

J. Howard Frank

Professor Emeritus

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Education

- B.Sc. (Honors), Durham University, England (Zoology), 1963
- D.Phil., Oxford University, England (Entomology), 1967

Relevant Employment History

- Professor (1987-2012) Entomology and Nematology Department, University of Florida
- Associate Professor (1985-1987) Entomology and Nematology Department, University of Florida
- Associate Professor (1983-1985) Florida Medical Entomology Lab, Vero Beach, FL
- Entomologist (1972-1983) Entomological Research Center (later Florida Medical Entomology Lab), Vero Beach, FL
- Entomologist (1968-1972) Research Department, Sugar Manufacturers' Association, Mandeville, Jamaica
- Post-doctoral Fellow (1966-1968) Entomology Department, University of Alberta, Canada

Former Research Responsibilities

Biological control of pest insects using parasitoids, predators, or pathogens. Current projects are against *Scapteriscus* mole crickets (pests of turf, pasture grasses, and vegetables), and *Metamasius callizona* (pest of bromeliads).

Former Teaching responsibilities

- Biological Control (ENY 5241), a course for graduate students.
- Tropical Entomology for undergraduates (ENY 3563/ENY 3564L) and for graduates (ENY 5566/ENY 5567L).
- Supervision of research by graduate students.

Former Extension responsibilities

Extension of results of the research project

Accomplishments

Introduction, colonization, release, and establishment in at least 38 Florida counties of *Ormia depleta* (Diptera: Tachinidae) a parasitoid of *Scapteriscus mole* crickets. Release, testing, and development as a commercial biopesticide of *Steinernema scapterisci* (Nematoda: Steinernematidae), a nematode pathogenic to *Scapteriscus mole* crickets. Introduction, colonization, release, and establishment in at least 46 Florida counties of *Larra bicolor* (Hymenoptera: Crabronidae) a parasitoid of *Scapteriscus mole* crickets.

Career Publications

- Books edited: 4
- Refereed Papers: > 150
- Chapters in books: 31
- Miscellaneous printed papers: 80
- Monographs and bulletins: 6
- Book reviews in refereed journals: 61
- Films and videotapes: 2
- Websites: 5
- WWW-based papers: 27

Selected Publications

Frank, J.H. 1967. The insect predators of the pupal stage of the winter moth, *Operophtera brumata* (L.) (Lepidoptera: Hydriomenidae). *J. Anim. Ecol.* 36: 375-389.

Frank, J.H. 1982. The parasites of the Staphylinidae (Coleoptera). A contribution towards an encyclopedia of the Staphylinidae. *Univ. Florida agr. Exp. Stns., Tech. Bull.* 824: i-vii, 1-118.

Frank, J.H. 1983. Bromeliad phytotelmata and their biota, especially mosquitoes [p. 101-128, IN] Frank, J.H., Lounibos, L.P. (eds.) *Phytotelmata: terrestrial plants as hosts for aquatic insect communities*. Medford, New Jersey; Plexus Publishing, vii+ 293 p.

Frank, J.H., Curtis, G.A., O'Meara, G.F. 1984. On the bionomics of bromeliad-inhabiting mosquitoes X. *Toxorhynchites r. rutilus* as a predator of *Wyeomyia vanduzeei* (Diptera: Culicidae). *J. Med. Ent.* 21: 149-158.

Frank, J.H., O'Meara, G.F. 1984. The bromeliad *Catopsis berteroniana* traps terrestrial arthropods but harbors *Wyeomyia* larvae. *Florida Ent.* 67: 418-424.

Frank, J.H., O'Meara, G.F. 1985. Influence of micro- and macro habitat on distribution of some bromeliad-inhabiting mosquitoes. *Ent. Exp. Appl.* 37: 169-174.

Frank, J.H., Kanamitsu, K. 1987. *Paederus*, sensu lato (Coleoptera: Staphylinidae): natural history and medical importance. *J. Med. Ent.* 24: 155-191.

Frank, J.H., Woodruff, R.E., Nuñez, C.A. 1987. *Scapteriscus didactylus* (Orthoptera: Gryllotalpidae) in the Dominican Republic. *Florida Ent.* 70: 478-483.

- Lounibos, L.P., Frank, J.H., Machado-Allison, C.E., Ocanto, P., Navarro, J.C. 1987. Survival, development and predatory effects of mosquito larvae in Venezuelan phytotelmata. *J. Trop. Ecol.* 3: 221-242.
- Frank, J.H., Stewart, J.P., Watson, D.A. 1988. Mosquito larvae in axils of the imported bromeliad *Billbergia pyramidalis* in southern Florida. *Florida Ent.* 71: 33-43.
- Klimaszewski, J., Frank, J.H., Peck, S.B. 1990. Two new species and a key to the adults of *Aleochara* of Florida (Coleoptera:Staphylinidae). *Florida Ent.* 73: 177-185.
- Frank, J.H., McCoy, E.D. 1992. The immigration of insects to Florida, with a tabulation of records published since 1970. *Florida Ent.* 75: 1-28.
- Frank, J.H., Bennett, F.D., Cromroy, H.L. 1992. Distribution and prey records for *Oligota minuta* (Coleoptera: Staphylinidae), a predator of mites. *Florida Ent.* 75: 376-380.
- Frank, J.H., McCoy, E.D. 1993. The introduction of insects into Florida. *Florida Ent.* 76: 1-53.
- Parkman, J.P., Frank, J.H., Nguyen, K.B., Smart, G.C. 1993. Dispersal of *Steinernema scapterisci* (Rhabditida: Steinernematidae) after inoculative applications for mole cricket (Orthoptera: Gryllotalpidae) control in pastures. *Biological Control* 3: 226-232.
- Frank, J.H., McCoy, E.D. 1994. Commercial importation into Florida of invertebrate animals as biological control agents. *Florida Ent.* 77: 1-20.
- Frank, J.H. 1994. Mosquito production from bromeliads in Florida. *Florida Coop. Ext. Serv., S.P.* 166: i-ii, 1-19.
- Frank, J.H. 1994. Inoculative biological control of mole crickets [p.453-461, IN] Leslie, A.R. (ed.) *Integrated Pest Management for Turfgrass and Ornamentals*. CRC Press; Boca Raton, FL.
- Frank, J.H., Thomas, M.C. 1994. *Metamasius callizona* (Chevrolat) (Coleoptera: Curculionidae), an immigrant pest, destroys bromeliads in Florida. *Canadian Ent.* 126: 673-682.
- Frank, J.H., McCoy, E.D. 1995. Invasive adventive insects and other organisms in Florida. *Florida Ent.* 78: 1-15.
- Frank, J.H., McCoy, E.D. 1995. Precinctive insect species in Florida. *Florida Ent.* 78: 21-35.
- Hu, G.-Y., Frank, J.H. 1995. Structural comparison of the chorion surface of five *Philonthus* species (Coleoptera: Staphylinidae). *Proc. Ent. Soc. Washington* 97: 582-589.
- Frank, J.H., Parkman, J.P., Bennett, F.D. 1995. *Larra bicolor* (Hymenoptera: Sphecidae), a biological control agent of *Scapteriscus* mole crickets (Orthoptera: Gryllotalpidae), established in northern Florida. *Florida Ent.* 78: 619-623.
- Frank, J.H., Walker, T.J., Parkman, J.P. 1996. The introduction, establishment and spread of *Ormia depleta* in Florida. *Biological Control* 6: 368-377.
- Walker, T.J., Parkman, J.P., Frank, J.H., Schuster, D.J. 1996. Seasonality of *Ormia depleta* and limits to its spread. *Biological Control* 6: 378-383.

- Frank, J.H., Thomas, M.C. 1997. A new species of *Charoxus* (Coleoptera: Staphylinidae) from native figs (*Ficus* spp.) in Florida. *J. New York Ent. Soc.* 104: 70-78.
- Hu, G.Y., Frank, J.H. 1998. Predation on the horn fly (Diptera: Muscidae) by five species of *Philonthus* (Coleoptera: Staphylinidae). *Environ. Ent.* 26: 1240-1246.
- Frank, J.H. 1998. How risky is biological control? *Comment. Ecology* 79: 1829-1834.
- Frank, J.H. Parkman, J.P. 1999. Integrated pest management of pest mole crickets with emphasis on the southeastern USA. *Integrated Pest Management Reviews* 4: 39-52.
- Frank, J.H. 1999. Bromeliad-eating weevils. *Selbyana* 20: 40-48.
- Salas, J., Frank, J.H. 2001. Development of *Metamasius callizona* (Coleoptera: Curculionidae) on pineapple stems. *Florida Ent.* 84: 123-126.
- Arnett, R.H., Thomas, M.C., Skelley, P.E., Frank, J.H. (eds.). 2002. American beetles. Polyphaga: Scarabaeoidea through Curculionoidea. Vol. 2. Boca Raton; CRC Press, xiv + 861 p.
- Parkman, J.P., Frank, J.H. 2002. Interactions between *Ormia depleta* (Diptera: Tachinidae) and *Steinernema scapterisci* (Nematoda: Steinernematidae), natural enemies of pest mole crickets (Orthoptera: Gryllotalpidae). *Environ. Ent.* 31: 1226-1230.
- Frank, J.H., Woodruff, R.E., Thomas, M.C. 2002. Mole crickets (Orthoptera: Gryllotalpidae) in Grenada, West Indies. *Entomotropica* 17: 207-212.
- Wineriter, S.A., Buckingham, G.R., Frank, J.H. 2003. Host range of *Boreioglycaspis melaleucae* Moore (Hemiptera: Psyllidae), a potential biocontrol agent of *Melaleuca quinquenervia* (Cav.) S.T. Blake (Myrtaceae), under quarantine. *Biological Control* 27: 273-292.
- Frank, J.H., Sreenivasan, S., Benschhoff, P.J., Deyrup, M.A., Edwards, G.B., Halbert, S.E., Hamon, A.B., Lowman, M.D., Mockford, E.L., Scheffrahn, R.H., Steck, G.J., Thomas, M.C., Walker, T.J., Welbourn, W.C. 2004. Invertebrate animals extracted from native *Tillandsia* (Bromeliales: Bromeliaceae) in Sarasota County, Florida. *Florida Ent.* 87: 176-185.
- Frank, J.H., Cave, R.D. 2005. *Metamasius callizona* is destroying Florida's native bromeliads [p. 91-101 IN:] Hoddle, M. S. (ed.) *Second International Symposium on Biological Control of Arthropods*, Davos, Switzerland, September 12-16, 2005. *USDA Forest Service Publication FHTET-2005-08*. Vol. 1.
- Frank, J.H., Cooper, T.M., Larson, B.C. 2006. *Metamasius callizona* (Coleoptera: Dryophthoridae): longevity and fecundity in the laboratory. *Florida Ent.* 89: 208-211.
- Suazo, A., Arismendi, N., Frank, J.H., Cave, R.D. 2006. Method for continuously rearing *Lixadmontia franki* (Diptera: Tachinidae), a potential biological control agent of *Metamasius callizona* (Coleoptera: Dryophthoridae). *Florida Ent.* 89: 348-353.
- Frank, J.H., Walker, T.J. 2006. Permanent control of pest mole crickets (Orthoptera: Gryllotalpidae: *Scapteriscus*) in Florida. *American Ent.* 52: 138-144.

- Frank, J.H., McCoy, E.D. 2007. The risk of classical biological control in Florida. *Biological Control* 41: 151-174.
- Frank, J.H., Vicente, N.E., Leppla, N.C. 2007. A history of mole crickets (Orthoptera: Gryllotalpidae) in Puerto Rico. *Insecta Mundi* (2007) 0004: 1-10.
- Vicente, N.E., Frank, J.H., Leppla, N.C. 2007. Use of a beneficial nematode against pest mole crickets in Puerto Rico. *Proc. Caribbean Food Crops Soc.* 42(2): 180-186.
- Frank, J.H., Fish, D. 2008. Potential biodiversity loss in Florida bromeliad phytotelmata due to *Metamasius callizona* (Coleoptera: Dryophthoridae), an invasive species. *Florida Ent.* 91: 1-8.
- Frank, J.H. 2008. *Steinernema scapterisci* as a biological control agent of *Scapteriscus* mole crickets. [Chap. 7, p. 115-131 IN:] Hajek, A., Glare, T, O' Callaghan, M. (eds). *Use of microbes for control and eradication of invasive arthropods*. [Progress in Biological Control vol. 6] Berlin; Springer.
- Emmert, C.J., Mizell III, R.F., Andersen, P.C., Frank, J.H., Stimac, J.L. 2008. Effects of contrasting diets and temperatures on reproduction and prey consumption by *Proprioseiopsis asetus* (Acari: Phytoseiidae). *Exp. Appl. Acarol.* 44: 11-26.
- Suazo, A., Cave, R.D., Frank, J.H. 2008. Reproductive biology and development of *Lixadmontia franki* (Diptera: Tachinidae), a parasitoid of bromeliad-eating weevils. *Florida Ent.* 91: 453-459.
- Emmert, C.J., Mizell III, R.F., Andersen, C., Frank, J.H., Stimac, J.L. 2008. Diet effects on intrinsic rate of increase and rearing of *Proprioseiopsis asetus* Muma (Acari: Phytoseiidae). *Ann. Ent. Soc. Am.* 104: 1033-1040.
- Frank, J.H., Leppla, N.C., Sprenkel, R.K., Blount, A.C., Mizell III, R.F. 2009. *Larra bicolor* Fabricius (Hymenoptera: Crabronidae): its distribution throughout Florida. *Insecta Mundi* (2009) 0063: 1-5.
- Frank, J.H., Lounibos, L.P. 2009. Insects and allies associated with bromeliads: a review. *Terrestrial Arthropod Reviews* 1 (2008): 125-153.
- Portman, S.L., Frank, J.H., McSorley, R., Leppla, N.C. 2009. Fecundity of *Larra bicolor* (Hymenoptera: Crabronidae) and its implications in parasitoid: host interaction with mole crickets (Orthoptera: Gryllotalpidae: *Scapteriscus*). *Florida Ent.* 92: 58-63.
- Frank, J.H., Erwin, T.L., Hemenway, R.C. 2009. Economically beneficial ground beetles. The specialized predators *Pheropsophus aequinoctialis* (L.) and *Stenaptinus jessoensis* (Morawitz): Their laboratory behavior and descriptions of immature stages (Coleoptera, Carabidae, Brachininae). *Zookeys* 14: 1-36.

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