

## CURRICULUM VITAE

### NAME

Whitney Cranshaw

### ADDRESS

Bioagricultural Sciences and Pest Management  
College of Agricultural Sciences

Plant Sciences

### PHONE

(970) 491-6781

### EDUCATION

1981 Ph D, U OF MINNESOTA

1979 MS, U OF MINNESOTA

1976 BA, Hampshire College

### ACADEMIC POSITIONS

1983 - 1989 Assistant Professor, Colorado State University, Fort Collins, CO, United States.

2017-2018 - Professor (College of Agricultural Sciences)

2016-2017 - Professor (College of Agricultural Sciences)

2015-2016 - Professor (College of Agricultural Sciences)

2014-2015 (College of Agricultural Sciences)

2013-2014 (College of Agricultural Sciences)

2012-2013 (College of Agricultural Sciences)

2011-2012 (College of Agricultural Sciences)

2010-2011 (College of Agricultural Sciences)

2009-2010 (College of Agricultural Sciences)

### OTHER POSITIONS

1995 - Present Professor, Colorado State University, Fort Collins, CO, United States.

1989 - 1995 Associate Professor, Colorado State University, Fort Collins, CO, United States.

1982 - 1983 Extension Specialist - Entomology, University of Minnesota, United States.

1981 Instructor, University of Minnesota, United States.

1977 - 1981 Research Assistant- Teaching Assistant, University of Minnesota, United States.

1974 - 1976 Technician/Insect Ecology Lab, University of Massachusetts, United States.

## **PUBLISHED WORKS**

### **Books**

**Cranshaw, W. S.,** Shetlar, D. (2017). *Garden Insects of North America, 2nd Edition* (pp. 704).: Princeton University Press., Not Peer Reviewed/Refereed

### **Refereed Journal Articles**

**Sitz, R.,** Luna, E., Tisserat, N., Caballero, J., Cranshaw, W., Stewart, J. (2017). Virulence of genetically distinct *Geosmithia morbida* isolates to black walnut and their response to co-inoculation with *Fusarium solani*. *Plant Disease*, 101((1)), 116-120., Peer Reviewed/Refereed

**Sitz, R.,** Utley, C., Hall, A., Tisserat, N., Cranshaw, W. (2017). Trapping the walnut twig beetle to determine flight patterns in Colorado. *Southwestern Entomologist*, 42(2), 347-356., Peer Reviewed/Refereed

Schwartz, H. F., Gent, D. H., Fichtner, S. M., Otto, K., Boateng, C. O., Szostek, S., Cranshaw, W. S., Mahaffey, L. A. (2014). Thrips *tabaci* (Thysanoptera: Thripidae) and Iris yellow spot virus associated with onion transplants, onion volunteers and weeds in Colorado *tabaci*). *Southwestern Entomologist*, 39(4), 691-704. [www.bioone.org/doi/pdf/10.3958/059.039.0401](http://www.bioone.org/doi/pdf/10.3958/059.039.0401), Peer Reviewed/Refereed

Schwartz, H. F., Alston, D., Alwang, J., Bartolo, M. E., Blunt, T. D., Boateng, C., Bunn, B., Cramer, C., Cranshaw, W. S., Davidson, J. W., Derie, M., Douce, K., Drost, D., du Toit, L., Gour, T., Gugino, B., Hammon, B., Hardin, J. G., Hausbeck, M., Jibilian, G., Lafferty, J., LaForest, J., McMillan, M. S., Mohan, K., Morrice, J., Nault, B., Nischwitz, C., Norton, G., Otto, K., Pappu, H., Petersen, M., Sampangi, R., Schroeder, B., Secor, W., Szostek, S., Tisserat, N. A., Uchanski, M., VanKirk, J., Waters, T., Wiriyajitsomboon, P., Wohleb, C. (2014). Onion ipmPIPE: A coordinated effort to improve the management of onion thrips and Iris yellow spot virus for onion growers and their industry. *APS Plant Health Progress*, 15, 172-183. <http://www.apsnet.org/publications/apsnetfeatures/Documents/2014/PHP-FE-14-0026.pdf>, Peer Reviewed/Refereed

McEwen, C., Digweed, J., Cranshaw, W. (2014). Description and biology of the sexual generation of *Disholcaspis quercusmamma* (Walsh and Riley) (Hyemoptera: Cynipidae), with notes on associated parasitoids. *Proceedings of the Entomological Society of Washington*, 116(3), 294-310., Peer Reviewed/Refereed

Kondratieff, B. C., Cranshaw, W. S. (2014). Owlflies in Colorado (Neuroptera: Ascalaphidae). *Entomological News*, 123(5), 393-394., Peer Reviewed/Refereed

(2012). *Agrilus quercicola* (Fisher) (Coleoptera: Buprestidae), the Gambel Oak Borer, as a Pest of *Quercus* spp. *Southwestern Entomologist* doi: <http://dx.doi.org/10.3958/059>, 37(2), 147-150., Peer Reviewed/Refereed

(2012). *Orchestes alni* (L.) (Coleoptera: Curculionidae): New Records from Western North America with Notes on Parasitoids. *The Coleopterists Bulletin* doi: <http://dx.doi.org/10.1649/072.066.0115>, 66(1), 63-66., Peer Reviewed/Refereed

(2011). A Review of Nuisance Invader Household Pests of the United States. *American Entomologist*, 57(3), 165-169., Peer Reviewed/Refereed

- (2011). Notes on fruit damage by the European paper wasp, *Polistes dominula* (Christ) (Hymenoptera: Vespidae). *Southwestern Entomologist* doi:<http://dxdoiorg/103958/059>, 36(1), 103-105., Peer Reviewed/Refereed
- (2011). Recently recognized range extensions of the walnut twig beetle, *Pityophthorus juglandis* Blackman (Coleoptera: Curculionidae: Scolytinae), in the western United States. *The Coleopterists Bulletin* doi:<http://dxdoiorg/101649/0010-065X-65>, 65(1), 48-49., Peer Reviewed/Refereed
- (2011). Thousand cankers disease is widespread in black walnut in the western United States. *Plant Health Progress* doi: 10.1094/PHP-2011-0630-01-BR., Peer Reviewed/Refereed
- (2010). Comparison of over-the-counter insecticides for managing the European earwig, *Forficula auricularia* (L.) (Dermaptera: Forficulidae). *Southwestern Entomologist* doi:<http://dxdoiorg/103958/059>, 35(1), Peer Reviewed/Refereed
- (2010). Thrips Species Associated with Onion in Colorado. *Southwest Entomol*, 35, 45-50., Peer Reviewed/Refereed
- Schwartz, H. F., Gent, D. H., Fichtner, S. M., Khosla, R., Reich, R., Camper, M. A., Mchaffey, L. A., Cranshaw, W. S. (2010). Spatial and temporal distribution of Iris yellow spot virus and thrips in Colorado onion fields. *APS Plant Management Network*. doi: 10:1094/PHP-2010-0820-01-RS, Peer Reviewed/Refereed
- (2009). Effects of Supplemental Irrigation on Populations of Clover Mite, *Bryobia praetiosa* Koch (Acari). *Southwest Entomol*, 34, 69-74., Peer Reviewed/Refereed
- (2009). Straw Mulch and Reduced-Risk Pesticide Impacts on Thrips and Iris Yellow Spot Virus on Western-Grown Onions. *Southwest Entomol*, 34, 13-29., Peer Reviewed/Refereed
- Schwartz, H. F., Gent, D. H., Fichtner, S. M., Hammon, R., Cranshaw, W. S., Mahaffey, L., Camper, M. A., Otto, K., McMillan, M. S. (2009). Straw Mulch and Reduced-Risk Pesticide Impacts on Thrips and Iris Yellow Spot Virus on Western-Grown Onions. *Southwestern Entomologist*, 34, 13-29., Peer Reviewed/Refereed
- (2007). Trapping tomato psyllid, *Bactericera cockerelli* (Sulc) (Homoptera). *Southwest Entomol*, 32, 25-30., Peer Reviewed/Refereed
- (2005). Life history of the pine needle scale, *Chionaspis pinifoliae* (Fitch) in Northeastern Colorado. *Southwest Entomol*, 30, 55-60., Peer Reviewed/Refereed
- Nihat, D., Cranshaw, W. S., Norton, A. P. (2005). Survey of *Lygus* spp. And an associated parasitoid, *Leiophron uniformis* (Gahan), in Colorado. *Southwestern Entomologist*, 30(1), Peer Reviewed/Refereed
- (2004). Seasonal biology and associated natural enemies of two *Toumeyella* spp in Colorado. *Southwest Entomol*, 29, 39-45., Peer Reviewed/Refereed
- (2004). The effect of interplanting of nectariferous plants on the population density and parasitism of cabbage pests. *Southwest Entomol*, 29, 61-68., Peer Reviewed/Refereed
- (1999). Surveys on visitation of flowering landscape plants by common biological control agents in Colorado. *J Kansas Entomol Soc*, 72, 190-196., Peer Reviewed/Refereed
- (1999). The natural enemy complex associated with pine needle scale, *Chionaspis pinifoliae* (Fitch) (Homoptera). *J Kansas Entomol Soc*, 72, 131-133., Peer Reviewed/Refereed

- (1998). Observations of population increases and injury by spider mites (Acari). *J Econ Entomol*, 91, 250-255., Peer Reviewed/Refereed
- (1996). Aluminized fabric deters thrips from entering greenhouses. *Southwest Entomol*, 21, 135-140., Peer Reviewed/Refereed
- (1996). Effects on control of onion thrips from co-application of onion pesticides. *Southwest Entomol*, 21, 49-54., Peer Reviewed/Refereed
- (1995). Notes on the Biology and Control of the Poplar Twiggall Fly, *Hexomyza-Schineri* (Giraud) (Diptera, Agromyzidae), an Emerging Pest of Aspen in Colorado. *J Kansas Entomol Soc*, 68, 127-132., Peer Reviewed/Refereed
- (1994). Capture of Clearwing Borers (Lepidoptera, Sesiidae) with 3 Synthetic Attractants in Colorado. *Southwest Entomol*, 19, 71-76., Peer Reviewed/Refereed
- (1994). Larval Biology and Control of the Rabbitbrush Beetle, *Trirhabda-Nitidicollis* Leconte (Coleoptera, Chrysomelidae). *Southwest Entomol*, 19, 249-256., Peer Reviewed/Refereed
- (1994). Occurrence of the Oak Rough Bulletgall Wasp, *Disholcaspis-Quercusmamma* (Walsh) (Hymenoptera, Cynipidae), as a Street Tree Pest in Colorado. *J Kansas Entomol Soc*, 67, 290-293., Peer Reviewed/Refereed
- (1994). The Potato (Tomato) Psyllid, *Paratrioza-Cockerelli* (Sulc), as a Pest of Potatoes. *Southwest Entomol*, 19, 83-95., Peer Reviewed/Refereed
- (1993). Application of Semiochemicals in Integrated Pest-Management Programs. *Acs Sym Ser*, 524, 199-218., Peer Reviewed/Refereed
- (1991). Alate Aphid Trap Capture over Different Background Colors and Different Background Patterns. *Southwest Entomol*, 16, 13-18., Peer Reviewed/Refereed
- (1991). Differential Susceptibilities of Green Peach Aphid (Homoptera, Aphididae) and 2 Endoparasitoids (Hymenoptera, Encyrtidae and Braconidae) to Pesticides. *J Econ Entomol*, 84, 844-850., Peer Reviewed/Refereed
- (1991). Short-Term Movement of *Neoaplectana* Spp (Rhabditida, Steinernematidae) and *Heterorhabditis* Hp-88 Strain (Rhabditida, Heterorhabditidae) through Turfgrass Thatch. *J Econ Entomol*, 84, 875-878., Peer Reviewed/Refereed
- (1990). Compatibility of 3 Entomogenous Nematodes (Rhabditida) in Aqueous-Solutions of Pesticides Used in Turfgrass Maintenance. *J Econ Entomol*, 83, 97-100., Peer Reviewed/Refereed
- (1990). Effects of Colored Sprays on Aphid and Psyllid Colonization of Potatoes. *Southwest Entomol*, 15, 205-209., Peer Reviewed/Refereed
- (1990). Insects Associated with Quinoa, *Chenopodium-Quinoa*, in Colorado. *J Kansas Entomol Soc*, 63, 195-199., Peer Reviewed/Refereed
- (1989). Biological, Mechanical, and Chemical Control of Turfgrass-Infesting Scarabs in Colorado. *Southwest Entomol*, 14, 351-355., Peer Reviewed/Refereed
- (1988). Effects of Systemic Insecticides on Potato Growth and Their Interaction with Metribuzin. *Am Potato J*, 65, 535-541., Peer Reviewed/Refereed

- (1988). Flight Patterns of Clearwing Borers (Lepidoptera, Sesiidae) in Colorado Based on Pheromone Trap Captures. *Southwest Entomol*, 13, 39-46., Peer Reviewed/Refereed
- (1987). The Influence of Rockwool on Insect Populations and Pythium Disease. *Hortscience*, 22, 1136-1136., Peer Reviewed/Refereed
- (1987). Urban Ipm Education and Implementation - Implications for the Future. *Abstr Pap Am Chem S*, 194, 195-ENVR., Peer Reviewed/Refereed
- (1986). Suppression of Raspberry Crown Borer, *Pennisetia-Marginata* (Harris) (Lepidoptera, Sesiidae) with Soil Applications of *Steinernema-Feltiae* (Rhabditida, Steinernematidae). *J Invertebr Pathol*, 48, 257-258., Peer Reviewed/Refereed
- (1985). Clover Root Curculio Injury and Abundance in Minnesota Alfalfa of Different Stand Age. *Great Lakes Entomol*, 18, 93-95., Peer Reviewed/Refereed

### Non-Refereed Journal Articles

- Sitz, R. A., Snelling, J. W., Ibarra Caballero, J. R., Zerillo, M. M., Kathleen, A., Cranshaw, W. S., Tisserat, N. A., Stewart, J. E. (2018). Dribby blight disease of red oaks in Colorado Caused by *Allokermes* sp. and *Lonsdalea quercina* subs *quercina*. *Arboriculture and Urban Forestry*., Not Peer Reviewed/Refereed
- Zerillo, M. M., Caballero, J. R. Ibarra, Woeste, K. E., Graves, A. D., Hartel, C., Pscheidt, J. W., Tonos, J., Broders, K. D., Cranshaw, W. S., Seybold, S. J., Tisserat, N. A. (2014). Population structure of *Geosmithia morbida*, the causal agent of Thousand cankers disease of walnut trees in the United States. *Phytopathology*, 104(11), 135-135. <Go to ISI>://WOS:000346303300770, Not Peer Reviewed/Refereed
- Zerillo, M. M., Caballero, J. I., Woeste, K., Graves, A. D., Hartel, C., Pscheidt, J. W., Tonos, J., Broders, K. D., Cranshaw, W. S., Seybold, S. J., Tisserat, N. A. (2014). Population Structure of *Geosmithia morbida*, the Causal Agent of Thousand Cankers Disease of Walnut Trees in the United States. *Plos One*, 9(11). <Go to ISI>://WOS:000347709300113, Not Peer Reviewed/Refereed
- Luna, E., Cranshaw, W., Tisserat, N. (2014). Attraction of walnut twig beetle *Pityophthorus juglandis* (Coleoptera: Curculionidae) to the fungus *Geosmithia morbida*. *Plant Health Progress*, 01., Not Peer Reviewed/Refereed
- McDaniel, J. P., Barbarick, K. A., Stromberger, M. E., Cranshaw, W. S. (2013). Survivability of *Aporrectodea caliginosa* in Response to Drought Stress in a Colorado Soil. *Soil Science Society of America*, 77, 1667-1672. <https://dl.sciencesocieties.org/publications/sssaj/abstracts/77/5/1667>, Not Peer Reviewed/Refereed
- McDaniel, J. P., Stromberger, M. E., Barbarick, K. A., Cranshaw, W. S. (2013). Survival of *Aporrectodea caliginosa* and its effects on nutrient availability in biosolids amended soil. *Applied Ecology*(71), 1-6. <http://www.sciencedirect.com/science/article/pii/S0929139313001261>, Not Peer Reviewed/Refereed
- Cranshaw, W. S., Young, D. J. (2012). *Spiders: Management Tools for a Healthy Learning Environment*.: Colorado Center for Sustainable Integrated Pest Management, 2 pp., Peer Reviewed/Refereed
- (2011). *ThousandCankers Disease: An Unusual Paradigm* (vol. 211, pp. 20-21).: *AmericanNurseryman*., Not Peer Reviewed/Refereed
- (2010). *Colorado Pest Control Industry: An assessment of current needs and concerns in Colorado and*

Wyoming.: Colorado Agricultural Experiment Station Technical Bulletin TB10-1 5 pp., Peer Reviewed/Refereed

(2010). *Life in a Colorado Water Garden: The Insects and other Invertebrates Associated with Water Features.*: 27 pp Self published and made available on-line through the Insect Information web site <http://www.colostate.edu/Depts/bspm/extension%20and%20outreach/insect%20informationhtml>., Not Peer Reviewed/Refereed

(2010). *Thousand cankers disease: A recently recognized threat to North American black walnut* (1st ed., vol. 19, pp. 52-56).: Arborist News., Not Peer Reviewed/Refereed

### **AES Report/Bulletin**

**Sitz, R.**, Luna, E., Tisserat, N., Cranshaw, W. S. (2015). *An annotated bibliography of thousand cankers disease. Including general reports related to this disease, information on the walnut twig beetle *Pityophthorus juglandis* Coleoptera: Curculionidae (Scolytinae), and the associated fungus *Geosmithia morbida*.* (vol. CSU AES TB 15-1).: CSU Agricultural Experiment Station Technical Bulletin. <http://webdoc.agsci.colostate.edu/aes/AES/pubs/pdf/tb15-1.pdf>, Not Peer Reviewed/Refereed

Schwartz, H. F., Bartolo, M. E., Hardin, J. G., Cranshaw, W. S., Nissen, S. J., Szostek, S., Reddin, K., Cramer, C., Uchanski, M. E., Alston, D. G., Rost, D., du Toit, L. J., Pappu, H. R., Schroeder, B. K., Waters, T., Dutta, B., Srinivasan, R., Gitaitis, R. D., Nault, B. A. (2013). In H. F. Schwartz and M. E. Bartolo (Ed.), *Onion Health Management and Production* (pp. 104).: CSU IPM Center., Peer Reviewed/Refereed

### **CE Report/Bulletin/Factsheet**

Cranshaw, W., Jacobi, W., Leatherman, D., Tisserat, N. (2014). *Insects and Diseases of Woody Plants in Colorado* (Bulletin 506A ed., pp. 322 pp.).: Colorado State University Extension., Not Peer Reviewed/Refereed

Cranshaw, W. (2014). *Lilac/Ash Borer: A Common Wood Borer of Colorado's Street Trees* (no. 5.614 ed., pp. 3 pp.).: Colorado State University Extension Fact Sheet., Not Peer Reviewed/Refereed

### **Research Report**

**Cranshaw, W.**, Shreiner, M., Hardin, J. (in press). *Assessing Pollinator Habitat along Two Sections of CDOT Managed Highway - A Pilot Project.*: This was a report of 155 pages provided to the Colorado Department of Transportation., Not Peer Reviewed/Refereed

### **PERFORMANCES, EXHIBITS, PRODUCTIONS (Visual/Performing Arts):**

2012, Produced 42 page publication (with Boris Kondratieff) on Insects of the Sand Creek Massacre National Historic Site. Also produced a poster of the insects at the site. These were provided to the National Parks Service.

2012, Produced an Integrated Pest Management Plan for the Little Bighorn Battlefield National Monument (with Boris Kondratieff) and provided it to the National Park Service.

### **PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS**

December 2017, "Update on Colorado Insect Extension/Research Activities", NCERA 224, (Presenter) Cranshaw, W., Key Largo, Florida.

November 2017, "Hemp insect pest management: Needs and challenges", Entomological Society of America, (Presenter) Cranshaw, W. S.

November 2017, "Investigations into some potential risks to non-target species from emerald ash borer applied insecticides.", Entomological Society of America Annual Conference, (Presenter) Alakeel, R.

November 2017, "An Overview of Drippy Blight: An Emergent Insect Associated Disease of Red Oaks.", Entomological Society of America National Meeting, (Presenter) Sitz, R.

November 2017, "Insect faunal survey of three non-native mustards as overwintering habitat for cruciferous insects.", Entomological Society of America National Meeting, (Presenter) Longtine, Z.

November 2017, "The natural enemy complex associated with European elm scale in Colorado, with emphasis on associated parasitoids.", Entomological Society of America National Meeting, (Presenter) Peirce, E.

November 2017, "Identifying rose cultivars for the post-Japanese beetle landscape.", Entomological Society of American National Meeting, (Presenter) Shreiner, M.

August 2017, "Cannabis pest management: A perspective from Colorado", American Phytopathological Society, Above, (Presenter) Cranshaw, W. S.

October 26, 2016, "IPM of Cannabis Insect Pests", Cannabis Sustainability Workshop, City of Denver.

October 1, 2016, "Guess Who Came to Dinner - Diagnosis of Insects Based on Their "Leavings"", Montana Master Gardener Annual Conference, Montana State University, (Presenter) Cranshaw, W.

September 30, 2016, "Recognizing and Working with Natural Enemies of Insect Pests (Life Styles of the Swift and Vicious)", Montana Master Gardener Annual Conference, Montana State University, (Presenter) Cranshaw, W.

July 29, 2016, "Insect Management in Hemp", Industrial Hemp Conference, Soil and Crop Sciences Society, (Presenter) Cranshaw, W.

June 18, 2016, "Gardening for Insects - or Not!", Michigan Master Gardener College, Michigan State University, Master Gardener Program, (Presenter) Cranshaw, W.

March 23, 2016, "Gardening for Insects - or Not!", New Jersey Master Gardener Convention (Mercer County), (Presenter) Cranshaw, W.

November 17, 2015, "Relative use of ash as an early season pollen source in urbanized sites of Colorado", Entomological Society of America Annual Meeting, (Presenter) Al-Akeel, R.

November 16, 2015, "Life history of *Allokermes rattani*, the kermes scale associated with drippy blight of red oaks", Entomological Society of America Annual Meeting, (Presenter) Sitz, R.

November 16, 2015, "Use of bed bug traps to capture other cimicids and blood feeding mites found in buildings", Entomological Society of America Annual Meeting, (Presenter) Ewals-Strain, B.

November 2014, "Evaluation of trapping to control western yellowjacket and other pest vespids in northern Colorado", Entomological Society of America - Annual Meeting, (Presenter) Cranshaw, W., Portland, Oregon.

November 2014, "Evidence of neonicotinoid resistance in European elm scale in Colorado and a search for

alternative means of management", Entomological Society of America - Annual Meeting, (Presenter) Sitz, R., Portland, Oregon.

September 2014, "Update on Colorado Insect Research", NCERA 224, (Presenter) Cranshaw, W., Asheville, North Carolina.

March 2014, "Pest Management Challenges and Opportunities for Medical Marijuana in Colorado", Iowa State University Department of Entomology, (Presenter) Cranshaw, W., Ames, Iowa.

March 2014, "Pest Management Challenges and Opportunities for Medical Marijuana in Colorado", Department BSPM, Fort Collins, Colorado.

November 12, 2013, "Lepidoptera - Not! A survey of moth phobia incidence and attitudes towards moths and butterflies", Entomological Society of America Annual Meeting, Entomological Society of America, Austin, Texas, peer-reviewed/refereed.

2012, "American Society of Consulting Arborists Annual Conference (San Diego) - "Nightmare on Walnut Street: Thousand Cankers as an Emergent Threat to North American Juglans"", peer-reviewed/refereed.

2012, "Department BSPM Seminar - Natural History Notes from New Zealand: An Alternate Laboratory in Evolution".

2012, "Department of Ecology, College of Agriculture and Life Sciences (Lincoln University) Seminar - "Living with the potato/tomato psyllid in the Rocky Mountain region (US), and thoughts about its recent introduction to New Zealand"".

2012, "Entomological Society of America (Thousand Cankers Symposium) - "The Discovery of Thousand Cankers and Pathways to the World"".

2012, "Entomological Society of America, National Meeting (Amenity Plants Symposium) - "Thousand Cankers Disease: An Unusual - and Lethal - Collaboration between Insects and Pathogens"".

2012, "New Zealand Entomological Society (Canterbury Region) - "Nightmare on Walnut Street; Thousand Cankers as an Emergent Threat to Juglans"".

2012, "Southern Forest Insect Work Conference (Charlottesville, VA) - "Thousand Cankers: Overview and Origins"".



2011, "Cranshaw, W.S. 2011. Pest management challenges in production of medical marijuana in Colorado. Annual Meeting, Entomological Society of America. Reno, NV."

2011, "Cranshaw, W.S. Evaluations of trapping methods for pest vespids. 2011 Meeting NCB-ESA. Minneapolis, MN".

2011, "Invited by graduate student association of the ESA-NCB to give presentation on subject "Appreciation and Augmentation of Backyard Insect Life". Meeting was in coordination with the NCB-ESA meeting in Minneapolis, MN".

2011, "Invited to speak at the Western Forest and Conservation Nursery Conference & IPM workshop. Subject was integrated pest management of insects and mites in nurseries."

2011, "McEwen, C. L. and W.S. Cranshaw. 2011. Effects of field applications of methyl jasmonate on field pests of crucifers. Annual Meeting, Entomological Society of America. Reno, NV."

2011, "Nightmare on Walnut Street - Thousand Cankers Disease as an Emergent Threat to Juglans. Presented to the Department of Entomology, University of Minnesota, St. Paul Campus".

2011, "Peachey, E.K., N. Tisserat, and W. Cranshaw. Effect of freezing temperatures on survival of the walnut twig beetle (*Pityophthorus juglandis*) 2011 ESA National Meeting. Reno, NV".

2011, "Peachey, E.K., N. Tisserat, and W. Cranshaw. Attraction of walnut twig beetle adults and larvae to the fungus *Geosmithia morbida*. 2011 ESA National Meeting, Reno, NV".

2011, "Regional Issues Affecting Plant Pests in the Rocky Mountain States. Invited speaker to the Continental Dialogue on Non-Native Forest Insects and Diseases, a national umbrella organization. In addition to presentation, also assisted

Ned Tisserat with field trip to observe local forest health issues, particularly thousand cankers disease. The 2012 meeting was held in Boulder."

**TEACHING:**

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2018	Spring	BSPM356A - Horticultural Entomology Introduction	1	18
2018	Spring	BSPM356B - Horticultural Entomology: Food Crops	1	11
2018	Spring	BSPM356C - Horticultural Entomology: Landscape Plants	1	9
2017	Fall	BSPM799 - Dissertation	13	3
2017	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	12
2017	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	28
2017	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	17
2017	Fall	BSPM495 - Independent Study	2	1
2017	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	268
2017	Fall	BSPM698 - Research	77	14
2017	Fall	BSPM798 - Research	67	14
2017	Fall	BSPM699 - Thesis	11	4
2017	Summer	BSPM102 - Insects, Science, and Society (GT-SC2)	3	34
2017	Spring	BSPM799 - Dissertation	13	5
2017	Spring	BSPM356A - Horticultural Entomology Introduction	1	0
2017	Spring	BSPM356A - Horticultural Entomology Introduction	1	3
2017	Spring	BSPM356B - Horticultural Entomology: Food Crops	1	0
2017	Spring	BSPM356B - Horticultural Entomology: Food Crops	1	2
2017	Spring	BSPM356C - Horticultural Entomology: Landscape Plants	1	0
2017	Spring	BSPM356C - Horticultural Entomology: Landscape Plants	1	2
2017	Spring	BSPM698 - Research	28	9
2017	Spring	BSPM798 - Research	86	16
2017	Spring	BSPM699 - Thesis	2	2
2016	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	18
2016	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	27
2016	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	20
2016	Fall	BSPM356A - Horticultural Entomology Introduction	1	1
2016	Fall	BSPM356B - Horticultural Entomology: Food Crops	1	0
2016	Fall	BSPM356C - Horticultural Entomology: Landscape Plants	1	0
2016	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	263
2016	Fall	HORT486B - Practicum-General	6	2
2016	Fall	BSPM698 - Research	18	11
2016	Fall	BSPM798 - Research	18	18
2016	Spring	BSPM799 - Dissertation	18	4
2016	Spring	BSPM356A - Horticultural Entomology Introduction	1	2
2016	Spring	BSPM356B - Horticultural Entomology: Food Crops	1	1
2016	Spring	BSPM356C - Horticultural Entomology: Landscape Plants	1	1
2016	Spring	BSPM102 - Insects, Science, and Society (GT-SC2)	3	230
2016	Spring	BSPM698 - Research	18	12
2016	Spring	BSPM798 - Research	18	14
2016	Spring	BSPM699 - Thesis	18	4
2015	Fall	BSPM799 - Dissertation	18	6
2015	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	19
2015	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	28
2015	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	15

2015	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	264
2015	Fall	BSPM698 - Research	18	10
2015	Fall	BSPM798 - Research	18	9
2015	Fall	BSPM699 - Thesis	18	6
2015	Spring	BSPM798 - Research	18	9
2014	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	15
2014	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	28
2014	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	18
2014	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	261
2014	Fall	BSPM698 - Research	18	10
2014	Fall	BSPM798 - Research	18	8
2014	Spring	HORT495 - Independent Study	18	8
2013	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	17
2013	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	26
2013	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	15
2013	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	266
2013	Summer	BSPM699 - Thesis	18	2
2013	Spring	BSPM699 - Thesis	18	6
2012	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	19
2012	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	32
2012	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	23
2012	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	267
2012	Fall	BSPM798 - Research	18	10
2011	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	30
2011	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	32
2011	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	27
2011	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	270
2011	Summer	BSPM699 - Thesis	18	1
2011	Spring	BSPM698 - Research	18	12
2011	Spring	BSPM699 - Thesis	18	4
2010	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	27
2010	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	27
2010	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	28
2010	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	262
2010	Fall	BSPM698 - Research	18	18
2009	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	16
2009	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	25
2009	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	26
2009	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	275
2009	Fall	BSPM698 - Research	18	9
2008	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	18
2008	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	29
2008	Fall	BSPM303B - Entomology Laboratory-Horticultural	1	24
2008	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	247
2007	Fall	BSPM303B - Entomology Laboratory: Horticultural	1	22
2007	Fall	BSPM303B - Entomology Laboratory: Horticultural	1	30
2007	Fall	BSPM303B - Entomology Laboratory: Horticultural	1	12
2007	Fall	BSPM495 - Independent Study	3	3
2007	Fall	BSPM510 - Insect-Plant Disease Relationships	3	9
2007	Fall	BSPM102 - Insects, Science, and Society (GT-SC2)	3	250
2007	Fall	BSPM384 - Supervised College Teaching	3	2
2007	Fall	BSPM584 - Supervised College Teaching	3	3

## Guest Lectures:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u># of Guest Lectures</u>	<u>Delivery Mode</u>
2016	Fall	Bioag'l Sci & Pest Mgmt-BSPM592 - Fundamentals of BSPM	1	Face to Face
2016	Fall	Bioag'l Sci & Pest Mgmt-BSPM365 - Integrated Tree Health Management	8	Face to Face
2016	Fall	Bioag'l Sci & Pest Mgmt-BSPM302 - Introduction to Entomology	2	Face to Face
2016	Fall	Soil & Crop Sciences-SOCR424 - Topics in Organic Agriculture	1	Face to Face
2016	Spring	Bioag'l Sci & Pest Mgmt-BSPM530 - Scientific Writing	1	Face to Face
2015	Fall	Bioag'l Sci & Pest Mgmt-BSPM592 - Fundamentals of BSPM		Face to Face
2015	Fall	Bioag'l Sci & Pest Mgmt-BSPM365 - Integrated Tree Health Management	8	
2015	Fall	Bioag'l Sci & Pest Mgmt-BSPM302 - Introductory Entomology	2	Face to Face
2015	Spring	Bioag'l Sci & Pest Mgmt-BSPM530 - Scientific Writing		Face to Face
2014	Fall	Bioag'l Sci & Pest Mgmt-BSPM303A - Agronomic Entomology	2	

## Evidence of Teaching Effectiveness (Annual Input)

### Other Evidence

Fall 2017, BSPM 799–Dissertation

Fall 2017, BSPM 303B–Entomology Laboratory-Horticultural

Spring 2017, BSPM 356A–Horticultural Entomology Introduction

Spring 2017, BSPM 356B–Horticultural Entomology: Food Crops

Spring 2017, BSPM 356C–Horticultural Entomology: Landscape Plants

Spring 2016, BSPM 356A–Horticultural Entomology Introduction

Spring 2016, BSPM 356B–Horticultural Entomology: Food Crops

Spring 2016, BSPM 356C–Horticultural Entomology: Landscape Plants

Spring 2016, BSPM 102–Insects, Science, and Society (GT-SC2)

## **EXTENSION/ENGAGEMENT ACTIVITIES/ACCOMPLISHMENTS**

### **Email**

Miscellaneous queries related to insects handled by email and Ask an Expert. Adult. Total number of participants: 350. Percent Responsible: 100%. Full Year 2016.

### **Fact Sheet Downloads**

Entomology Fact Sheet Downloads. Adult, Colorado. Number of times program was made: 300000. Total number of participants: 300000. Percent Responsible: 50%. Full Year 2016.

### **Field Day**

Insect Management Research. Adult, Rocky Ford. Number of times program was made: 3. Total number of participants: 75. Percent Responsible: 5%. 3rd Quarter 2016.

Master Gardener Field Day. Adult, Rexburg, Idaho. Number of times program was made: 1. Total number of participants: 32. Percent Responsible: 25%. 2nd Quarter 2014.

### **Presentation**

Recognizing and Working with Insect Natural Enemies. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 32. Percent Responsible: 100%. 1st Quarter 2018.

CWMA - Update on insect issues of shade trees and shrubs. Adult, Colorado Springs, Colorado. Number of times program was made: 1. Total number of participants: 130. Percent Responsible: 100%. 4th Quarter 2018.

ISA - Update on insect issues of shade trees and shrubs. Adult, Parker, Colorado. Number of times program was made: 1. Total number of participants: 175. Percent Responsible: 100%. 4th Quarter 2018.

RMRTA - Updates on Japanese beetle and Emerald Ash borer. Adult, Arvada, Colorado. Number of times program was made: 1. Total number of participants: 120. Percent Responsible: 100%. 4th Quarter 2018.

CALCP-Ornamental Insect Update. Adult, Aurora, Colorado. Number of times program was made: 2. Total number of participants: 150. Percent Responsible: 100%. 1st Quarter 2017.

CCA - Hemp Insect Pest Management. Adult, Westminster. Number of times program was made: 1. Total number of participants: 20. Percent Responsible: 100%. 1st Quarter 2017.

Managing Scale Insects. Adult, Montrose, Colorado. Number of times program was made: 1. Total number of participants: 65. Percent Responsible: 100%. 1st Quarter 2017.

Updates on Tree Care Insects of Colorado. Adult, Greeley, Colorado. Number of times program was made: 1. Total number of participants: 205. Percent Responsible: 100%. 1st Quarter 2017.

Common Garden Insects. Adult, Burlington. Number of times program was made: 1. Total number of participants: 15. Percent Responsible: 100%. 2nd Quarter 2017.

Interesting Garden Insect Issues. Adult, Denver, Colorado. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 100%. 2nd Quarter 2017.

Japanese Beetle and Emerald Ash Borer. Adult, Fort Collins. Number of times program was made: 1. Total number of participants: 55. Percent Responsible: 100%. 2nd Quarter 2017.

Managing Common Vegetable Insects. Adult, Cheyenne, Wyoming. Number of times program was made: 1. Percent Responsible: 100%. 2nd Quarter 2017.

Recognizing and Working with Natural Enemies of Insects. Adult, Laramie, Wyoming. Number of times program was made: 1. Total number of participants: 20. Percent Responsible: 100%. 2nd Quarter 2017.

First Detector Training for Non-native Pests. Adult, Midvale, Utah. Number of times program was made: 1. Total number of participants: 65. Percent Responsible: 100%. 3rd Quarter 2017.

Short Course - Insect Update. Adult, Fort Collins. Percent Responsible: 100%. 3rd Quarter 2017.

Insect Updates for Horticulture Agents. Adult, Fort Collins. Number of times program was made: 1. Total number of participants: 15. Percent Responsible: 100%. 4th Quarter 2017.

Colorado Arborists and Lawn Care Professionals Annual Conference. Adult, Aurora, Colorado. Number of times program was made: 2. Total number of participants: 150. Percent Responsible: 100%. 1st Quarter 2016.

Gardening for Insects or Not. Adult, Princeton, New Jersey. Number of times program was made: 1. Total number of participants: 160. Percent Responsible: 100%. 1st Quarter 2016.

Stinging and Biting Insects. Adult, Montrose, Colorado. Number of times program was made: 1. Total number of participants: 40. Percent Responsible: 100%. 1st Quarter 2016.

Stinging Insects (1 hour), Nuisance Invaders (1 hour). Adult, Thornton, Colorado. Number of times program was made: 2. Total number of participants: 240. Percent Responsible: 100%. 1st Quarter 2016.

Gardening for Insects or Not. Adult, Durango, Colorado. Number of times program was made: 1. Total number of participants: 28. Percent Responsible: 100%. 2nd Quarter 2016.

Ornamental Insect Update. Adult, Loveland, Colorado. Number of times program was made: 1. Total number of participants: 130. Percent Responsible: 100%. 2nd Quarter 2016.

Review of Bees and Wasps of Colorado. Adult, durango, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 2nd Quarter 2016.

School IPM. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 12. Percent Responsible: 100%. 2nd Quarter 2016.

Updates on shade tree insects. Adult, Parker, Colorado. Number of times program was made: 1. Total number of participants: 175. Percent Responsible: 100%. 4th Quarter 2016.

Emerald ash borer. Adult, Loveland, Colorado. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 1st Quarter 2014.

Landscaping for Insects - or Not. Adult, Grand Junction, Colorado. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 1st Quarter 2014.

Onion Insect Management. Adult. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 1st Quarter 2014.

Talk on ornamental insects, talk on nuisance invader species of homes. Adult, Grand Junction, Colorado. Number of times program was made: 1. Total number of participants: 200. Percent Responsible: 100%. 1st Quarter 2014.

Three presentations related to shade tree insects. Adult, Butte, Montana. Number of times program was made: 1. Total number of participants: 150. Percent Responsible: 100%. 1st Quarter 2014.

Two presentations related to shade tree insects. Adult, Kansas City, Kansas. Number of times program was made: 1. Total number of participants: 350. Percent Responsible: 100%. 1st Quarter 2014.

Update on Insects. Adult, Denver, Colorado. Number of times program was made: 1. Total number of participants: 250. Percent Responsible: 100%. 1st Quarter 2014.

Emerald ash borer/Thousand cankers disease - updates. Adult, Sterling. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 2nd Quarter 2014.

Review of Insecticide Classes. Adult, Laramie, Wyoming. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 100%. 2nd Quarter 2014.

Tale of Ten Insects. Adult, Fort Collins, Colorado. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 100%. 2nd Quarter 2014.

Thousand Cankers Disease. Adult. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 40%. 2nd Quarter 2014.

Update on Emerald Ash Borer. Adult, Fort Collins, Colorado. Number of times program was made: 1. Total number of participants: 165. Percent Responsible: 100%. 2nd Quarter 2014.

Update on Garden Insects. Adult, Littleton, Colorado. Number of times program was made: 1. Total number of participants: 15. Percent Responsible: 100%. 2nd Quarter 2014.

Update on Shade Tree Insects. Adult. Number of times program was made: 1. Percent Responsible: 100%. 3rd Quarter 2014.

Lessons Learned from Emerald Ash Borer. Adult. Number of times program was made: 1. Total number of participants: 250. Percent Responsible: 100%. 4th Quarter 2014.

Lessons Learned from Emerald Ash Borer. Adult, Denver. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 4th Quarter 2014.

Recognizing and Working with Insect Natural Enemies. Adult, Media, Pennsylvania. Number of times program was made: 1. Total number of participants: 250. Percent Responsible: 100%. 4th Quarter 2014.

Two talks on shade tree and ornamental insects. Adult, Grand Junction. Number of times program was made: 1. Total number of participants: 125. Percent Responsible: 100%. 4th Quarter 2014.

### **Workshop**

Training Workshop for Retail Workers on Household Insects. Adult, Grand Junction, Colorado. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 100%. 1st Quarter 2018.

Advanced Master Gardener Training - Insect Updates. Adult, Grand Junction, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Salida, Colorado. Number of times program was made: 1. Total number of participants: 12. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Frisco, Colorado. Number of times program was made: 1. Total number of participants: 12. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Steamboat Springs, Colorado. Number of times program was made: 1. Total number of participants: 15. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Durango, Colorado. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Telluride, Colorado. Number of times program was made: 1. Total number of participants: 12. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Eagle, Colorado. Number of times program was made: 1. Total number of participants: 27. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Pueblo, Colorado. Number of times program was made: 1. Total number of participants: 18. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Loveland, Colorado. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Colorado Springs, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Golden, Colorado. Number of times program was made: 1. Total number of participants: 85. Percent Responsible: 100%. 1st Quarter 2017.

Master Gardener Training - Entomology. Adult, Castle Rock, Colorado. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 1st Quarter 2017.

Advanced Master Garden Training. Adult, Golden. Number of times program was made: 1. Percent Responsible: 100%. 2nd Quarter 2017.

Advanced Master Garden Training. Adult, Golden. Number of times program was made: 1. Percent Responsible: 100%. 2nd Quarter 2017.

Gardening for Insects-or Not! Adult, Fort Collins. Number of times program was made: 1. Total number of participants: 7. Percent Responsible: 100%. 2nd Quarter 2017.

Recognition of Common Pollinators. Adult, Longmont. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 2nd Quarter 2017.

Managing Emerald Ash Borer. Adult, Kaysville, Utah. Number of times program was made: 1. Total number of participants: 16. Percent Responsible: 100%. 3rd Quarter 2017.

Boulder Beekeepers Association Training Workshop. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Colorado Springs, Colorado. Number of times program was made: 1. Total number of participants: 18. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Telluride, Colorado. Number of times program was made: 1. Total number of participants: 15. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Durango, Colorado. Number of times program was made: 1. Total number of participants: 35. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Rifle, Colorado. Total number of participants: 15. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Breckenridge, Colorado. Number of times program was made: 1. Total number of participants: 9. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Grand Junction, Colorado. Number of times program was made: 1. Total number of participants: 60. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Centennial, Colorado. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Steamboat Springs. Number of times program was made: 1. Total number of participants: 11. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Broomfield, Colorado. Number of times program was made: 1. Total number of participants: 55. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Salida. Number of times program was made: 1. Total number of participants: 14. Percent Responsible: 100%. 1st Quarter 2016.

Master Gardener Training - Full day, Entomology program. Adult, Loveland, Colorado. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 1st Quarter 2016.

Common insect pollinators - recognition and habits. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 8. Percent Responsible: 100%. 2nd Quarter 2016.

Tri-State Horticulture Conference - day long workshop. Adult, Yuma, Colorado. Number of times program was made: 1. Total number of participants: 18. Percent Responsible: 100%. 2nd Quarter 2016.



Advanced Master Gardener Training - 2 hour program. Adult, Boulder, Colorado. Number of times program was made: 1. Total number of participants: 24. Percent Responsible: 100%. 3rd Quarter 2016.

Boulder Beekeepers Association Training Workshop. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 18. Percent Responsible: 100%. 4th Quarter 2016.

Ornamental Insect Update. Adult, Aurora, Colorado. Number of times program was made: 1. Total number of participants: 120. Percent Responsible: 100%. 4th Quarter 2016.

Master Gardener Training - Arapahoe and Douglas Counties. Adult, Castle Rock. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - Chaffee and Gunnison Counties. Adult. Number of times program was made: 1. Total number of participants: 18. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - Denver, Jefferson, Broomfield Counties. Adult. Number of times program was made: 1. Total number of participants: 85. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - Eagle, Summit, Grand Counties. Adult. Number of times program was made: 1. Total number of participants: 28. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - El Paso, Pueblo and Teller Counties. Adult. Number of times program was made: 1. Total number of participants: 65. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - La Plata, Montezuma, Archuleta Counties. Adult. Number of times program was made: 1. Total number of participants: 70. Percent Responsible: 100%. 1st Quarter 2014.

Master Gardener Training - Larimer, Adams, Weld, Boulder Counties. Adult, Loveland. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 1st Quarter 2014.

Review of Colorado Bees and Wasps. Adult, Longmont, Colorado. Number of times program was made: 1. Total number of participants: 22. Percent Responsible: 100%. 1st Quarter 2014.

Thousand Cankers Disease. Adult, Wisconsin. Number of times program was made: 1. Total number of participants: 250. Percent Responsible: 100%. 1st Quarter 2014.

Turfgrass Insects, Forest Insects. Adult. Percent Responsible: 100%. 1st Quarter 2014.

Two talks on household insect pests. Adult. Number of times program was made: 1. Total number of participants: 120. Percent Responsible: 100%. 1st Quarter 2014.

Update on Emerald Ash Borer. Adult, Greeley, Colorado. Number of times program was made: 1. Total number of participants: 150. Percent Responsible: 100%. 1st Quarter 2014.

Entomology for Retail Outlets. Adult, Fort Collins, Colorado. Number of times program was made: 1. Total number of participants: 12. Percent Responsible: 75%. 2nd Quarter 2014.

Idaho County Agent Training - Entomology. Adult, Rexburg, Idaho. Number of times program was made: 1. Total number of participants: 25. Percent Responsible: 50%. 2nd Quarter 2014.

Insects Updates. Adult, Pueblo. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 2nd Quarter 2014.

Pollinators and Neonicotinoid Insecticides. Adult, Golden. Number of times program was made: 1. Total number of participants: 45. Percent Responsible: 100%. 2nd Quarter 2014.

Review of Bees and Wasps. Adult, Cheyenne, Wyoming. Number of times program was made: 1. Total number of participants: 75. Percent Responsible: 100%. 3rd Quarter 2014.

Review of Colorado Bees and Wasps. Adult. Number of times program was made: 1. Total number of participants: 28. Percent Responsible: 100%. 4th Quarter 2014.

Update on Emerald Ash Borer. Adult. Number of times program was made: 1. Total number of participants: 20. Percent Responsible: 100%. 4th Quarter 2014.

**COMMITTEES**

Gillette Entomology Club Advisor, (1990 - Present).

Advisory Committee, (2010 - 2012).

**PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

Colorado Association of Arborists and Lawn Care Professionals. (1988 - Present).

Entomological Society of America. (1977 - Present).

Channel 7 ABC.

Channel 9.

Channel 9.

Colorodoan.

Coloradoan.

Coloradoan.

Discovery Channel.

Travel Channel.

Committee Member, Entomological Society of America. (November 2016 - November 2019).

Chairperson, Entomological Society of America - Common Names Committee. (November 2012 - November 2015).

**OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH**

Government, European and Mediterranean Plant Protection Organization (EPPO), Paris, France. (August 2014 - December 2014).

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