Effects of mating and grouping on oocyte development and pheromone release activities in *Supella longipalpa* (Dictyoptera: Blattellidae). *Environmental Entomology*. 19:1716–1721.
- Chopard, L. 1919. Zoological results of a tour in the Far East. The Orthoptères caverniculous de Birmanie et de la Péninsule Malaise. *Memoirs of the Asiatic Society of Bengal*. 6:341–396.
- Chopard, L. 1925. La distribution géographique des Blattinae aptères ou subaptères. *Association Française pour l'avancement des Sciences, Congrès de Liège*. 1924:975–977.
- Chopard, L. 1929. Orthoptera palearctica critica. VII. Lex polyphagiens de la faune paléarctique (Orth. Blatt.). *Eos*. 5:223–358.

- Chopard, L. 1932. Un cas de microphthalmie liée à l'atrophie des ailes chez une blatte cavernicole. *In Livre du Centenaire, Société Entomologique de France*. 485–496.
- Chopard, L. 1938. La Biologie des Orthoptères. Lechevalier, Paris. 564 pp.
- Chopard, L. 1952. Description d'une Blatte xylicole du Mozambique (Dictyoptère). *Bulletin de la Société Entomologique de France*. 57:6–7.
- Chopard, L. 1969. Description d'une intéressante Blatte du désert iranien (Dictyop. Polyphagidae). *Bulletin Société Entomologique de France*. 74:228–230.
- Chown, S.L., and S.W. Nicolson. 2004. Insect Physiological Ecology: Mechanisms and Patterns. Oxford University Press, Oxford. 243 pp.
- Christiansen, K. 1970. Survival of Collembola on clay substrates with and without food added. *Annales de Spéléologie*. 25:849–852.
- Christy, J.H. 1995. Mimicry, mate choice, and the sensory trap hypothesis. *The American Naturalist*. 146:171–181.
- Cisper, G., A.J. Zera, and D.W. Borst. 2000. Juvenile hormone titer and morph-specific reproduction in the wing polymorphic cricket, *Gryllus firmus*. *Journal of Insect Physiology*. 46:585–596.
- Clark, A. 2003. Costs and consequences of evolutionary temperature adaptation. *Trends in Ecology & Evolution*. 18:573–581.
- Clark, D.C., and A.J. Moore. 1995. Genetic aspects of communication during male-male competition in the Madagascar hissing cockroach: honest signalling of size. *Heredity*. 75:198–205.
- Clark, J.R. 1999. Endangered and threatened wildlife and plants; final rule to list two cave animals from Kauai, Hawaii, as endangered. *Federal Register*. 65:2348–2357.
- Cleveland, L.R. 1925. The effects of oxygenation and starvation on the symbiosis between the termite, *Termopsis*, and its intestinal flagellates. *Biological Bulletin*. 48:309–326.
- Cleveland, L.R. 1965. Fertilization in *Trichonympha* from termites. *Archiv für Protistenkunde*. 108:1–5.
- Cleveland, L.R., A.W.J. Burke, and P. Karlson. 1960. Ecdysone induced modifications in the sexual cycles of the protozoa of *Cryptocercus*. *Journal of Protozoology*. 7:229–239.
- Cleveland, L.R., S.R. Hall, E.P. Sanders, and J. Collier. 1934. The wood-feeding roach *Cryptocercus*, its protozoa, and the symbiosis between protozoa and roach. *Memoirs of the American Academy of Arts and Sciences*. 17:185–342.
- Cleveland, L.R., and W.L. Nutting. 1955. Suppression of sexual cycles and death of the protozoa of *Cryptocercus* resulting from change of hosts during molting period. *Journal of Experimental Zoology*. 130:485–513.
- Cloarec, A., and C. Rivault. 1991. Age related changes in foraging in the German cockroach (Dictyoptera: Blattellidae). *Journal of Insect Behavior*. 4:661–673.
- Cloudsley-Thompson, J.L. 1953. Studies in diurnal rhythms. III. Photoperiodism in the cockroach *Periplaneta americana* (L.). *Annals and Magazine of Natural History*. 6:705–712.
- Cloudsley-Thompson, J.L. 1988. Evolution and Adaptation of Terrestrial Arthropods. Springer-Verlag, Berlin. 141 pp.
- Clutton-Brock, T.H. 1991. The Evolution of Parental Care. Princeton University Press, Princeton. 352 pp.
- Cocatre-Zilgein, J.H., and F. Delcomyn. 1990. Fast axon activity and the motor pattern in cockroach legs during swimming. *Physiological Entomology*. 15:385–392.
- Cochran, D.G. 1979a. Comparative analysis of excreta and fat body from various cockroach species. *Comparative Biochemistry and Physiology*. 64A:1–4.
- Cochran, D.G. 1979b. A genetic determination of insemination frequency and sperm precedence in the German cockroach. *Entomologia Experimentalis et Applicata*. 26:259–266.
- Cochran, D.G. 1981. Comparative excreta analysis on various neotropical cockroaches and a leaf mantid. *Comparative Biochemistry and Physiology*. 70A:205–209.
- Cochran, D.G. 1983a. Cockroaches—Biology and Control. World Health Organization, Geneva. 53 pp.
- Cochran, D.G. 1983b. Food and water consumption during the reproductive cycle of female German cockroaches. *Entomologia Experimentalis et Applicata*. 34:51–57.
- Cochran, D.G. 1985. Nitrogen excretion in cockroaches. *Annual Review of Entomology*. 30:29–49.
- Cochran, D.G. 1986a. Biological parameters of reproduction in *Parcoblatta* cockroaches (Dictyoptera: Blattellidae). *Annals of the Entomological Society of America*. 79:861–864.
- Cochran, D.G. 1986b. Feeding, drinking and urate excretory cycles in reproducing female *Parcoblatta* cockroaches. *Comparative Biochemistry and Physiology*. 84A:677–682.
- Cochran, D.G., and D.E. Mullins. 1982. Physiological processes relating to nitrogen excretion in cockroaches. *Journal of Experimental Zoology*. 222:277–285.
- Coelho, J.R., and A.J. Moore. 1989. Allometry of resting metabolic rate in cockroaches. *Comparative Biochemistry and Physiology*. 94A:587–590.
- Cohen, A.C., and J.L. Cohen. 1976. Nest structure and micro-climate of the desert cockroach *Arenivaga apacha* (Polyphagidae, Dictyoptera). *Bulletin of the Southern California Academy of Sciences*. 75:273–277.
- Cohen, A.C., and J.L. Cohen. 1981. Microclimate, temperature and water relations of two species of desert cockroaches. *Comparative Biochemistry and Physiology*. 69A:165–167.
- Cohen, R.W. 2001. Diet balancing in the cockroach *Rhyparobia madera*: Does serotonin regulate this behavior? *Journal of Insect Behavior*. 14:99–111.
- Cohen, R.W., S.L. Heydon, G.P. Waldbauer, and S. Friedman. 1987. Nutrient self-selection by the omnivorous cockroach *Supella longipalpa*. *Journal of Insect Physiology*. 33:77–82.
- Cole, B. 1980. Growth rates in holometabolous and hemimetabolous insects. *Annals of the Entomological Society of America*. 73:489–491.
- Coler, R.R., J.S. Elkinton, and R.G. Van Driessche. 1987. Density estimates and movement patterns of a population of *Periplaneta americana*. *Journal of the Kansas Entomological Society*. 60:389–396.
- Coll, M., and M. Guershon. 2002. Omnivory in terrestrial arthropods: mixing plant and prey diets. *Annual Review of Entomology*. 47:267–297.
- Collins, N.M. 1980. The distribution of soil macrofauna on the west ridge of Gunung (Mount) Mulu, Sarawak. *Oecologia*. 44:263–275.
- Collins, N.M. 1989. Termites. *In Tropical Rain Forest Ecosys-*



- tems. Vol. 14. Ecosystems of the World. B. H. Lieth and M.J.A. Werger, editors. Elsevier, Amsterdam. 455–471.
- Conner, W.E., and M.N. Conner. 1992. Moths that go click in the night. *Wings*. 17:7–11.
- Cooke, J.A.L. 1968. A further record of predation by cockroaches. *Entomologist's Monthly Magazine*. 104:72.
- Cooper, R.A., and C. Schal. 1992. Differential development and reproduction of the German cockroach (Dictyoptera: Blattellidae) on three laboratory diets. *Journal of Economic Entomology*. 85:838–844.
- Corbet, P.S. 1961. Entomological studies from a high tower in Mpanga forest, Uganda. XII. Observations on Ephemeroptera, Odonata, and some other orders. *Transactions of the Royal Entomological Society of London*. 113:356–368.
- Cordero, C. 1995. Ejaculate substances that affect female reproductive physiology and behavior: honest or arbitrary traits? *Journal of Theoretical Biology*. 174:453–461.
- Corley, L.S., J.R. Blankenship, and A.J. Moore. 2001. Genetic variation and asexual reproduction in the facultatively parthenogenetic cockroach *Nauphoeta cinerea*: implications for the evolution of sex. *Journal of Evolutionary Biology*. 14:68–74.
- Corley, L.S., J.R. Blankenship, A.J. Moore, and P.J. Moore. 1999. Developmental constraints on the mode of reproduction in the facultatively parthenogenetic cockroach *Nauphoeta cinerea*. *Evolution & Development*. 1:90–99.
- Corley, L.S., and A.J. Moore. 1999. Fitness of alternative modes of reproduction: developmental constraints and the evolutionary maintenance of sex. *Proceedings of the Royal Society of London B*. 266:471–476.
- Cornwell, P.B. 1968. The Cockroach. Hutchinson and Co., Ltd., London. 391 pp.
- Costerton, J.W. 1992. Pivotal role of biofilms in the focused attack of bacteria on insoluble substrates. *International Biodeterioration & Biodegradation*. 30:123–133.
- Cott, H.B. 1940. Adaptive Coloration in Animals. Methuen, London. 508 pp.
- Coxson, D.S., and N.M. Nadkarni. 1995. Ecological roles of epiphytes in nutrient cycles of forest ecosystems. In *Forest Canopies*. M.D. Lowman and N.M. Nadkarni, editors. Academic Press, San Diego. 495–543.
- Crampton, G.C. 1932. A phylogenetic study of the head capsule in certain orthopteroid, psocoid, hemipteroid and holometabolous insects. *Bulletin of the Brooklyn Entomological Society*. 27:19–50.
- Crawford, C.S., and J.L. Cloudsley-Thompson. 1971. Concealment behavior of nymphs of *Blaberus giganteus* L. (Dictyoptera: Blattaria) in relation to their ecology. *Revista Brasileira de Biologia*. 18:53–61.
- Crawford, C.S., and E.C. Taylor. 1984. Decomposition in arid environments: role of the detritivore gut. *South African Journal of Science*. 80:170–176.
- Creed, R.P.J., and J.R. Miller. 1990. Interpreting animal wall-following behavior. *Experientia*. 46:758–761.
- Crespi, B.J., and C. Semeniuk. 2004. Parent-offspring conflict in the evolution of vertebrate reproductive mode. *The American Naturalist*. 163:635–653.
- Crowell, H.H. 1946. Notes on an amphibious cockroach from the Republic of Panama. *Entomological News*. 57:171–172.
- Cruden, D.L., and A.J. Markovetz. 1979. Carboxymethyl cellulose decomposition by intestinal bacteria of cockroaches. *Applied and Environmental Microbiology*. 38:369–372.
- Cruden, D.L., and A.J. Markovetz. 1984. Microbial aspects of the cockroach hindgut. *Archives of Microbiology*. 138:131–139.
- Cruden, D.L., and A.J. Markovetz. 1987. Microbial ecology of the cockroach gut. *Annual Review of Microbiology*. 41:617–643.
- Culver, D.C. 1982. Cave Life, Evolution and Ecology. Harvard University Press, Cambridge, MA. 189 pp.
- Culver, D.C., T.C. Kane, and D.W. Fong. 1995. Adaptation and natural selection in caves: the evolution of *Gammarus minus*. Harvard University Press, Cambridge, MA. 223 pp.
- Cummins, K.W. 1974. Structure and function of stream ecosystems. *BioScience*. 24:631–641.
- Curtis, C., I. Huber, and R.E. Calhoun. 2000. Fecundity of male *Blattella germanica* (Blattaria: Blattellidae) exposed to multiple virgin females. *Entomological News*. 11:371–374.
- Cymorek, S. 1968. Adaptations in wood-boring insects: examples of morphological, anatomical, physiological and behavioral features. In *Record of the 1968 Annual Convention of the British Wood Preserving Association*, Cambridge. 161–180.
- D.W. 1984. A certain death (photograph by R. A. Mendez). *Natural History*. 10:118–119.
- Daan, S., and J.M. Tinbergen. 1997. Adaptation of life histories. In *Behavioural Ecology, an Evolutionary Approach*. J.R. Krebs and N.B. Davies, editors. Blackwell Science, Oxford. 311–333.
- Daily, G.C., P.A. Matson, and P.M. Vitousek. 1997. Ecosystem services supplied by soil. In *Nature's Services: Societal Dependence on Natural Ecosystems*. G.C. Daily, editor. Island Press, Washington, DC. 113–132.
- Dambach, M., and B. Goehlen. 1999. Aggregation density and longevity correlate with humidity in first instar nymphs of the cockroach (*Blattella germanica* L., Dictyoptera). *Journal of Insect Physiology*. 45:423–429.
- Dambach, M., A. Stadler, and J. Heidelbach. 1995. Development of aggregation behavior in the German cockroach, *Blattella germanica* (Dictyoptera: Blattellidae). *Entomologia Generalis*. 19:129–141.
- Danks, H.V. 1981. Arctic Arthropods: A Review of Systematics and Ecology with Particular Reference to the North American Fauna. Entomological Society of Canada, Ottawa. 608 pp.
- Darlington, J.P.E.C. 1968. Biogenetics of *Eublaberus posticus*. Master's thesis, University of the West Indies, Trinidad.
- Darlington, J.P.E.C. 1970. Studies on the ecology of the Tamana Caves with special reference to cave dwelling cockroaches. Ph.D. thesis, University of the West Indies, Trinidad. 224 pp.
- Darlington, J.P.E.C. 1995a. Ecology and fauna of the Tamana Caves, Trinidad, West Indies. *Studies in Speleology*. 10:37–50.
- Darlington, J.P.E.C. 1995b. A review of current knowledge about the Oropouche or Cumaca cave, Trinidad, West Indies. *Studies in Speleology*. 10:65–74.

- Darlington, J.P.E.C. 1995–1996. Guanapo Cave. *Living World Journal of the Trinidad & Tobago Field Naturalists' Club*. 15–16.
- Darlington, P.J.J. 1943. Carabidae of mountains and islands: data on the evolution of isolated faunas, and on atrophy of wings. *Ecological Monographs*. 13:37–61.
- Darwin, C. 1859. *The Origin of Species by Means of Natural Selection*. John Murray, London. 502 pp.
- Davey, K.G. 1960. A pharmacologically active agent in the reproductive system of insects. *Canadian Journal of Zoology*. 38:39–45.
- Davey, K.G. 1965. *Reproduction in the Insects*. Oliver & Boyd, Edinburgh. 96 pp.
- Davidson, D.W., S.C. Cook, R.R. Snelling, and T.H. Chua. 2003. Explaining the abundance of ants in lowland tropical forest canopies. *Science*. 300:969–972.
- Day, M.F. 1950. The histology of a very large insect, *Macropanesthia rhinoceros* Sauss. (Blattidae). *Australian Journal of Scientific Research, Series B*. 3:61–75.
- Dean, W.R.J., and J.B. Williams. 1999. Sunning behaviour and its possible influence on digestion in the whitebacked moosebird *Colius colius*. *The Ostrich*. 70:239–241.
- Deans, A.R., and L.M. Roth. 2003. *Nyctibora acaciiana* (Blattellidae: Nyctiborinae), a new species of cockroach from Central America that oviposits on ant-acacias. *Transactions of the American Entomological Society*. 129:267–283.
- Deharveng, L., and A. Bedos. 2000. The cave fauna of Southeast Asia, origin, evolution and ecology. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 603–632.
- Deitz, L.L., C.A. Nalepa, and K.D. Klass. 2003. Phylogeny of the Dictyoptera reexamined. *Entomologische Abhandlungen*. 61:69–91.
- Dejean, A., and I. Olmsted. 1997. Ecological studies on *Aechmea bracteata* (Swartz) (Bromeliaceae). *Journal of Natural History*. 31:1313–1334.
- Delcomyn, F. 1971. The locomotion of the cockroach *Periplaneta americana*. *Journal of Experimental Biology*. 54:443–452.
- Deleporte, P. 1976. L'organisation sociale chez *Periplaneta americana* (Dictyoptères). Aspects éco-éthologiques—Ontogenèse des relations inter-individuelles. Thèse doctorat, 3e cycle, L'Université de Rennes.
- Deleporte, P. 1985. Structure sociale et occupation de l'espace par la blatte *Periplaneta americana* (Dictyoptères). *Bulletin de la Société Zoologique de France. Evolution et Zoologie*. 110:325–330.
- Deleporte, P. 1988. Etude éco-éthologique et évolutive de *P. americana* et d'autres blattes sociales. Le Grade de Docteur d'Etat, U.F.R. Sciences de la Vie et de l'Environnement. L'Université de Rennes. 212 pp.
- Deleporte, P., A. Dejean, P. Grandcolas, and R. Pellens. 2002. Relationships between the parthenogenic cockroach *Pycnoscelus surinamensis* (Dictyoptera: Blaberidae) and ants (Hymenoptera: Formicidae). *Sociobiology*. 39:259–267.
- Deleporte, P., D. Lebrun, and A. Lequet. 1988. Le gésier ou proventricule de *Cryptocercus punctulatus* Scudder et la phylogénie des Blattaria. *Actes Colloque Insectes Sociaux*. 4:353–358.
- Demark, J.J., and L.P. Bennett. 1994. Diel activity cycles in nymphal stadia of the German cockroach (Dictyoptera: Blattellidae). *Journal of Economic Entomology*. 87:941–950.
- Deneubourg, J.-L., A. Lioni, and C. Detrain. 2002. Dynamics of aggregation and emergence of cooperation. *Biological Bulletin*. 202:262–267.
- Denic, N., D.W. Huyer, S.H. Sinal, P.E. Lantz, C.R. Smith, and M.M. Silver. 1997. Cockroach: the omnivorous scavenger. Potential misinterpretation of postmortem injuries. *American Journal of Forensic Medicine and Pathology*. 18:177–180.
- Denno, R.F., C. Gratton, and G.A. Langellotto. 2001a. Significance of habitat persistence and dimensionality in the evolution of insect migration strategies. In *Insect Movement: Mechanisms and Consequences*. I. Woiwood, D.R. Reynolds, and C. Thomas, editors. CABI Publishing, London. 235–260.
- Denno, R.F., D.J. Hawthorne, B.L. Thorne, and C. Gratton. 2001b. Reduced flight capability in British Virgin Island populations of a wing dimorphic insect: the role of habitat isolation, persistence and structure. *Ecological Entomology*. 26:25–36.
- Denno, R.F., G.K. Roderick, K.L. Olmstead, and H.G. Dobel. 1991. Density-related migration in planthoppers (Homoptera: Delphacidae): the role of habitat persistence. *The American Naturalist*. 138:1513–1541.
- Denzer, V.D.J., M.E.A. Fuchs, and G. Stein. 1988. Zum Verhalten von *Blattella germanica* L.: aktionsradius und refugientreue. *Journal of Applied Entomology*. 105:330–343.
- Deyrup, M., and F.W. Fisk. 1984. A myrmecophilous cockroach new to the United States (Blattaria: Polyphagidae). *Entomological News*. 95:183–185.
- Dhanarajan, G. 1978. Cannibalism and necrophagy in a subterranean termite (*Reticulitermes lucifugus* var. *santonensis*). *The Malayan Nature Journal*. 31:237–251.
- Dial, R., and J. Roughgarden. 1995. Experimental removal of insectivores from rain forest canopy: direct and indirect effects. *Ecology*. 76:1821–1834.
- Diekman, L.J., and R.E. Ritzman. 1987. The effect of temperature on flight initiation in the cockroach *Periplaneta americana*. *Journal of Neurobiology*. 18:487–496.
- Dillon, R.J., and A.K. Charnley. 1986. Invasion of the pathogenic fungus *Metarhizium anisopliae* through the guts of germfree desert locusts *Schistocerca gregaria*. *Mycopathologia*. 96:59–66.
- Dillon, R.J., and A.K. Charnley. 1995. Chemical barriers to gut infection in the desert locust: In vivo production of antimicrobial phenols associated with the bacterium *Pantoea agglomerans*. *Journal of Invertebrate Pathology*. 66:72–75.
- Dillon, R.J., C.T. Vennard, and A.K. Charnley. 2000. Exploitation of gut bacteria in the locust. *Nature*. 403:851.
- Dingle, H. 1996. *Migration: The Biology of Life on the Move*. Oxford University Press, New York. 474 pp.
- Dix, N.J., and J. Webster. 1995. *Fungal Ecology*. Chapman and Hall, London. 549 pp.
- Dong, Q., and G. Polis. 1992. The dynamics of cannibalistic populations: a foraging perspective. In *Cannibalism: Ecology and Evolution Among Diverse Taxa*. M.A. Elgar and

- B.J. Crespi, editors. Oxford University Press, Oxford. 13–37.
- Dow, J.A. 1986. Insect midgut function. *Advances in Insect Physiology*. 19:187–328.
- Downer, R.G.H. 1982. Fat body and metabolism. In *The American Cockroach*. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, London. 151–174.
- Dozier, H.L. 1920. An ecological study of hammock and piney woods insects in Florida. *Annals of the Entomological Society of America*. 13:325–380.
- Draser, B.S., and P.A. Barrow. 1985. Intestinal Microbiology. American Society of Microbiology, Washington, DC.
- Dreisig, H. 1971. Diurnal activity in the dusky cockroach *Ecotobius laponicus* L. (Blattodea). *Entomologia Scandinavica*. 2:132–138.
- Dudek, D.M., and R.J. Full. 2000. Spring-like behavior of the legs of running insects. *American Zoologist*. 40:1002–1003.
- Duffy, S.S. 1976. Arthropod allomones: chemical effronteries and antagonists. In *Proceedings of the XV International Congress of Entomology*. J.S. Packer and D. White, editors. Entomological Society of America, Washington, DC. 323–394.
- Duman, J.G. 1979. Thermal-hysteresis factors in overwintering insects. *Journal of Insect Physiology*. 25:805–810.
- Dunbar, R.I.M. 1979. Population demography, social organization, and mating strategies. In *Primate Ecology and Human Origins: Ecological Influences on Social Organization*. I.S. Bernstein and E.O. Smith, editors. Garland STPM Press, New York. 65–88.
- Durbin, E.J., and D.G. Cochran. 1985. Food and water deprivation effects on reproduction in female *Blattella germanica*. *Entomologia Experimentalis et Applicata*. 37:77–82.
- Durden, C.J. 1972. Systematics and morphology of Acadian Pennsylvanian blattoid insects (Dictyoptera: Palaeoblattina): a contribution to the classification and phylogeny of Palaeozoic insects. Ph.D. thesis, Yale University, New Haven.
- Durden, C.J. 1988. Hamilton insect fauna. Kansas Geological Survey Guidebook Series 6:117–124.
- Durier, V., and C. Rivault. 2001a. Effects of spatial knowledge and feeding experience on foraging choices in German cockroaches. *Animal Behaviour*. 62:681–688.
- Durier, V., and C. Rivault. 2001b. Spatial knowledge of what type of food to find in a particular feeding site. In *XXVII International Ethological Conference. Advances in Ethology*. Vol. 36. R. Apfelbach, M. Fendt, S. Krämer, and B.M. Siemers, editors. Blackwell Wissenschafts-Verlag, Tübingen. 146.
- Durier, V., and C. Rivault. 2003. Exploitation of home range and spatial distribution of resources in German cockroaches (Dictyoptera: Blattellidae). *Journal of Economic Entomology*. 96:1832–1837.
- Duwel-Eby, L.E., L.M. Faulhaber, and R.D. Karp. 1991. Adaptive humoral immunity in the American cockroach. In *Immunology of Insects and Other Arthropods*. A.P. Gupta, editor. CRC Press, Boca Raton. 385–402.
- Eads, R.B., F.J. Von Zuben, S.E. Bennett, and O.L. Walker. 1954. Studies on cockroaches in a municipal sewage system. *American Journal of Tropical Medicine and Hygiene*. 3:1092–1098.
- Eaton, R.A., and M.D.C. Hale. 1993. *Wood: Decay, Pests and Protection*. Chapman and Hall, London. 546 pp.
- Eberhard, W.G. 1985. *Sexual Selection and Animal Genitalia*. Harvard University Press, Cambridge, MA. 244 pp.
- Eberhard, W.G. 1991. Copulatory courtship and cryptic female choice in insects. *Biological Reviews*. 66:1–31.
- Eberhard, W.G. 1994. Evidence for widespread courtship during copulation in 131 insects and spiders, and implications for cryptic female choice. *Evolution*. 48:711–733.
- Eberhard, W.G. 1996. *Female Control: Sexual Selection by Cryptic Female Choice*. Princeton University Press, Princeton. 501 pp.
- Eberhard, W.G. 2001. Multiple origins of a major novelty: movable abdominal lobes in male sepsid flies (Diptera: Sepsidae), and the question of developmental constraints. *Evolution & Development*. 3:206–222.
- Edmunds, L.R. 1952. Some notes on the habits and parasites of native wood-roaches. *Entomological News*. 63:141–145.
- Edmunds, L.R. 1957. Observations on the biology and life history of the brown cockroach *Periplaneta brunnea* Burmeister. *Proceedings of the Entomological Society of Washington*. 59:283–286.
- Edmunds, M., and D. Brunner. 1999. Ethology of defenses against predators. In *The Praying Mantids*. F.R. Prete, H. Wells, P.H. Wells, and L.E. Hurd, editors. Johns Hopkins University Press, Baltimore. 276–299.
- Edney, E.B. 1966. Absorption of water vapour from unsaturated air by *Arenivaga* sp. (Polyphagidae, Dictyoptera). *Comparative Biochemistry and Physiology*. 19:387–408.
- Edney, E.B. 1967. Water balance in desert arthropods. *Science*. 156:1059–1066.
- Edney, E.B. 1977. *Water Balance in Land Arthropods*. Springer-Verlag, Berlin. 282 pp.
- Edney, E.B., P. Franco, and R. Wood. 1978. The responses of *Arenivaga investigata* (Dictyoptera) to gradients of temperature and humidity in sand studied by tagging with technetium 99m. *Physiological Zoology*. 51:241–255.
- Edney, E.B., S. Haynes, and D. Gibo. 1974. Distribution and activity of the desert cockroach *Arenivaga investigata* (Polyphagidae) in relation to microclimate. *Ecology*. 55:420–427.
- Edwards, J.P. 2004. Interactions between an endangered bird species, non-endemic insect pests, and insecticides: the deployment of insect growth regulators in the conservation of the Seychelles magpie-robin (*Copsychus sechellarum*). In *Insect and Bird Interactions*. H.F. Van Emden and M. Rothschild, editors. Intercept, Andover, Hampshire, UK. 121–145.
- Eggleton, P., R. Homathevi, D.T. Jones, J.A. MacDonald, D. Jeeva, D.E. Bignell, R.G. Davies, and M. Maryati. 1999. Termite assemblages, forest disturbance and greenhouse gas fluxes in Sabah, East Malaysia. *Philosophical Transactions of the Royal Society of London B*. 354:1791–1802.
- Ehrlich, H. 1943. Verhaltensstudien an der Schabe *Periplaneta americana* L. *Zeitschrift für Tierpsychologie*. 5:497–552.
- Eickwort, G.C. 1981. Presocial insects. In *Social Insects*. Vol. 1. H.R. Hermann, editor. Academic Press, New York. 199–280.
- Eisenbeis, G., and W. Wichard. 1985. *Atlas on the Biology of Soil Arthropods*. Springer-Verlag, Berlin. 437 pp.



- Eisner, T. 1958. Spray mechanism of the cockroach *Diploptera punctata*. *Science*. 128:148–149.
- El-Ayouty, E.Y., S.I. Ghabbour, and A.M. El-Sayyed. 1978. Role of litter and excreta of soil fauna in the nitrogen status of desert soils. *Journal of Arid Environments*. 1:145–155.
- Elgar, M.A., and B.J. Crespi. 1992. Ecology and evolution of cannibalism. In *Cannibalism: Ecology and Evolution Among Diverse Taxa*. M.A. Elgar and B.J. Crespi, editors. Oxford University Press, Oxford. 1–12.
- Endler, J.A. 1978. A predator's view of animal color patterns. *Evolutionary Biology*. 11:319–364.
- Engelmann, F. 1957. Bau und Funktion des weiblichen Geschlechtsapparates bei der ovoviviparen Schabe *Leucophaea maderae* (Fabr.) und einige Beobachtungen über die Entwicklung. *Biologisches Zentralblatt*. 76:722–740.
- Engelmann, F. 1959. The control of reproduction in *Diploptera punctata* (Blattaria). *Biological Bulletin*. 116:406–419.
- Engelmann, F. 1960. Mechanisms controlling reproduction in two viviparous cockroaches. *Annals of the New York Academy of Sciences*. 89:516–536.
- Engelmann, F. 1970. *The Physiology of Insect Reproduction*. Pergamon Press, New York. 307 pp.
- Engelmann, F., and I. Rau. 1965. A correlation between the feeding and the sexual cycle in *Leucophaea maderae* (Blattaria). *Journal of Insect Physiology*. 11:53–64.
- Ettema, C.H., and D.A. Wardle. 2002. Spatial soil ecology. *Trends in Ecology and Evolution*. 17:177–183.
- Evans, H.E. 1968. *Life on a Little Known Planet*. Dutton, New York. 318 pp.
- Evans, L.D., and M.D. Breed. 1984. Segregation of cockroach nymphs into sibling groups. *Annals of the Entomological Society of America*. 77:574–577.
- Evans, M.E.G. 1990. Habits or habitats: do carabid locomotor adaptations reflect habitats or lifestyles? In *The Role of Ground Beetles in Ecological and Environmental Studies*. N.E. Stork, editor. Intercept Ltd, Andover, UK. 295–305.
- Evans, M.E.G., and T.G. Forsythe. 1984. Comparison of adaptations to running, pushing and burrowing in some adult Coleoptera: especially Carabidae. *Journal of Zoology, London*. 202:513–534.
- Evans, T.A., J.C.S. Lai, E. Toledano, L. McDowell, S. Rako-tonarivo, and M. Lenz. 2005. Termites assess wood size by using vibration signals. *Proceedings of the National Academy of Sciences*. 102:3732–3737.
- Everaerts, C., J.P. Farine, and R. Brossut. 1997. Changes of species specific cuticular hydrocarbon profiles in the cockroaches *Nauphoeta cinerea* and *Leucophaea maderae* reared in heterospecific groups. *Entomologia Experimentalis et Applicata*. 85:145–150.
- Ewald, P.W. 1987. Transmission modes and evolution of the parasitism-mutualism continuum. *Endocytobiology III. Annals of the New York Academy of Sciences*. 503:295–306.
- Ewing, L.S. 1967. Fighting and death from stress in a cockroach. *Science*. 155:1035–1036.
- Ewing, L.S. 1972. Hierarchy and its relation to territory in the cockroach *Nauphoeta cinerea*. *Behaviour*. 42:152–174.
- Failla, M.C., and A. Messina. 1987. Contribution of Blattaria to the biogeography of the Mediterranean area. In *Evolutionary Biology of Orthopteroid Insects*. B. Baccetti, editor. Ellis Horwood Limited, Chichester. 195–207.
- Fairbairn, D.J. 1997. Allometry of sexual size dimorphism: pattern and process in the coevolution of body size in males and females. *Annual Review of Ecology and Systematics*. 28:659–687.
- Farine, J.-P., R. Brossut, and C. A. Nalepa. 1989. Morphology of the male and female tergal glands of the woodroach *Cryptocercus punctulatus* (Insecta, Dictyoptera). *Zoomorphology*. 109:153–164.
- Farine, J.-P., C. Everaerts, J.-L. LeQuere, E. Semon, R. Henry, and R. Brossut. 1997. The defensive secretion of *Eurycotis floridana* (Dictyoptera, Blattidae, Polyzoisteriinae): chemical identification and evidence of an alarm function. *Insect Biochemistry and Molecular Biology*. 27:577–586.
- Farine, J.-P., E. Semon, C. Everaerts, D. Abed, P. Grandcolas, and R. Brossut. 2002. Defensive secretions of *Therea petiveriana*: chemical identification and evidence of an alarm function. *Journal of Chemical Ecology*. 28:1629–1640.
- Farine, J.-P., L. Sreng, and R. Brossut. 1981. L'interattraction chez *Nauphoeta cinerea* (Insecta, Dictyoptera): mise en évidence et étude préliminaire de la phéromone grégaire. *Comptes rendus de l'Académie des Sciences, Ser. III*. 292:781–784.
- Farnsworth, E.G. 1972. Effects of ambient temperature, humidity, and age on wing-beat frequency of *Periplaneta* species. *Journal of Insect Physiology*. 18:827–839.
- Faulde, M., M.E.A. Fuchs, and W. Nagl. 1990. Further characterization of a dispersion inducing contact pheromone in the saliva of the German cockroach *Blattella germanica* L. Blattodea Blattellidae. *Journal of Insect Physiology*. 36:353–360.
- Faulhaber, L.M., and R.D. Karp. 1992. A diphasic immune response against bacteria in the American cockroach. *Immunology*. 75:378–381.
- Fedorka, K.M., and T.A. Mousseau. 2002. Nuptial gifts and the evolution of male body size. *Evolution*. 56:590–596.
- Feinberg, L., J. Jorgensen, A. Haselton, A. Pitt, R. Rudner, and L. Margulis. 1999. *Arthromitus* (*Bacillus cereus*) symbionts in the cockroach *Blaberus giganteus*: dietary influences on bacterial development and population density. *Symbiosis*. 27:109–123.
- Fernando, W. 1957. New species of insects from Ceylon (1). *Ceylon Journal of Biological Science*. 1:7–18.
- Fischer, K., and K. Fiedler. 2002. Reaction norms for age and size at maturity in response to temperature: a test of the compound interest hypothesis. *Evolutionary Ecology*. 16:333–349.
- Fisk, F.W. 1977. Notes on cockroaches (Blattaria) from caves in Chiapas, Mexico and environs with descriptions of three new species. *Accademia Nazionale Dei Lincei*. 171:267–274.
- Fisk, F.W. 1982. Key to the cockroaches of Central Panama. Part II. Flightless species. *Studies on Neotropical Fauna and Environment*. 17:123–127.
- Fisk, F.W. 1983. Abundance and diversity of arboreal Blattaria in moist tropical forests of the Panama Canal area



- and Costa Rica. *Transactions of the American Entomological Society*. 108:479–489.
- Fisk, F.W., and C. Schal. 1981. Notes on new species of Epilamprine cockroaches from Costa Rica and Panama (Blattaria: Blaberidae). *Proceedings of the Entomological Society of Washington*. 83:694–706.
- Fisk, F.W., M.V. Vargas, and F.B. Fallas. 1976. Notes on *Myrmecoblatta wheeleri* from Costa Rica (Blattaria: Polyphagidae). *Proceedings of the Entomological Society of Washington*. 78:317–322.
- Fisk, F.W., and H. Wolda. 1979. Key to the cockroaches of Central Panama. Part I. Flying species. *Studies on Neotropical Fauna and Environment*. 14:177–201.
- Fittkau, E.J., and H. Klinge. 1973. On biomass and trophic structure of the Central Amazonian rainforest ecosystem. *Biotropica*. 5:2–14.
- Flock, R.A. 1941. The field roach *Blattella vaga*. *Journal of Economic Entomology*. 34:121.
- Floren, A., and K.E. Linsenmair. 1997. Diversity and recolonization dynamics of selected arthropod species in a lowland forest in Sabah, Malaysia with special reference to Formicidae. In *Canopy Arthropods*. N.E. Stork, J. Adis, and R.K. Didham, editors. Chapman and Hall, London. 344–381.
- Foerster, C.H. 2004. The circadian clock in the brain: a structural and functional comparison between mammals and insects. *Journal of Comparative Physiology A*. 190:601–613.
- Fotedar, R., U.B. Shriniwas, and A. Verma. 1991. Cockroaches (*Blattella germanica*) as carriers of microorganisms of medical importance in hospitals. *Epidemiology and Infection*. 197:181–188.
- Fraser, J., and M.C. Nelson. 1982. Frequency modulated courtship song in a cockroach. *Animal Behaviour*. 30:627–628.
- Fraser, J., and M.C. Nelson. 1984. Communication in the courtship of a Madagascar hissing cockroach *Gromphadorhina portentosa*. 1. Normal courtship. *Animal Behaviour*. 32:194–203.
- Friauf, J.J. 1953. An ecological study of the Dermaptera and Orthoptera of the Welaka area in northern Florida. *Ecological Monographs*. 23:79–126.
- Friauf, J.J., and E.B. Edney. 1969. A new species of *Arenivaga* from desert sand dunes in southern California. *Proceedings of the Entomological Society of Washington*. 71:1–7.
- Froggatt, W.W. 1906. Domestic insects: cockroaches (Blattidae). *Agricultural Gazette of New South Wales*. 2 May:440–447.
- Full, R.J., K. Autumn, J.I. Chung, and A. Ahn. 1998. Rapid negotiation of rough terrain by the death-head cockroach. *American Zoologist*. 38(5):81A.
- Full, R.J., and M.S. Tu. 1991. Mechanics of a rapid running insect: two-, four- and six-legged locomotion. *Journal of Experimental Biology*. 156:215–231.
- Full, R.J., and A. Tullis. 1990. Capacity for sustained terrestrial locomotion in an insect: energetics, thermal dependence, and kinematics. *Journal of Comparative Physiology B*. 160:573–581.
- Full, R.J., A. Yamauchi, and D.L. Jindrich. 1995. Maximum single leg force production: cockroaches righting on photoelastic gelatin. *Journal of Experimental Biology*. 198:2441–2452.
- Futuyma, D.J. 1986. *Evolutionary Biology*. Sinauer Associates, Inc., Sunderland, MA. 600 pp.
- Gadd, C.A., and D. Raubenheimer. 2000. Nutrient specific learning in an omnivorous insect: the American cockroach *Periplaneta americana* L. learns to associate dietary protein with the odors citral and carvone. *Journal of Insect Behavior*. 13:851–864.
- Gade, B., and E.D.J. Parker. 1997. The effect of life cycle stage and genotype on desiccation tolerance in the colonizing parthenogenetic cockroach *Pycnoscelus surinamensis* and its sexual ancestor *P. indicus*. *Journal of Evolutionary Biology*. 10:479–493.
- Gadot, M., E. Burns, and C. Schal. 1989. Juvenile hormone biosynthesis and oocyte development in adult female *Blattella germanica*: effects of grouping and mating. *Archives of Insect Biochemistry and Physiology*. 11:189–200.
- Gagné, W.C. 1979. Canopy-associated arthropods in *Acacia koa* and *Metrosideros* tree communities along an altitudinal transect on Hawaii island. *Pacific Insects*. 21:56–82.
- Gaim, W., and G. Seelinger. 1984. Zu Oekologie und Verhalten der mitteleuropäischen Schabe *Phyllodromica maculata* (Dictyoptera: Blattellidae). *Entomologia Generalis*. 9:135–142.
- Galef, B.G.J. 1988. Imitation in animals: history, definition, and interpretation of data from the psychological laboratory. In *Social Learning: Psychological and Biological Perspectives*. T.R. Zentall and B.G.J. Galef, editors. Lawrence Erlbaum Associates, Hillsdale, NJ. 3–28.
- Gariépy, J.-L., D.L. Bauer, and R.B. Cairns. 2001. Selective breeding for differential aggression in mice provides evidence for heterochrony in social behaviors. *Animal Behaviour*. 61:933–947.
- Garnier, S., C. Jost, R. Jeanson, J. Gautrais, M. Asadpour, G. Caprari, and G. Theraulaz. 2005. Aggregation behavior as a source of collective decision in a group of cockroach-like robots. In *Advances in Artificial Life*, 8th European Conference on Artificial Life. S. Mathieu, S. Caprari, A.A. Freitas, P.J. Bentley, C.G. Johnson, and J. Timmis, editors. Springer, Berlin. 169–178.
- Garthe, W.A., and M.W. Elliot. 1971. Role of intracellular symbionts in the fat body of cockroaches: influence on hemolymph proteins. *Experientia*. 27:593.
- Gary, L. 1950. Controlling sewer insects and sewer odors. *Public Works*. 81:48–52.
- Gates, M.F., and W.C. Allee. 1933. Conditioned behavior of isolated and grouped cockroaches on a simple maze. *Journal of Comparative Psychology*. 15:331–358.
- Gautier, J.-Y. 1967. Immobilisation réflex liée à des excitation tactiles du pronotum chez les larves de *Blabera craniifer* (Burm.) normales ou recevant des implantations de corps allates. *Comptes rendus de l'Académie des Sciences, Paris*. 264:1319–1322.
- Gautier, J.-Y. 1974a. Etude comparée de la distribution spatiale et temporelle des adultes de *Blaberus atropos* et *B. colosseus* (Dictyoptères) dans cinq grottes de l'île de Trinidad. *Revue du Comportement de Animale*. 9:237–258.
- Gautier, J.-Y. 1974b. Processus de différenciation de l'organi-

- zation sociale chez quelques especes de Blattes du genre *Blaberus*: aspects écologiques et éthologiques. Thèse de doctorat d'état, L'Université de Rennes.
- Gautier, J.-Y. 1980. Distribution spatiale et organisation sociale chez *Gyna maculipennis* (Insecte Dictyoptère) dans les cavernes et galeries de mines de la région de Belinga au Gabon. *Acta Oecologica Generalis* 1:347–358.
- Gautier, J.-Y., and P. Deleporte. 1986. Behavioural ecology of a forest living cockroach, *Lamproblatta albipalpus* in French Guyana. In *Behavioral Ecology and Population Biology*. L.C. Drickamer, editor. Privat, I.E.C., Toulouse. 17–22.
- Gautier, J.-Y., P. Deleporte, and C. Rivault. 1988. Relationships between ecology and social behavior in cockroaches. In *The Ecology of Social Behavior*. C.N. Slobodchikoff, editor. Academic Press, San Diego. 335–351.
- Geissler, T.G., and C.D. Rollo. 1987. The influence of nutritional history on the response to novel food by the cockroach *Periplaneta americana*. *Animal Behaviour*. 35:1905–1907.
- Gemeno, C., and C. Schal. 2004. Sex pheromones of cockroaches. In *Advances in Insect Chemical Ecology*. R.T. Cardé and J.G. Millar, editors. Cambridge University Press, New York. 179–247.
- Gemeno, C., K. Snook, N. Benda, and C. Schal. 2003. Behavioral and electrophysiological evidence for volatile sex pheromones in *Parcoblatta* wood cockroaches. *Journal of Chemical Ecology*. 29:37–54.
- Gentry, A.H., and C.H. Dodson. 1987. Diversity and biogeography of neotropical vascular epiphytes. *Annals of the Missouri Botanical Garden*. 74:205–233.
- Ghabbour, S.I., W. Mikhail, and M.A. Rizk. 1977. Ecology of soil fauna of Mediterranean desert ecosystems in Egypt. I. Summer populations of soil mesofauna associated with major shrubs in the littoral sand dunes. *Revue d'Écologie et de Biologie du Sol*. 14:429–459.
- Ghabbour, S.I., and W.Z.A. Mikhail. 1978. Ecology of soil fauna of Mediterranean desert ecosystems in Egypt. II. Soil mesofauna associated with *Thymelaea hirsuta*. *Revue d'Écologie et de Biologie du Sol*. 15:333–339.
- Ghabbour, S.I., and S.H. Shakir. 1980. Ecology of soil fauna of Mediterranean desert ecosystems in Egypt. III. Analysis of *Thymelaea* mesofauna populations at the Mariut frontal plain. *Revue d'Écologie et de Biologie du Sol*. 17:327–352.
- Gier, H.T. 1947. Growth rate in the cockroach *Periplaneta americana* (Linn.). *Annals of the Entomological Society of America*. 40:303–317.
- Gijzen, H.J., and M. Barughare. 1992. Contribution of anaerobic protozoa and methanogens to hindgut metabolic activities of the American cockroach, *Periplaneta americana*. *Applied and Environmental Microbiology*. 58:2565–2570.
- Gijzen, H.J., C.A.M. Broers, M. Barughare, and C.K. Strumm. 1991. Methanogenic bacteria as endosymbionts of the ciliate *Nyctotherus ovalis* in the cockroach hindgut. *Applied and Environmental Microbiology*. 57:1630–1634.
- Gijzen, H.J., C. van den Drift, M. Barughare, and H.J.M. op den Camp. 1994. Effect of host diet and hindgut microbial composition on cellulolytic activity in the hindgut of the American cockroach, *Periplaneta americana*. *Applied and Environmental Microbiology*. 60:1822–1826.
- Gilbert, J., and L. Deharveng. 2002. Subterranean ecosystems: a truncated functional biodiversity. *BioScience*. 52:473–481.
- Gilbert, S.F., and J.A. Bolker. 2003. Ecological developmental biology: preface to the symposium. *Evolution & Development*. 5:3–8.
- Gillott, C. 1983. 12. Arthropoda—Insecta. In *Reproductive Biology of Invertebrates. III. Accessory Sex Glands*. K.G. Adiyodi and R.G. Adiyodi, editors. John Wiley & Sons, Chichester. 319–471.
- Gillott, C. 2003. Male accessory gland secretions: modulators of female reproductive physiology and behavior. *Annual Review of Entomology*. 48:163–184.
- Giraldeau, L.A., and T. Caraco. 1993. Genetic relatedness and group size in an aggregation economy. *Evolutionary Ecology*. 7:429–438.
- Gnasplini, P., and E. Trajano. 2000. Guano communities in tropical caves. In *Ecosystems of the World. Vol. 30: Subterranean Ecosystems*. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 251–268.
- Goodman, S.M., and J.P. Benstead. 2003. The Natural History of Madagascar. University of Chicago Press, Chicago. 1709 pp.
- Goodwin, N.B., N.K. Dulvey, and J.D. Reynolds. 2002. Life-history correlates of the evolution of live bearing in fishes. *Philosophical Transactions of the Royal Society of London B*. 357:259–267.
- Gorb, S. 2001. Attachment devices of insect cuticle. Kluwer Academic Publishers, Dordrecht. 305 pp.
- Gordner, P.F. 2001. Largest fossil cockroach found; site preserves incredible detail. <http://researchnews.osu.edu/archive/bigroach.htm>.
- Gordon, D.G. 1996. *The Compleat Cockroach*. Ten Speed Press, Berkeley, CA. 178 pp.
- Gordon, H.T. 1959. Minimal nutritional requirements of the German roach *Blattella germanica* L. *Annals of the New York Academy of Science*. 77:290–351.
- Gordon, J.M., P.A. Zungoli, and L.W. Grimes. 1994. Population density effect on oviposition behavior in *Periplaneta fuliginosa* (Dictyoptera: Blattidae). *Annals of the Entomological Society of America*. 87:436–439.
- Gorton, R.E.J. 1979. Agonism as a function of relationship in a cockroach *Shawella coulouiana* (Dictyoptera: Blattellidae). *Journal of the Kansas Entomological Society*. 52:438–442.
- Gorton, R.E.J. 1980. A comparative ecological study of the wood cockroaches in Northeastern Kansas. *The University of Kansas Science Bulletin*. 52:21–30.
- Gorton, R.E.J., K.G. Colliander, and W.J. Bell. 1983. Social behavior as a function of context in a cockroach. *Animal Behaviour*. 31:152–159.
- Goudey-Perriere, F., J.C. Baehr, and P. Brousse-Gaury. 1989. Relationship between haemolymphatic levels of juvenile hormone and the duration of the spermatophore in the bursa copulatrix of the cockroach *Blaberus craniifer* Burm. *Reproduction, Nutrition, Development*. 29:317–323.
- Goudey-Perriere, F., H. Barreteau, C. Jacquot, P. Gayral, C. Perriere, and P. Brousse-Gaury. 1992. Influence of crowd-

- ing on biogenic amine levels in the nervous system of the female cockroach *Blaberus craniifer* Burm. (Dictyoptera: Blaberidae). *Comparative Biochemistry and Physiology*. 103C:215–220.
- Gould, G.E., and H.O. Deay. 1938. The biology of the American cockroach. *Annals of the Entomological Society of America*. 31:489–498.
- Gould, S.J. 1977. *Ontogeny and Phylogeny*. Harvard University Press, Cambridge, MA. 501 pp.
- Grandcolas, P. 1991. Les Blattes de Guyane Française: Structure du peuplement et étude éco-éthologique des Zetoborinae. Ph.D. thesis, L'Université de Rennes. 295 pp.
- Grandcolas, P. 1993a. Habitats of solitary and gregarious species in the neotropical Zetoborinae (Insecta, Blattaria). *Studies on Neotropical Fauna and Environment*. 28:179–190.
- Grandcolas, P. 1993b. Le genre *Paramuzoa* Roth, 1973: sa répartition et un cas de xylophagie chez les Nyctiborinae (Dictyoptera, Blattaria). *Bulletin de la Société Entomologique de France*. 98:131–138.
- Grandcolas, P. 1994a. Evidence for hypopharynx protrusion and presumptive water vapour absorption in *Heterogamisca chopardi* Uvarov, 1936 (Dictyoptera: Blattaria: Polyphaginae). *Annales de la Société Entomologique de France*. 30:361–362.
- Grandcolas, P. 1994b. La richesse spécifique des communautés des blattes du sous-bois en forêt tropicale de Guyane Française. *Revue d'Ecologie (la Terre et la Vie)*. 49:139–150.
- Grandcolas, P. 1995a. Bionomics of a desert cockroach, *Heterogamisca chopardi* Uvarov, 1936 after the spring rainfalls in Saudi Arabia (Insecta, Blattaria, Polyphaginae). *Journal of Arid Environments*. 31:325–334.
- Grandcolas, P. 1995b. Nouvelles données sur la genre *Alloblatta* Grandcolas, 1993 (Dictyoptera, Blattaria). *Bulletin de la Société Entomologique de France*. 100:341–346.
- Grandcolas, P. 1997a. *Gyna gloriosa*, a scavenger cockroach dependent on driver ants in Gabon. *African Journal of Ecology*. 35:168–171.
- Grandcolas, P. 1997b. Habitat use and population structure of a polyphagine cockroach, *Ergaula capensis* (Saussure 1891) (Blattaria Polyphaginae) in Gabonese rainforest. *Tropical Ecology*. 10:215–222.
- Grandcolas, P. 1997c. Systématique phylogénétique de la sousfamille des Tryonicinae (Dictyoptera, Blattaria, Blattidae). In *Zoologia Neocaledonica*, Memoir 171. J. Najt and L. Matile, editors. Museum of Natural History, Paris. 91–124.
- Grandcolas, P. 1998. The evolutionary interplay of social behavior, resource use and antipredator behavior in Zetoborinae + Blaberinae + Gyninae + Diplopterinae cockroaches: a phylogenetic analysis. *Cladistics*. 14:117–127.
- Grandcolas, P., and P. Deleporte. 1994. Escape from predation by army ants in *Lanxoblatta* cockroach larvae (Insecta, Blattaria, Zetoborinae). *Biotropica*. 26:469–472.
- Grandcolas, P., and P. Deleporte. 1998. Incubation of zigzag-shaped oothecae in some ovoviviparous cockroaches *Gyna capucina* and *G. henrardi* (Blattaria: Blaberidae). *International Journal of Insect Morphology and Embryology*. 27:269–271.
- Grassé, P.P. 1946. Societies animales et effet de groupe. *Experientia*. 15:365–408.
- Grassé, P.P. 1951. Biocénotique et phénomène sociale. *Annals of Biology*. 27:153–160.
- Grassé, P.P. 1952. Role des flagellés symbiotique chez les Blattes et les Termites. *Tijdschrift voor Entomologie*. 95:70–80.
- Grassé, P.P., and C. Noirot. 1945. La transmission des flagelles symbiotiques et les aliments des termites. *Biological Bulletin of France and Belgium*. 79:273–297.
- Grassé, P.P., and C. Noirot. 1959. L'évolution de la symbiose chez les Isopteres. *Experientia*. 15:365–408.
- Grassé, P.P., and C. Noirot. 1960. L'isolement chez le termite à cou jaune (*Calotermes flavicollis* Fab.) et ses conséquences. *Insectes Sociaux*. 7:323–331.
- Graves, P.N. 1969. Spermatophores of the Blattaria. *Annals of the Entomological Society of America*. 62:595–602.
- Graves, R.C., J.S. Yoon, and E.J. Durbin. 1986. A gynandromorph in the Madagascar hissing cockroach *Gromphadorhina portentosa* (Blattodea: Blaberidae). *Annals of the Entomological Society of America*. 79:662–663.
- Gray, J., and A.J. Boucot. 1993. Early Silurian nonmarine animal remains and the nature of the early continental ecosystem. *Acta Palaeontologica Polonica*. 38:303–328.
- Greenberg, S., and B. Stay. 1974. Distribution and innervation of hairs in the brood sac of the cockroach, *Diploptera punctata* (Eschscholtz) (Dictyoptera: Blaberidae). *International Journal of Insect Morphology and Embryology*. 3:127–135.
- Greenslade, P.J.M., and P. Greenslade. 1989. Ground layer invertebrate fauna. In *Mediterranean Landscapes in Australia*. J.C. Noble and R.A. Bradstock, editors. CSIRO, East Melbourne, Australia. 266–284.
- Griffiths, J.T., and O.E. Tauber. 1942a. Fecundity, longevity, and parthenogenesis of the American roach, *Periplaneta americana* L. *Physiological Entomology*. 15:196–209.
- Griffiths, J.T., and O.E. Tauber. 1942b. The nymphal development for the roach, *Periplaneta americana* L. *Journal of the New York Entomological Society*. 50:263–272.
- Grillou, H. 1973. A study of sexual receptivity in *Blaberus craniifer* Burm. (Blattaria). *Journal of Insect Physiology*. 19:173–193.
- Grimaldi, D., and M.S. Engel. 2005. *Evolution of the Insects*. Cambridge University Press, New York. 755 pp.
- Grove, S.J., and N.E. Stork. 1999. The conservation of saproxylic insects in tropical forests: a research agenda. *Journal of Insect Conservation*. 3:67–74.
- Guillette, L.J., Jr. 1989. The evolution of vertebrate viviparity: morphological modifications and endocrine control. In *Complex Organismal Functions: Integration and Evolution in Vertebrates*. D.B. Wake and G. Roth, editors. John Wiley & Sons, Chichester, England. 219–233.
- Gunn, D.L. 1935. The temperature and humidity relations of the cockroach. III. A comparison of temperature preference, and rates of desiccation and respiration of *Periplaneta americana*, *Blatta orientalis* and *Blattella germanica*. *Journal of Experimental Biology*. 12:185–190.
- Gunn, D.L. 1940. Daily activity rhythm of the cockroach. *Journal of Experimental Biology*. 17:267–277.
- Gupta, A.P. 1947. On copulation and insemination in the



- cockroach *Periplaneta americana* (Linn.). *Proceedings of the National Institute of Sciences, India*. 13:65–71.
- Gupta, B.L., and D.S. Smith. 1969. Fine structural organization of the spermatheca in the cockroach *Periplaneta americana*. *Tissue & Cell*. 1:295–324.
- Gurney, A.B. 1937. Studies in certain genera of American Blattidae (Orthoptera). *Proceedings of the Entomological Society of Washington*. 39:101–112.
- Gurney, A.B. 1959. The largest cockroach. *Proceedings of the Entomological Society of Washington*. 61:133–134.
- Gurney, A.B., and L.M. Roth. 1966. Two new genera of South American cockroaches superficially resembling *Loboptera*, with notes on bionomics (Dictyoptera, Blattaria, Blattellidae). *Psyche*. 73:196–207.
- Guthrie, D.M., and A.R. Tindall. 1968. *The Biology of the Cockroach*. Edward Arnold Ltd., London. 408 pp.
- Gwynne, D.T. 1984. Male mating effort, confidence of paternity, and insect sperm competition. In *Sperm Competition and the Evolution of Animal Mating Systems*. R.L. Smith, editor. Academic Press, London. 117–149.
- Gwynne, D.T. 1998. Genitally does it. *Nature*. 393:734–735.
- Haas, F., and J. Kukulova-Peck. 2001. Dermaptera hindwing structure and folding: new evidence for familial, ordinal and superordinal relationships within Neoptera. *European Journal of Entomology*. 98:445–509.
- Haas, F., and R.J. Wootton. 1996. Two basic mechanisms in insect wing folding. *Proceedings of the Royal Society of London B*. 263:1651–1658.
- Haber, V.R. 1920. Oviposition by a cockroach, *Periplaneta americana* Linn. (Orth.). *Entomological News*. 31:190–193.
- Hackstein, J.H.P. 1996. Genetic and evolutionary constraints for the symbiosis between animals and methanogenic bacteria. *Environmental Monitoring and Assessment*. 42:39–56.
- Hackstein, J.H.P., and C.K. Strumm. 1994. Methane production in terrestrial arthropods. *Proceedings of the National Academy of Sciences*. 91:5441–5445.
- Hadley, N.F. 1994. *Water relations of terrestrial arthropods*. Academic Press, San Diego. 356 pp.
- Hafez, M., and A.M. Afifi. 1956. Biological studies on the furniture cockroach *Supella supellectilium* Serv. in Egypt. *Bulletin de la Societe Entomologique d’Egypte*. 40:365–396.
- Hagan, H.R. 1941. The general morphology of the female reproductive system of a viviparous roach, *Diploptera dytiscoides* (Serville). *Psyche*. 48:1–9.
- Hales, R.A., and M.D. Breed. 1983. Female calling and reproductive behavior in the brown banded cockroach, *Supella longipalpa* (F.) (Orthoptera: Blattellidae). *Annals of the Entomological Society of America*. 76:239–241.
- Hamilton, R.L., R.A. Cooper, and C. Schal. 1990. The influence of nymphal and adult dietary protein on food intake and reproduction in female brown-banded cockroaches. *Entomologia Experimentalis et Applicata*. 55:23–31.
- Hamilton, R.L., D.E. Mullins, and D.M. Orcutt. 1985. Freezing tolerance in the woodroach *Cryptocercus punctulatus* (Scudder). *Experientia*. 41:1535–1536.
- Hamilton, R.L., and C. Schal. 1988. Effects of dietary protein levels on reproduction and food consumption in the German cockroach (Dictyoptera: Blattellidae). *Annals of the Entomological Society of America*. 81:969–976.
- Han, S.S., and A.P. Gupta. 1988. Arthropod immune system. V. Activated immunocytes (granulocytes) of the German cockroach, *Blattella germanica* L. (Dictyoptera: Blattidae) show increased number of microtubules and nuclear pores during immune reaction to foreign tissue. *Cell Structure and Function*. 13:333–343.
- Hanitsch, R. 1923. On a collection of Blattidae from the Buitenzorg Museum. *Treubia*. 3:197–221.
- Hanitsch, R. 1928. Spolia Metawiensia: Blattidae. *Bulletin of the Raffles Museum*. 1:1–44.
- Hanitsch, R. 1933. XXI. The Blattidae of Mt. Kinabalu, British North Borneo. *Journal of the Federated Malay States Museum*. 17:297–337.
- Hansell, M.H. 1993. The ecological impact of animal nests and burrows. *Functional Ecology*. 7:5–12.
- Hanula, J.L., and K.E. Franzreb. 1995. Arthropod prey of nestling red-cockaded woodpeckers in the upper coastal plain of South Carolina. *Wilson Bulletin*. 107:485–495.
- Hanula, J.L., D. Lipscomb, K.E. Franzreb, and S.C. Loeb. 2000. Diet of nestling red-cockaded woodpeckers at three locations. *Journal of Field Ornithology*. 71:126–134.
- Harrington, D. 1990. *The Cockroaches of Stay More: A Novel*. Vintage Books, New York. 337 pp.
- Harris, W.E., and P.J. Moore. 2004. Sperm competition and male ejaculate investment in *Nauphoeta cinerea*: effects of social environment during development. *Journal of Evolutionary Biology*. 18:474–480.
- Harris, W.E., and P.J. Moore. 2005. Female mate preference and sexual conflict: females prefer males that have had fewer consorts. *The American Naturalist*. 165:S64–S71.
- Harrison, R.G. 1980. Dispersal polymorphisms in insects. *Annual Review of Ecology and Systematics*. 11:95–118.
- Hartman, B., and L.M. Roth. 1967a. Stridulation by a cockroach during courtship behavior. *Nature*. 213:1243.
- Hartman, B., and L.M. Roth. 1967b. Stridulation by the cockroach *Nauphoeta cinerea* (Olivier) during courtship behaviour. *Journal of Insect Physiology*. 13:579–586.
- Hartman, H.B., L.P. Bennett, and B.A. Moulton. 1987. Anatomy of equilibrium receptors and cerci of the burrowing desert cockroach *Arenivaga* (Insecta: Blattodea). *Zoomorphology*. 107:81–87.
- Hawke, S.D., and R.D. Farley. 1973. Ecology and behavior of the desert burrowing cockroach, *Arenivaga* sp. (Dictyoptera, Polyphagidae). *Oecologia*. 11:262–279.
- Haydak, M.H. 1953. Influence of the protein level on the diet and longevity of cockroaches. *Annals of the Entomological Society of America*. 46:547–560.
- Heath, H. 1903. The habits of California termites. *Biological Bulletin*. 4:47–63.
- Hebard, M. 1916a. A new genus, *Cariblatta*, of the group Blattellites (Orthoptera, Blattidae). *Transactions of the American Entomological Society*. 42:147–186.
- Hebard, M. 1916b. Studies in the group Ischnopterites (Orthoptera, Blattidae, Pseudomopinae). *Transactions of the American Entomological Society*. 42:337–383.
- Hebard, M. 1917. The Blattidae of North America north of the Mexican boundary. *Memoirs of the American Entomological Society*. 2:255–258.
- Hebard, M. 1920a. The Blattidae of Panama. *Memoirs of the American Entomological Society*. 4:1–154.
- Hebard, M. 1920b. Expedition of the California Academy of



- Sciences to the Galapagos Islands, 1905–1906. *Proceedings of the California Academy of Sciences*, 4th Ser. 2, Pt. 2:311–346.
- Hebard, M. 1920 (1919). Studies in the Dermaptera, and Orthoptera of Colombia. *Transactions of the American Entomological Society*. 45:89–179.
- Hebard, M. 1929. Studies in Malayan Blattidae (Orthoptera). *Proceedings of the Academy of Natural Sciences of Philadelphia*. 81:1–109.
- Hebard, M. 1943. The Dermaptera and Orthopterous families Blattidae, Mantidae and Phasmidae of Texas. *Transactions of the American Entomological Society*. 68:239–311.
- Hebard, M. 1945. The Orthoptera of the Appalachian Mountains in the vicinity of Hot Springs, Virginia, and notes on other Appalachian species and recent extensions of the known range of still other southeastern species. *Transactions of the American Entomological Society*. 71:77–97.
- Heinrich, B. 2001. Racing the Antelope: What Animals Can Teach Us About Running and Life. HarperCollins, New York. 292 pp.
- Helfer, J.R. 1953. How to Know the Grasshoppers, Cockroaches and their Allies. Wm. C. Brown Co., Dubuque, Iowa. 353 pp.
- Hellriegel, B., and G. Bernasconi. 2000. Female-mediated differential sperm storage in a fly with complex spermathecae, *Scatophaga stercoraria*. *Animal Behaviour*. 59:311–317.
- Hellriegel, B., and P.I. Ward. 1998. Complex female reproductive tract morphology: its possible use in postcopulatory female choice. *Journal of Theoretical Biology*. 190:179–186.
- Heming, B.S. 2003. Insect Development and Evolution. Cornell University Press, Ithaca, NY. 494 pp.
- Herreid, C.F.I., and R.J. Full. 1984. Cockroaches on a treadmill: aerobic running. *Journal of Insect Physiology*. 30:395–403.
- Herreid, C.F.I., D.A. Prawel, and R.J. Full. 1981. Energetics of running cockroaches. *Science*. 212:331–333.
- Higashi, M., N. Yamamura, and T. Abe. 2000. Theories on the sociality of termites. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 169–187.
- Hijji, N. 1983. Arboreal fauna in a forest. I. Preliminary observation on seasonal fluctuations in density, biomass, and faunal composition in a *Chamaecyparis obtusa* plantation. *Japanese Journal of Ecology*. 33:415–444.
- Hill, S.B. 1981. Ecology of bat guano in Tamana Cave, Trinidad, W.I. *Proceedings of the 8th International Congress of Speleology*. 1:243–246.
- Hinton, H.E. 1981. *Biology of Insect Eggs*. Vol. 1. Pergamon Press, Oxford.
- Hintze-Podufal, C., and U. Nierling. 1986. Der Einfluss der nahrung auf entwicklung, wachstum und präreproduktionsphase von *Blaptica dubia* Stal. (Blaberoidea, Blaberidae). *Bulletin de la Société Entomologique Suisse*. 59:177–186.
- Hoback, W.W., and D.W. Stanley. 2001. Insects in hypoxia. *Journal of Insect Physiology*. 47:533–542.
- Hoberman, M.A. 1985. Cockroach. In *The Oxford Book of Children's Verse in America*. D. Hall, editor. Oxford University Press, Oxford. 274.
- Hobson, E.S. 1978. Aggregating as a defense against predators in aquatic and terrestrial environments. In *Contrasts in Behavior: Adaptations in the Aquatic and Terrestrial Environments*. E.S. Reese and F.J. Lighter, editors. John Wiley & Sons, New York. 219–234.
- Hocking, B. 1958. On the activity of *Blattella germanica* L. (Orthoptera: Blattidae). *Proceedings of the 10th International Congress of Entomology*. 2:201–204.
- Hocking, B. 1970. Insect associations with the swollen thorn acacias. *Transactions of the Royal Entomological Society of London*. 122:211–255.
- Hoffman, R.L., and J.A. Payne. 1969. Diplopods as carnivores. *Ecology*. 50:1096–1098.
- Hohmann, R., F. Sinowatz, and E. Bamberg. 1978. Biochemical and histochemical examination of glycosidases in the genital tract of the cockroach *Blaberus craniifer*. *Zoologischer Anzeiger*. 200:379–385.
- Holbrook, G.L., E. Armstrong, J.A.S. Bachmann, B.M. Deasy, and C. Schal. 2000a. Role of feeding in the reproductive 'group effect' in females of the German cockroach *Blattella germanica* (L.). *Journal of Insect Physiology*. 46:941–949.
- Holbrook, G.L., J.A.S. Bachmann, and C. Schal. 2000b. Effects of ovariectomy and mating on the activity of the corpora allata in adult female *Blattella germanica* (L.) (Dictyoptera: Blattellidae). *Physiological Entomology*. 25:27–34.
- Holbrook, G.L., and C. Schal. 1998. Social influences on nymphal development in the cockroach *Diploptera punctata*. *Physiological Entomology*. 23:121–130.
- Holbrook, G.L., and C. Schal. 2004. Maternal investment affects offspring phenotypic plasticity in a viviparous cockroach. *Proceedings of the National Academy of Sciences*. 101:5595–5597.
- Hölldobler, B., and E.O. Wilson. 1990. *The Ants*. Belknap Press of Harvard University Press, Cambridge, MA. 732 pp.
- Hölldobler, B., and E.O. Wilson. 2005. Euciality: origin and consequences. *Proceedings of the National Academy of Sciences*. 102:13367–13371.
- Holsinger, J.R. 2000. Ecological derivation, colonization, and speciation. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 399–415.
- Honigberg, B.M. 1970. Protozoa associated with termites and their role in digestion. In *Biology of Termites*. Vol. 2. K. Krishna and F.M. Weesner, editors. Academic Press, New York. 1–36.
- Hooper, R.G. 1996. Arthropod biomass in winter and the age of longleaf pines. *Forest Ecology and Management*. 82:115–131.
- Horn, S., and J.L. Hanula. 2002. Life history and habitat associations of the broad wood cockroach *Parcoblatta lata* (Blattaria: Blattellidae) and other native cockroaches in the Coastal Plain of South Carolina. *Annals of the Entomological Society of America*. 95:665–671.
- Howarth, F.G. 1983. Ecology of cave arthropods. *Annual Review of Entomology*. 28:365–389.
- Howarth, F.G. 1988. Environmental ecology of North Queensland caves: or why are there so many troglobites in Australia. In *17th Biennial Conference of the Australian*

- Speleological Federation. L. Pearson, editor. Australian Speleological Federation, Lake Tinaroo, Far North Queensland. 76–84.
- Howse, P.E. 1964. An investigation into the mode of action of the subgenual organ in the termite, *Zootermopsis angusticollis* Emerson and in the cockroach, *Periplaneta americana* L. *Journal of Insect Physiology*. 10:409–424.
- Howse, P.E. 1965. On the significance of certain oscillatory movements in termites. *Insectes Sociaux*. 12:335–346.
- Howse, P.E. 1968. On the division of labour in the primitive termite *Zootermopsis nevadensis* (Hagen). *Insectes Sociaux*. 15:45–50.
- Hoyte, H.M.D. 1961a. The protozoa occurring in the hindgut of cockroaches. II. Morphology of *Nyctotherus ovalis*. *Parasitology*. 51:437–463.
- Hoyte, H.M.D. 1961b. The protozoa occurring in the hindgut of cockroaches. III. Factors affecting the dispersal of *Nyctotherus ovalis*. *Parasitology*. 51:465–495.
- Hubbell, T.H., and C.C. Goff. 1939. Florida pocket-gopher burrows and their arthropod inhabitants. *Proceedings of the Florida Academy of Sciences*. 4:127–166.
- Huber, I. 1976. Evolutionary trends in *Cryptocercus punctulatus* (Blattaria: Cryptocercidae). *Journal of the New York Entomological Society*. 84:166–168.
- Huber, I., E.P. Masler, and B.R. Rao. 1990. Cockroaches as models for neurobiology: applications in biomedical research. Vols. 1–2. CRC Press, Boca Raton.
- Hudgins, J.W., T. Kreckling, and V.R. Francheschi. 2003. Distribution of calcium oxalate crystals in the secondary phloem of conifers: a constitutive defense mechanism? *New Phytologist*. 159:677–690.
- Hufford, L. 1996. Ontogenetic evolution, clade diversification, and homoplasy. In *Homoplasy: The Recurrence of Similarity in Evolution*. M.J. Sanderson and L. Hufford, editors. Academic Press, San Diego. 271–302.
- Hughes, G.M. 1952. The co-ordination of insect movements. I. The walking movements of insects. *Journal of Experimental Biology*. 29:267–284.
- Hughes, G.M., and P.J. Mill. 1974. Locomotion: terrestrial. In *The Physiology of Insecta*. Vol. 3. M. Rockstein, editor. Academic Press, New York. 335–379.
- Hughes, M., and K.G. Davey. 1969. The activity of spermatozoa of *Periplaneta*. *Journal of Insect Physiology*. 15:1607–1616.
- Humphrey, M., H.A. Rose, and D.J. Colgan. 1998. Electrophoretic studies of the cockroaches of the Australian endemic subfamily Geoscapheinae. *Zoological Journal of the Linnean Society*. 124:209–234.
- Humphreys, W.F. 1993. Cave fauna in semi-arid tropical western Australia: a diverse relict wet-forest litter fauna. *Mémoires de Biospéologie*. 20:105–110.
- Humphreys, W.F. 2000a. Background and glossary. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 3–14.
- Humphreys, W.F. 2000b. The hypogean fauna of the Cape Range Peninsula and Barrow Island, Northwestern Australia. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 581–601.
- Humphreys, W.F., and M.N. Feinberg. 1995. Food of the blind cave fishes of northwestern Australia. *Records of the Western Australian Museum*. 17:29–33.
- Hunt, J.H. 2003. Cryptic herbivores of the rainforest canopy. *Science*. 300:916–917.
- Hunt, J.H., and G.V. Amdam. 2005. Bivoltinism as an antecedent to eusociality in the paper wasp genus *Polistes*. *Science*. 308:264–267.
- Hunt, J.H., and C.A. Nalepa. 1994. Nourishment, evolution and insect sociality. In *Nourishment and Evolution in Insect Societies*. J.H. Hunt and C.A. Nalepa, editors. Westview Press, Boulder. 1–19.
- Hunter, F.M., and T.R. Birkhead. 2002. Sperm viability and sperm competition in insects. *Current Biology*. 12:121–123.
- Hüppop, K. 2000. How do cave animals cope with the food scarcity in caves? In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 159–188.
- Ichinosé, T., and K. Zennyoji. 1980. Defensive behavior of the cockroaches *Periplaneta fuliginosa* Serville and *P. japonica* Karney (Orthoptera: Blattellidae), in relation to their viscous secretion. *Applied Entomology and Zoology*. 14:400–408.
- Imboden, H.B., J. Lanzrein, P. Delbecque, and M. Luscher. 1978. Ecdysteroids and juvenile hormone during embryogenesis in the ovoviviparous cockroach *Nauphoeta cinerea*. *General and Comparative Endocrinology*. 36:628–635.
- Imms, A.D. 1919. II. On the structure and biology of *Archotermopsis*, together with descriptions of new species of intestinal protozoa, and general observations on the Isoptera. *Philosophical Transactions of the Royal Society of London*. 209:75–180.
- Ingram, M.J., B. Stay, and G. Cain. 1977. Composition of milk from the viviparous cockroach, *Diploptera punctata*. *Insect Biochemistry*. 7:257–267.
- Inoue, T., S. Moriya, M. Ohkuma, and T. Kudo. 2005. Molecular cloning and characterization of a cellulose gene from a symbiotic protist of the lower termite, *Coptotermes formosanus*. *Gene* 349:67–75.
- Irmiler, U., and K. Furch. 1979. Production, energy and nutrient turnover of the cockroach *Epilampra irmileri* Rocha e Silva & Aguiar, in Central-Amazonian inundation forest. *Amazonia*. 6:497–520.
- Irving, P., L. Troxler, T.S. Heuer, B. M., C. Kopczyński, J.M. Reichhart, J.A. Hoffmann, and C. Hetru. 2001. A genome wide analysis of immune responses in *Drosophila*. *Proceedings of the National Academy of Sciences of the United States of America*. 98:15119–15124.
- Ishii, S., and Y. Kuwahara. 1967. An aggregation pheromone of the German cockroach *Blattella germanica* L. (Orthoptera: Blattellidae). 1. Site of the pheromone production. *Applied Entomology and Zoology*. 2:203–217.
- Ishii, S., and Y. Kuwahara. 1968. Aggregation of German cockroach (*Blattella germanica*) nymphs. *Experientia*. 24:88–89.
- Itoika, T., M. Kato, H. Kaliang, M. Ben Merdeck, T. Nagamitsu, S. Sakai, S. Umah Mohamad, S. Yamane, A. Abdul Hamid, and T. Inoue. 2003. Insect responses to general flowering in Sarawak. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the*

- Canopy. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 126–134.
- Itô, Y. 1980. Comparative Ecology. Cambridge University Press, Cambridge. 436 pp.
- Iwao, S. 1967. Some effects of grouping on lepidopterous insects. In *L'Effet de Groupe chez les Animaux*. Editions du Centre National de la Recherche Scientifique, Paris. 185–212.
- Izquierdo, I., and L. Medina. 1992. A new subterranean species of *Symploce* Hebard from Gran Canaria (Canary Islands) (Blattaria, Blattellidae). *Fragmenta Entomologica*. 24:39–44.
- Izquierdo, I., and P. Oromi. 1992. Dictyoptera—Blattaria. In *Encyclopaedia Biospeologica*. Vol. 1. C. Juberthie and V. Decu, editors. Academie Roumaine, Bucharest. 295–300.
- Izquierdo, I., P. Oromi, and X. Belles. 1990. Number of ovarioles and degree of dependence with respect to the underground environment in the Canarian species of the genus *Loboptera* Brunner (Blattaria, Blattellidae). *Memoirs de Biospéologie*. 17:107–111.
- Izutsu, M., S. Veda, and S. Ishii. 1970. Aggregation effects on the growth of the German cockroach *Blattella germanica* (L.) (Blattaria: Blattellidae). *Applied Entomology and Zoology*. 5:159–171.
- Jackson, L.L. 1983. Epicuticular lipid composition of the sand cockroach *Arenivaga investigata*. *Comparative Biochemistry and Physiology*. 74B:255–257.
- Jaiswal, A.K., and M.B. Naidu. 1972. Studies on the reproductive system of the cockroach *Periplaneta americana* L. male reproductive system—Part I. *Journal of Animal Morphology and Physiology*. 19:1–7.
- Jaiswal, A.K., and M.B. Naidu. 1976. Studies on the reproductive system of the cockroach *Periplaneta americana* L. male reproductive system—Part II. *Journal of Animal Morphology and Physiology*. 23:176–184.
- Jamieson, B.G.M. 1987. The Ultrastructure and Phylogeny of Insect Spermatozoa. Cambridge University Press, Cambridge. 320 pp.
- Jander, U. 1966. Untersuchungen zur Stammesgeschichte von Putzbewegungen von Tracheaten. *Zeitschrift für Tierpsychologie*. 23:799–844.
- Janiszewski, J., and D. Wysocki. 1986. Body temperature of cockroaches: *Gromphadorhina braueri* (Shelf.) and *Periplaneta americana* (L.) at high ambient temperatures. *Zoologica Poloniae*. 33:23–32.
- Janzen, D.H. 1977. Why fruits rot, seeds mold, and meat spoils. *The American Naturalist*. 111:691–713.
- Janzen, D.H. 1976. Why tropical trees have rotten cores. *Biotropica*. 8:110.
- Jarvinen, O., and K. Vepsäläinen. 1976. Wing dimorphism as an adaptive strategy in water striders (Gerris). *Hereditas*. 84:61–68.
- Jayakumar, M., S.J. William, and K.S. Ananthasubramanian. 1994. Parental care in an Indian blaberid roach, *Thorax procellana*. *Geobios New Reports*. 13:159–163.
- Jayakumar, M., S.J. William, N. Raja, K. Elumalai, and A. Jeyasankar. 2002. Mating behavior of a cockroach, *Neopolyphaga miniscula* (Dictyoptera: Blaberoidea). *Journal of Experimental Zoology, India*. 5:101–106.
- Jeanson, R., C. Rivault, J.-L. Deneubourg, S. Blanco, R. Fournier, C. Jost, and G. Theraulaz. 2005. Self organized aggregation in cockroaches. *Animal Behaviour*. 69:169–180.
- Jeyaprakash, A., and M.A. Hoy. 2000. Long PCR improves *Wolbachia* DNA amplification: wsp sequences found in 76% of sixty-three arthropod species. *Insect Molecular Biology*. 9:393–405.
- Jindrich, D.L., and R.J. Full. 2002. Dynamic stabilization of rapid hexapodal locomotion. *Journal of Experimental Biology*. 205:2803–2823.
- Johannes, R.E., and M. Satomi. 1966. Composition and nutritive value of fecal pellets of a marine crustacean. 11:191–197.
- Johnson, C.G. 1976. Lability of the flight system: a context for functional adaptation. *Symposia of the Royal Entomological Society of London*. 7:217–234.
- Jones, S.A., and D. Raubenheimer. 2001. Nutritional regulation in nymphs of the German cockroach, *Blattella germanica*. *Journal of Insect Physiology*. 47:1169–1180.
- Joyner, K., and F. Gould. 1986. Conspecific tissues and secretions as sources of nutrition. In *Nutritional Ecology of Insects, Mites, and Spiders*. F.J. Slansky and J.G. Rodriguez, editors. John Wiley & Sons, New York. 697–719.
- Juberthie, C. 2000a. Conservation of subterranean habitats and species. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 691–700.
- Juberthie, C. 2000b. The diversity of the karstic and pseudokarstic hypogean habitats in the world. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 17–39.
- Just, F., and B. Walz. 1994. Immunocytochemical localization of Na<sup>+</sup>/K<sup>+</sup>-ATPase and V-H<sup>+</sup> ATPase in the salivary glands of the cockroach *Periplaneta americana*. *Cell & Tissue Research*. 278:161–170.
- Kaakeh, W., B.L. Reid, and G.W. Bennett. 1996. Horizontal transmission of entomopathogenic fungus *Metarhizium anisopliae* (imperfect fungi: Hyphomycetes) and hydramethylnon among German cockroaches (Dictyoptera: Blattellidae). *Journal of Entomological Science*. 31:378–390.
- Kaitala, A., and L. Hulden. 1990. Significance of spring migrations and flexibility in flight muscle histolysis in waterstriders Heteroptera Gerridae. *Ecological Entomology*. 15:409–418.
- Kalmus, H. 1941. Physiology and ecology of cuticle color in insects. *Nature*. 148:428–431.
- Kamimura, Y. 2000. Possible removal of rival sperm by the elongated genitalia of the earwig, *Euborellia plebeja*. *Zoological Science*. 17:667–672.
- Kane, M.D., and J.A. Breznak. 1991. Effect of host diet on production of organic acids and methane by cockroach gut bacteria. *Applied and Environmental Microbiology*. 57:2628–2634.
- Kaplin, V.G. 1995. Life history of the cockroach *Anisogamia tamerlana* Sauss. (Blattodea, Corydiidae) in the east Karakim. *Entomologicheskoe Obozrenie*. 74:287–298.
- Kaplin, V.G. 1996. Daily activity, territorial and trophic associations of *Anisogamia tamerlana* Sauss. (Blattodea, Cory-



- diidae) in Eastern Kara Kum. *Entomological Review*. 75:53–66.
- Karlsson, B., and P.-O. Wickman. 1989. The cost of prolonged life: an experiment on a nymphal butterfly. *Functional Ecology*. 3:399–405.
- Karny, H.H. 1924. Beiträge zur Malayischen Orthopterenfauna. V. Bemerkungen ueber einige Blattoiden. *Treubia*. 5:3–19.
- Kavanaugh, D.H. 1977. An example of aggregation in *Scaphinotus* Subgenus *Brennus* Motschulsky (Coleoptera: Carabidae: Cychrini). *The Pan-Pacific Entomologist*. 53:27–31.
- Kawakita, A., and M. Kato. 2002. Floral biology and unique pollination system of root holoparasites, *Balanophora kuroiwai* and *B. tobiracola* (Balanophoraceae). *American Journal of Botany*. 89:1164–1170.
- Kayser, H. 1985. Pigments. In *Comprehensive Insect Physiology, Biochemistry, and Pharmacology*. Vol. 10. G.A. Kerkut and L.I. Gilbert, editors. Pergamon Press, New York. 368–415.
- Kennedy, C.H. 1947. Child labor of the termite society versus adult labor of the ant society. *The Scientific Monthly*. 65:309–324.
- Kevan, D.K.M. 1962. Soil Animals. H.F. & G. Witherby Ltd., London. 244 pp.
- Kevan, D.K.M. 1993. Introducing orthopteroid insects (other than termites) and the soil. *Tropical Zoology*. Special Issue 1:61–83.
- Khalifa, A. 1950. Spermatophore formation in *Blattella germanica*. *Proceedings of the Royal Society of London A*. 25:53–61.
- Kidder, G.W. 1937. The intestinal protozoa of the wood-feeding roach *Panesthia*. *Parasitology*. 29:163–203, 10 plates.
- King, L.E., J.E. Steele, and S.W. Bajura. 1986. The effect of flight on the composition of haemolymph in the cockroach *Periplaneta americana*. *Journal of Insect Physiology*. 32:649–655.
- Kirkwood, T.B.L. 1981. Repair and its evolution: survival vs. reproduction. In *Physiological Ecology: An Evolutionary Approach to Resource Use*. C.R. Townsend and P. Calow, editors. Sinauer Associates, Inc., Sunderland, MA. 165–189.
- Kistner, D. 1982. The Social Insects' Bestiary. In *Social Insects*. Vol. III. H.R. Hermann, editor. Academic Press, New York. 1–244.
- Kitamura, C., H.S. Koh, and S. Ishii. 1974. Possible role of feces for directional orientation in the German cockroach *Blattella germanica* L. *Applied Entomology and Zoology*. 9:271–272.
- Kitching, R.L., H. Mitchell, G. Morse, and C. Thebaud. 1997. Determinants of species richness in assemblages of canopy arthropods in rainforests. In *Canopy Arthropods*. N.E. Stork, J. Adis, and R.K. Didham, editors. Chapman and Hall, London. 131–150.
- Klass, K.-D. 1995. Die Phylogeny der Dictyoptera. Ph.D. thesis, Fakultät für Biologie. Ludwig Maximilians Universität, München.
- Klass, K.-D. 1997. The external male genitalia and the phylogeny of Blattaria and Mantodea. *Bonner Zoologische Monographien*. 42:1–341.
- Klass, K.-D. 1998a. The ovipositor of Dictyoptera (Insecta): homology and ground plan of the main elements. *Zoologischer Anzeiger*. 236:69–101.
- Klass, K.-D. 1998b. The proventriculus of Dicondylia, with comments on evolution and phylogeny in Dictyoptera and Odonata. *Zoologischer Anzeiger*. 237:15–42.
- Klass, K.-D. 2001. Morphological evidence on blattarian phylogeny: “phylogenetic histories and stories” (Insecta, Dictyoptera). *Mitteilungen aus dem Museum für Naturkunde in Berlin, Deutsche Entomologische Zeitschrift*. 48:223–265.
- Klass, K.-D. 2003. Relationships among principal lineages of Dictyoptera inferred from morphological data. *Entomologische Abhandlungen*. 61:134–137.
- Klass, K.-D., and R. Meier. 2006. A phylogenetic analysis of Dictyoptera (Insecta) based on morphological characters. *Entomologische Abhandlungen* 63:3–50.
- Kluge, A.G. 1985. Ontogeny and phylogenetic systematics. *Cladistics*. 1:13–27.
- Knebelberger, T., and H. Bohn. 2003. Geographic parthenogenesis in the subaptera-group of *Phyllodromica* (Blattoptera, Blattellidae, Ectobiinae). *Insect Systematics & Evolution*. 34:427–452.
- Koehler, P.G., and R.S. Patterson. 1987. The Asian roach invasion. *Natural History*. 11/87:29–35.
- Koehler, P.G., C.A. Strong, and R.S. Patterson. 1994. Harborage width preferences of German cockroach (Dictyoptera: Blattellidae) adults and nymphs. *Journal of Economic Entomology*. 87:699–704.
- Komiyama, M., and K. Ogata. 1977. Observations of density effects on the German cockroaches *Blattella germanica* (L.). *Japanese Journal of Sanitary Zoology*. 28:409–415.
- Kopanic, R.J., G.L. Holbrook, V. Sevala, and C. Schal. 2001. An adaptive benefit of facultative coprophagy in the German cockroach *Blattella germanica*. *Ecological Entomology*. 26:154–162.
- Korchi, A., R. Brossut, H. Bouhin, and J. Delachambre. 1999. cDNA cloning of an adult male putative lipocalin specific to tergal gland aphrodisiac secretion in an insect (*Leucophaea maderae*). *FEBS Letters*. 449:125–128.
- Krajick, K. 2001. Cave biologists unearth buried treasure. *Science*. 293:2378–2381.
- Kramer, K.J., A.M. Christensen, T.D. Morgan, J. Schaefer, T.H. Czaplá, and T.L. Hopkins. 1991. Analysis of cockroach oothecae and exuviae by solid state <sup>13</sup>C-NMR spectroscopy. *Insect Biochemistry*. 21:149–156.
- Kramer, S. 1956. Pigmentation in the thoracic musculature of cockroaches and related Orthoptera and the analysis of flight and stridulation. *Proceedings of the 10th International Congress of Entomology*. 1:569–579.
- Krause, J., and G.D. Ruxton. 2002. *Living in Groups*. Oxford University Press, Oxford. 210 pp.
- Kristensen, N.P. 1991. Phylogeny of extant hexapods. In *The Insects of Australia*. Vol. 1. CSIRO, editor. Melbourne University Press, Carleton, Victoria. 125–140.
- Krivokhatskii, V.A. 1985. Experience with the monitoring of the burrow associations of the great gerbil *Rhombomys opimus* in Repetek Biosphere Preserve Turkmen—SSR



- USSR (Abstract). *Izvestiya Akademii Nauk Turkmenskoi SSR Seriya Biologicheskikh Nauk*. 1985:27–32.
- Kugimiya, S., R. Nishida, M. Sakuma, and Y. Kuwahara. 2003. Nutritional phagostimulants function as male courtship pheromone in the German cockroach *Blattella germanica*. *Chemoecology*. 13:169–175.
- Kukor, J.J., and M.M. Martin. 1986. Nutritional ecology of fungus-feeding arthropods. In *Nutritional Ecology of Insects, Mites, Spiders, and Related Invertebrates*. F.J. Slansky and J.G. Rodriguez, editors. John Wiley & Sons, New York. 791–814.
- Kulshrestha, V., and S.C. Pathak. 1997. Aspergillosis in German cockroach *Blattella germanica* (L.) (Blattoidea: Blattellidae). *Mycopathologia*. 139:75–78.
- Kumar, R. 1975. A review of the cockroaches of West Africa and the Congo basin (Dictyoptera: Blattaria). *Bulletin de l'Institut fondamental d'Afrique noire, Serie A, Science naturelles*. 37:27–121.
- Kunkel, J.G. 1966. Development and availability of food in the German cockroach *Blattella germanica* (L.). *Journal of Insect Physiology*. 12:227–235.
- Kunkel, J.G. 1975. Cockroach molting. I. Temporal organization of events during molting cycle of *Blattella germanica* (L.). *Biological Bulletin*. 148:259–273.
- Kunkel, J.G. 1979. A minimal model of metamorphosis: fat body competence to respond to juvenile hormone. In *Current Topics in Insect Endocrinology and Nutrition*. G. Bhaskaran, S. Friedman, and J.G. Rodriguez, editors. Plenum Press, New York. 107–129.
- Labandeira, C.C. 1994. A compendium of fossil insect families. *Milwaukee Public Museum Contributions in Biology and Geology*. 88:1–71.
- Labandeira, C.C., T.L. Phillips, and R.A. Norton. 1997. Oribatid mites and the decomposition of plant tissues in Paleozoic coal-swamp forests. *Palaeos*. 12:319–353.
- Lagone, J.A. 1996. Notes on *Phyllomedusa iheringii* Boulenger, 1885 (Amphibia, Anura, Hylidae). *Comunicaciones Zoológicas del Museo de Historia Natural de Montevideo*. 12:2–7.
- Laird, T.B., P.W. Winston, and M. Braukman. 1972. Water storage in the cockroach *Leucophaea maderae* F. *Naturwissenschaften*. 59:515–516.
- Laland, K.N., and H.C. Plotkin. 1991. Excretory deposits surrounding food sites facilitate social learning of food preferences in Norway rats. *Animal Behaviour*. 41:997–1005.
- Lambiase, S., A. Grigolo, U. Laudani, L. Sacchi, and B. Baccetti. 1997. Pattern of bacteriocyte formation in *Periplaneta americana* (L.) (Blattaria: Blattidae). *International Journal of Insect Morphology and Embryology*. 26:9–19.
- Langecker, T.G. 2000. The effects of continuous darkness on cave ecology and cavernicolous evolution. In *Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 135–157.
- Langellotto, G.A., R.F. Denno, and J.R. Ott. 2000. A trade-off between flight capability and reproduction in males of a wing-dimorphic insect. *Ecology*. 81:865–875.
- Lauga, J., and M. Hatté. 1977. Acquisition de propriétés grégaires par la sable utilise a la ponte répétée des femelles grégaires de *Locusta migratoria* L. (Ins., Orthop). *Acridida*. 6:307–311.
- Laurentiaux, D.M. 1963. Antiquité du dimorphisme sexuel des Blattes. *Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences*. 257:3971–3974.
- Lavelle, P. 2002. Functional domains in soils. *Ecological Research*. 17:441–450.
- Lavelle, P., and B. Kohlmann. 1984. Étude quantitative de la macrofaune du sol dans une forêt tropicale humide du Mexique (Bonampak, Chiapas). *Pedobiologia*. 27:377–393.
- Lavelle, P., C. Lattaud, D. Trigi, and I. Barois. 1995. Mutualism and biodiversity in soils. *Plant and Soil*. 170:23–33.
- Lawless, L.S. 1999. Morphological comparisons between two species of *Blattella* (Dictyoptera: Blattellidae). *Annals of the Entomological Society of America*. 92:139–143.
- Lawrence, R.F. 1953. The Biology of the Cryptic Fauna of Forests, with Special Reference to the Indigenous Forests of South Africa. A. A. Balkema, Cape Town. 408 pp.
- Lawson, F.A. 1951. Structural features of the oothecae of certain species of cockroaches. *Annals of the Entomological Society of America*. 44:269–285.
- Lawson, F.A. 1967. Ecological and collecting notes on eight species of *Parcoblatta* (Orthoptera: Blattidae) and certain other cockroaches. *Journal of the Kansas Entomological Society*. 40:267–269.
- Lawson, F.A., and J.C. Thompson. 1970. Ultrastructural comparison of the spermathecae in *Periplaneta americana*. *Journal of the Kansas Entomological Society*. 43:418–434.
- Lawson, J.W.H. 1965. The behaviour of *Periplaneta americana* in a critical situation and the variation with age. *Behaviour*. 24:210–228.
- Lawton, M.F., and R.O. Lawton. 1986. Heterochrony, deferred breeding, and avian sociality. *Current Ornithology* 3:187–222.
- le Patourel, G.N.J. 1993. Cold-tolerance of the oriental cockroach *Blatta orientalis*. *Entomologia Experimentalis et Applicata*. 68:257–263.
- Leakey, R.J.G. 1987. Invertebrates in the litter and soil at a range of altitudes on Gunung Silam: a small ultrabasic mountain in Sabah. *Journal of Tropical Ecology*. 3:119–129.
- Ledoux, A. 1945. Etude expérimentale du gregarisme et de l'attraction sociale chez les Blattidae. *Annales des Sciences Naturelles, Zoologie*. 7:76–103.
- Lee, H.-J. 1994. Are pregnant females of the German cockroach too heavy to run? *Zoological Studies*. 33:200–204.
- Lee, H.-J., and Y.-L. Wu. 1994. Mating effects on the feeding and locomotion of the German cockroach, *Blattella germanica*. *Physiological Entomology*. 19:39–45.
- Lefevre, J.-C. 1971. Hormone juvénile et polymorphisme alaire chez les Blattaria (Insecte, Dictyoptère). *Archives de Zoologie Experimentale et Générale*. 112:653–666.
- Leimar, O., B. Karlsson, and C. Wiklund. 1994. Unpredictable food and sexual size dimorphism in insects. *Proceedings of the Royal Society of London B*. 258:121–125.
- Lembke, H.F., and D.G. Cochran. 1990. Diet selection by adult female *Parcoblatta fulvescens* cockroaches during the oothecal cycle. *Comparative Biochemistry and Physiology*. 95A:195–199.
- Lenoir-Rousseaux, J.J., and T. Lender. 1970. Table de dével-

- oppement embryonnaire de *Periplaneta americana* (L.) Insecte, Dictyoptere. *Bulletin de la Societe Zoologique de France*. 95:737–751.
- Lepschi, B.J. 1989. A preliminary note on the food of *Imblattella orchidiae* Asahina (Blattellidae). *Australian Entomological Magazine*. 16:41–42.
- Leuthold, R. 1966. Die Bewegungsaktivität der Weiblichen Schab *Leucophaea maderae* (F.) im Laufe des Fortpflanzungszyklus und ihre experimentelle Beeinflussung. *Journal of Insect Physiology*. 12:1303–1333.
- Lewis, S.M., and S.N. Austad. 1990. Sources of intraspecific variation in sperm precedence in red flour beetles. *The American Naturalist*. 135:351–359.
- Liang, D., G.J. Blomquist, and J. Silverman. 2001. Hydrocarbon-released nestmate aggression in the Argentine ant, *Linepithema humile*, following encounters with insect prey. *Comparative Biochemistry and Physiology*. 129B:871–882.
- Liang, D., and C. Schal. 1994. Neural and hormonal regulation of calling behavior in *Blattella germanica* females. *Journal of Insect Physiology*. 40:251–258.
- Lieberstat, F., and J. Camhi. 1988. Control of sensory feedback by movement during flight in the cockroach. *Journal of Experimental Biology*. 136:483–488.
- Liechti, P.M., and W.J. Bell. 1975. Brooding behavior of the Cuban burrowing cockroach *Byrsotria fumigata* (Blaberidae, Blattaria). *Insectes Sociaux*. 22:35–46.
- Lilburn, T.G., K.S. Kim, N.E. Ostrom, K.R. Byzek, J.R. Leadbetter, and J.A. Breznak. 2001. Nitrogen fixation by symbiotic and free-living spirochetes. *Science*. 292:2495–2498.
- Lin, T.M., and H.J. Lee. 1998. Parallel control mechanisms underlying locomotor activity and sexual receptivity of the female German cockroach, *Blattella germanica* (L.). *Journal of Insect Physiology*. 44:1039–1051.
- Linksvayer, T.A., and M.J. Wade. 2005. The evolutionary origin and elaboration of sociality in the aculeate Hymenoptera: maternal effects, sib-social effects, and heterochrony. *Quarterly Review of Biology*. 80:317–336.
- Livingstone, D., and R. Ramani. 1978. Studies on the reproductive biology. *Proceedings of the Indian Academy of Sciences B*. 87:229–247.
- Lloyd, M. 1963. Numerical observations on the movements of animals between beech litter and fallen branches. *Journal of Animal Ecology*. 32:157–163.
- Lo, N. 2003. Molecular phylogenetics of Dictyoptera: Insights into the evolution of termite eusociality and bacterial endosymbiosis in cockroaches. *Entomologische Abhandlungen*. 61:137–138.
- Lo, N., C. Bandi, H. Watanabe, C.A. Nalepa, and T. Beninati. 2003a. Evidence for cocladogenesis between diverse dictyopteran lineages and their intracellular symbionts. *Molecular Biology and Evolution*. 20:907–913.
- Lo, N., P. Luykx, R. Santoni, T. Beninati, C. Bandi, M. Casiraghi, W. Lu, E.V. Zakharov, and C.A. Nalepa. 2006. Molecular phylogeny of *Cryptocercus* wood-roaches based on mitochondrial COII and 16S sequences, and chromosome numbers in Palearctic representatives. *Zoological Science*. 23:393–398.
- Lo, N., G. Tokuda, H. Wantanabe, H. Rose, M. Slaytor, K. Maekawa, C. Bandi, and H. Noda. 2000. Evidence from multiple gene sequences indicates that termites evolved from wood-feeding cockroaches. *Current Biology*. 10:801–804.
- Lo, N., H. Watanabe, and M. Sugimura. 2003b. Evidence for the presence of a cellulase gene in the last common ancestor of bilateran animals. *Proceedings of the Royal Society of London B (Supplement)* 270:S69–S72.
- Lockhart, A.B., P.H. Thrall, and J. Antonovics. 1996. Sexually transmitted diseases in animals: ecological and evolutionary implications. *Biological Reviews*. 71:415–471.
- Lodha, B.C. 1974. Decomposition of digested litter. In *Biology of Plant Litter Decomposition*. C.H. Dickinson and G.J.P. Pugh, editors. Academic Press, London. 213–241.
- Loher, W. 1990. Pheromones and phase transformation in locusts. In *Biology of Grasshoppers*. R.F. Chapman and A. Joern, editors. John Wiley & Sons, New York. 337–355.
- Lopes, R.B., and S.B. Alves. 2005. Effect of *Gregarina* sp. parasitism on the susceptibility of *Blattella germanica* to some control agents. *Journal of Invertebrate Pathology*. 88:261–264.
- Lott, D.F. 1991. *Intraspecific Variation in the Social Systems of Wild Vertebrates*. Cambridge University Press, Cambridge. 238 pp.
- Lusis, O., T. Sandor, and J.-G. Lehoux. 1970. Histological and histochemical observations on the testes of *Byrsotria fumigata* Guer. and *Gromphadorhina portentosa*. *Canadian Journal of Zoology*. 48:25–30.
- Lyubchanskii, I.I., and I.E. Smelyanskii. 1999. Structure of saprophagous invertebrate community on a catena in the steppe of trans-volga region. *Zoologicheskii Zhurnal*. 78:672–680.
- MacDonald, J.F., and R.W. Matthews. 1983. Colony associates of the southern yellowjacket, *Vespa squamosa* (Drury). *Journal of the Georgia Entomological Society*. 18:555–559.
- Machin, J., J.J.B. Smith, and G.J. Lampert. 1994. Evidence for hydration dependent closing of pore structures in the cuticle of *Periplaneta americana*. *Journal of Experimental Biology*. 192:83–94.
- Mackerras, M.J. 1965a. Australian Blattidae (Blattodea). I. General remarks and revision of the genus *Polyzosteria* Burmeister. *Australian Journal of Zoology*. 13:841–882.
- Mackerras, M.J. 1965b. Australian Blattidae (Blattodea). II. Revision of the genus *Euzosteria* Shelford. *Australian Journal of Zoology*. 13:883–902.
- Mackerras, M.J. 1967a. Australian Blattidae (Blattodea). VI. Revision of the genus *Cosmoszoteria* Stal. *Australian Journal of Zoology*. 15:593–618.
- Mackerras, M.J. 1967b. Australian Blattidae (Blattodea). VII. The *Platyzozeria* group, general remarks and revision of the subgenera *Platyzozeria* Brunner and *Leptozyzeria* Tepper. *Australian Journal of Zoology*. 15:1207–1298.
- Mackerras, M.J. 1967c. A blind cockroach from caves in the Nullarbor Plain (Blattodea: Blattellidae). *Journal of the Australian Entomological Society*. 6:39–44.
- Mackerras, M.J. 1968a. Australian Blattidae (Blattodea). VIII. The *Platyzozeria* group; subgenus *Melanozyzeria* Stal. *Australian Journal of Zoology*. 16:237–331.

- Mackerras, M.J. 1968b. *Neolaxta monteithi*, gen. et sp. n. from eastern Australia (Blattodea: Blaberidae). *Journal of the Australian Entomological Society*. 7:143–146.
- Mackerras, M.J. 1970. Blattodea (Cockroaches). In *Insects of Australia*. CSIRO, University of Melbourne Press, Melbourne. 262–274.
- Maddrell, S.H.P., and B.O.C. Gardiner. 1980. The permeability of the cuticular lining of the insect alimentary canal. *Journal of Experimental Biology*. 85:227–237.
- Maekawa, K., M. Kon, and K. Araya. 2005. New species of the genus *Salganea* (Blattaria, Blaberidae, Panesthiinae) from Myanmar, with molecular phylogenetic analyses and notes on social structure. *Entomological Science*. 8:121–129.
- Maekawa, K., M. Kon, K. Araya, and T. Matsumoto. 2001. Phylogeny and biogeography of wood-feeding cockroaches, genus *Salganea* Stål (Blaberidae: Panesthiinae), in Southeast Asia based on mitochondrial DNA sequences. *Journal of Molecular Evolution*. 53:651–659.
- Maekawa, K., N. Lo, O. Kitade, T. Miura, and T. Matsumoto. 1999a. Molecular phylogeny and geographic distribution of wood-feeding cockroaches in East Asian Islands. *Molecular Phylogenetics and Evolution*. 13:360–376.
- Maekawa, K., N. Lo, H.A. Rose, and T. Matsumoto. 2003. The evolution of soil-burrowing cockroaches (Blattaria: Blaberidae) from wood-burrowing ancestors following an invasion of the latter from Asia into Australia. *Proceedings of the Royal Society of London B*. 270:1301–1307.
- Maekawa, K., M. Terayama, M. Maryati, and T. Matsumoto. 1999b. The subsocial wood-feeding cockroach genus *Salganea* Stål from Borneo, with description of a new species (Blaberidae: Panesthiinae). *Oriental Insects*. 33:233–242.
- Mamaev, B.M. 1973. Ecology of the relict cockroach (*Cryptocercus relictus*). *Ekologiya*. 4:70–73.
- Mani, M.S. 1968. Ecology and Biogeography of High Altitude Insects. Dr W.S. Junk N.V. Publishers, Belinfante, NV. 527 pp.
- Manning, A., and G. Johnstone. 1970. The effects of early adult experience on the development of aggressiveness in males of the cockroach, *Nauphoeta cinerea*. *Revue du Comportement Animal*. 4:12–16.
- Manton, S.M. 1977. The Arthropoda: Habits, Functional Morphology, and Evolution. Clarendon Press, Oxford. 527 pp.
- Markow, T.A. 1995. Evolutionary ecology and developmental stability. *Annual Review of Entomology*. 40:105–120.
- Marks, E.P., and F.A. Lawson. 1962. A comparative study of the Dictyopteran ovipositor. *Journal of Morphology*. 111:139–172.
- Marooka, S., and S. Tojo. 1992. Maintenance and selection of strains exhibiting specific wing form and body colour under high density conditions in the brown planthopper *Nilaparvata lugens* (Homoptera: Delphacidae). *Applied Entomology and Zoology*. 27:445–454.
- Marquis, D. 1935a. archygrams. In *the lives and times of archy and mehitabel*. Doubleday Doran & Co., Garden City, NY. 257–260.
- Marquis, D. 1935b. quarantined. In *the lives and times of archy and mehitabel*. Doubleday Doran & Co., Garden City, NY. 433.
- Marquis, D. 1935c. a wail from little archy. In *the lives and times of archy and mehitabel*. Doubleday Doran & Co., Garden City, NY. 362–363.
- Martin, J.L., and I. Izquierdo. 1987. Two new subterranean *Loboptera* Brun. and W. from El Hierro Island Canary Islands Spain Blattaria Blattellidae. *Fragmenta Entomologica*. 19:301–310.
- Martin, J.L., and P. Oromi. 1987. Three new species of subterranean *Loboptera* Brun. and W. Blattaria Blattellidae and considerations on the subterranean environment of Tenerife Canary Islands Spain. *Annales de la Societe Entomologique de France*. 23:315–326.
- Martin, M.M., and J.J. Kukor. 1984. Role of mycophagy and bacteriophagy in invertebrate nutrition. In *Current Perspectives in Microbial Ecology*. M.J. Klug and C.A. Reddy, editors. American Society for Microbiology, Washington, DC. 257–263.
- Masaki, S., and T. Shimizu. 1995. Variability in wing form of crickets. *Research on Population Ecology*. 37:119–128.
- Matsuda, R. 1979. Abnormal metamorphosis in arthropod evolution. In *Arthropod Phylogeny*. A.P. Gupta, editor. Van Nostrand Reinhold Co., New York. 137–256.
- Matsuda, R. 1987. *Animal Evolution in Changing Environments with Special Reference to Abnormal Metamorphosis*. John Wiley & Sons, New York. 355 pp.
- Matsumoto, T. 1987. Colony composition of the subsocial wood-feeding cockroaches *Salganea taiwanensis* Roth and *S. esakii* Roth (Blattaria: Panesthiinae). In *Chemistry and Biology of Social Insects*. J. Eder and H. Rembold, editors. Verlag J. Peperny, Munchen. 394.
- Matsumoto, T. 1988. Colony composition of the wood-feeding cockroach, *Panesthia australis* Brunner (Blattaria, Blaberidae, Panesthiinae) in Australia. *Zoological Science*. 5:1145–1148.
- Matsumoto, T. 1992. Familial association, nymphal development and population density in the Australian giant burrowing cockroach, *Macropanesthia rhinoceros* (Blattaria: Blaberidae). *Zoological Science*. 9:835–842.
- Matsuura, K. 2001. Nestmate recognition mediated by intestinal bacteria in a termite, *Reticulitermes speratus*. *Oikos*. 92:20–26.
- Matthews, E.G. 1976. *Insect Ecology*. University of Queensland Press, St. Lucia, Queensland. 226 pp.
- McBrayer, J.F. 1973. Exploitation of deciduous leaf litter by *Apheloria montana* (Diplopoda: Eurydesmidae). *Pedobiologia*. 13:90–98.
- McClure, H.E. 1965. Microcosms of Batu Caves. *Malayan Nature Journal*. 19:65–74.
- McFall-Ngai, M.J. 2002. Unseen forces: the influence of bacteria on animal development. *Developmental Biology*. 242:1–14.
- McFarlane, J.E., and I. Alli. 1985. Volatile fatty acids of frass of certain omnivorous insects. *Journal of Chemical Ecology*. 11:59–63.
- McKeown, K.C. 1945. *Australian Insects*. Royal Zoological Society of New South Wales, Sydney. 303 pp.
- McKinney, M.L. 1990. Trends in body size evolution. In *Evolutionary Trends*. K.J. McNamara, editor. University of Arizona Press, Tucson. 75–118.
- McKittrick, F.A. 1964. *Evolutionary Studies of Cockroaches*.



- Cornell University Agricultural Experiment Station Memoir. 197 pp.
- McKittrick, F.A. 1965. A contribution to the understanding of cockroach-termite affinities. *Annals of the Entomological Society of America*. 58:18–22.
- McKittrick, F.A., T. Eisner, and H.E. Evans. 1961. Mechanics of species survival. *Natural History*. 70:46–50.
- McMahan, E.A. 1969. Feeding relationships and radioisotope techniques. In *Biology of Termites*. Vol. 1. K. Krishna and F.M. Weesner, editors. Academic Press, New York. 387–406.
- McMonigle, O., and R. Willis. 2000. Allpet Roaches. Elytra and Antenna, Brunswick, OH. 40 pp.
- Meadows, P.S. 1991. The environmental impact of burrows and burrowing animals—conclusions and a model. *Symposium of the Zoological Society of London*. 63:327–338.
- Melampy, R.M., and L.A. Maynard. 1937. Nutrition studies with the cockroach, *Blattella germanica*. *Physiological Zoology*. 10:36–44.
- Meller, P., and H. Greven. 1996a. Beobachtungen zur Laufgeschwindigkeit der viviparen Schabe *Nauphoeta cinerea* während des Fortpflanzungszyklus. *Acta Biologica Benrodis*. 8:19–31.
- Meller, P., and H. Greven. 1996b. Locomotor activity patterns of the viviparous cockroach *Nauphoeta cinerea* and their relation to the reproductive cycle. *Zoologische Beiträge*. 37:217–245.
- Mensa-Bonsu, A. 1976. The biology and development of *Porotermes adamsoni* (Froggatt) (Isoptera, Hodotermitidae). *Insectes Sociaux*. 23:155–156.
- Messer, A.C., and M.J. Lee. 1989. Effect of chemical treatments on methane emission by the hindgut microbiota in the termite *Zootermopsis angusticollis*. *Microbial Ecology*. 18:275–284.
- Metzger, R. 1995. Behavior. In *Understanding and Controlling the German Cockroach*. M.K. Rust, J.M. Owens, and D.A. Rierison, editors. Oxford University Press, New York. 49–76.
- Michener, C.D. 1969. Comparative social behavior of bees. *Annual Review of Entomology*. 14:299–342.
- Miller, D.M., and P.G. Koehler. 2000. Trail-following behavior in the German cockroach (Dictyoptera: Blattellidae). *Journal of Economic Entomology*. 93:1241–1246.
- Miller, P.L. 1981. Respiration. In *The American Cockroach*. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, London. 87–116.
- Miller, P.L. 1990. Mechanisms of sperm removal and sperm transfer in *Orthetrum coerulescens* (Fabricius) (Odonata: Libellulidae). *Physiological Entomology*. 15:199–209.
- Mira, A. 2000. Exuviae eating: a nitrogen meal? *Journal of Insect Physiology*. 46:605–610.
- Mira, A., and D. Raubenheimer. 2002. Divergent nutrition-related adaptations in two cockroach populations inhabiting different environments. *Physiological Entomology*. 27:330–339.
- Mistal, C., S. Takács, and G. Gries. 2000. Evidence for sonic communication in the German cockroach (Dictyoptera: Blattellidae). *The Canadian Entomologist*. 132:867–876.
- Mizuno, T., and H. Tsuji. 1974. Harboring behaviour of three species of cockroaches, *Periplaneta americana*, *P. japonica*, and *Blattella germanica*. *Japanese Journal of Sanitary Zoology*. 24:237–240.
- Mock, D.W., T.C. Lamey, and D.B.A. Thompson. 1988. Falsifiability and the information center hypothesis. *Ornis Scandinavica*. 19:231–248.
- Mohan, C.M., K.A. Lakshmi, and K.U. Devi. 1999. Laboratory evaluation of the pathogenicity of three isolates of the entomopathogenic fungus *Beauveria bassiana* (Bals.) vuillemin on the American cockroach (*Periplaneta americana*). *Biocontrol Science and Technology*. 9:29–33.
- Moir, R.J. 1994. The ‘carnivorous’ herbivores. In *The Digestive System in Mammals: Food, Form and Function*. D.J. Chivers and P. Langer, editors. Cambridge University Press, Cambridge. 87–102.
- Møller, A.P., S. Merino, C.R. Brown, and R.J. Robertson. 2001. Immune defense and host sociality: a comparative study of swallows and martins. *The American Naturalist*. 158:136–145.
- Montrose, V.T., W.E. Harris, and P.J. Moore. 2004. Sexual conflict and cooperation under naturally occurring male enforced monogamy. *Journal of Evolutionary Biology*. 17:443–451.
- Moore, A.J. 1990. Sexual selection and the genetics of pheromonally mediated social behavior in *Nauphoeta cinerea* (Dictyoptera: Blaberidae). *Entomologia Generalis*. 15:133–147.
- Moore, A.J., and M.D. Breed. 1986. Mate assessment in a cockroach, *Nauphoeta cinerea*. *Animal Behaviour*. 34:1160–1165.
- Moore, A.J., P.A. Gowaty, and P.J. Moore. 2003. Females avoid manipulative males and live longer. *Journal of Evolutionary Biology*. 16:523–530.
- Moore, A.J., P.A. Gowaty, W. Wallin, and P.J. Moore. 2001. Fitness costs of sexual conflict and the evolution of female mate choice and male dominance. *Proceedings of the Royal Society of London B*. 268:517–523.
- Moore, A.J., K.F. Haynes, R.F. Preziosi, and P.J. Moore. 2002. The evolution of interacting phenotypes: genetics and evolution of social dominance. *The American Naturalist*. 160:S143–S159.
- Moore, A.J., N.L. Reagan, and K.F. Haynes. 1995. Conditional signalling strategies: effects of ontogeny, social experience and social status on the pheromonal signal of male cockroaches. *Animal Behaviour*. 50:191–202.
- Moore, J., and P. Willmer. 1997. Convergent evolution in invertebrates. *Biological Reviews*. 72:1–60.
- Moore, P.J., and W.E. Harris. 2003. Is a decline in offspring quality a necessary consequence of maternal age? *Proceedings of the Royal Society of London B*. 270:S192–S194.
- Moore, P.J., and A.J. Moore. 2001. Reproductive ageing and mating: the ticking of the biological clock in female cockroaches. *Proceedings of the National Academy of Sciences*. 98:9171–9178.
- Moore, T.E., S.B. Crary, D.E. Koditschek, and T.A. Conklin. 1998. Directed locomotion in cockroaches: “biobots.” *Acta Entomologica Slovenica*. 6:71–78.
- Moran, N.A. 2002. The ubiquitous and varied role of infection in the lives of animals and plants. *The American Naturalist*. 160:S1–S8.
- Moret, Y., and P. Schmidt-Hempel. P. 2000. Survival for im-



- munity: the price of immune system activation for bumblebee workers. *Science*. 290:1166–1168.
- Morley, C. 1921. Nursery rhymes for the tender-hearted. In *Hide and Seek*. George H. Doran Co., New York. 120.
- Morse, D.H. 1980. Behavioural Mechanisms in Ecology. Harvard University Press, Cambridge, MA. 383 pp.
- Moser, J.C. 1964. Inquiline roach responds to trail-marking substance of leaf-cutting ants. *Science*. 143:148–149.
- Mukha, D., B.M. Wiegmann, and C. Schal. 2002. Evolution and phylogenetic information content of the ribosomal DNA repeat in the Blattodea (Insecta). *Insect Biochemistry and Molecular Biology*. 32:951–960.
- Mullins, D.E. 1982. Osmoregulation and excretion. In *The American Cockroach*. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, London. 117–149.
- Mullins, D.E., and D.G. Cochran. 1975a. Nitrogen metabolism in the American cockroach. I. An examination of positive nitrogen balance with respect to uric acid stores. *Comparative Biochemistry and Physiology*. 50A:489–500.
- Mullins, D.E., and D.G. Cochran. 1975b. Nitrogen metabolism in the American cockroach. II. An examination of negative nitrogen balance with respect to mobilization of uric acid stores. *Comparative Biochemistry and Physiology*. 50A:501–510.
- Mullins, D.E., and D.G. Cochran. 1987. Nutritional ecology of cockroaches. In *Nutritional Ecology of Insects, Mites, Spiders, and Related Invertebrates*. F.J. Slansky and J.G. Rodriguez, editors. John Wiley & Sons, New York. 885–902.
- Mullins, D.E., and C.B. Keil. 1980. Paternal investment of urates in cockroaches. *Nature*. 283:567–569.
- Mullins, D.E., C.B. Keil, and R.H. White. 1992. Maternal and paternal nitrogen investment in *Blattella germanica* (L.) (Dictyoptera; Blattellidae). *Journal of Experimental Biology*. 162:55–72.
- Mullins, D.E., K.J. Mullins, and K.R. Tignor. 2002. The structural basis for water exchange between the female cockroach (*Blattella germanica*) and her ootheca. *Journal of Experimental Biology*. 205:2987–2996.
- Murray, D.A.H., and R. Wicks. 1990. Injury levels for soil-dwelling insects in sunflower in the Central Highlands, Queensland. *Australian Journal of Experimental Agriculture*. 30:669–674.
- Myles, T.G. 1986. Evidence of parental and/or sibling manipulation in three species of termites from Hawaii. *Proceedings of the Hawaiian Entomological Society*. 27:129–136.
- Nadkarni, N.M., and J.T. Longino. 1990. Invertebrates in canopy and ground organic matter in a Neotropical montane forest, Costa Rica. *Biotropica*. 22:286–289.
- Nagamitsu, T., and T. Inoue. 1997. Cockroach pollination and breeding system of *Uvaria elmeri* (Annonaceae) in a lowland mixed dipterocarp forest in Sarawak. *American Journal of Botany*. 84:208–213.
- Nakashima, K., H. Watanabe, H. Saitoh, G. Tokuda, and J.I. Azuma. 2002. Dual cellulose-digesting system of the wood-feeding termite *Coptotermes formosanus*. *Insect Biochemistry and Molecular Biology*. 32:777–784.
- Nalepa, C.A. 1984. Colony composition, protozoan transfer and some life history characteristics of the woodroach *Cryptocercus punctulatus* Scudder. *Behavioral Ecology and Sociobiology*. 14:273–279.
- Nalepa, C.A. 1987. Life history studies of the woodroach *Cryptocercus punctulatus* Scudder (Dictyoptera: Cryptocercidae) and their implications for the evolution of termite eusociality. Ph.D. thesis, Entomology Department. North Carolina State University, Raleigh.
- Nalepa, C.A. 1988a. Reproduction in the woodroach *Cryptocercus punctulatus* Scudder (Dictyoptera: Cryptocercidae): mating, oviposition and hatch. *Annals of the Entomological Society of America*. 81:637–641.
- Nalepa, C.A. 1988b. Cost of parental care in *Cryptocercus punctulatus* Scudder (Dictyoptera: Cryptocercidae). *Behavioral Ecology and Sociobiology*. 23:135–140.
- Nalepa, C.A. 1990. Early development of nymphs and establishment of hindgut symbiosis in *Cryptocercus punctulatus* (Dictyoptera: Cryptocercidae). *Annals of the Entomological Society of America*. 83:786–789.
- Nalepa, C.A. 1991. Ancestral transfer of symbionts between cockroaches and termites: an unlikely scenario. *Proceedings of the Royal Society of London B*. 246:185–189.
- Nalepa, C.A. 1994. Nourishment and the evolution of termite eusociality. In *Nourishment and Evolution in Insect Societies*. J.H. Hunt and C.A. Nalepa, editors. Westview Press, Boulder. 57–104.
- Nalepa, C.A. 1996. Evolution of eusociality in termites: role of altricial offspring. In *Proceedings of the 20th International Congress of Entomology, Florence, Italy*. 396.
- Nalepa, C.A. 2001. *Cryptocercus punctulatus* (Dictyoptera: Cryptocercidae) from monadnocks in the Piedmont of North Carolina. *Journal of Entomological Science*. 36:329–334.
- Nalepa, C.A. 2003. Evolution in the genus *Cryptocercus* (Dictyoptera: Cryptocercidae): no evidence of differential adaptation to hosts or elevation. *Biological Journal of the Linnean Society*. 80:223–233.
- Nalepa, C.A. 2005. *Cryptocercus punctulatus* (Dictyoptera, Cryptocercidae): dispersal events associated with rainfall. *Entomologist's Monthly Magazine*. 141:95–97.
- Nalepa, C.A., and C. Bandi. 1999. Phylogenetic status, distribution, and biogeography of *Cryptocercus* (Dictyoptera: Cryptocercidae). *Annals of the Entomological Society of America*. 92:292–302.
- Nalepa, C.A., and C. Bandi. 2000. Characterizing the ancestors: paedomorphosis and termite evolution. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic, Dordrecht. 53–75.
- Nalepa, C.A., and W.J. Bell. 1997. Postovulation parental investment and parental care in cockroaches. In *Social Behavior in Insects and Arachnids*. J.C. Choe and B.J. Crespi, editors. Cambridge University Press, Cambridge. 26–51.
- Nalepa, C.A., D.E. Bignell, and C. Bandi. 2001a. Detritivory, coprophagy, and the evolution of digestive mutualisms in Dictyoptera. *Insectes Sociaux*. 48:194–201.
- Nalepa, C.A., G.W. Byers, C. Bandi, and M. Sironi. 1997. Description of *Cryptocercus clevelandi* (Dictyoptera: Cryptocercidae) from the northwestern United States, molecular analysis of bacterial symbionts in its fat body, and notes

- on biology, distribution and biogeography. *Annals of the Entomological Society of America*. 90:416–424.
- Nalepa, C.A., and S.C. Jones. 1991. Evolution of monogamy in termites. *Biological Reviews*. 66:83–97.
- Nalepa, C.A., and M. Lenz. 2000. The ootheca of *Mastotermes darwiniensis* Froggatt (Isoptera: Mastotermitidae): homology with cockroaches. *Proceedings of the Royal Society of London B*. 267:1809–1813.
- Nalepa, C.A., L. Li, W. Lu, and J. Lazell. 2001b. Rediscovery of the wood-eating cockroach *Cryptocercus primaryus* (Dictyoptera: Cryptocercidae) in China, with notes on ecology and distribution. *Acta Zootaxonomica Sinica*. 26:184–190.
- Nalepa, C.A., P. Luykx, K.-D. Klass, and L.L. Deitz. 2002. Distribution of karyotypes of the *Cryptocercus punctulatus* species complex (Dictyoptera: Cryptocercidae) in the Southern Appalachians: relation to habitat and history. *Annals of the Entomological Society of America*. 95:276–287.
- Nalepa, C.A., and D.E. Mullins. 1992. Initial reproductive investment and parental body size in *Cryptocercus punctulatus* Scudder (Dictyoptera: Cryptocercidae). *Physiological Entomology*. 17:255–259.
- Narasimham, A.U. 1984. Comparative studies on *Tetrastichus hagenowii* (Ratzeburg) and *T. asthenogmus* (Waterson), two primary parasites of cockroach oothecae, and on their hyperparasite *Tetrastichus* sp. (*T. miser* (Nees) group) (Hymenoptera: Eulophidae). *Bulletin of Entomological Research*. 74:175–189.
- Nardi, J.B., R.I. Mackie, and J.O. Dawson. 2002. Could microbial symbionts of arthropod guts contribute significantly to nitrogen fixation in terrestrial ecosystems? *Journal of Insect Physiology*. 48:751–763.
- Naskrecki, P. 2005. *The Smaller Majority*. Harvard University Press, Cambridge, MA. 278 pp.
- Naylor, L.S. 1964. The structure and function of the posterior abdominal glands of the cockroach *Pseudoderopeltis bicolor* (Thunb.). *Journal of the Entomological Society of South Africa*. 27:62–66.
- Nevo, E. 1999. Mosaic Evolution of Subterranean Mammals: Regression, Progression, and Global Convergence. Oxford University Press, Oxford. 413 pp.
- Nigam, L.N. 1932. The life history of a common cockroach (*Periplaneta americana* Linneus). *Indian Journal of Agricultural Science*. 3:530–543.
- Nijhout, H.F., and D.E. Wheeler. 1982. Juvenile hormones and the physiological basis of insect polymorphisms. *Quarterly Review of Biology*. 57:109–133.
- Niklasson, M., and E.D.J. Parker. 1994. Fitness variation in an invading parthenogenetic cockroach. *Oikos*. 71:47–54.
- Niklasson, M., and E.D.J. Parker. 1996. Human commensalism in relation to geographic parthenogenesis and colonizing/invasive ability. *Journal of Evolutionary Biology*. 9:1027–1028.
- Nishida, G.M. 1992. *Hawaiian Terrestrial Arthropod Checklist*. Bishop Museum, Honolulu, HI. 262 pp.
- Nishida, R., H. Fukami, and S. Ishii. 1974. Sex pheromone of the German cockroach (*Blattella germanica* L.) responsible for male wing raising: 3,11-Dimethyl-2-nonacosanone. *Experientia*. 30:978–979.
- Noda, S., T. Inoue, Y. Hongoh, M. Kawai, C.A. Nalepa, C. Vongkaluang, T. Kudo, and M. Ohkuma. 2006. Identification and characterization of ectosymbionts of distinct lineages in *Bacteroidales* attached to flagellated protists in the gut of termites and a wood-feeding cockroach. *Environmental Microbiology*. 8:11–20.
- Noirot, C. 1985. Pathways of caste development in the lower termites. In *Caste Differentiation in Social Insects*. J.A.L. Watson, B.M. Okot-Kotber, and C. Noirot, editors. Pergamon Press, New York. 41–57.
- Noirot, C. 1995. The gut of termites (Isoptera). Comparative anatomy, systematics, phylogeny. I. Lower termites. *Annales de la Societe Entomologique de France, nouvelle serie*. 31:197–226.
- Noirot, C., and C. Bordereau. 1989. Termite polymorphism and morphogenetic hormones. In *Morphogenetic Hormones of Arthropods: Roles in Histogenesis, Organogenesis, and Morphogenesis*. A.P. Gupta, editor. Rutgers University Press, New Brunswick, NJ. 293–324.
- Noirot, C., and J.P.E.C. Darlington. 2000. Termite nests: architecture, regulation and defence. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 121–139.
- Noirot, C., and J.M. Pasteels. 1987. Ontogenetic development and evolution of the worker caste in termites. *Experientia*. 43:851–860.
- Noirot, C., and A. Quennedy. 1974. Fine structure of insect epidermal glands. *Annual Review of Entomology*. 19:61–80.
- Nojima, S., G.M. Nishida, and Y. Kuwahara. 1999a. Nuptial feeding stimulants: A male courtship pheromone of the German cockroach, *Blattella germanica* (L.) (Dictyoptera: Blattellidae). *Naturwissenschaften*. 86:193–196.
- Nojima, S., M. Sakuma, R. Nishida, and Y. Kuwahara. 1999b. A glandular gift in the German cockroach, *Blattella germanica* (L.) (Dictyoptera: Blattellidae): the courtship feeding of a female on secretions from male tergal glands. *Journal of Insect Behavior*. 12:627–640.
- Nojima, S., C. Schal, F.X. Webster, R.G. Santangelo, and W.L. Roelofs. 2005. Identification of the sex pheromone of the German cockroach, *Blattella germanica*. *Science*. 307(5712):1104–1106.
- North, F.J. 1929. Insect life in the coal forests, with special reference to South Wales. *Report and Transactions of the Cardiff Naturalist's Society*. 62:16–44.
- Nosil, P. 2001. Tarsal asymmetry, nutritional condition, and survival in water boatmen (*Callicorixa vulnerata*). *Evolution*. 55:712–720.
- Novotny, V., Y. Basset, and R.L. Kitching. 2003. Herbivore assemblages and their food resources. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the Canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 40–53.
- Nutting, W.L. 1953a. Giant cockroaches of the genus *Blaberus* as laboratory animals. *Turtox News*. 31:134–136.
- Nutting, W.L. 1953b. Observations on the reproduction of the giant cockroach *Blaberus craniifer*. *Psyche*. 60:6–14.
- Nutting, W.L. 1969. Flight and colony foundation. In *Biology of Termites*. Vol. 1. K. Krishna and F.M. Weesner, editors. Academic Press, New York. 233–282.
- O'Donnell, M.J. 1977a. Hypopharyngeal bladders and frontal

- glands: novel structures involved in water vapour absorption in the desert cockroach, *Arenivaga investigata*. *American Zoologist*. 17:902.
- O'Donnell, M.J. 1977b. Site of water vapour absorption in the desert cockroach *Arenivaga investigata*. *Proceedings of the National Academy of Sciences USA*. 74:1757–1760.
- O'Donnell, M.J. 1981. Fluid movements during water vapour absorption by the desert burrowing cockroach *Arenivaga investigata*. *Journal of Insect Physiology*. 27:877–887.
- O'Donnell, M.J. 1982. Hydrophilic cuticle—the basis for water vapour absorption by the desert burrowing cockroach, *Arenivaga investigata*. *Journal of Experimental Biology*. 99:43–60.
- Odum, E.P., and L.J. Biever. 1984. Resource quality, mutualism, and energy partitioning in food chains. *The American Naturalist*. 124:360–376.
- Ohkuma, M. 2003. Termite symbiotic systems: efficient bio-recycling of lignocellulose. *Applied Microbiology and Biotechnology*. 61:1–9.
- O'Neill, S.L., H.A. Rose, and D. Rugg. 1987. Social behaviour and its relationship to field distribution in *Panesthia cribrata* Saussure (Blattodea: Blaberidae). *Journal of the Australian Entomological Society*. 26:313–321.
- Otronen, M. 1997. Sperm numbers, their storage and use in the fly *Dryomyza anilis*. *Proceedings of the Royal Society of London B*. 264:777–782.
- Otronen, M., P. Reguera, and P.I. Ward. 1997. Sperm storage in the yellow dung fly *Scathophaga stercoraria*: identifying the sperm of competing males in separate female spermathecae. *Ethnology*. 103:844–854.
- Owens, J.M., and G.W. Bennett. 1983. Comparative study of German cockroach population sampling techniques. *Environmental Entomology*. 12:1040–1046.
- Pachamuthu, P., S.T. Kamble, T.L. Clark, and J.E. Foster. 2000. Differentiation of three phenotypically similar *Blattella* spp.: analysis with polymerase chain reaction-restriction fragment length polymorphism of DNA. *Annals of the Entomological Society of America*. 93:1138–1146.
- Page, R.E., Jr., and S.D. Mitchell. 1998. Self-organization and the evolution of division of labor. *Apidologie*. 29:171–190.
- Paoletti, M.G., R.A.J. Taylor, B.R. Stinner, and D.H. Stinner. 1991. Diversity of soil fauna in the canopy and forest floor of a Venezuelan cloud forest. *Journal of Tropical Ecology*. 7:373–383.
- Park, A. 1990. Guess who's coming to tea. *Australian Geographic*. 18:30–45.
- Park, Y.-C., and J.C. Choe. 2003a. Effect of parental care on offspring growth in the Korean wood-feeding cockroach *Cryptocercus kyebangensis*. *Journal of Ethology*. 21:71–77.
- Park, Y.-C., and J.C. Choe. 2003b. Territorial behavior of the Korean wood-feeding cockroach, *Cryptocercus kyebangensis*. *Journal of Ethology*. 21:79–85.
- Park, Y.-C., P. Grandcolas, and J.C. Choe. 2002. Colony composition, social behavior and some ecological characteristics of the Korean wood-feeding cockroach (*Cryptocercus kyebangensis*). *Zoological Science*. 19:1133–1139.
- Park, Y.-C., K. Maekawa, T. Matsumoto, R. Santoni, and J.C. Choe. 2004. Molecular phylogeny and biogeography of the Korean woodroaches *Cryptocercus* spp. *Molecular Phylogenetics and Evolution*. 30:450–464.
- Parker, E.D.J. 2002. Geographic parthenogenesis in terrestrial invertebrates: generalist or specialist clones? In *Reproductive Biology of Invertebrates*. Vol. XI. R.N. Hughes, editor. John Wiley & Sons, Chichester. 93–114.
- Parker, E.D.J., and M. Niklasson. 1995. Desiccation resistance among clones in the invading parthenogenetic cockroach, *Pycnoscelus surinamensis*: a search for the general-purpose genotype. *Journal of Evolutionary Biology*. 8:331–337.
- Parker, E.D.J., R.K. Selander, R.O. Hudson, and L.J. Lester. 1977. Genetic diversity in colonizing parthenogenetic cockroaches. *Evolution*. 31:836–842.
- Parker, G.A. 1970. Sperm competition and its evolutionary consequences in the insects. *Biological Reviews*. 45:525–567.
- Parker, G.G. 1995. Structure and microclimate of forest canopies. In *Forest Canopies*. M.D. Lowman and N.M. Nadkarni, editors. Academic Press, San Diego. 73–106.
- Parrish, J.K., and L. Edelman-Keshet. 1999. Complexity, pattern, and evolutionary trade-offs in animal aggregation. *Science*. 284:99–101.
- Paulian, R. 1948. Observations sur la faune entomologique des nids de Ploceinae. In *Proceedings of the 8th International Congress of Entomology*, Stockholm. 454–456.
- Payne, K. 1973. Some aspects of the ecology and behaviour of *Ectobius pallidus* (Olivier) (Dictyoptera). *Entomologist's Gazette*. 24:67–74.
- Peck, S.B. 1990. Eyeless arthropods of the Galapagos Islands, Ecuador: composition and origin of the cryptozoic fauna of a young, tropical oceanic archipelago. *Biotropica*. 22:366–381.
- Peck, S.B. 1998. A summary of diversity and distribution of the obligate cave-inhabiting faunas of the United States and Canada. *Journal of Cave and Karst Studies*. 60:18–26.
- Peck, S.B., and L.M. Roth. 1992. Cockroaches of the Galapagos Islands, Ecuador, with descriptions of three new species (Insecta: Blattodea). *Canadian Journal of Zoology*. 70:2217.
- Pellens, R., and P. Grandcolas. 2003. Living in Atlantic forest fragments: life habits, behaviour, and colony structure of the cockroach *Monastria biguttata* (Dictyoptera, Blaberidae, Blaberinae) in Espiritu Santo, Brazil. *Canadian Journal of Zoology*. 81:1929–1937.
- Pellens, R., P. Grandcolas, and D. da Silva-Netro. 2002. A new and independently evolved case of xylophagy and the presence of intestinal flagellates in the cockroach *Parasphaeria boleiriana* (Dictyoptera, Blaberidae, Zetoborinae) from the remnants of the Brazilian Atlantic Forest. *Canadian Journal of Zoology*. 80:350–359.
- Peppuy, A., A. Robert, E. Semin, C. Ginies, M. Lettere, O. Bonnard, and C. Bordereau. 2001. (Z)-dodec-3-en-1-ol, a novel termite trail pheromone identified after solid phase microextraction from *Macrotermes annandalei*. *Journal of Insect Physiology*. 47:445–453.
- Perriere, C., and F. Goudey-Perriere. 1988. Enzymatic activities in *Blaberus craniifer* Burm. (Dictyoptera, Blaberidae) spermatophore. *Bulletin de la Societe Zoologique de France*. 113:401–410.
- Perry, D.R. 1978. *Paratropes bilunata* (Orthoptera: Blattidae): an outcrossing pollinator in a Neotropical wet forest



- canopy. *Proceedings of the Entomological Society of Washington*. 80:656–657.
- Perry, D.R. 1986. *Life Above the Jungle Floor*. Simon and Schuster, New York. 170 pp.
- Perry, J., and C.A. Nalepa. 2003. A new mode of parental care in cockroaches. *Insectes Sociaux*. 50:245–247.
- Persad, A.B., and M.A. Hoy. 2004. Predation by *Solenopsis invicta* and *Blattella asahinai* on *Toxoptera citricida* parasitized by *Lysiphlebus testaceipes* and *Lipolexis oregmae* on citrus in Florida. *Biological Control*. 30:531–537.
- Pettit, L.C. 1940. The effect of isolation on growth in the cockroach *Blattella germanica* (L.) (Orthoptera: Blattidae). *Entomological News*. 51:293.
- Philippe, H., and A. Adoutte. 1996. What can phylogenetic patterns tell us about the evolutionary processes generating biodiversity? *In Aspects of the Genesis and Maintenance of Biological Diversity*. M.E. Hochberg, J. Clobert, and R. Barbault, editors. Oxford University Press, Oxford. 41–59.
- Pimm, S.L., G.J. Russell, and J.L. Gittleman. 1995. The future of biodiversity. *Science*. 269:347–350.
- Pipa, R.L. 1985. Effects of starvation, copulation, and insemination on oocyte growth and oviposition by *Periplaneta americana* (Dictyoptera: Blattidae). *Annals of the Entomological Society of America*. 78:284–290.
- Pitnick, S., T. Markow, and G.S. Spicer. 1999. Evolution of multiple kinds of female sperm-storage organs in *Drosophila*. *Evolution*. 53:1804–1822.
- Plante, C.J., P.A. Jumars, and J.A. Baross. 1990. Digestive associations between marine detritivores and bacteria. *Annual Review of Ecology and Systematics*. 21:93–127.
- Poinar, G. 1999. *Paleochordodes protus* n.g., n.sp. (Nematomorpha, Chordodidae), parasites of a fossil cockroach, with a critical examination of other fossil hairworms and helminths of extant cockroaches (Insecta: Blattaria). *Invertebrate Biology*. 118:109–115.
- Polis, G. 1979. Prey and feeding phenology of the desert sand scorpion *Paruroctonus mesaensis* (Scorpiones: Vaejovidae). *Journal of Zoology, London*. 188:333–346.
- Polis, G. 1981. The evolution and dynamics of intraspecific predation. *Annual Review of Ecology and Systematics*. 12:225–251.
- Polis, G. 1984. Intraspecific predation and “infant killing” among invertebrates. *In Infanticide: Comparative and Evolutionary Perspectives*. G. Hausfater and S.B. Hrdy, editors. Aldine, New York. 87–104.
- Polis, G. 1991. Food webs in desert communities: complexity via diversity and omnivory. *In The Ecology of Desert Communities*. G. Polis, editor. University of Arizona Press, Tucson. 383–437.
- Pond, C.M. 1983. Parental feeding as a determinant of ecological relationships in Mesozoic terrestrial ecosystems. *Palaentologica*. 28:215–224.
- Pope, P. 1953. Studies of the life histories of some Queensland Blattidae (Orthoptera). Part 1. The domestic species. *Proceedings of the Royal Society of Queensland*. 63:23–46.
- Postle, A.C. 1985. Density and seasonality of soil and litter invertebrates at Dwellingup. *In Soil and Litter Invertebrates of Australian Mediterranean-type Ecosystems*. Vol. 12. P. Greenslade and J.D. Majer, editors. Western Australian Institute School of Biology Bulletin, Bentley, WA. 18–19.
- Potrikus, C.J., and J.A. Breznak. 1981. Gut bacteria recycle uric acid nitrogen in termites: a strategy for nutrient conservation. *Proceedings of the National Academy of Sciences USA*. 78:4601–4605.
- Poulson, T.L., and K.H. Lavoie. 2000. The trophic basis of subsurface ecosystems. *In Ecosystems of the World*. Vol. 30: Subterranean Ecosystems. H. Wilkens, D.C. Culver, and W.F. Humphreys, editors. Elsevier, Amsterdam. 231–249.
- Poulson, T.L., and W.B. White. 1969. The cave environment. *Science*. 165:971–981.
- Preston-Mafham, R., and K. Preston-Mafham. 1993. *The Encyclopedia of Land Invertebrate Behaviour*. The MIT Press, Cambridge. 320 pp.
- Price, P.W. 2002. Resource-driven terrestrial interaction webs. *Ecological Research*. 17:241–247.
- Princis, K., and D.K.M. Kevan. 1955. Cockroaches from Trinidad, B.W.I., with a few records from other parts of the Caribbean. *Opuscula Entomologica*. 20:149–169.
- Proctor, M., and P. Yeo. 1972. *The pollination of flowers*. Taplinger Pub. Co., New York. 418 pp.
- Prokopy, R.J. 1983. Visual detection of plants by herbivorous insects. *Annual Review of Entomology*. 28:337–364.
- Prokopy, R.J., and B.D. Roitberg. 2001. Joining and avoidance behavior in non-social insects. *Annual Review of Entomology*. 46:631–665.
- Pruthi, H.S. 1933. An interesting case of maternal care in an aquatic cockroach, *Phlebotomus pallens* Serv. (Epilamprinae). *Current Science (Bangalore)*. 1:273.
- Raisbeck, B. 1976. An aggression stimulating substance in the cockroach, *Periplaneta americana*. *Annals of the Entomological Society of America*. 69:793–796.
- Rajulu, J.S., and K. Renganathan. 1966. On the stabilization of the ootheca of the cockroach *Periplaneta americana*. *Naturwissenschaften*. 53:136.
- Ramsay, G.W. 1990. Mantodea (Insecta), with a review of aspects of functional morphology and biology. *Fauna of New Zealand*. 19:1–96.
- Rau, P. 1940. The life history of the American cockroach, *Periplaneta americana* Linn. (Orthop.: Blattidae). *Entomological News*. 51:121–124, 151–155, 186–189, 223–227, 273–278.
- Rau, P. 1941. Cockroaches: the forerunners of termites (Orthoptera: Blattidae; Isoptera). *Entomological News*. 52:256–259.
- Rau, P. 1943. How the cockroach deposits its egg-case; a study in insect behavior. *Annals of the Entomological Society of America*. 36:221–226.
- Raubenheimer, D., and S.A. Jones. 2006. Nutritional imbalance in an extreme generalist omnivore: tolerance and recovery through complementary food selection. *Animal Behaviour*. 71:2153–2162.
- Reddy, M.V. 1995. Litter arthropods. *In Soil Organisms and Litter Decomposition in the Tropics*. M.V. Reddy, editor. Westview Press, Boulder. 113–140.
- Redheuil, M.E. 1973. Contribution a l'étude de la morphologie et du comportement de *Panesthia*. Thesis, Diplôme d'Etudes Approfondies Ethologie, L'Université de Rennes.



- Rehn, J.A.G. 1931. African and Malagasy Blattidae (Orthoptera), Part I. *Proceedings of the Academy of Natural Sciences of Philadelphia*. 83:305–387.
- Rehn, J.A.G. 1932a. African and Malagasy Blattidae (Orthoptera), Part II. *Proceedings of the Academy of Natural Sciences of Philadelphia*. 84:405–511.
- Rehn, J.A.G. 1932b. On apterism and subapterism in the Blattinae (Orthoptera: Blattidae). *Entomological News*. 43:201–206.
- Rehn, J.A.G. 1945. Man's uninvited fellow-traveller—the cockroach. *Scientific Monthly*. 61:265–276.
- Rehn, J.A.G. 1965. A new genus of symbiotic cockroach from southwest Africa (Orthoptera: Blattaria: Oxyhaloinae). *Notulae Naturae*. 374:1–8.
- Rehn, J.W.H. 1951. Classification of the Blattaria as indicated by their wings (Orthoptera). *Memoirs of the American Entomological Society*. 14:1–134.
- Reilly, S.M. 1994. The ecological morphology of metamorphosis: heterochrony and the evolution of feeding mechanisms in salamanders. In *Ecological Morphology: Integrative Organismal Biology*. P.C. Wainright and S.M. Reilly, editors. University of Chicago Press, Chicago. 319–338.
- Rentz, D.C. 1987. *Imblattella orchidae* Asahina, an introduced cockroach associated with orchids in Australia (Blattodea: Blattellidae). *Australian Entomological Society News Bulletin*. May:44–45.
- Rentz, D.C. 1996. Grasshopper Country: The Abundant Orthopteroid Insects of Australia. University of New South Wales Press, Sydney. 284 pp.
- Reuben, L.V. 1988. Some aspects of the bionomics of *Trichoblatta sericea* (Saussure) and *Thorax porcellana* (Saras = Saussure) (Blattaria). Ph.D. thesis, Department of Zoology. Loyola College, Madras, India. 211 pp.
- Richards, A.G. 1963. The rate of sperm locomotion in the cockroach as a function of temperature. *Journal of Insect Physiology*. 9:545–549.
- Richards, A.G., and M.A. Brooks. 1958. Internal symbiosis in insects. *Annual Review of Entomology*. 3:37–56.
- Richards, A.M. 1971. An ecological study of the cavernicolous fauna of the Nullarbor Plain Southern Australia. *Journal of Zoology, London*. 164:1–60.
- Richner, H., and P. Heeb. 1995. Is the information center hypothesis a flop? *Advances in the Study of Behavior*. 24:1–45.
- Richter, K., and D. Barwolf. 1994. Behavioural changes are related to moult regulation in the cockroach, *Periplaneta americana*. *Physiological Entomology*. 19:133–138.
- Ridgel, A.L., R.E. Ritzmann, and P.L. Schaefer. 2003. Effects of aging on behavior and leg kinematics during locomotion in two species of cockroaches. *Journal of Experimental Biology*. 206:4453–4465.
- Ridley, M. 1988. Mating frequency and fecundity in insects. *Biological Reviews*. 63:509–549.
- Ridley, M. 1989. The incidence of sperm displacement in insects: four conjectures, one corroboration. *Biological Journal of the Linnean Society*. 38:349–367.
- Rieppel, O. 1990. Ontogeny—a way forward for systematics, a way backward for phylogeny. *Biological Journal of the Linnean Society*. 39:177–191.
- Rieppel, O. 1993. The conceptual relationship of ontogeny, phylogeny, and classification: the taxic approach. *Evolutionary Biology*. 27:1–32.
- Rierson, D.A. 1995. Baits for German cockroach control. In *Understanding and Controlling the German Cockroach*. M.K. Rust, J.M. Owens, and D.A. Rierson, editors. Oxford University Press, New York. 231–286.
- Ritter, H.J. 1964. Defense of mate and mating chamber in a woodroach. *Science*. 143:1459–1460.
- Rivault, C. 1983. Influence du groupement sur le développement chez *Eublaberus distanti* (Dictyoptere, Ins.). *Insectes Sociaux*. 30:210–220.
- Rivault, C. 1989. Spatial distribution of the cockroach, *Blattella germanica*, in a swimming bath facility. *Entomologia Experimentalis et Applicata*. 53:247–255.
- Rivault, C. 1990. Distribution dynamics of *Blattella germanica* in a closed urban environment. *Entomologia Experimentalis et Applicata*. 57:85–91.
- Rivault, C., and A. Cloarec. 1990. Food stealing in cockroaches. *Journal of Ethology*. 8:53–60.
- Rivault, C., and A. Cloarec. 1991. Exploitation of food resources by the cockroach *Blattella germanica* in an urban habitat. *Entomologia Experimentalis et Applicata*. 61:149–158.
- Rivault, C., and A. Cloarec. 1992a. Agonistic interactions and exploitation of limited food sources in *Blattella germanica* (L.). *Behavioural Processes*. 26:91–102.
- Rivault, C., and A. Cloarec. 1992b. Agonistic interactions at a food source in the cockroach *Blattella germanica* L. In *Biology and Evolution of Social Insects*. J. Billen, editor. Leuven University Press, Leuven, Belgium. 295–300.
- Rivault, C., and A. Cloarec. 1992c. Agonistic tactics and size asymmetries between opponents in *Blattella germanica* (L.) (Dictyoptera: Blattellidae). *Ethology*. 90:52–62.
- Rivault, C., and A. Cloarec. 1998. Cockroach aggregation: discrimination between strain odors in *Blattella germanica*. *Animal Behaviour*. 55:177–184.
- Rivault, C., A. Cloarec, and A. LeGuyader. 1993. Bacterial load of cockroaches in relation to the urban environment. *Epidemiology and Infection*. 110:317–325.
- Rivault, C., A. Cloarec, and L. Sreng. 1998. Cuticular extracts inducing aggregation in the German cockroach *Blattella germanica* (L.). *Journal of Insect Physiology*. 44:909–918.
- Roach, A.M.E., and D.C.F. Rentz. 1998. Blattodea. In *Zoological Catalogue of Australia*. Vol. 23. CSIRO, Australian Biological Resources Study. 21–162.
- Roberts, S.K. 1960. Circadian activity rhythms in cockroaches. I. The free-running rhythms in steady state. *Journal of Cellular and Comparative Physiology*. 55:99–110.
- Robertson, L.N., and G.B. Simpson. 1989. The use of germinating seed baits to detect soil insect pests before crop sowing. *Australian Journal of Experimental Agriculture*. 29:403–407.
- Rocha e Silva Albuquerque, I., and S.M.R. Lopes. 1976. Blattaria de bromélia (Dictyoptera). *Revista Brasileira de Biologia*. 36:873–901.
- Rocha e Silva Albuquerque, I., R. Tibana, J. Jurberg, and A.M.P. Rebordões. 1976. Contribuição para o conhecimento ecológico de *Poeciloderrhis cribosea* (Burmeister)

- e *Poeciloderrhis verticalis* (Burmeister) comum estudo sobre a genitália externa (Dictyoptera: Blattariae). *Revue Suisse de Zoologie*. 36:239–250.
- Rocha, I.R.D. 1990. Development of spacing patterns in *Nauphoeta cinerea* and *Henchoustedenia flexivitta* (Dictyoptera, Blattaria, Blaberidae). *Revista Brasileira de Entomologia*. 34:341–347.
- Rodriguez, V., D. Windsor, and W.G. Eberhard. 2004. Torso beetle genitalia and demonstration of a sexually selected advantage for flagellum length in *Chelymormpha alternans* (Chrysomelidae, Cassidini, Stolinai). In *New Developments in the Biology of Chrysomelidae*. P. Jolivet, J.A. Santiago-Blay, and M. Schmitt, editors. SPB Academic Publishing, The Hague. 739–748.
- Rodríguez-Gironés, M.A., and M. Enquist. 2001. The evolution of female sexuality. *Animal Behaviour*. 61:695–704.
- Roesner, G. 1940. Zur Kenntnis der Lebensweise der Gewachshausschabe *Pycnoscelus surinamensis* L. *Die Gartenbauwissenschaft*. 15:184–225.
- Roff, D.A. 1986. The evolution of wing dimorphism in insects. *Evolution*. 40:1009–1020.
- Roff, D.A. 1990. The evolution of flightlessness in insects. *Ecological Monographs*. 60:389–421.
- Roff, D.A. 1994. The evolution of flightlessness: is history important? *Evolutionary Ecology*. 8:639–657.
- Roff, D.A., and D.J. Fairbairn. 1991. Wing dimorphisms and the evolution of migratory polymorphisms among the Insecta. *American Zoologist*. 31:243–251.
- Roisin, Y. 1990. Reversibility of regressive molts in the termite *Neotermes papua*. *Naturwissenschaften*. 77:246–247.
- Roisin, Y. 1994. Intragroup conflicts and the evolution of sterile castes in termites. *The American Naturalist*. 143:751–765.
- Roisin, Y. 2000. Diversity and evolution of caste patterns. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 95–119.
- Rollo, C.D. 1984a. Resource allocation and time budgeting in adults of the cockroach *Periplaneta americana*: the interaction of behaviour and metabolic reserves. *Research on Population Ecology*. 26:150–187.
- Rollo, C.D. 1984b. Variation among individuals and the effect of temperature on food consumption and reproduction in the cockroach *Periplaneta americana* Orthoptera Blattidae. *Canadian Entomologist*. 116:785–794.
- Rollo, C.D. 1986. A test of the principle of allocation using two sympatric species of cockroaches. *Ecology*. 67:616–628.
- Roonwal, M.L. 1970. Isoptera. In *Taxonomist's Glossary of Genitalia of Insects*. S.H. Tuxen, editor. Munksgaard, Copenhagen. 41–46.
- Rosengaus, R.B., J.E. Moustakas, D.V. Calleri, and J.F.A. Traniello. 2003. Nesting ecology and cuticular microbial loads in dampwood (*Zootermopsis angusticollis*) and drywood termites (*Incisitermes minor*, *I. schwarzi*, *Cryptotermes cavifrons*). *Journal of Insect Science*. 3:31 (insectscience.org/3.31). 6 pp.
- Rosengaus, R.B., J.F.A. Traniello, M.L. Lefebvre, and A.B. Maxmen. 2004. Fungistatic activity of the sternal gland secretion of the dampwood termite *Zootermopsis angusticollis*. *Insectes Sociaux*. 51:259–264.
- Ross, H.H. 1929. The life history of the German cockroach. *Transactions of the Illinois State Academy of Sciences*. 1929:84–93.
- Ross, M.H., and D.G. Cochran. 1967. A gynandromorph of the German cockroach, *Blattella germanica*. *Annals of the Entomological Society of America*. 60:859–860.
- Ross, M.H., and D.E. Mullins. 1995. Biology. In *Understanding and Controlling the German Cockroach*. M.K. Rust, J.M. Owens, and D.A. Rierson, editors. Oxford University Press, New York. 21–47.
- Ross, M.H., and K.R. Tignor. 1985. Response of German cockroaches *Blattella germanica* to a dispersant emitted by adult females. *Entomologia Experimentalis et Applicata*. 39:15–20.
- Ross, M.H., and K.R. Tignor. 1986a. Response of German cockroaches to a dispersant and other substances secreted by crowded adults and nymphs (Blattodea: Blattellidae). *Proceedings of the Entomological Society of Washington*. 88:25–29.
- Ross, M.H., and K.R. Tignor. 1986b. Response of German cockroaches to aggregation pheromones emitted by adult females. *Entomologia Experimentalis et Applicata*. 41:25–31.
- Roth, L.M. 1962. Hypersexual activity induced in females of the cockroach *Nauphoeta cinerea*. *Science*. 138:1267–1269.
- Roth, L.M. 1964a. Control of reproduction in female cockroaches with special reference to *Nauphoeta cinerea*. II. Gestation and postparturition. *Psyche*. 71:198–244.
- Roth, L.M. 1964b. Control of reproduction in female cockroaches with special reference to *Nauphoeta cinerea*. I. First oviposition period. *Journal of Insect Physiology*. 10:915–945.
- Roth, L.M. 1967a. The evolutionary significance of rotation of the oötheca in the Blattaria. *Psyche*. 74:85–103.
- Roth, L.M. 1967b. Sexual isolation in the parthenogenetic cockroach *Pycnoscelus surinamensis* and application of the name *Pycnoscelus indicus* to its bisexual relative (Dictyoptera: Blattaria: Blaberidae: Pycnoscelinae). *Annals of the Entomological Society of America*. 60:774–779.
- Roth, L.M. 1967c. Uricose glands in the accessory sex gland complex of male Blattaria. *Annals of the Entomological Society of America*. 60:1203–1211.
- Roth, L.M. 1967d. Water changes in cockroach oöthecae in relation to the evolution of ovoviviparity and viviparity. *Annals of the Entomological Society of America*. 60:928–946.
- Roth, L.M. 1968a. Oöthecae of Blattaria. *Annals of the Entomological Society of America*. 61:83–111.
- Roth, L.M. 1968b. Oviposition behavior and water changes in the oöthecae of *Lophoblatta brevis* Blattaria: Blattellidae: Plectopterinae. *Psyche*. 75:99–106.
- Roth, L.M. 1968c. Reproduction in some poorly known species of Blattaria. *Annals of the Entomological Society of America*. 61:571–579.
- Roth, L.M. 1969. The evolution of male tergal glands in the Blattaria. *Annals of the Entomological Society of America*. 62:176–208.

- Roth, L.M. 1970a. Evolution and taxonomic significance of reproduction in the Blattaria. *Annual Review of Entomology*. 15:75–96.
- Roth, L.M. 1970b. The stimuli regulating reproduction in cockroaches. *Centre National de la Recherche Scientifique, Paris*. 189:267–286.
- Roth, L.M. 1971a. Additions to the oothecae, uricose glands, ovarioles, and tergal glands of Blattaria. *Annals of the Entomological Society of America*. 64:127–141.
- Roth, L.M. 1971b. The male genitalia of Blattaria VIII. *Panchlora, Anchoblatta, Biolleya, Pelloblattia, and Achroblattia* (Blaberidae: Panchlorinae). *Psyche*. 78:296–305.
- Roth, L.M. 1973a. Brazilian cockroaches found in birds nests, with descriptions of new genera and species. *Proceedings of the Entomological Society of Washington*. 75:1–27.
- Roth, L.M. 1973b. Inhibition of oocyte development during pregnancy in the cockroach *Eublaberus posticus*. *Journal of Insect Physiology*. 19:455–469.
- Roth, L.M. 1973c. The male genitalia of Blattaria. XI. Perisphaeriinae. *Psyche*. 80:305–347.
- Roth, L.M. 1974a. Control of oötheca formation and oviposition in Blattaria. *Journal of Insect Physiology*. 20:821–844.
- Roth, L.M. 1974b. Reproductive potential of bisexual *Pycnoscelus indicus* and clones of its parthenogenetic relative, *Pycnoscelus surinamensis*. *Annals of the Entomological Society of America*. 67:215–223.
- Roth, L.M. 1977. A taxonomic revision of the Panesthiinae of the world. I. The Panesthiinae of Australia (Dictyoptera: Blattaria: Blaberidae). *Australian Journal of Zoology, Supplementary Series*. 48:1–112.
- Roth, L.M. 1979a. Cockroaches and plants. *Horticulture*. August:12–13.
- Roth, L.M. 1979b. A taxonomic revision of the Panesthiinae of the world. II. The genera *Salganea* Stål *Microdina* Kirby and *Caeparia* Stål (Dictyoptera: Blattaria: Blaberidae). *Australian Journal of Zoology, Supplementary Series*. 69:1–201.
- Roth, L.M. 1979c. A taxonomic revision of the Panesthiinae of the world. III. The genera *Panesthia* Serville and *Miopanesthia* Serville (Dictyoptera: Blattaria: Blaberidae). *Australian Journal of Zoology, Supplementary Series*. 74:1–276.
- Roth, L.M. 1980. Cave dwelling cockroaches from Sarawak, with one new species. *Systematic Entomology*. 5:97–104.
- Roth, L.M. 1981a. Introduction. In *The American Cockroach*. W.J. Bell and K.G. Adiyodi, editors. Chapman and Hall, London. 1–14.
- Roth, L.M. 1981b. The mother-offspring relationship of some blaberid cockroaches (Dictyoptera: Blattaria: Blaberidae). *Proceedings of the Entomological Society of Washington*. 83:390–398.
- Roth, L.M. 1982a. Ovoviviparity in the blattellid cockroach, *Symploce bimaculata* (Gerstaecker) (Dictyoptera: Blattaria: Blattellidae). *Proceedings of the Entomological Society of Washington*. 84:277–280.
- Roth, L.M. 1982b. A taxonomic revision of the Panesthiinae of the world. IV. The genus *Ancaudellia* Shaw, with additions to parts I–III, and a general discussion of distribution and relationships of the components of the subfamily (Dictyoptera: Blattaria: Blaberidae). *Australian Journal of Zoology, Supplementary Series*. 82:1–142.
- Roth, L.M. 1984. *Stayella*, a new genus of ovoviviparous blattellid cockroaches from Africa (Dictyoptera: Blattaria: Blattellidae). *Entomologica Scandinavica*. 15:113–139.
- Roth, L.M. 1985. A taxonomic revision of the genus *Blattella* Caudell (Dictyoptera, Blattaria: Blattellidae). *Entomologica Scandinavica Supplement*. 22:1–221.
- Roth, L.M. 1987a. The genus *Neolaxta* Mackerras (Dictyoptera: Blattaria: Blaberidae). *Memoirs of the Queensland Museum*. 25:141–150.
- Roth, L.M. 1987b. The genus *Tryonicus* Shaw from Australia and New Caledonia (Dictyoptera: Blattaria: Blattidae: Tryonicinae). *Memoirs of the Queensland Museum*. 25:151–167.
- Roth, L.M. 1988. Some cavernicolous and epigeal cockroaches with six new species and a discussion of the Nocticolididae (Dictyoptera: Blattaria). *Revue Suisse de Zoologie*. 95:297–321.
- Roth, L.M. 1989a. *Sliferia*, a new ovoviviparous cockroach genus (Blattellidae) and the evolution of ovoviviparity in Blattaria (Dictyoptera). *Proceedings of the Entomological Society of Washington*. 91:441–451.
- Roth, L.M. 1989b. Cockroach genera whose adult males lack styles. Part I. (Dictyoptera: Blattaria: Blattellidae). *Revue Suisse de Zoologie*. 96:747–770.
- Roth, L.M. 1990a. Cockroaches from the Krakatau Islands (Dictyoptera: Blattaria). *Memoirs of the Museum of Victoria*. 50:357–378.
- Roth, L.M. 1990b. A revision of the Australian Parcoblattini (Blattaria: Blattellidae: Blattellinae). *Memoirs of the Queensland Museum*. 28:531–596.
- Roth, L.M. 1991a. Blattodea; Blattaria (Cockroaches). In *The Insects of Australia*. Vol. 1. CSIRO, I.D. Naumann, and others, editors. Cornell University Press, Ithaca, NY. 320–329.
- Roth, L.M. 1991b. The cockroach genera *Beybienkoa*, gen. nov., *Escala* Shelford, *Eowilsonia*, gen. nov., *Hensausurea* Princis, *Parasigmoidella* Hanitsch and *Robshelfordia* Princis (Dictyoptera: Blattaria: Blattellidae). *Invertebrate Taxonomy*. 5:553–716.
- Roth, L.M. 1991c. A new cave dwelling cockroach from Western Australia (Blattaria: Nocticolididae). *Records of the Western Australian Museum*. 15:17–22.
- Roth, L.M. 1991d. New combinations, synonymies, re-descriptions, and new species of cockroaches, mostly Indo-Australian Blattellidae. *Invertebrate Taxonomy*. 5:953–1021.
- Roth, L.M. 1992. The Australian cockroach genus *Laxta* Walker (Dictyoptera: Blattaria: Blaberidae). *Invertebrate Taxonomy*. 6:389–435.
- Roth, L.M. 1994. The beetle-mimicking cockroach genera *Prosoplecta* and *Areolaria*, with a description of *Tomeisneria furthi* gen. n., sp. n. (Blattellidae: Pseudophyllodromiinae). *Entomologica Scandinavica*. 25:419–426.
- Roth, L.M. 1995a. The cockroach genera *Hemithyrsocera* Saussure and *Symplocodes* Hebard (Dictyoptera: Blattellidae: Blattellinae). *Invertebrate Taxonomy*. 9:959–1003.
- Roth, L.M. 1995b. New species and records of cockroaches



- from western Australia. *Records of the Western Australian Museum*. 17:153–161.
- Roth, L.M. 1995c. *Pseudoanaplectinia yumotoi*, a new ovoviparous myrmecophilous cockroach genus and species from Sarawak (Blattaria: Blattellidae; Blattellinae). *Psyche*. 102:79–87.
- Roth, L.M. 1995d. Revision of the cockroach genus *Homopteroidea* Shelford (Blattaria, Polyphagidae). *Tijdschrift voor Entomologie*. 138:103–116.
- Roth, L.M. 1996. Cockroaches from the Seychelles Islands (Dictyoptera: Blattaria). *Journal of African Zoology*. 110:97–128.
- Roth, L.M. 1998a. The cockroach genus *Colapteroblatta*, its synonyms *Poroblatta*, *Acroporoblatta*, and *Naclidas*, and a new species of *Litopeltis* (Blattaria: Blaberidae; Epilamprinae). *Transactions of the American Entomological Society*. 124:167–202.
- Roth, L.M. 1998b. The cockroach genus *Pycnoscelus* Scudder, with a description of *Pycnoscelus femapterus*, sp. nov. (Blattaria: Blaberidae; Pycnoscelinae). *Oriental Insects*. 32:93–130.
- Roth, L.M. 1999a. Descriptions of new taxa, redescriptions, and records of cockroaches, mostly from Malaysia and Indonesia (Dictyoptera: Blattaria). *Oriental Insects*. 33:109–185.
- Roth, L.M. 1999b. New cockroach species, redescriptions, and records, mostly from Australia, and a description of *Metanocticola christmasensis* gen. nov., sp. nov., from Christmas Island (Blattaria). *Records of the Western Australian Museum*. 19:327–364.
- Roth, L.M. 2003a. Blattodea (Cockroaches). In Grzimek's Animal Life Encyclopedia. Vol. 3. M. Hutchins, D.A. Thoney, and M.C. McDade, editors. Gale, Detroit. 147–159.
- Roth, L.M. 2003b. Some cockroaches from Africa and islands of the Indian Ocean, with descriptions of three new species (Blattaria). *Transactions of the American Entomological Society*. 129:163–182.
- Roth, L.M. 2003c. Systematics and phylogeny of cockroaches (Dictyoptera: Blattaria). *Oriental Insects*. 37:1–186.
- Roth, L.M., and D.W. Alsop. 1978. Toxins of Blattaria. *Handbook of Experimental Pharmacology*. 48:465–487.
- Roth, L.M., and R.H. Barth. 1964. The control of sexual receptivity in female cockroaches. *Journal of Insect Physiology*. 10:965–975.
- Roth, L.M., and R.H. Barth. 1967. The sense organs employed by cockroaches in mating behavior. *Behaviour*. 28:58–94.
- Roth, L.M., and A.C. Cohen. 1973. Aggregation in Blattaria. *Annals of the Entomological Society of America*. 66:1315–1323.
- Roth, L.M., and S.H. Cohen. 1968. Chromosomes of the *Pycnoscelus indicus* and *P. surinamensis* complex (Blattaria: Blaberidae: Pycnoscelinae). *Psyche*. 75:53–76.
- Roth, L.M., and G.P. Dateo. 1964. Uric acid in the reproductive system of males of the cockroach *Blattella germanica*. *Science*. 146:782–784.
- Roth, L.M., and G.P. Dateo. 1965. Uric acid storage and excretion by the accessory sex glands of male cockroaches. *Journal of Insect Physiology*. 11:1023–1029.
- Roth, L.M., and G.P. Dateo. 1966. A sex pheromone produced by males of the cockroach *Nauphoeta cinerea*. *Journal of Insect Physiology*. 12:255–265.
- Roth, L.M., and T. Eisner. 1961. Chemical defenses of arthropods. *Annual Review of Entomology*. 7:107–136.
- Roth, L.M., and W. Hahn. 1964. Size of new-born larvae of cockroaches incubating eggs internally. *Journal of Insect Physiology*. 10:65–72.
- Roth, L.M., and B. Hartman. 1967. Sound production and its evolutionary significance in the Blattaria. *Annals of the Entomological Society of America*. 60:740–742.
- Roth, L.M., and G.C. McGavin. 1994. Two new species of Nocticolidae (Dictyoptera: Blattaria) and a rediagnosis of the cavernicolous genus *Spelaeoblatta* Bolivar. *Journal of Natural History*. 28:1319–1326.
- Roth, L.M., and P. Naskrecki. 2001. Trophobiosis between a blattellid cockroach (*Macrophyllodromia* spp.) and fulgoroids (*Enchophora* and *Copidocephala* spp.) in Costa Rica. *Journal of Orthoptera Research*. 10:189–194.
- Roth, L.M., and P. Naskrecki. 2003. A new genus and species of cave cockroach (Blaberidae: Oxyhaloinae) from Guinea, West Africa. *Journal of Orthoptera Research*. 12:57–61.
- Roth, L.M., and E.H. Slifer. 1973. Spheroid sense organs on the cerci of polphagid cockroaches (Blattaria: Polyphagidae). *International Journal of Insect Morphology and Embryology*. 2:13–24.
- Roth, L.M., and W.H. Stahl. 1956. Tergal and cercal secretion of *Blatta orientalis* L. *Science*. 123:798–799.
- Roth, L.M., and B. Stay. 1958. The occurrence of paraquinones in some arthropods, with emphasis on the quinone-secreting tracheal glands of *Diploptera punctata* (Blattaria). *Journal of Insect Physiology*. 1:305–308.
- Roth, L.M., and B. Stay. 1959. Control of oocyte development in cockroaches. *Science*. 130:271–272.
- Roth, L.M., and B. Stay. 1961. Oocyte development in *Diploptera punctata* (Eschscholtz) (Blattaria). *Journal of Insect Physiology*. 7:186–202.
- Roth, L.M., and B. Stay. 1962a. A comparative study of oocyte development in false ovoviparous cockroaches. *Psyche*. 69:165–208.
- Roth, L.M., and B. Stay. 1962b. Oocyte development in *Blattella germanica* (L.) and *Blattella vaga* Heberd (Blattaria). *Annals of the Entomological Society of America*. 55:633–642.
- Roth, L.M., and B. Stay. 1962c. Oocyte development in *Blattella germanica* and *Blattella vaga* (Blattaria). *Annals of the Entomological Society of America*. 55:633–642.
- Roth, L.M., and E.R. Willis. 1952a. A study of cockroach behavior. *American Midland Naturalist*. 47:66–129.
- Roth, L.M., and E.R. Willis. 1952b. Tarsal structure and climbing ability in cockroaches. *Journal of Experimental Zoology*. 119:483–518.
- Roth, L.M., and E.R. Willis. 1954a. *Anastus floridanus* (Hymenoptera: Eupelmidae) a new parasite on the eggs of the cockroach *Eurycotis floridana*. *Transactions of the American Entomological Society*. 80:29–41.
- Roth, L.M., and E.R. Willis. 1954b. The reproduction of cockroaches. *Smithsonian Miscellaneous Collections*. 122:1–49.



- Roth, L.M., and E.R. Willis. 1955a. Intra-uterine nutrition of the "beetle-roach" *Diploptera dytiscoides* (Serv.) during embryogenesis, with notes on its biology in the laboratory (Blattaria: Diplopteridae). *Psyche*. 62:55–68.
- Roth, L.M., and E.R. Willis. 1955b. Relation of water loss to the hatching of eggs from detached oothecae of *Blattella germanica* L. *Journal of Economic Entomology*. 48:57–60.
- Roth, L.M., and E.R. Willis. 1955c. Water content of cockroach eggs during embryogenesis in relation to oviposition behavior. *Journal of Experimental Zoology*. 128:489–509.
- Roth, L.M., and E.R. Willis. 1956. Parthenogenesis in cockroaches. *Annals of the Entomological Society of America*. 49:31–37.
- Roth, L.M., and E.R. Willis. 1957. The medical and veterinary importance of cockroaches. *Smithsonian Miscellaneous Collections*. 134:147.
- Roth, L.M., and E.R. Willis. 1958a. An analysis of oviparity and viviparity in the Blattaria. *Transactions of the American Entomological Society*. 83:221–238.
- Roth, L.M., and E.R. Willis. 1958b. The Biology of *Panchlora nivea* with observations on the eggs of other Blattaria. *Transactions of the American Entomological Society*. 83:195–207.
- Roth, L.M., and E.R. Willis. 1960. The biotic associations of cockroaches. *Smithsonian Miscellaneous Collections*. 141:1–470.
- Roth, L.M., and E.R. Willis. 1961. A study of bisexual and parthenogenetic strains of *Pycnoscelus surinamensis* (Blattaria, Epilamprinae). *Annals of the Entomological Society of America*. 54:12–25.
- Roy, R. 1999. Morphology and taxonomy. In *The Praying Mantids*. F.R. Prete, H. Wells, P.H. Wells, and L.E. Hurd, editors. Johns Hopkins University Press, Baltimore. 19–40.
- Rugg, D. 1987. Aspects of the biology of an Australian wood-feeding cockroach, *Panesthia cribrata* (Blattodea: Blaberidae). Master's thesis, Department of Plant Pathology and Agricultural Entomology. University of Sydney, Sydney. 170 pp.
- Rugg, D., and H.A. Rose. 1984a. Intraspecific association in *Panesthia cribrata* (Sauss.) (Blattodea: Blaberidae). *General and Applied Entomology*. 16:33–35.
- Rugg, D., and H.A. Rose. 1984b. Reproductive biology of some Australian cockroaches (Blattodea: Blaberidae). *Journal of the Australian Entomological Society*. 23:113–117.
- Rugg, D., and H.A. Rose. 1984c. The taxonomic significance of reproductive behavior in some Australian cockroaches. *Journal of the Australian Entomological Society*. 23:118.
- Rugg, D., and H.A. Rose. 1989. Seasonal reproductive cycle in the Australian wood-feeding cockroach *Panesthia cribrata*. *Entomologia Generalis*. 14:189–195.
- Rugg, D., and H.A. Rose. 1990. Nymphal development and adult longevity of the Australian wood-feeding cockroach *Panesthia cribrata* (Dictyoptera: Blaberidae). *Annals of the Entomological Society of America*. 83:766–775.
- Rugg, D., and H.A. Rose. 1991. Biology of *Macropanesthia rhinoceros* (Dictyoptera: Blaberidae). *Annals of the Entomological Society of America*. 84:575–582.
- Rundel, P.W., and A.C. Gibson. 1996. Adaptive strategies of growth form and physiological ecology in Neotropical lowland rain forest plants. In *Neotropical Biodiversity and Conservation*. A.C. Gibson, editor. University of California, Los Angeles. 33–71.
- Runstrom, E.S., and G.W. Bennett. 1990. Distribution and movement patterns of German cockroaches (Dictyoptera: Blattellidae) within apartment buildings. *Journal of Medical Entomology*. 27:515–518.
- Rust, M.K., and A.G. Appel. 1985. Intra- and interspecific aggregation in some nymphal blattellid cockroaches (Dictyoptera: Blattellidae). *Annals of the Entomological Society of America*. 78:107–110.
- Rust, M.K., J.M. Owens, and D.A. Rierson. 1995. *Understanding and Controlling the German Cockroach*. Oxford University Press, New York. 430 pp.
- Ruzicka, V. 1999. The first steps in subterranean evolution of spiders (Araneae) in Central Europe. *Journal of Natural History*. 33:255–265.
- Sacchi, L., S. Corona, A. Grigolo, U. Laudani, M.G. Selmi, and E. Bigliardi. 1996. The fate of the endocytobionts of *Blattella germanica* (Blattaria: Blattellidae) and *Periplaneta americana* (Blattaria: Blattidae) during embryo development. *Italian Journal of Zoology*. 63:1–11.
- Sacchi, L., A. Grigolo, M. Mazzini, E. Bigliardi, B. Baccetti, and U. Laudani. 1988. Symbionts in the oocytes of *Blattella germanica* (L.) (Dictyoptera: Blattellidae): their mode of transmission. *International Journal of Insect Morphology and Embryology*. 17:437–446.
- Sacchi, L., C.A. Nalepa, E. Bigliardi, S. Corona, A. Grigolo, U. Laudani, and C. Bandi. 1998a. Ultrastructural studies of the fat body and bacterial endosymbionts of *Cryptocercus punctulatus* Scudder (Blattaria: Cryptocercidae). *Symbiosis*. 25:251–269.
- Sacchi, L., C.A. Nalepa, E. Bigliardi, M. Lenz, C. Bandi, S. Corona, A. Grigolo, S. Lambiase, and U. Laudani. 1998b. Some aspects of intracellular symbiosis during embryo development of *Mastoterme darwiniensis* (Isoptera: Mastotermitidae). *Parassitologia*. 40:308–316.
- Sacchi, L., C.A. Nalepa, M. Lenz, C. Bandi, S. Corona, A. Grigolo, and E. Bigliardi. 2000. Transovarial transmission of symbiotic bacteria in *Mastoterme darwiniensis* Froggatt (Isoptera: Mastotermitidae): ultrastructural aspects and phylogenetic implications. *Annals of the Entomological Society of America*. 93:1308–1313.
- Saito, S. 1976. Studies on the productivity of soil animals in Pasoh Forest Reserve, West Malaysia. IV. Growth, respiration and food consumption of some cockroaches. *Japanese Journal of Ecology*. 26:37–42.
- Sakaluk, S.K. 2000. Sensory exploitation as an evolutionary origin to nuptial food gifts in insects. *Proceedings of the Royal Society of London B*. 267:339–343.
- Sakuma, M., and H. Fukami. 1990. The aggregation pheromone of the German cockroach *Blattella germanica* (L.) (Dictyoptera: Blattellidae): isolation and identification of the attractant components of the pheromone. *Applied Entomology and Zoology*. 25:355–368.
- Samways, M.J. 1994. *Insect Conservation Biology*. Chapman and Hall, London. 358 pp.
- Sanchez, C., F. Hernandez, P. Rivera, and O. Calderon. 1994.

- Indigenous flora in cockroaches (Dictyoptera: Blattidae and Blattellidae): a bacteriological and ultrastructural analysis. *Revista de Biología Tropical*. 42 (Suppl. 2):93–96.
- Savage, D.C. 1977. Microbial ecology of the gastrointestinal tract. *Annual Review of Microbiology*. 31:107–133.
- Schal, C. 1982. Intraspecific vertical stratification as a mate finding strategy in cockroaches. *Science*. 215:1405–1407.
- Schal, C. 1983. Behavioral and physiological ecology and community structure of tropical cockroaches (Dictyoptera Blattaria). Ph.D. thesis, University of Kansas, Lawrence. 130 pp.
- Schal, C., and W.J. Bell. 1982. Ecological correlates of paternal investment in a tropical cockroach. *Science*. 218:170–172.
- Schal, C., and W.J. Bell. 1986. Vertical community structure and resource utilization in neotropical forest cockroaches. *Ecological Entomology*. 11:411–423.
- Schal, C., J.-Y. Gautier, and W.J. Bell. 1984. Behavioural ecology of cockroaches. *Biological Reviews*. 59:209–254.
- Schal, C., G.L. Holbrook, J.A.S. Bachmann, and V.L. Sevala. 1997. Reproductive biology of the German cockroach, *Blattella germanica*: juvenile hormone as pleiotropic master regulator. *Archives of Insect Biochemistry and Physiology*. 35:405–426.
- Scharf, M.E., D. Wu-Scharf, X. Zhou, B.R. Pittendrigh, and G.W. Bennett. 2005. Gene expression profiles among immature and adult reproductive castes of the termite *Reticulitermes flavipes*. *Insect Molecular Biology*. 14:31–44.
- Scharrer, B. 1946. The role of the corpora allata in the development of *Leucophaea maderae* (Orthoptera). *Endocrinology*. 38:35–45.
- Scherkenbeck, J., G. Nentwig, K. Justus, J. Lenz, D. Gondol, G. Wendler, M. Dambach, F. Nischk, and C. Graef. 1999. Aggregation agents in German cockroach *Blattella germanica*: examination of efficacy. *Journal of Chemical Ecology*. 25:1105–1119.
- Scheu, S., and H. Setälä. 2002. Multitrophic interactions in decomposer food webs. In *Multitrophic Level Interactions*. T. Tscharntke and B. Hawkins, editors. Cambridge University Press, Cambridge. 223–264.
- Schiegg, K. 2000. Are there saproxylic beetles characteristic of high dead wood connectivity? *Ecography*. 23:579–587.
- Schneider, J. 1977. Zür Variabilität der Flügel palaozoischer Blattodea (Insecta). Teil 1. *Freiberger Forschungshefte (C)*. 326:87–105 (translation by A.U. Eben).
- Schneider, J. 1978. Zur Taxonomie und Biostratigraphie der Blattodea (Insecta) des Karbon und Perm der DDR. *Freiberger Forschungshefte (C)*. 340:1–152 (translation by A.U. Eben).
- Schneider, J., and R. Werneburg. 1994. Neue Spiloblattinidae (Insecta, Blattodea) aus dem Oberkarbon und Unterperm von Mitteleuropa sowie die Biostratigraphie des Rotliegend. *Veröffentlichungen Naturhistorisches Museum Schloss Schleusingen*. 7/8:31–52.
- Schoenly, K. 1983. Arthropods associated with bovine and equine dung in an ungrazed Chihuahuan desert ecosystem. *Annals of the Entomological Society of America*. 76:790–796.
- Schowalter, T.D., and L.M. Ganio. 2003. Diel, seasonal and disturbance induced variation in invertebrate assemblages. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the Canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 315–328.
- Schultze-Motel, P., and H. Greven. 1998. Metabolic heat flux in pregnant females of the viviparous cockroach *Nauphoeta cinerea* (Blaberoidea: Blaberidae). *Entomologia Generalis*. 22:199–204.
- Scott, H. 1929. On some cases of maternal care displayed by cockroaches and their significance. *Entomologist's Monthly Magazine*. 65:218–222.
- Scriber, J.M., and F.J. Slansky. 1981. The nutritional ecology of immature insects. *Annual Review of Entomology*. 26:183–211.
- Scrivener, A.M., and M. Slaytor. 1994a. Cellulose digestion in *Panesthia cribrata* Saussure: does fungal cellulase play a role? *Comparative Biochemistry and Physiology*. 107B:309–315.
- Scrivener, A.M., and M. Slaytor. 1994b. Properties of the endogenous cellulase from *Panesthia cribrata* Saussure and purification of major endo- $\beta$ -1,4-glucanase components. *Insect Biochemistry and Molecular Biology*. 24:223–231.
- Scudder, S.H. 1886. The cockroach of the past. In *The Cockroach*. L.C. Miall and A. Denny, editors. Lovell Reeve & Co., London. 205–220.
- Seamans, L., and L.C. Woodruff. 1939. Some factors influencing the number of molts of the German roach. *Journal of the Kansas Entomological Society*. 12:73–76.
- Seastedt, T.R. 1984. The role of microarthropods in decomposition and mineralization processes. *Annual Review of Entomology*. 29:25–46.
- Seelinger, G. 1984. Sex-specific activity patterns in *Periplaneta americana* and their relation to mate-finding. *Zeitschrift für Tierpsychologie*. 65:309–326.
- Seelinger, G., and U. Seelinger. 1983. On the social organization, alarm and fighting in the primitive cockroach *Cryptocercus punctulatus*. *Zeitschrift für Tierpsychologie*. 61:315–333.
- Seifert, R.P., and F.H. Seifert. 1976. Natural history of insects living in inflorescences of two species of *Heliconia*. *Journal of the New York Entomological Society*. 84:233–242.
- Séin, F.J. 1923. Cucarachas. *Puerto Rico Insular Experiment Station Circular*. 64:1–12.
- Shapiro, J.A. 1997. Multicellularity: the rule not the exception. In *Bacteria as Multicellular Organisms*. J.A. Shapiro and M. Dworkin, editors. Oxford University Press, New York. 14–49.
- Shaw, E. 1918. Australian Blattidae, with descriptions of eleven new species. *Memoirs of the Queensland Museum, Brisbane*. 6:151–167.
- Shaw, E. 1925. New genera and species (mostly Australasian) of Blattidae, with notes, and some remarks on Tepper's types. *Proceedings of the Linnean Society, New South Wales*. 1:171–213.
- Shaw, S.R. 1994a. Detection of airborne sound by a cockroach 'vibration detector': a possible missing link in insect auditory evolution. *Journal of Experimental Biology*. 193:13–47.
- Shaw, S.R. 1994b. Re-evaluation of the absolute threshold and response mode of the most sensitive known "vibra-

- tion" detector, the cockroach's subgenual organ: a cochlea-like displacement threshold and a direct response to sound. *Journal of Neurobiology*. 25:1167–1185.
- Shear, W.A., and J. Kukulová-Peck. 1990. The ecology of Paleozoic terrestrial arthropods: the fossil evidence. *Canadian Journal of Zoology*. 68:1807–1834.
- Shelford, R. 1906a. Studies of the Blattidae. VI. Viviparity amongst the Blattidae. *Transactions of the Entomological Society of London*. 1906:509–514.
- Shelford, R. 1906b. Studies of the Blattidae. VII. A new genus of symbiotic Blattidae. *Transactions of the Entomological Society of London*. 1906:515–519.
- Shelford, R. 1906c. XIV. Studies of the Blattidae. III. Some new Blattidae from Sarawak, Borneo in the Hope Department, Oxford University Museum. *Transactions of the Entomological Society of London*. Part II. 1906:265–280.
- Shelford, R. 1907. Aquatic cockroaches. *Zoologist*, Ser. 4. 11:221–226.
- Shelford, R. 1908. XXVI. Some new genera and species of Blattidae, with notes on the form of the pronotum in the subfamily Perisphaeriinae. *Annals and Magazine of Natural History*, Ser. 8. 1:157–177.
- Shelford, R. 1909. Notes on some amphibious cockroaches. *Records of the Indian Museum*. 3:125–127.
- Shelford, R. 1910a. A new cavernicolous cockroach. *Annals and Magazine of Natural History*, Ser. 8. 6:114–116.
- Shelford, R. 1910b. Orthoptera: Blattodea. *Sjostedt's Kilimanjaro-Meru Expedition*. 17:13–48.
- Shelford, R. 1912a. Mimicry amongst the Blattidae; with a revision of the genus *Prosoplecta* Sauss., and the description of a new genus. *Proceedings of the Zoological Society of London*. 82:358–376.
- Shelford, R. 1912b. The oothecae of Blattidae. *Entomologist's Record*. 24:283–287.
- Shelford, R. 1916. A Naturalist in Borneo. T.F. Unwin, London. 331 pp.
- Sherron, D.A., H.E.J. Wright, M.H. Ross, and M.H. Farrier. 1982. Density, fecundity, homogeneity, and embryonic development of German cockroach (*Blattella germanica* (L.)) populations in kitchens of varying degrees of sanitation (Dictyoptera: Blattellidae). *Proceedings of the Entomological Society of Washington*. 84:376–390.
- Shimamura, H., S. Hori, H. Nagano, S.I. Matsunaga, and F. Urushizaki. 1994. Secondary kill effect of hydramethylnon bait against several species of cockroach. *Japanese Journal of Sanitary Zoology*. 45:97–100.
- Shindo, J., and S. Masaki. 1995. Photoperiodic control of larval development in the semivoltine cockroach *Periplaneta japonica* (Blattidae: Dictyoptera). *Ecological Research*. 10:1–12.
- Shine, R. 1985. The evolution of viviparity in reptiles: an ecological analysis. In *The Biology of Reptilia*. C. Gans and F. Billett, editors. John Wiley & Sons, New York. 606–694.
- Shine, R. 1989. Ecological influences on the evolution of vertebrate viviparity. In *Complex Organismal Functions: Integration and Evolution in Vertebrates*. D.B. Wake and G. Roth, editors. John Wiley & Sons, New York. 263–278.
- Sibley, R.M. 1981. Strategies of digestion and defecation. In *Physiological Ecology: An Evolutionary Approach to Resource Use*. C.R. Townsend and P. Calow, editors. Sinauer, Sunderland, MA. 109–139.
- Silvestri, F. 1946. Prima nota su alcuni termitofili dell'Indocina. *Bollettino del Laboratorio di Entomologia Agraria Filippo Silvestri, Portici*. 6:313–330.
- Simberloff, D.S., and E.O. Wilson. 1969. Experimental zoogeography of islands: the colonization of empty islands. *Ecology*. 50:278–286.
- Simmons, L.W. 2001. Sperm Competition and its Evolutionary Consequences in Insects. Princeton University Press, Princeton. 434 pp.
- Simon, D., and R.H. Barth. 1977a. Sexual behavior in the cockroach genera *Periplaneta* and *Blatta*. I. Descriptive aspects. *Zeitschrift für Tierpsychologie*. 44:80–107.
- Simon, D., and R.H. Barth. 1977b. Sexual behavior in the cockroach genera *Periplaneta* and *Blatta*. III. Aggression and sexual behavior. *Zeitschrift für Tierpsychologie*. 44:306–322.
- Simpson, B.S., R.E. Ritzmann, and A.J. Pollack. 1986. A comparison of escape behaviors of the cockroaches *Blaberus craniifer* and *Periplaneta americana*. *Journal of Neurobiology*. 17:405–419.
- Sinclair, B.J. 1997. Seasonal variation in freezing tolerance of the New Zealand alpine cockroach *Celatoblatta quinque-maculata*. *Ecological Entomology*. 22:462–467.
- Sinclair, B.J. 2000. Water relations of the freeze tolerant New Zealand alpine cockroach *Celatoblatta quinque-maculata* (Dictyoptera: Blattidae). *Journal of Insect Physiology*. 46:869–876.
- Sinclair, B.J. 2001. Field ecology of freeze tolerance: interannual variation in cooling rates, freeze-thaw and thermal stress in the microhabitat of the alpine cockroach *Celatoblatta quinque-maculata*. *Oikos*. 93:286–293.
- Sinclair, B.J., and S.L. Chown. 2005. Climatic variability and hemispheric differences in insect cold tolerance: support from southern Africa. *Functional Ecology*. 19:214–221.
- Sinclair, B.J., J.M. Lord, and C.M. Thompson. 2001. Microhabitat selection and seasonality of alpine invertebrates. *Pedobiologia*. 45:107–120.
- Singer, M.S., and E.A. Bernays. 2003. Understanding omnivory needs: a behavioral perspective. *Ecology*. 84:2532–2537.
- Sirugue, D., O. Bonnard, J.-L. Le Quere, J.-P. Farine, and R. Brossut. 1992. 2-methylthiazolidine and 4-ethylguaicol, male sex pheromone components of the cockroach *Nauphoeta cinerea* (Dictyoptera, Blaberidae): a reinvestigation. *Journal of Chemical Ecology*. 18:2261–2276.
- Skaife, S.H. 1954. African Insect Life. Longmans, Green, New York. 387 pp.
- Slaney, D.P. 2001. New species of Australian cockroaches in the genus *Paratemnopteryx* Saussure (Blattaria, Blattellidae, Blattellinae), and a discussion of some behavioural observations with respect to the evolution and ecology of cave life. *Journal of Natural History*. 35:1001–10012.
- Slaney, D.P., and D. Blair. 2000. Molecules and morphology are concordant in discriminating among populations of cave cockroaches in the genus *Paratemnopteryx* Saussure (Blattodea: Blattellidae). *Annals of the Entomological Society of America*. 93:398–404.



- Slaney, D.P., and P. Weinstein. 1996. Leaf litter traps for sampling orthopteroid insects in tropical caves. *Journal of Orthoptera Research*. 5:51–52.
- Slaney, D.P., and P. Weinstein. 1997a. Conservation of cave fauna: more than just bats. *Memoirs of the Museum of Victoria*. 56:591–596.
- Slaney, D.P., and P. Weinstein. 1997b. Geographical variation in the tropical cave cockroach *Paratemopteryx stonei* Roth (Blattellidae) in North Queensland, Australia. *International Journal of Speleology*. 25:1–14.
- Slansky, F.J., and J.M. Scriber. 1985. Food consumption and utilization. *Comparative Insect Physiology, Biochemistry and Pharmacology*. 4:87–163.
- Slaytor, M. 1992. Cellulose digestion in termites and cockroaches: what role do symbionts play? *Comparative Biochemistry and Physiology*. 103B:775–784.
- Slaytor, M. 2000. Energy metabolism in the termite and its gut microbiota. In *Termites: Evolution, Sociality, Symbioses, Ecology*. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 307–332.
- Slaytor, M., and D.J. Chappell. 1994. Nitrogen metabolism in termites. *Comparative Biochemistry and Physiology*. 107B:1–10.
- Smith, A.F., and C. Schal. 1990. The physiological basis for the termination of pheromone releasing behavior in the female brown-banded cockroach, *Supella longipalpa* (F.) (Dictyoptera: Blattellidae). *Journal of Insect Physiology*. 36:369–373.
- Smith, D.C. 1992. The symbiotic condition. *Symbiosis*. 14:3–15.
- Snart, J.O.H., M. Greenwood, R. Beck, and K.C. Highnam. 1984a. The functional morphology of the brood sac in two species of ovoviviparous cockroaches *Byrsotria fumigata* (Guerin) and *Gromphadorhina portentosa* (Schaum). 1. Scanning and light microscopy. *International Journal of Insect Morphology and Embryology*. 7:345–355.
- Snart, J.O.H., M. Greenwood, R. Beck, and K.C. Highnam. 1984b. The functional morphology of the brood sac in two species of ovoviviparous cockroaches *Byrsotria fumigata* (Guerin) and *Gromphadorhina portentosa* (Schaum). 2. Transmission electron microscopy. *International Journal of Insect Morphology and Embryology*. 7:357–367.
- Snodgrass, R.E. 1937. The male genitalia of orthopteroid insects. *Smithsonian Miscellaneous Collections*. 96:1–107.
- Sommer, V.S.H. 1974. Aggregationsverhalten bei Schaben. *Angewandte Parasitologie*. 15:10–30.
- Southwood, T.R.E. 1962. Migration of terrestrial arthropods in relation to habitat. *Biological Reviews*. 27:171–214.
- Spirito, C.P., and D.L. Mushrush. 1979. Interlimb coordination during slow walking in the cockroach. I. Effects of substrate alterations. *Journal of Experimental Biology*. 78:233–243.
- Sreng, L. 1979a. Pheromones et comportement sexuel chez *Nauphoeta cinerea* (Olivier) (Insecte, Dictyoptère). *Comptes rendus de l'Academie des Science, Paris*. 289:687–690.
- Sreng, L. 1979b. Ultrastructure et chimie de la secretion des glandes tergaes du male de *Blattella germanica* (Dictyoptera: Blattellidae). *International Journal of Insect Morphology and Embryology*. 8:213–227.
- Sreng, L. 1984. Morphology of the sternal and tergal glands producing the sexual pheromones and the aphrodisiacs among cockroaches of the subfamily Oxyhaloinae. *Journal of Morphology*. 182:279–294.
- Sreng, L. 1993. Cockroach mating behaviors, sex pheromones, and abdominal glands (Dictyoptera: Blaberidae). *Journal of Insect Behavior*. 6:715–735.
- Stanley, S.M. 1998. *Macroevolution, Pattern and Process*. Johns Hopkins University Press, Baltimore. 332 pp.
- Starr, C.K. 1979. Origin and evolution of insect eusociality: a review of modern theory. In *Social Insects*. Vol. 1. H.R. Hermann, editor. Academic Press, New York. 35–79.
- Stay, B. 1962. The colleterial glands of cockroaches. *Annals of the Entomological Society of America*. 55:124–130.
- Stay, B., and A.C. Coop. 1973. Developmental stages and chemical composition in embryos of the cockroach, *Diploptera punctata*, with observations on the effect of diet. *Journal of Insect Physiology*. 19:147–171.
- Stay, B., and A.C. Coop. 1974. Milk secretion for embryogenesis in a viviparous cockroach. *Tissue and Cell*. 6:669–693.
- Stay, B., and A. Gelperin. 1966. Physiological basis for ovipositional behaviour in the false ovoviviparous cockroach, *Pycnoscelus surinamensis* (L.). *Journal of Insect Physiology*. 12:1217–1226.
- Stay, B., A. King, and L.M. Roth. 1960. Calcium oxalate in the oothecae of cockroaches. *Annals of the Entomological Society of America*. 53:79–86.
- Stay, B., and L.M. Roth. 1958. The reproductive behavior of *Diploptera punctata* (Blattaria: Diplopteridae). *Proceedings of the 10th International Congress of Entomology*. 2:547–552 (1956).
- Stein, W., and H. Haschemi. 1991. The influence of external factors on the migration behavior of the German cockroach *Blattella germanica* L. Blattodea, Blattellidae on a refuse tip. *Anzeiger fuer Schaedlingskunde Pflanzenschutz Umweltschutz*. 64:65–69.
- Steinhaus, E.A. 1946. *Insect Microbiology*. Comstock Publishing Co., Inc., Ithaca, NY. 763 pp.
- Stevenson, B.G., and D.L. Dindal. 1987. Functional ecology of coprophagous insects: a review. *Pedobiologia*. 30:285–298.
- Stock, A., and A.F. O'Farrell. 1954. Regeneration and the moulting cycle in *Blattella germanica* L. *Australian Journal of Biological Science*. 7:302–307.
- Stokes, D.R., J.G. Malamud, and D.A. Schreihofer. 1994. Gender specific developmental transformation of a cockroach bifunctional muscle. *Journal of Experimental Zoology*. 268:364–376.
- Stone, F.D. 1988. The cockroaches of North Queensland caves and the evolution of tropical troglobites. In *Australian Speleological Federation Tropiccon Conference*. L. Pearson, editor. Australian Speleological Federation, Lake Tinaroo, Far North Queensland. 88–93.
- Stork, N.E. 1991. The composition of the arthropod fauna of Bornean lowland rain forest trees. *Journal of Tropical Ecology*. 7:161–180.
- Storozhenko, S.Y. 1979. Behavioral and habitation conditions of the grylloblattid *Galloisiana kurentzovi* in the southern primorski krai—SFSR USSR (in Russian; English abstract). *Biologicheskie Nauki Moscow*. 2:18–21.



- Stout, J.D. 1974. Protozoa. *In* Biology of Plant Litter Decomposition. Vol. 2. C.H. Dickenson and G.J.F. Pough, editors. Academic Press, London. 385–420.
- Stroecker, H.F. 1937. An ecological study of some Orthoptera of the Chicago area. *Ecology*. 18:231–250.
- Stuart, A.M. 1961. Mechanism of trail laying in two species of termites. *Nature*. 189:419.
- Stuart, A.M. 1969. Social behavior and communication. *In* Biology of Termites. Vol. 1. K. Krishna and F.M. Weesner, editors. Academic Press, New York. 193–232.
- Stürkow, B., and W.G. Bodenstern. 1966. Location of the sex pheromone in the American cockroach *Periplaneta americana* (L.). *Experientia*. 22:851–853.
- Sueuer, J., and T. Aubin. 2006. When males whistle at females: complex FM acoustic signals in cockroaches. *Naturwissenschaften*. 93:500–505.
- Sugimoto, A., D.E. Bignell, and J.A. MacDonald. 2000. Global impact of termites on the carbon cycle and atmospheric trace gases. *In* Termites: Evolution, Sociality, Symbioses, Ecology. T. Abe, D.E. Bignell, and M. Higashi, editors. Kluwer Academic Publishers, Dordrecht. 409–435.
- Suto, C., and N. Kumada. 1981. Secretion of dispersion-inducing substance by the German cockroach, *Blattella germanica* L. (Orthoptera: Blattellidae). *Applied Entomology and Zoology*. 16:113–120.
- Swallow, J.G., and G.S. Wilkinson. 2002. The long and short of sperm polymorphisms in insects. *Biological Reviews*. 77:153–182.
- Swarbeck, E. 1946. Notes on insect life on Mt. Buffalo. *Victorian Naturalist*. 63:19–23.
- Swift, M.J., and J.M. Anderson. 1989. Decomposition. *In* Ecosystems of the World. Vol. 14B: Tropical Rain Forest Ecosystems. H. Lieth and M.J.A. Werger, editors. Elsevier, Amsterdam. 547–569.
- Swift, M.J., O.W. Heal, and J.M. Anderson. 1979. Decomposition in Terrestrial Ecosystems. University of California Press, Berkeley. 372 pp.
- Takagi, M. 1978. Ecological studies on the smoky brown cockroach, *Periplaneta fuliginosa*. II. A rearing experiment of the nymphal development outdoors in Tsu, Mie prefecture. *Mie Medical Journal*. 27:85–92.
- Takahashi, R. 1926. Observations on the aquatic cockroach *Opisthoptatia maculata* (in Japanese). *Dôbutsu Zasshi, Tokyo*. 38:89–92.
- Takahashi, S., and C. Kitamura. 1972. Occurrence of phenols in the ventral glands of the American cockroach, *Periplaneta americana* (L.) (Orthoptera: Blattidae). *Applied Entomology and Zoology*. 4:199–206.
- Tallamy, D.W. 1994. Nourishment and the evolution of paternal investment in subsocial arthropods. *In* Nourishment and Evolution in Insect Societies. J.H. Hunt and C.A. Nalepa, editors. Westview Press, Boulder. 21–55.
- Tallamy, D.W., and T.K. Wood. 1986. Convergence patterns in social insects. *Annual Review of Entomology*. 31:369–390.
- Tanaka, K. 1981. Regulation of body size during larval development in the German cockroach *Blattella germanica*. *Journal of Insect Physiology*. 27:587–592.
- Tanaka, K., M. Ohtake-Hashiguchi, and E. Ogawa. 1987. Repeated regeneration of the German cockroach legs. *Growth*. 51:282–300.
- Tanaka, K., and S. Tanaka. 1997. Winter survival and freeze tolerance in a northern cockroach, *Periplaneta japonica* (Blattidae: Dictyoptera). *Zoological Science*. 14:849–853.
- Tanaka, S. 1994. Evolution and physiological consequences of de-alation in crickets. *Researches on Population Ecology*. 36:137–143.
- Tanaka, S. 2002. Temperature acclimation in overwintering nymphs of a cockroach, *Periplaneta japonica*: walking on ice. *Journal of Insect Physiology*. 48:571–583.
- Tanaka, S., and D.H. Zhu. 2003. Presence of three diapauses in a subtropical cockroach: control mechanisms and adaptive significance. *Physiological Entomology*. 28:323–330.
- Tanton, M.T., A.J. Campbell, and H.M.G. Thomas. 1985. Invertebrates from litter under selected eucalypt and pine forests in the Australian Capital Territory. *In* Soil and Litter Invertebrates of Some Australian Mediterranean-type Ecosystems. Vol. 12. P. Greenslade and J.D. Majer, editors. Western Australian School of Biology Bulletin, Bentley, WA. 91–93.
- Taubes, G. 2000. Biologists and engineers create a new generation of robots that imitate life. *Science*. 288:80–83.
- Taylor, E.C., and C.S. Crawford. 1982. Microbial gut symbionts and desert detritivores. *Scientific Reviews on Arid Zone Research*. 1:37–52.
- Taylor, R.L. 1975. Butterflies in My Stomach: or, Insects in Human Nutrition. Woodbridge Press Publishing Company, Santa Barbara, CA. 224 pp.
- Teder, T., and T. Tammaru. 2005. Sexual size dimorphism within species increases with body size in insects. *Oikos*. 108:321–334.
- Tepper, J.G.O. 1893. The Blattidae of Australia and Polynesia. *Transactions of the Royal Society of South Australia*. 17:25–126.
- Tepper, J.G.O. 1894. The Blattariae of Australia and Polynesia: supplementary and additional descriptions and notes. *Transactions of the Royal Society of South Australia*. 18:165–189.
- Thorne, B.L., and J.M. Carpenter. 1992. Phylogeny of the Dictyoptera. *Systematic Entomology*. 17:253–268.
- Thornhill, R. 1983. Cryptic female choice and its implications in the scorpionfly *Harpovittacus nigriceps*. *The American Naturalist*. 122:765–788.
- Thornhill, R., and J. Alcock. 1983. The Evolution of Insect Mating Systems. Harvard University Press, Cambridge, MA. 547 pp.
- Thornton, I.W.B., T.R. New, R.A. Zann, and P.A. Rawlinson. 1990. Colonization of the Krakatau Islands by animals: a perspective from the 1980s. *Philosophical Transactions of the Royal Society of London*. 328:131–165.
- Thrall, P.H., J. Antonovics, and J.D. Bever. 1997. Sexual transmission of disease and host mating systems. *The American Naturalist*. 149:485–506.
- Tillyard, R.J. 1919. Mesozoic insects of Queensland, No. 6, Blattoidea. *Proceedings of the Linnean Society of New South Wales*. 44:358–382.
- Tillyard, R.J. 1926. The Insects of Australia and New Zealand. Angus & Robertson, Ltd., Sydney. 560 pp.

- Tinkham, E.R. 1948. Faunistic and ecological studies on the Orthoptera of the Big Bend Region of Trans-Pecos Texas, with especial reference to the Orthopteran zones and faunas of midwestern North America. *American Midland Naturalist*. 40:521–563.
- Tinkle, D.W., and J.W. Gibbons. 1977. The distribution and evolution of viviparity in reptiles. *Miscellaneous Publications of the University of Michigan*. 154:1–55.
- Tokro, P.G., R. Brossut, and L. Sreng. 1993. Determination of sex pheromone in females of *Blattella germanica* L. *Insect Science and its Application*. 14:115–126.
- Tokuda, G., N. Lo, H. Watanabe, G. Arakawa, T. Matsumoto, and H. Noda. 2004. Major alteration of the expression site of endogenous cellulases in members of an apical termite lineage. *Molecular Ecology*. 13:3219–3228.
- Tokuda, G., N. Lo, and H. Watanabe. 2005. Marked variations in patterns of cellulase activity against crystalline- vs. carboxymethylcellulose in the digestive systems of diverse, wood feeding termites. *Physiological Entomology*. 30:372–380.
- Tracy, R.L., and G.E. Walsberg. 2002. Kangaroo rats revisited: re-evaluating a classic case of desert survival. *Oecologia*. 133:449–457.
- Travis, J. 1994. Evaluating the adaptive role of morphological plasticity. In *Ecological Morphology: Integrative Organismal Biology*. P.C. Wainright and S.M. Reilly, editors. University of Chicago Press, Chicago. 99–122.
- Trewick, S.A. 2000. Molecular evidence for dispersal rather than vicariance as the origin of flightless insect species on the Chatham Islands, New Zealand. *Journal of Biogeography*. 27:1189–1200.
- Troyer, K. 1984. Microbes, herbivory and the evolution of social behavior. *Journal of Theoretical Biology*. 106:157–169.
- Trumbo, S.T. 1996. Parental care in invertebrates. *Advances in the Study of Behavior*. 25:3–51.
- Tsai, C.-W., and H.-J. Lee. 2000. Circadian locomotor rhythm masked by the female reproduction cycle in cockroaches. *Physiological Entomology*. 25:63–73.
- Tsai, C.-W., and H.-J. Lee. 2001. Analysis of specific adaptation to a domicile habitat: A comparative study of two closely related cockroach species. *Journal of Medical Entomology*. 38:245–252.
- Tscharntke, T., I. Steffan-Dewenter, A. Kruess, and C. Thies. 2002. Characteristics of insect populations on habitat fragments: a mini-review. *Ecological Research*. 17:229–239.
- Tsuji, H., and T. Mizuno. 1973. Behavioural interaction between two harbouring individuals of the smoky brown cockroach, *Periplaneta fuliginosa* S. *Japanese Journal of Sanitary Zoology*. 24:65–72.
- Ullrich, B., M. Vollmer, W. Stoecker, and V. Storch. 1992. Hemolymph protein patterns and coprophagous behavior in *Oniscus asellus* L. (Crustacea, Isopoda). *Invertebrate Reproduction and Development*. 21:193–200.
- Vahed, K. 1998. The function of nuptial feeding in insects: a review of empirical studies. *Biological Reviews*. 73:43–78.
- Vallack, H.W. 1981. Ecological studies in a tropical rainforest on limestone in Gunung Mulu National Park, Sarawak. M.Sc. thesis, University of Stirling, United Kingdom.
- Van Baaren, J., A.-S. Bonhomme, P. Deleporte, and J.S. Pierre. 2003. Behaviors promoting grouping or dispersal of mothers and neonates in ovoviviparous cockroaches. *Insectes Sociaux*. 50:45–53.
- Van Baaren, J., and P. Deleporte. 2001. Comparison of gregariousness in larvae and adults of four species of zettaborine cockroaches. *Entomologia Experimentalis et Applicata*. 99:113–119.
- Van Baaren, J., P. Deleporte, and P. Grandcolas. 2002. Cockroaches of French Guiana Icteridae birds nests. *Amazonia*. 17:243–248.
- Van Herrewege, C. 1973. Contribution a l'étude des Blattaria de la faune Malgache. II. Description de huit espèces nouvelles appartenant aux genres *Gromphadorhina* Brunner v.W. et *Elliptorhina* gen. nov. *Bulletin de la Société Linéenne de Lyon, 42 année, spécial du 150 anniversaire*:75–103.
- van Hoek, A.H.A.M., T.A. van Alen, V.S.I. Sprakel, J.H.P. Hackstein, and G.D. Vogels. 1998. Evolution of anaerobic ciliates from the gastrointestinal tract: phylogenetic analysis of the ribosomal repeat from *Nyctotherus ovalis* and its relatives. *Molecular Biology and Evolution*. 15:1195–1206.
- van Lear, D.H. 1996. Dynamics of coarse woody debris in southern forest ecosystems. In *Biodiversity and coarse woody debris in southern forests*. Vol. SE-94. J.W. McMinn and D.A.J. Crossley, editors. USDA Forest Service Technical Report. 10–17.
- van Soest, P.J. 1994. *Nutritional Ecology of the Ruminant*. Cornell University Press, Ithaca, NY. 476 pp.
- van Wyk, L.E. 1952. The morphology and histology of the genital organs of *Leucophaea maderae* (Fab.) (Blattidae, Orthoptera). *Journal of the Entomological Society of South Africa*. 15:3–62.
- Vandel, A. 1965. *Biospeleology: The Biology of Cavernicolous Animals*. Pergamon Press, Oxford. 524 pp.
- Vannier, G., and S.I. Ghabbour. 1983. Effect of rising ambient temperature on transpiration in the cockroach *Heterogamia syriaca* Sauss. from the Mediterranean coastal desert of Egypt. In *New Trends in Soil Biology*. P. Lebrun, H.M. André, A. De Medts, C. Grégoire-Wibo, and G. Wauthy, editors. Dieu-Brichart, Louvain la Neuve. 441–453.
- Vauchot, B., E. Pruvost, A.-G. Bagnères, G. Riviere, M. Roux, and J.-L. Clement. 1998. Differential adsorption of allospecific hydrocarbons by the cuticles of two termite species, *Reticulitermes santonensis* and *R. lucifugus grassei*, living in a mixed colony. *Journal of Insect Physiology*. 44:59–66.
- Vehrencamp, S.L. 1983. A model for the evolution of despotic versus egalitarian societies. *Animal Behaviour*. 31:667–682.
- Verrett, J.M., K.B. Green, L.M. Gamble, and F.C. Crochen. 1987. A hemocoelic *Candida* parasite of the American cockroach Dictyoptera Blattidae. *Journal of Economic Entomology*. 80:1205–1212.
- Vidlička, L. 1993. Seasonal dynamics of vertical migration and distribution of cockroach *Ectobius sylvestris* (Blattaria: Blattellidae: Ectobiinae). *Biologia, Bratislava*. 48:163–166.
- Vidlička, L. 2002. The new cockroach species from the genus *Chorisoserrata* from Laos (Blattaria: Blattellidae: Pseudophyllodromiinae). *Entomological Problems*. 32:145–147.

- Vidlička, L., and A. Huckova. 1993. Mating of the cockroach *Nauphoeta cinerea* (Blattodea: Blaberidae). I. Copulatory behavior. *Entomological Problems*. 24:69–73.
- Vidlička, L., P. Vršanský, and D.E. Shcherbakov. 2003. Two new troglobitic cockroach species of the genus *Speleoblatta* (Blaberidae: Nocticolidae) from North Thailand. *Journal of Natural History*. 37:107–114.
- Vijayalekshmi, V.R., and K.G. Adiyodi. 1973. Accessory sex glands of male *Periplaneta americana* (L.). Part I. Quantitative analysis of some non-enzymatic components. *Indian Journal of Experimental Biology*. 11:512–514.
- Vinson, S.B., and G.L. Piper. 1986. Source and characterization of host recognition kairomones of *Tetrastichus hagenowii*, a parasitoid of cockroach eggs. *Physiological Entomology*. 11:459–468.
- Virant-Doberlet, M., and A. Čokl. 2004. Vibrational communication in insects. *Neotropical Entomology*. 33:121–134.
- Vishniakova, V.N. 1968. Mesozoic blattids with external ovipositors and peculiarities of their reproduction. In *Jurassic Insects of Karatau*. B.B. Rohdendorf, editor. Akademiya Nauk SSSR, Ordelenie Obschej Biologii, Moscow. 55–86 (In Russian, translation by M. E. Barbercheck).
- Vitousek, P.M., and R.L.J. Sanford. 1986. Nutrient cycling in moist tropical forest. *Annual Review of Ecology and Systematics*. 17:137–167.
- Vlasov, P. 1933. Die Fauna der Wohnhöhlen von *Rhombomys opimus* Licht. und *Spermophilopsis leptodactylus* Licht. in der Umgebung von Aschhabad. *Zoologischer Anzeiger*. 101:143–158.
- Vlasov, P., and E.F. Miram. 1937. Cockroaches and Orthoptera from the burrows around Ashkhabad. *Trudy Soveta po Izucheniyu Proizvoditel'nykh.Sil, Akademiya Nauk, S.S.S.R., Seriya Turkmenskaia*. 9:259–262.
- Vorhies, C.T., and W.P. Taylor. 1922. Life history of the kangaroo rat, *Dipodomys spectabilis spectabilis* Merriam. *U.S. Department of Agriculture Bulletin*. 1091:1–40.
- Vršanský, P. 1997. *Piniblattella* gen. nov.—the most ancient genus of the family Blattellidae (Blattodea) from the Lower Cretaceous of Siberia. *Entomological Problems*. 28:67–79.
- Vršanský, P. 2002. Origin and early evolution of mantises. *AMBA Projecty*. 6:3–16.
- Vršanský, P., V.N. Vishniakova, and A.P. Rasnitsyn 2002. Order Blattida Latreille, 1810. The cockroaches (= Blattodea Brunner von Wattenwill, 1882). In *History of Insects*. A.P. Rasnitsyn and D.L.J. Quicke, editors. Kluwer Academic Publishers, Dordrecht. 263–270.
- Vršanský, P. 2003. Umenocoleoidea—an amazing lineage of aberrant insects (Insecta Blattaria). *AMBA Projecty*. 7:1–32.
- Vulinec, K. 1990. Collective security: aggregation by insects as a defense. In *Adaptive Mechanisms and Strategies of Prey and Predators*. D.L. Evans and J.O. Schmidt, editors. SUNY Press, Albany. 251–288.
- Wagner, D.L., and J.K. Liebherr. 1992. Flightlessness in insects. *Trends in Ecology and Evolution*. 7:216–220.
- Wake, D.B. 1991. Homoplasy: the result of natural selection, or evidence of design limitations. *The American Naturalist*. 138:543–567.
- Walker, E.M. 1919. The terminal abdominal structures of Orthopteroid insects: a phylogenetic study. *Annals of the Entomological Society of America*. 12:267–316.
- Walker, E.M. 1922. The terminal structures of orthopteroid insects: a phylogenetic study. II. The terminal abdominal structures of the male. *Annals of the Entomological Society of America*. 15:1–87.
- Walker, J.A., and H.A. Rose. 1998. Oöthecal structure and male genitalia of the Geoscaphinae and some Australian *Panesthia* Serville (Blattodea: Blaberidae). *Australian Journal of Entomology*. 37:23–26.
- Walker, J.A., D. Rugg, and H.A. Rose. 1994. Nine new species of Geoscaphinae (Blattodea: Blaberidae) from Australia. *Memoirs of the Queensland Museum, Brisbane*. 35:263–284.
- Walker, P.A. 1965. The structure of the fat body in normal and starved cockroaches as seen through the electron microscope. *Journal of Insect Physiology*. 11:1625–1631.
- Walker, T.J.J. 1957. Ecological studies of the arthropods associated with certain decaying materials in four habitats. *Ecology*. 38:262–276.
- Walker, W.F. 1980. Sperm utilization strategies in non-social insects. *The American Naturalist*. 115:780–799.
- Waller, D.A., and J.C. Moser. 1990. Invertebrate enemies and nest associates of the leaf-cutting ant *Atta texana* (Buckley) (Formicidae, Attini). In *Applied Myrmecology: A World Perspective*. R.K. Vandermeer, K. Jaffe, and A. Cerdano, editors. Westview Press, Boulder. 256–273.
- Wallwork, J.A. 1976. The Distribution and Diversity of Soil Fauna. Academic Press, London. 355 pp.
- Waloff, N. 1983. Absence of wing polymorphism in the arboreal, phytophagous species of some taxa of temperate Hemiptera: an hypothesis. *Ecological Entomology*. 8:229–232.
- Walter, D.E., and D.J. O'Dowd. 1995. Life on the forest phylloplane: hairs, little houses, and myriad mites. In *Forest Canopies*. M.D. Lowman and N.M. Nadkarni, editors. Academic Press, San Diego. 325–351.
- Walthall, W.W., and H.B. Hartman. 1981. Receptors and giant interneurons signalling gravity orientation information in the cockroach *Arenivaga*. *Journal of Comparative Physiology A*. 142:359–370.
- Wang, C.H., H.T. Yang, and Y.S. Chow. 1995. The controlling effects of abamectin and hydramethylnon for the Australian cockroach *Periplaneta australasiae* (F.) (Orthoptera: Blattellidae), in Taiwan. *Journal of Entomological Science*. 30:154–163.
- Ward, P.I. 1993. Females influence sperm storage and use in the yellow dung fly *Scatophaga stercoraria* (L.). *Behavioral Ecology and Sociobiology*. 32:313–319.
- Wardle, D.A. 2002. *Communities and Ecosystems: Linking the Aboveground and Belowground Components*. Princeton University Press, Princeton. 392 pp.
- Warnecke, U., and C. Hintze-Podufal. 1990. Sexualdimorphism der flugel bei der ovoviviparen schaben-art *Blaptica dubia* (Blattoidea: Blaberoidea: Blaberidae). *Entomologia Generalis*. 20:185–194.
- Watanabe, H. 1983. Effects of repeated aerial applications of insecticides for pine-wilt disease on arboreal arthropods in a pine stand. *Journal of the Japanese Forestry Society*. 65:282–287.



- Watanabe, H., Y. Kobayashi, M. Sakura, Y. Matsumoto, and M. Mizunami. 2003. Classical olfactory conditioning in the cockroach *Periplaneta americana*. *Zoological Science*. 20:1447–1454.
- Watanabe, H., S. Noda, Tokuda, and N. Lo. 1998. A cellulase gene of termite origin. *Nature*. 394:330–331.
- Watanabe, H., and S. Ruaysoongnern. 1989. Estimation of arboreal arthropod density in a dry evergreen forest in Northeastern Thailand. *Journal of Tropical Ecology*. 5:151–158.
- Watanabe, H., A. Takase, G. Tokuda, A. Yamada, and N. Lo. 2006. Symbiotic “Archaezoa” of the primitive termite *Mastotermes darwiniensis* still play a role in cellulase production. *Eukaryotic Cell*. 5:1571–1576.
- Waterhouse, D.F., and J.W. McKellar. 1961. The distribution of chitinase activity in the body of the American cockroach. *Journal of Insect Physiology*. 6:185–195.
- Waterhouse, D.F., and B.E. Wallbank. 1967. 2-methylene butanal and related compounds in the defensive scent of *Platyzosteria* cockroaches (Blattidae: Polyzosteriinae). *Journal of Insect Physiology*. 13:1657–1669.
- Watson, J.A.L., and F.J. Gay. 1991. Isoptera (termites). In *The Insects of Australia*. Vol. 1. CSIRO, Melbourne University Press, Carlton, Victoria. 330–347.
- Watson, J.T., R.E. Ritzmann, S.N. Zill, and A.J. Polack. 2002. Control of obstacle climbing in the cockroach, *Blaberus discoidalis*. I. Kinematics. *Journal of Comparative Physiology A*. 188:39–53.
- Weaver, R.J. 1984. Effects of food and water availability and of NCA-1 section upon juvenile hormone biosynthesis and oocyte development in adult female *Periplaneta americana*. *Journal of Insect Physiology*. 30:831–838.
- Weaver, R.J., and G.E. Pratt. 1981. Effects of starvation and feeding upon corpus allatum activity and oocyte growth in adult female *Periplaneta americana*. *Journal of Insect Physiology*. 27:75–83.
- Webb, D.P. 1976. Regulation of deciduous forest litter decomposition by soil arthropod feces. In *The Role of Arthropods in Forest Ecosystems*. W.J. Mattson, editor. Springer-Verlag, New York. 57–69.
- Wedell, N., M.J.G. Gage, and G.A. Parker. 2002. Sperm competition, male prudence and sperm limited females. *Trends in Ecology & Evolution*. 17:313–320.
- Weesner, F.M. 1953. Biology of *Tenuirostritermes tenuirostris* (Desneux) with emphasis on caste development. *University of California (Berkeley) Publications in Zoology*. 57:251–302.
- Weidner, H. 1969. *Rhabdoblatta stipata* (Walker, 1868), eine im Wasser lebende Schabe (translation by Christof Stumpf). *Entomologische Zeitschrift*. 79:101–106.
- Weinstein, P. 1994. Behavioral ecology of tropical cave cockroaches: preliminary field studies with evolutionary implications. *Journal of the Australian Entomological Society*. 33:367–370.
- Weinstein, P., and D.P. Slaney. 1995. Invertebrate faunal survey of Rope Ladder Cave, Northern Queensland: a comparative study of sampling methods. *Journal of the Australian Entomological Society*. 34:233–236.
- Weis-Fogh, T. 1967. Respiration and ventilation in locusts and other flying insects. *Journal of Experimental Biology*. 47:561–587.
- Wendelken, P.W., and R.H. Barth. 1971. The mating behavior of *Parcoblatta fulvescens* (Saussure and Zehntner) (Blattaria, Blaberoidea, Blattellidae, Blattellinae). *Psyche*. 78:319–329.
- Wendelken, P.W., and R.H. Barth. 1985. On the significance of pseudofemale behavior in the Neotropical cockroach genera *Blaberus*, *Archimandrita* and *Byrsotria*. *Psyche*. 92:493–503.
- Wendelken, P.W., and R.H. Barth. 1987. The evolution of courtship phenomena in Neotropical cockroaches of the genus *Blaberus* and related genera. *Advances in Ethology*. 27:1–98.
- Werren, J.H., D. Windsor, and L. Guo. 1995. Distribution of *Wolbachia* among Neotropical arthropods. *Proceedings of the Royal Society of London B*. 262:97–204.
- Wharton, D.R.A., J.E. Lola, and M.L. Wharton. 1967. Population density, survival, growth, and development of the American cockroach. *Journal of Insect Physiology*. 13:699–716.
- Wharton, D.R.A., J.E. Lola, and M.L. Wharton. 1968. Growth factors and population density in the American cockroach, *Periplaneta americana*. *Journal of Insect Physiology*. 14:637–653.
- Wharton, D.R.A., G.L. Miller, and M.L. Wharton. 1954. The odorous attractant of the American cockroach *Periplaneta americana* (L.). 1. Quantitative aspects of the attractant. *Journal of General Physiology*. 37:461–469.
- Wharton, D.R.A., and M.L. Wharton. 1965. The cellulase content of various species of cockroaches. *Journal of Insect Physiology*. 11:1401–1405.
- Wharton, D.R.A., M.L. Wharton, and J.E. Lola. 1965. Cellulase in the cockroach, with special reference to *Periplaneta americana* (L.). *Journal of Insect Physiology*. 11:947–959.
- Wharton, M.L., and D.R.A. Wharton. 1957. The production of sex attractant substance and of oothecae by the normal and irradiated American cockroach, *Periplaneta americana*. *Journal of Insect Physiology*. 1:229–239.
- Wheeler, W.M. 1900. A new myrmecophile from the mushroom gardens of the Texan leaf-cutting ant. *The American Naturalist*. 34:851–862.
- Wheeler, W.M. 1904. The phylogeny of termites. *Biological Bulletin*. 8:29–37.
- Wheeler, W.M. 1910. *Ants: Their Structure, Development and Behavior*. Columbia University Press, New York. 663 pp.
- Wheeler, W.M. 1911. A desert cockroach. *Journal of the New York Entomological Society*. 19:262–263.
- Wheeler, W.M. 1920. The termitodoxa, or biology and society. *The Scientific Monthly*. February:113–124.
- Wheeler, W.M. 1928. *The Social Insects: Their Origin and Evolution*. Harcourt, Brace and Company, New York. 378 pp.
- White, T.C.R. 1985. When is an herbivore not an herbivore? *Oecologia*. 67:596–597.
- White, T.C.R. 1993. *The Inadequate Environment: Nitrogen and the Abundance of Animals*. Springer-Verlag, Berlin. 425 pp.

- Whitehead, H. 1999. Testing association patterns of social animals. *Animal Behaviour*. 57:F26–F29.
- Whitford, W.G. 1986. Decomposition and nutrient cycling in deserts. In *Pattern and Process in Desert Ecosystems*. W.G. Whitford, editor. University of New Mexico Press, Albuquerque. 93–117.
- Whiting, M.F., S. Bradler, and T. Maxwell. 2003. Loss and recovery of wings in stick insects. *Nature*. 421:264–267.
- Wickler, W. 1968. *Mimicry in Plants and Animals*. McGraw-Hill, New York. 253 pp.
- Wileyto, E.P., G.M. Boush, and L.M. Gawin. 1984. Function of cockroach (Orthoptera: Blattidae) aggregation behavior. *Environmental Entomology*. 13:1557–1560.
- Wille, J. 1920. Biologie und Bekämpfung der deutschen Schabe (*Phyllodromia germanica* L.). *Monographien zur angewandten Entomologie*. 5:1–140.
- Williams, R.M.C. 1959. Flight and colony foundation in two *Cubitermes* species (Isoptera: Termitidae). *Insectes Sociaux*. 6:205–218.
- Williford, A., B. Stay, and D. Bhattacharya. 2004. Evolution of a novel function: nutritive milk in the viviparous cockroach, *Diploptera punctata*. *Evolution & Development*. 6:67–77.
- Willis, E.R. 1966. Biology and behavior of *Panchlora irrorata*. *Annals of the Entomological Society of America*. 59:514–516.
- Willis, E.R. 1969. Bionomics of three cockroaches (*Latiblattella*) from Honduras. *Biotropica*. 1:41–46.
- Willis, E.R. 1970. Mating behavior of three cockroaches (*Latiblattella*) from Honduras. *Biotropica*. 2:120–128.
- Willis, E.R., and N. Lewis. 1957. The longevity of starved cockroaches. *Journal of Economic Entomology*. 50:438–440.
- Willis, E.R., G.R. Riser, and L.M. Roth. 1958. Observations on reproduction and development in cockroaches. *Annals of the Entomological Society of America*. 51:53–69.
- Willis, E.R., and L.M. Roth. 1959. Gynandromorphs of *Byrsotria fumigata* (Guérin) (Blattaria: Blaberinae). *Annals of the Entomological Society of America*. 52:420–429.
- Wilson, E.O. 1971. *The Insect Societies*. Harvard University Press, Cambridge, MA. 548 pp.
- Wilson, E.O. 2003. *The Future of Life*. Alfred A. Knopf, New York. 229 pp.
- Winchester, N.N., and V. Behan-Pelletier. 2003. Fauna of suspended soils in an *Ongokea gore* tree in Gabon. In *Arthropods of Tropical Forests: Spatio-Temporal Dynamics and Resource Use in the Canopy*. Y. Basset, V. Novotny, S.E. Miller, and R.L. Kitching, editors. Cambridge University Press, Cambridge. 102–109.
- Wobus, U. 1966. Der Einfluss der Lichtintensität auf die circadiene Laufaktivität der Schabe *Blaberus craniifer* Burm. (Insecta: Blattariae). *Biologisches Zentralblatt*. 85:305–323.
- Wolcott, G.N. 1950. The insects of Puerto Rico. *Journal of the Agricultural University of Puerto Rico (1948)*. 32:1–224.
- Wolda, H., and F.W. Fisk. 1981. Seasonality of tropical insects. II. Blattaria in Panama. *Journal of Animal Ecology*. 50:827–838.
- Wolda, H., F.W. Fisk, and M. Estribi. 1983. Faunistics of Panamanian cockroaches (Blattaria). *Uttar Pradesh Journal of Zoology*. 3:1–9.
- Wolda, H., and S.J. Wright. 1992. Artificial dry season rain and its effects on tropical insect abundance and seasonality. *Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen*. 95:535–548.
- Wolters, V., and K. Ekschmitt. 1997. Gastropods, Isopods, Diplopods, and Chilopods: Neglected groups of the decomposer food web. In *Fauna in Soil Ecosystems: Regulating Processes, Nutrient Fluxes, and Agricultural Production*. G. Benckiser, editor. Marcel Dekker, Inc., New York. 265–306.
- Wood, T.G. 1976. The role of termites (Isoptera) in decomposition processes. In *The Role of Terrestrial and Aquatic Organisms in Decomposition Processes*. J.M. Anderson, editor. Blackwell Scientific Publications, Oxford. 145–168.
- Woodhead, A.P. 1984. Effect of duration of larval development on sexual competence in young male *Diploptera punctata*. *Journal of Insect Physiology*. 9:473–477.
- Woodhead, A.P. 1985. Sperm mixing in the cockroach *Diploptera punctata*. *Evolution*. 39:159–164.
- Woodhead, A.P., and C.R. Paulson. 1983. Larval development of *Diploptera punctata* reared alone and in groups. *Journal of Insect Physiology*. 29:665–668.
- Woodruff, L.C. 1938. The normal growth rate of *Blattella germanica* L. *Journal of Experimental Zoology*. 79:145–167.
- Worland, M.R., B.J. Sinclair, and D.A. Wharton. 1997. Ice nucleator activity in a New Zealand alpine cockroach *Celatoblatta quinque-maculata* (Dictyoptera: Blattidae). *Cryo-Letters*. 18:327–334.
- Worland, M.R., D.A. Wharton, and S.G. Byars. 2004. Intracellular freezing and survival in the freeze tolerant alpine cockroach *Celatoblatta quinque-maculata*. *Journal of Insect Physiology*. 50:225–232.
- Wren, H.N., J.L. Johnson, and D.G. Cochran. 1989. Evolutionary inferences from a comparison of cockroach nuclear DNA and DNA from their fat body and egg endosymbionts. *Evolution*. 43:276–281.
- Wright, C.G. 1968. Comparative life histories of chlordane-resistant and nonresistant German cockroaches. *Journal of Economic Entomology*. 61:1317–1320.
- Wytenbach, R., and T. Eisner. 2001. Use of defensive glands during mating in a cockroach (*Diploptera punctata*). *Chemoecology*. 11:25–28.
- Xian, X. 1998. Effects of mating on oviposition, and possibility of parthenogenesis of three domestic cockroach species, the American cockroach, *Periplaneta americana*; the Smoky brown cockroach, *Periplaneta fuliginosa*; and the German cockroach, *Blattella germanica*. *Medical Entomology and Zoology*. 49:27–32.
- Yoder, J.A., and N.C. Grojean. 1997. Group influence on water conservation in the giant Madagascar hissing-cockroach, *Gromphadorhina portentosa* (Dictyoptera: Blaberidae). *Physiological Entomology*. 22:79–82.
- Yokoi, N. 1990. The sperm removal behavior of the yellow spotted longicorn beetle *Psacotheta hilaris* (Coleoptera: Cerambycidae). *Applied Entomology and Zoology*. 25:383–388.
- Young, A.M. 1983. Patterns of distribution and abundance in small samples of litter-inhabiting Orthoptera in some Costa-Rican Cacao plantations. *Journal of the New York Entomological Society*. 91:312–327.
- Zabinski, J. 1929. The growth of blackbeetles and of cock-

- roaches on artificial and incomplete diets. Part 1. *Journal of Experimental Biology*. 6:360–386.
- Zabinski, J. 1936. Inconstancy of the number of moults during the post-embryonal development of certain Blattidae. *Annales Musei Zoologici Polonici*. 11:237–240.
- Zera, A.J., and R.F. Denno. 1997. Physiology and ecology of dispersal polymorphism in insects. *Annual Review of Entomology*. 42:207–231.
- Zervos, S. 1987. Notes on the size distribution of a New Zealand cockroach, *Celatoblatta vulgaris*. *New Zealand Journal of Zoology*. 14:295–297.
- Zhang, J., A.M. Scrivener, M. Slaytor, and H.A. Rose. 1993. Diet and carbohydrase activities in three cockroaches, *Calolampra elegans* Roth and Princis, *Geoscaphus dilatatus* Saussure and *Panesthia cribrata* Saussure. *Comparative Biochemistry and Physiology*. 104A:155–161.
- Zhang, R., L.S. Chen, and J.T. Chang. 1990. Induction and isolation of an antibacterial peptide in *Periplaneta americana*. *Acta Entomologica Sinica*. 33:7–13.
- Zhou, X., F.M. Oi, and M.E. Scharf. 2006. Social exploitation of hexamerin: RNAi reveals a major caste-regulatory factor in termites. *Proceedings of the National Academy of Sciences*. 103:4499–4504.
- Zhu, D.H., and S. Tanaka. 2004a. Photoperiod and temperature affect the life cycle of a subtropical cockroach, *Opisoplatia* (sic) *orientalis*: seasonal pattern shaped by winter mortality. *Physiological Entomology*. 29:16–25.
- Zhu, D.H., and S. Tanaka. 2004b. Summer diapause and nymphal growth in a subtropical cockroach: response to changing photoperiod. *Physiological Entomology*. 29:78–83.
- Zimmerman, R.B. 1983. Sibling manipulation and indirect fitness in termites. *Behavioral Ecology and Sociobiology*. 12:143–145.
- Zompro, O., and I. Fritzsche. 1999. *Lucihormetica fenestrata* n. gen., n. sp., the first record of luminescence in an orthopteroid insect (Dictyoptera: Blaberidae: Blaberinae: Brachycolini). *Amazonia*. 15:211–219.
- Zuk, M., and A.M. Stoehr. 2002. Immune defense and host life history. *The American Naturalist*. 160:S9–S22.
- Zunino, M. 1991. Food relocation behavior: a multivalent strategy of Coleoptera. In *Advances in Coleopterology*. M. Zunino, X. Belles, and M. Blas, editors. European Association of Coleopterology, Barcelona. 297–314.
- Zurek, L. 1997. The biotic associations of cockroaches—an aspect of cockroach success. *Symbiosis News*. 1:5.
- Zurek, L., and B.A. Keddie. 1996. Contribution of the colon and colonic bacterial flora to metabolism and development of the American cockroach *Periplaneta americana* L. *Journal of Insect Physiology*. 42:743–748.
- Zurek, L., and B.A. Keddie. 1998. Significance of methanogenic symbionts for development of the American cockroach, *Periplaneta americana*. *Journal of Insect Physiology*. 44:645–651.



*This page intentionally left blank*