



Roy Van Driesche

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Education

1975 Ph.D. (Entomology) Cornell University
1970 B.S., B.A. (Entomology) Oregon State University

Professional Employment

2006-present:

Full Extension Professor, Department of Plant, Soil & Insect Sciences, UMass, Amherst

2003-2007:

Head of Entomology Division within Department of Plant, Soil and Insect Sciences,
UMass, Amherst

2001-2003

Head of Entomology Department at UMASS, plus biological control and floriculture
research as listed below

1986-2002

Associate Extension Professor in the Department of Entomology, University of
Massachusetts. Duties included: (1) development of programs to increase the use of
biological control agents in MA Floriculture, (2) research on population dynamics and
biology of insect parasitoids, especially as related to development of improved methods
for quantitative evaluation, and (3) evaluation of safety of biological control agents
introduced for control of exotic species.

1976-1986

Pesticide Coordinator in the Department of Entomology, University of Massachusetts;
duties included: (1) development of extension programs for pesticide applicator training
(2) conduct of research on parasitic Hymenoptera, especially methods of field evaluation
of impact on host populations

1975 Pesticide Misuse and Registration Specialist, Oregon Dept. of Agric., Salem, Oregon

Professional Societies

Entomological Society of America

Honors and Awards

1998 ESA Recognition Award in Entomology, Eastern Branch

2006 Scientist of the Year award by Nearctic Section of International Organization for Biological Control

Teaching Experience

Insects of Ornamentals

Biological Control

Dynamics of Biodiversity

Junior Year Writing for the Env. Sciences

Insect Field Natural History

Special Activities

2007-Sabbatical at INECOL (national research lab) in Xalapa, Mexico

2005 Organized a 1-week field biology course for PSIS students in Mexico (El Cielo, Tam.)

2002. Organized content and local arrangements for a newly conceived meeting series, the First International Biological Control of Arthropods, Honolulu, HI, Jan. 14-18, 2002

2001. Taught a one week intensive course in Cd. Victoria, Mex., Univ. Aut. de Tamaulipas on biological control (20 hrs of lectures in Spanish)

1996. Taught a 2 week intensive course in Cd. Victoria, Mex., Univ. Aut. de Tamaulipas on biological control (40 hrs of lectures, in Spanish).

1994. April 5-6. Instructor for APHIS workshop on biological control, presenting 1.5 days of material on biological control of insects to 45 APHIS employees; held in Mission, TX.

1992 Editor for IOBC (International Organization of Biological Control) of the Nearctic Section Newsletter.

1992 Key note speaker in program on IPM in Antioquia, Colombia. Presented 4 hours of lecture in Spanish on biological control and related topics.

1990 Organized a new group "Natural Enemies", which is a working group on applied biological control for the northeastern U.S. and eastern Canada.

1984 June-Dec., sabbatical research at CIAT (Centro Internacional de Agricultura Tropical) on parasitoids affecting the yuca mealybug, *Phenacoccus herreni*, in Colombia

1981 Attended Parasitic Hymenoptera Training Course, College Park, MD (5 day training session on parasitoid taxonomy and biology).

Extension Publications

1. Van Driesche, R.G., R. Prokopy, W. Coli & T. Bellows. 1989. Using biological control in Massachusetts: apple blotch leafminer. Mass. Coop. Ext. Serv. Publ. L-594.

2. Van Driesche, R. Prokopy & W. Coli. 1989. Using biological control in Massachusetts: spider mites in apples. Mass. Coop. Ext. Serv. Publ. L-595.

3. Van Driesche, R.G. & D.N. Ferro. 1989. Using biological control in Massachusetts: Colorado potato beetle. Mass. Coop. Ext. Serv. Publ. L-596.

4. Van Driesche, R.G. & D.N. Ferro. 1989. Using biological control in Massachusetts: Cole crop lepidoptera. Mass. Coop. Ext. Serv. Publ. L-597.

5. Raupp, M.J., R.G. Van Driesche, and J.A. Davidson. 1993. Biological control of insect and mite pests of woody landscape plants: concepts, agents and methods. University of Maryland Press, 39 pp.

6. Hoddle, M.S., R.G. Van Driesche, S. Roy, T. Smith, M. Mazzola, P. Lopes and J. Sanderson. 1996. A grower's guide to using biological control for silverleaf whitefly on poinsettias in the northeast United States. Univ. of Mass. Ext. Service Fact Sheet.

7. Van Driesche, R. G., K. M. Heinz, J. C. van Lenteren, A. Loomans, R. Wick, T. Smith, P. Lopes, J. P. Sanderson, M. Daughtrey, and M. Brownbridge. 1998. Western flower thrips in greenhouses: a review of its biological control and other methods. Umass Extension Floral Facts, December 14, 1998, Amherst, MA.
8. Van Driesche, R., M. Brownbridge, G. Ferguson, D. Gillespie, K. Heinz, M. Hoddle, R. Lindquist, G. Murphy, R. Oetting, L. Osborne, M. Parrella, J. Sanderson, and L. Shipp. 2000. Current status of biological control research in greenhouses in the United States and Canada. *Sting*, August, 2000, pp.13-22.

Research Programs

My current research is focused into two main areas: (1) use of biological control to suppress invasive species, especially in forest ecosystems (hemlock woolly adelgid, elongate hemlock scale, ambermarked birch leafminer, and emerald ash borer), and (2) safety of classical biological control to non-target species, and methods to estimate host ranges of parasitoids prior to introduction.

1. Use of Biological Control to Suppress Invasive Species, especially in Forest Ecosystems

(a) elongate hemlock scale. This exotic scale may be promoting the decline of hemlock in conjunction with hemlock woolly adelgid. This project is funded by the USDA Forest Service and is an assessment of the potential to import Chinese or Japanese natural enemies of this scale to suppress it.-PHD project (Kris Abell)

(b) hemlock woolly adelgid. This adelgid is having a catastrophic impact on hemlock, causing extensive mortality in CT, RI, NJ, parts of NY, and the Appalachian Mts. This work is done in collaboration with Joe Elkinton and is focused on release and evaluation of a winter hardy strain of the predator *Laricobius nigrinus*, the predator of greatest promise for control of the pest to date. (Post Doc: David Mausel)

(c) ambermarked birch leafminer. This leafmining sawfly invaded Alaska in the late 1990 and this project focuses on the collection, release and evaluation of parasitoids (from Edmonton, Alberta) for its control. MS project (Anna Soper)

(d) emerald ash borer. This buprestid is a major threat to North American ash and its biological control is underway in MI. My currently funded project is a collaboration with Duan Jin (USDA-ARS), Juli Gould (APHIS) and Leah Bauer (FS-research). My role has been to prepare a grant proposal (funded April 2008 for \$99,000) to support work in MI, largely by Duan Jin..

2. Safety of Biological Control

Studies of post release impacts of introduced natural enemies to detect and evaluate any non-target impacts that might have occurred. Current work is focused on *Cotesia* species released against the butterfly *Pieris rapae* and possible impacts on the native non-pest butterfly *Pieris napi*.

RESEARCH PUBLICATIONS (91-referred journals)
(24 other publications, in bold)

1. Vercommen-Grandjean, P.H., R.G. Van Driesche and G.G. Gyrisco. 1977. New mites recovered from the alfalfa weevil in New York: *Trombidium hyperi* n. sp. and *T. auroraense* n. sp. (Acari: Trombidiidae). J. Kansas Entomol. Soc. 50:89-107.
2. Van Driesche, R.G. and G.G. Gyrisco. 1979. Field studies of *Microctonus aethiopoides*, a parasite of the adult alfalfa weevil, *Hypera postica* in New York. Environ. Entomol. 8: 238-244.
3. Van Driesche, R.G. and G. Taub. 1983. Field evaluation of the impact of parasites on *Phyllonorycter* leafminers on apple in Massachusetts, U.S.A. Protection Ecology. 5: 303-317.
4. Van Driesche, R.G. 1983. The meaning of "percent parasitism" in studies of insect parasitoids. Environ. Entomol. 12: 1611-1622.
5. Van Driesche, R.G. and C. Hulbert. 1984. Host acceptance and discrimination by *Comperia merceti* (Compere) (Hymenoptera: Encyrtidae) and evidence for an optimal density range for resource utilization. J. Chem. Ecol. 10: 1399-1409.
6. Coler, R.R., R.G. Van Driesche and J.S. Elkinton. 1984. Effect of an oothecal parasitoid *Comperia merceti* (Compere) (Hymenoptera: Encyrtidae) on a population of the brown banded cockroach (Orthoptera: Blattellidae). Environ. Entomol. 13: 603-606.
7. Drummond, F.A. and R.G. Van Driesche. 1985. A temperature dependent model for the emergence of overwintering *Phyllonorycter crataegella* (Clemens) (Lepidoptera: Gracillariidae), and its parasitoid, *Sympiesis marylandensis* Girault (Hymenoptera: Eulophidae). Environ. Entomol. 14: 305-311.
8. Van Driesche, R.G., J. Marshall Clark, M.W. Brooks and F.J. Drummond. 1985. Comparative toxicity of orchard insecticides to the apple blotch leafminer, *Phyllonorycter crataegella* (Lepidoptera:Gracillaridae), and its eulophid parasitoid, *Sympiesis marylandensis* (Hymenoptera: Eulophidae). J. Econ. Entomol. 78: 926-932.
9. **Van Driesche, R.G. 1985. Metodos de evaluacion del impacto de insectos parasitoides sobre hospederos. Congreso de Sociedad Colombiana de Entomologia, Memorias. Julio 25-27, 1985. Pasto, Colombia.**
10. Coler, R.R., J.S. Elkinton and R.G. Van Driesche. 1986. Evaluation of mark-recapture assumptions for two species of cockroaches (Orthoptera:Blattellidae and Blattidae). J. Kansas Entomol. Soc. 59: 253-261.
11. Van Driesche, R.G., A. Bellotti, C.J. Herrera and J.A. Castillo. 1986. Encapsulation rates of two encyrtid parasitoids by two *Phenacoccus* spp. of cassava mealybugs in Colombia. Entomol. Exp. Appl. 42: 79-82.
12. Van Driesche, R.G., A. Bellotti, C.J. Herrera and J.A. Castillo. 1987. Host preferences of two encyrtid parasitoids for the Colombian *Phenacoccus* spp. of cassava mealybugs. Entomol. Exp. Appl. 43: 261-266.
13. Van Driesche, R.G., A. Bellotti, C.J. Herrera and J.A. Castillo. 1987. Host feeding and oviposition trauma as additional sources of mortality in *Phenacoccus herreni* caused by two encyrtid parasitoids, *Epidinocarsis diversicornis* and *Acerophagus coccois*. Entomol Exp. Appl. 44: 97-100.
14. Coler, R.R., J.S. Elkinton, and R.G. Van Driesche. 1987. Relative and absolute density estimates and movement patterns of a naturally occurring American cockroach population. J. Kan. Entomol. Soc. 60: 389-396.

15. Van Driesche, R.G. and D.N. Ferro. 1987. Will the benefits of classical biological control be lost in the "biotechnology stampede?" *Am. J. of Alternative Agric.* 2: 50,96. (non-refereed editorial)
16. Van Driesche, R.G., J. Castillo and A.C. Bellotti. 1987. Field placement of mealybug-infested potted cassava plants for study of parasitism of *Phenacoccus herreni*. *Entomol. Exp. Appl.* 46: 117-123.
17. Van Driesche, R.G. 1988. Field measurement of population recruitment of *Cotesia glomerata* (Hymenoptera: Braconidae), a parasitoid of *Pieris rapae* (Lepidoptera: Pieridae), and factors influencing adult parasitoid foraging success in collards. *Bull. Ent. Res.* 78: 199-208.
18. Van Driesche, R.G. and T.S. Bellows. 1988. Host and parasitoid recruitment for quantifying losses from parasitism, with reference to *Pieris rapae* and *Cotesia glomerata*. *Ecol. Entomol.* 13: 215-222.
19. Van Driesche, R.G. 1988. Survivorship patterns of *Pieris rapae* (Lep.: Pieridae) larvae in Massachusetts kale with special reference to mortality due to *Cotesia glomerata* (Hymen.: Braconidae). *Bull. Ent. Res.* 78: 199-208.
20. Van Driesche, R.G. 1988. Field levels of encapsulation and superparasitism for *Cotesia glomerata* (L.) (Hymen.: Braconidae) in *Pieris rapae* (L.) (Lep.: Pieridae). *J. Kan. Ent. Soc.* 61: 328-331.
21. Van Driesche, R.G. 1988. Prospects for greater use of biological control agents against pests of apple in Massachusetts. *MA Fruit Notes* 53: 6-7.
22. Lopez, E.R. and R.G. Van Driesche. 1989. Direct measurement of host and parasitoid recruitment for assessment of total losses due to parasitism in a continuously breeding species, the cabbage aphid, *Brevicoryne brassicae* (L.) (Homoptera: Aphididae). *Bull. Ent. Res.* 79: 47-59.
23. Gould, J.R., R.G. Van Driesche, J.S. Elkinton, T.S. Bellows, Jr., and T.M. Odell. 1989. A review of techniques for measuring the impact of parasitoids of lymantriids. In: *The Lymantriidae: Comparisons of Features of New and Old World Tussock Moths*. NE Forest Service Exp. Station Publication, Broomall, PA.
24. Van Driesche, R.G. 1989. Biological control - an underutilized technology: the Massachusetts perspective. In: *Proceedings of the Massachusetts Department of Food and Agriculture IPM Conference*. Sturbridge, MA, March 7-8, 1988.
25. Herrera, C.J., R.G. Van Driesche and A. Bellotti. 1989. Temperature-dependent growth rates of the cassava mealybug, *Phenacoccus herreni* Cox & Williams (Homoptera: Pseudococcidae) and two of its encyrtid parasitoids, *Epidinocarsis diversicornis* (Howard) and *Acerophagus coccois* Smith. *Entomol. Exp. Appl.* 50: 21-27.
26. Bellows, T. S., Van Driesche, R.G., and J.S. Elkinton. 1989. Extensions to Southwood and Jepson's graphical method of estimating numbers entering a stage for calculating losses to parasitism. *Res. Popul. Ecol.* 31: 169-184.
27. Van Driesche, R.G., T.S. Bellows, D.N. Ferro, R. Hazzard, and A. Maher. 1989. Estimating stage survival from recruitment and density data, with reference to egg mortality in the Colorado potato beetle, *Leptinotarsa decemlineata* (Say). *Can. Ent.* 121: 291-300.
28. Lopez, E.R., R.G. Van Driesche and J.S. Elkinton. 1989. Influence of group size on daily per capita birth rates of the cabbage aphid (Homoptera: Aphididae) on collards. *Environ. Entomol.* 18: 1086-1089.
29. Van Driesche, R.G., A.C. Bellotti, J. Castillo and C.J. Herrera. 1990. Estimating total losses to parasitoids for a field population of a continuously breeding host, the cassava mealybug *Phenacoccus herreni* in Colombia, S.A. *Fla. Ent.* 73: 133-143.

30. Van Driesche, R.G. 1989. What every state needs - a biological control coordinator. *The IPM Practitioner*. Vol. 11(9), Sept. 1989. p. 5-7.
31. Van Driesche, R.G. 1989. Extending biological control: The role of extension agents in the use of natural enemies. *The IPM Practitioner*. Vol. 11(10), Oct., 1989, 1-3.
32. Lopez, E.R., R.G. Van Driesche, and J.S. Elkinton. 1990. Rates of parasitism by *Diaeretiella rapae* (Hymenoptera: Braconidae) for cabbage aphids (Homoptera: Aphididae) in and outside of colonies: why do they differ? *J. Kansas Entomol. Soc.* 63: 158-165.
33. Van Driesche, R.G., D.N. Ferro, E. Carey, and A. Maher. 1990. Assessing augmentative releases of parasitoids using the "recruitment method", with reference to *Edovum puttleri*, a parasitoid of the Colorado potato beetle [Coleoptera: Chrysomelidae]. *Entomophaga* 36: 193-204.
34. Van Driesche, R.G., W. Coli and A. Schumacher. 1990. Update: lessons from the Massachusetts biological control initiative. *The IPM Practitioner* 12(4): 1-5.
35. Van Driesche, R.G. 1990. How organic producers can make classical biological control work for them. *Am. J. Alt. Agric.* 4: 169-172.
36. Van Driesche, R.G., T.S. Bellows, Jr., J. Elkinton, J. Gould, and D.N. Ferro. 1991. The meaning of percentage parasitism revisited: solutions to the problem of accurately estimating total losses from parasitism. *Environ. Entomol.* 20: 1-7.
37. Hazzard, R.V., D.N. Ferro, R.G. Van Driesche and A.F. Tuttle. 1991. Mortality to eggs of Colorado potato beetle (Coleoptera: Chrysomelidae) from predation by *Coleomegilla maculata* (Coleoptera: Coccinellidae). *Environ. Entomol.* 20: 841-848.
38. Lopez, R., D.N. Ferro and R.G. Van Driesche. 1991. Overwintering biology of *Myiopharus aberrans* (Townsend) and *Myiopharus doryphorae* (Riley) (Diptera: Tachinidae), larval parasitoids of the Colorado potato beetle (Coleoptera: Chrysomelidae). *Entomophaga* 37: 311-315.
39. Van Driesche, R.G. 1991. Building biological control institutions for the twenty-first century. pp. 119-125, In: McClay, A.S. (ed). *Proceedings of the Workshop on Biological Control of Pests in Canada, Oct. 11-12, 1990, Calgary, Alberta. Alberta Environmental Centre, Vegreville, Alberta, Canada, AECV91-Pl, 136 pp.*
40. Gould, J.R., J.S. Elkinton, and R.G. Van Driesche. 1992. Assessment of potential methods of measuring parasitism by *Brachymeria intermedia* (Nees) (Hymenoptera: Chalcididae) of pupae of the gypsy moth. *Environ. Entomol.* 21: 394-400.
41. Bellows, T.S. Jr., R.G. Van Driesche and J.S. Elkinton. 1992. Life-table construction and analysis in the evaluation of natural enemies. *Annu. Rev. Entomol.* 37: 587-614.
42. Elkinton, J.S., J.P. Buonaccorsi, T.S. Bellows and R.G. Van Driesche. 1992. Marginal attack rate, k-values and density dependence in the analysis of contemporaneous mortality factors. *Res. Pop. Ecol.* 34: 29-44.
43. Van Driesche, R.G., J.S. Elkinton and T.S. Bellows, Jr. 1994. Potential use of life tables to evaluate the impact of parasitism on population growth of the apple blotch leafminer. In Maier, C. [ed.]. *Integrated Management of Tentiform Leafminers, Phyllonorycter (Lepidoptera: Gracillariidae) spp. in North American Apple Orchards. Thomas Say Publications in Entomology. Entomological Soc. of Am., Lanham, MD, U.S.A.*
44. Gould, J.R., J.S. Elkinton and R.G. Van Driesche. 1992. Suitability of approaches for measuring parasitoid impact on *Lymantria dispar* (L.) (Lepidoptera: Lymantriidae) populations. *Environ. Entomol.* 21: 1035-1045.
45. Lopez, E.R., D.N. Ferro and R.G. Van Driesche. 1993. Direct measurement of host and parasitoid recruitment for assessment of total losses due to parasitism in the Colorado

- potato beetle *Leptinotarsa decemlineata* (Say) (Coleoptera: Chrysomelidae) and *Myiopharus doryphorae* (Riley) (Diptera: Tachinidae). *Biological Control* 3:85-92.
46. Carey, E., R.G. Van Driesche, J.S. Elkinton, T.S. Bellows, Jr., and C. Burnham. 1992. Influence of sugar maple health on fecundity of pear thrips in Massachusetts. *Can. Entomol.* 124: 1129-1138.
 - 47. Van Driesche, R.G. 1993. Methods for the field colonization of new biological control agents, pp. 67-86. In Van Driesche, R.G. & T.S. Bellows, Jr. [eds.]. Steps in Classical Arthropod Biological Control. Thomas Say Pub. in Entomol., Ent. Soc. Am., Lanham, MD, U.S.A. 88pp.**
 48. Van Driesche, R. G., R. J. Prokopy & M. Christie. 1994. Effect of second-stage IPM practices on parasitism of apple blotch leafminer larvae in Massachusetts apple orchards. *Environ. Entomol.* 23: 140-146.
 49. Van Driesche, R.G. 1994. Biological control for the control of environmental pests. *Florida Entomologist.* 77: 20-33.
 50. Lopez, R., D.N. Ferro & R.G. Van Driesche. 1995. Two tachinid species discriminate between parasitized and non-parasitized hosts. *Ent. Exp. Appl.* 74: 37-45.
 51. Hoddle, M. & R.G. Van Driesche. 1996. Evaluation of *Encarsia formosa* (Hymenoptera: Aphelinidae) to control *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia (*Euphorbia pulcherrima*): A lifetable analysis. *Florida Entomologist* 79: 1-12.
 52. Heckmer, A. and R.G. Van Driesche. 1996. Ten year persistence of a non-augmented population of the brownbanded cockroach (Orthoptera: Blattellidae) parasitoid, *Comperia merceti* (Hymenoptera: Encyrtidae). *Florida Entomologist* 79: 77-80.
 53. Van Driesche, R.G., R.A. Casagrande, R. Childs, and L. Tewksbury. 1997. Establishment, distribution, and impact in southern New England of *Lathrolestes nigricollis* (Thompson) (Hymenoptera: Ichneumonidae), an introduced parasitoid of the birch leafminer, *Fenusa pusilla* (Lepeletier) (Hymenoptera: Tenthredinidae). *Canadian Entomologist* 129: 601-611.
 54. Lyon, S.M., J.D. Edman, and R.G. Van Driesche. 1996. Field estimates of numbers of *Ixodes scapularis* (Acari: Ixodidae) larvae and nymphs per hectare successfully feeding on *Peromyscus leucopus* in Massachusetts. *J. Medical Entomology* 33: 812-818.
 55. Hoddle, M.S., R. Van Driesche, J. Sanderson and M. Rose. 1996. A photographic technique for constructing life tables for *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia. *Florida Entomologist* 79: 464-468.
 - 56. Hoddle, M.S., Van Driesche, R.G. and Sanderson, J.P. 1996. Greenhouse trials of *Eretmocerus californicus* Howard (Hymenoptera: Aphelinidae) for control of *Bemisia argentifolii* Bellows and Perring (Homoptera: Aleyrodidae) on poinsettia in Northeastern U.S.A. *IOBC/WPRS Bulletin* 19: 55-58.**
 - 57. Van Driesche, R.G., S. Healy, R.C. Reardon. 1996. Biological control of arthropod pests of northeastern and north central forests in the United States. A review and recommendation. U.S. Forest Service FHTET-96-19, Morgantown, W.V.**
 58. Hoddle, M.S., Van Driesche, R.G. and Sanderson, J.P. 1997. Biological control of *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia with inundative releases of *Encarsia formosa* "Beltsville strain" (Hymenoptera: Aphelinidae): Can parasitoid reproduction augment inundative releases? *J. Econ. Entomol.* 90: 910-924..
 59. Hoddle, M., R.G. Van Driesche and J. Sanderson. 1997. Biological control of *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia with inundative releases of *Eretmocerus eremicus* (Hymenoptera: Aphelinidae): Do release rates and plant growth affect parasitism? *Bull. Ent. Res.* 88: 47-58.

60. Hoddle, M., R.G. Van Driesche and J. Sanderson. 1997. Biological control of *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia with inundative releases of *Encarsia formosa* (Hymenoptera: Aphelinidae): Are higher release rates necessarily better? *Biological Control* 10: 166-179.
61. Van Driesche, R.G. and M. Hoddle. 1997. Should arthropod parasitoids and predators be subject to host range testing when used as biological control agents? *Agriculture and Human Values* 14: 211-226.
62. Hoddle, M., R.G. Van Driesche and J. Sanderson. 1998. Biology and utilization of the whitefly parasitoid *Encarsia formosa*. *Annual Review of Entomology* 43: 645-649.
63. Van Driesche, R.G., K. Idoine, M. Rose, and M. Bryan. 1998. Release, establishment and spread of Asian natural enemies of euonymus scale (Homoptera: Diaspididae) in New England. *Florida Entomologist*. 81: 1-9.
64. Hoddle, M.S., R.G. Van Driesche, J.S. Elkinton, and J.P. Sanderson. 1997. Discovery and utilization of *Bemisia argentifolii* (Homoptera: Aleyrodidae) patches by *Eretmocerus eremicus* and *Encarsia formosa* (Beltsville strain) (Hymenoptera: Aphelinidae) in greenhouses. *Entomologia Experimentalis et Applicata* 87: 15-28.
65. Van Driesche, R.G. P. Kingsley, M. Rose and M. Bryan. 1997. Effect of euonymus scale (Homoptera: Diaspididae) on *Euonymus* spp. survival in New England, with estimates of economic costs of pest damage. *Environ. Entomol.* 27: 217-220.
66. Alvarez, J.M. and R.G. Van Driesche. 1998. Biology of *Cybocephalus* sp. nr. *nipponicus* (Coleoptera: Cybocephalidae), a natural enemy of euonymus scale (Homoptera: Diaspididae). *Environ. Entomol* 27: 130-136..
67. Alvarez, J.M. and R. G. Van Driesche. 1998. Effect of prey sex, density, and age on oviposition of *Cybocephalus* sp. nr. *nipponicus* (Coleoptera: Cybocephalidae), a natural enemy of euonymus scale (Homoptera: Diaspididae). *Florida Entomologist* 81: 429-436.
68. Lyon, S. M., R. Van Driesche, and J. D. Edman. 1998. Ecology of *Hunterellus hookeri* (Hymenoptera: Encyrtidae) and evaluation of its impact on *Ixodes scapularis* (Acari: Ixodidae) on Nonamesset Island in Massachusetts. *Environ. Entomol.* 27: 463-468.
69. Van Driesche, R. G., K. Idoine, M. Rose, and M. Bryan. 1998. Evaluation of the effectiveness of *Chilocorus kuwanae* (Coleoptera: Coccinellidae) in suppressing euonymus scale (Homoptera: Diaspididae). *Biological Control* 12: 56-65.
70. Van Driesche, R. G., J. L. Mason, S. E. Wright, and R. J. Prokopy. 1998. Effect of reduced insecticide and fungicide use on parasitism of leafminers (*Phyllonorycter* spp.) (Lepidoptera: Gracillariidae) in commercial apple orchards. *Environ. Entomol.* 27: 578-582.
71. Hoddle, M. S., J. P. Sanderson, and R. G. Van Driesche. 1999. Biological control of *Bemisia argentifolii* (Homoptera: Aleyrodidae) on poinsettia with inundative releases of *Eretmocerus eremicus* (Hymenoptera: Aphelinidae): does varying the weekly release rate affect control ? *Bull. Entomol. Res.* 89: 41-51.
72. Alvarez, J. M., R. Van Driesche and J. Cornell. 1999. Effect of *Encarsia* sp. nr. *diaspidicola* (Hymenoptera: Aphelinidae) parasitism on *Cybocephalus* sp. nr. *nipponicus* (Coleoptera: Cybocephalidae) egg laying choices. *Biological Control* .15: 57-63.
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102. Lim, U. T. and R. G. Van Driesche. 2004b. Impatiens necrotic spot virus infection and feeding behavior of nematode-infected western flower thrips. *Biological Control* 31: 438-444.
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2. Van Driesche, R.G., and E. Carey. 1987. Opportunities for Increased Use of Biological Control in Massachusetts, Mass. Exp. Sta. Bull. No. 718, pub. Oct. 1, 1987, 141 pp.
3. Bellows, T.S. Jr., R.G. Van Driesche and J.S. Elkinton. 1989. Life-tables and parasitism: estimating parameters in joint host-parasitoid systems. pp. 70-80. In: McDonald, L.L.,

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 5. Van Driesche, R. G. and M. Hoddle. 2000. Measuring success, step by step, in arthropod biological control. In Wratten, S. and G. Gurr (eds.). *Measures of Success in Biological Control*. Kluwer, Dordrecht, The Netherlands
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 7. Sands, D. and Van Driesche, R. G. 2004. Using the scientific literature to estimate the host range of a biological control agent, pp. 15-23. In *Assessing Host Ranges of Parasitoids and Predators Used for Classical Biological Control: A Guide to Best Practice* by Van Driesche, R. G. and R. Reardon (eds.). USDA Forest Service FHTET-04-03, Morgantown, W VA
 8. Van Driesche, R. G. and Murray, T. 2004. Parameters used in laboratory host range tests, pp. 56-67. In *Assessing Host Ranges of Parasitoids and Predators Used for Classical Biological Control: A Guide to Best Practice* by Van Driesche, R. G. and R. Reardon (eds.). USDA Forest Service FHTET-04-03, Morgantown, W VA
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 10. Van Driesche, R. G. 2006. Classical biological control of the imported cabbageworm, *Pieris rapae* (L.), In: Vincent, C. Goettel, and G. Lazarovits (eds.). *Biological Control: International Case Studies*. CABI Publishing, UK. (in press).
 11. Van Driesche. 2006. Biological control in mix and match forests. Proceedings of a Symposium at the International Congress of Entomology, Brisbane, Australia, August 16-20, 2004. Kluwer.
 12. Bigler, F., Barratt, B., and Van Driesche, R. G. 2008“GM Crops and Biological Control” In Romeis et al., *Integration of Insect Resistant GM Crops within IPM Programs*. Springer, (in press).

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1. Van Driesche, R.G. and T.S. Bellows. 1996. *Biological Control*. Chapman and Hall, New York, a textbook on biological control.
2. Van Driesche, J. P. and R. G. Van Driesche. 2000. *Nature Out of Place: Biological Invasions in a Global Age*. Island Press, Washington, D.C. 348 pp.
3. Van Driesche, R., B. Blossey, M. Hoddle, S. Lyon, and R. Reardon (eds.). 2002. *Biological Control of Invasive Plants in the Eastern United States*. FHTET 2002-04, USDA Forest Service, Morgantown, West Virginia, USA.
4. Van Driesche (ed.). 2003. *Proceedings of the First International Symposium on Biological Control of Arthropods*, January 14-18, 2002, Honolulu, HI, USA. USDA Forest Service, Morgantown, WVA, FHTET-03-05.

5. Van Driesche, R. G. and R. Reardon (eds.). 2004. *Assessing Host Ranges of Parasitoids and Predators Used for Classical Biological Control: A Guide to Best Practice* by USDA Forest Service FHTET-04-03, Morgantown, W VA.
6. Heinz, K. M., R. G. Van Driesche, and M. P. Parrella (eds.). 2004. *Biocontrol in Protected Culture*. Ball Publishing, Batavia, Illinois, USA.
7. R. G. Van Driesche, M. S. Hoddle, Ted Center. 2008. *Control de Plagas y Malezas por Enemigos Naturales*. USDA FSFHTET-2007-02 (Spanish translation of item #8 below).
8. R. G. Van Driesche, M. S. Hoddle, Ted Center. 2008. *Control of Pests and Weeds by Natural Enemies*, Blackwell Pub, UK.

INVITED SEMINARS

2007. "Spotless Oranges and World Leaders, The role of UC Riverside in biological control." A talk given as part of a celebration of the centennial of the UC Riverside Experiment Station
2005. "Improving the safety of classical biological control" University of Tennessee, Dept of Entomology and Plant Pathology, October 21, 2005, Knoxville, TN.
2004. "Biological control in mix and match forests." In symposium entitled *Ecological Management of Global Forests in a Changing World*, presented in the XXII International Congress of Entomology, 15-21, August, 2004, Brisbane, Australia.
2004. "Effect on *Pieris* butterflies of introduced parasitoids in New England, USA" presented to the Queensland Entomological Society in Brisbane, Australia, August 23, 2004.
2004. "Effect of native *Pieris* butterflies in New England, USA, by *Cotesia glomerata* and *C. rubecula* (Braconidae), introduced biological control agents of *Pieris rapae*. Trinity College, Hartford, CT, October 21, 2004
2003. "Managing nontarget risks of insect biological control" key note address for the July 10-12, 2003 meeting of the Canadian Biological Control Network meeting at Halifax, NS.
2003. "Impacts of invasive species on natural areas and possibilities of control" presented March 15, 2003 as special series seminar speaker to the La Garza USDA Research Station, Weslaco, TX.
2002. "Avoiding premature or inappropriate use of classical biological control of arthropods: criteria for good projects. Keynote speaker for symposium at annual meeting of the Florida Ent. Soc., July 30, 2002, Clearwater, FL
2002. "Economic and ecological damage from invasive species and the role of biological control" Lecture at Wellesley College April 29, 2002
2002. "What's known about birch leafmining sawflies and their biological control" Forest Health Information Meeting, Norwich, VT, April 4, 2002
2000. "Effect of braconid wasps introduced for biological control of *Pieris rapae* (Lep.: Pieridae) on native butterflies in New England" Nov. 2, 2000, Dept. of Entomology, Texas A and M University, College Station, TX.
1995. "Biological Control of Birch Leafminer", Sept. 21, 1995, Dept. Ent., Cornell Univ., Ithaca, NY.
1993. "Metodos para evaluacion de enemigos naturales: I Metodos experimentales; II. Metodos analiticos." - Two 1-h presentations given March 22-23, 1993 at C.I.E.S. (a nacional research center) in Tapachula, Mexico.
1990. "Training Extension Agents in Biological Control", a talk present Feb. 13, 1990 in College Sta. Texas as part of a Texas Ext. Program on Extension Agents and biological control.
1989. "The role of extension agents in implementing biological control." presented Aug. 3, 1989 to the Dept. of Ent. at the Univ. of Maryland, College Park, MD.

NEW AWARDS IN CURRENT YEAR (FY 2008): \$257,000

Contract	New (FY08)	USDA-Forest Service "Life table analysis to measure the impact of emerald ash borer parasitoids in the US" (\$99,000)
Contract	New (FY08)	USDA-Forest Service "Collection and release of an Idaho population of <i>Laricobius nigrinus</i> and monitoring for establishment, spread, and impacts" \$93,000 , for yr 2 of project.
Contract	New (FY08)	USDA-Forest Service "Classical biological control of elongate hemlock scale" (\$30,000 , for year 4 of 5 year project)
Contract	New (FY08)	US Forest Service "Biological control of ambermarked birch leafminer" \$35,000 additional funds for 2006.

LANGUAGE SKILLS

Reading comprehension and basic speaking ability of Spanish.