NEAL M. WILLIAMS – Curriculum Vitae

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EDUCATION

University of Wisconsin, Madison, WI, USA	B.S.	1992	Botany and Zoology
Edinburgh University, Edinburgh, Scotland, UK	non degree	1990-1991	Botany, History and Philosophy of Science
State University of New York, Stony Brook, NY, USA	Ph.D.	1999	Ecology and Evolution

APPOINTMENTS

2017- Professor, Department of Entomology and Nematology, University of California-Davis

2013-2016 Associate Professor, Department of Entomology and Nematology, University of California-Davis

2009-2013 Assistant Professor, Department of Entomology and Nematology, University of California-Davis

2004-2009 Assistant Professor, Department of Biology, Bryn Mawr College

2001-2003 Postdoctoral Researcher, Department of Ecology and Evolutionary Biology, Princeton

ACADEMIC HONORS

Fellowships

2018-2023 A.G. Larsson Visiting Professorship, Swedish Agricultural University, Uppsala, Sweden.

2001-2003 D.H. Smith Conservation Research Postdoctoral Fellow, Princeton University, Princeton, NJ

1999-2000 I.W. Killam Foundation Postdoctoral Fellow, University of Calgary, Alberta, Canada.

Awards

2019 California Academy of Sciences, Fellow

2019 Entomological Society of America Pacific Branch, Plant-Insect Ecosystems Award

2015-2020 Chancellor's Fellow, University of California, Davis

2013 Entomological Society of America Pacific Branch, Team Research Award

2008 Lindback Award for Excellence in Teaching, Bryn Mawr College

CURRENT GRANTS (FEDERAL & STATE ONLY)

2026-2028 USDA/CDFA-SCBG, *Assessing the Impact of Heat Waves on Sunflower Pollination to Promote Resilient Summer Seed Crops*. (Williams PI)

2024-2026 National Park Service US Department of the Interior, *Inventory of monarchs and bumble bees to inform vegetation management at WHIS and LAVO.*(Williams PI)

2024-2029 Department of Defense Legacy Program HQ003423NFOEASD07, *Monarch and Pollinator Strategic Conservation Research Program.* (Co-PI with E. Crone, C. Schultz - PI, WSU)

2021-2025 USDA-NIFA 2021-67013-33678, *Enhancing ecosystem services from cover crops in orchard systems*. (Williams Co-PI with A. Gaudin PD)

PUBLICATIONS

In Review

Nelson, R.*, **Williams, N. M.** Valdovinoa, F. Harrison, S. (2026) Invasive plants affect native plant pollination through pollinator-mediated cross-boundary effects. Ecology.

Rosenberger, N. M.*, Hemberger, J. A., & **Williams, N. M.** (2026) Collapse of plant reproductive success due to combined effects of experimental heat waves on plants and their insect pollinators. Ecology Letters.

Woodard, S. H., Du Clos, B. US National Native Bee Monitoring Research Coordination Network, **Williams, N. M.** (2026) Actions for improving data-driven conservation of US wild bees. *Proceedings of the National Academy of Sciences*.

Müller, U.*, Borchardt, K.*, Britzman, A.*, Williams, N. M. (2026) Seed mix performance and species network roles as a framework to select candidate key resources for pollinator habitat. *Ecosphere*.

Book Chapter in Review

Lehner, A.M., Williams, N. M., Finn, S. R., Martin, A. N., Pearson, E. A., Sandoval, M. C., Reyez-Gallegos, E., Wilcox, H. R., Diethelm, A. C., Biaotto, T., Squier, B. (2026) Causes of Bumble Bee Declines: Pesticides. In *Threats to Pollinator Abundance and Diversity*, S. Elias (eds). Elsevier

Journal Articles

133. Ouin, A., Rivers-Moore, J., Cabanettes, A., Brittain, C.A., Page, M. L. & **Williams, N. M.** (2026) Does temporal variability in floral resources at the landscape scale impact wild bee diversity and watermelon pollination? *Landscape Ecology*, https://doi.org/10.1007/s10980-025-02220-y.

132. Ballare, K.M., Escalona, M., Fisher, K., Guillén, B.M., Richardson, L., Seligmann, W., Chumchim, N., Marimuthu, M.P. M., Nuyen, O.H., **Williams, N.M.**, Shapiro, B., Woodard, S.H. Genome assemblies of two bumble bee species: *Bombus sonorus* and *B. vosnesenskii*. *Journal of Heredity*, 109: 1-12

131. Tepedino, V. J. & **Williams, N. M.** (2025) An eagerness for conspecifics: The distribution of nests of the sunflower leafcutting bee, *Megachile pugnata* (Megachilidae), when nesting cavities are in excess. *Journal of Mellitology*, 140:1-11.

130. Cariveau, D. P., Hung, K.J., **Williams, N. M.**, Inouye, D. W., Burns, C. T., Lane, I. G., Irwin, R. E., Levenson, H.K., Du Clos, B. & Woodard, S. H. (2025) Standardized protocols for collecting data on bee-flower interactions and the associated floral community. *Journal of Mellitology*, 123 (5):104-138.

129. Vannette, R. L., **Williams, N. M.**, Peterson, S. S., Martin, A. N. (2025) Pollen diet, more than geographic distance, shapes provision microbiome composition in two species of cavity-nesting bees. *FEMS Microbiology Ecology,* fiaf067, https://doi.org/10.1093/femsec/fiaf067.

128. Mola, J. M., & **Williams, N. M.** (2025) Bumble bee movement ecology: foraging and dispersal across castes and life stages. *Annals of the Entomological Society of America*, 118(3), 175-188.

127. Hemberger, J., & **Williams, N. M.** (2025) Predicting landscape-scale native bumble bee habitat use over space, time, and forage availability. *Ecology* 106(2): e70008.

126. Levenson, H. Carril, O.M., Turley, N., Maffei, C., LeBuhn, G., **Williams, N. M**., & Woodard, S.H. (2025) Standardized protocol for collecting community-level bee data. *Journal of Melittology* 123(4):78-103.

125. Tsang, T. P., De Santis, A. A., Armas-Quiñonez, G., Ascher, J. S., Ávila-Gómez, E. S., Báldi, A., ... & Bonebrake, T. C. (2025) Land use change consistently reduces α-but not β-and γ-diversity of bees. *Global Change Biology* 31(1): e70006.

124. Beaurepaire, A. L., Hogendoorn, K., Kleijn, D., Otis, G. W., Potts, S. G., Singer, T. L., ... & Dietemann, V. (2024) Avenues towards reconciling wild and managed bee proponents. *Trends in Ecology & Evolution,* 40(1): 7-10.

123. Rosenberger, N. M.*, Hemberger, J. A., & **Williams, N. M.** (2024) Heatwaves exacerbate pollen limitation through reductions in pollen production and pollen vigour. *AoB Plants*, *16*(5): plae045.

122. Hemberger, J., & **Williams, N. M.** (2024) Warming summer temperatures are rapidly restructuring North American bumble bee communities. *Ecology Letters 27*(8): e14492.

121. Levenson, H., Du Clos, B., Smith, T., Jepsen, S., Everett, J., **Williams, N.,** & Woodard, S. (2024) A call for standardization in wild bee data collection and curation. *Journal of Melittology* 123(2):4-16

120. Rosenheim, J. A., **Williams, N. M**., Rapp, J. M., & Schreiber, S. J. (2024) A test of balanced fitness limitations theory: Pollen limitation in plants. *Ecology and Evolution* 14(2): e10911.

119. Melone, G. G.*, Stuligross, C., & **Williams, N. M**. (2024) Heatwaves increase larval mortality and delay development of a solitary bee. *Ecological Entomology* 49(3): 433-444.

118. **Williams, N. M.,** Buderi, A.*, Rowe, L., & Ward, K. (2024) Wildflower plantings enhance nesting opportunities for soil-nesting bees. *Ecological Applications* 34(2): e2935.

117. Lonsdorf, E. V., Rundlöf, M., Nicholson, C. C., & **Williams, N. M.** (2024) A spatially explicit model of landscape pesticide exposure to bees: Development, exploration, and evaluation. *Science of the Total Environment* 908: 168146.

116. Pugesek, G., Müller, U., **Williams, N. M**., & Crone, E. E. (2024) Resurrecting Historical Observations to Characterize Species-Specific Nesting Traits of Bumblebees. *The American Naturalist* 204(2): 165-180.

115. Page, M. L., Francis, J. S., Müller, U., & **Williams, N. M.** (2024) Wildflower plantings and honeybee competition impact nutritional quality of wild bee diets. *Journal of Applied Ecology* 61(12): 3104-3113.

114. Nicholson, C. C.*, Lonsdorf, E. V., Andersson, G. K., Knapp, J. L., Svensson, G. P., Gönczi, M., Jonsson, O., de Miranda, J. R., **Williams, N. M.** & Rundlöf, M. (2024) Landscapes of risk: A comparative analysis of landscape metrics for the ecotoxicological assessment of pesticide risk to bees. *Journal of Applied Ecology* 61(5): 975-986.

113. Müller, U.*, Bruninga-Socolar, B.*, Brokaw, J., Cariveau, D. P., & **Williams, N. M.** (2024) Integrating perspectives on ecology, conservation value, and policy of bee pollinator seed mixes. *Frontiers in Ecology and the Environment* 22(4): e2715.

112. Müller, U.*, Bruninga-Socolar, B.*, Brokaw, J.*, Schreiber, J., Cariveau, D. P., & **Williams, N. M.** (2024) Successful pollinator seed mixes include low grass density and high forb richness across a range of total seeding densities. *Restoration Ecology* 32(8): e14262.

111. Page, M. L.*, & **Williams, N. M.** (2023) Evidence of exploitative competition between honey bees and native bees in two California landscapes. *Journal of Animal Ecology* 92(9):1802-1814.

110. Lundin, O., Boetzl, F. A., Ward, K. L., & **Williams, N. M**. (2023) Wildflower plantings have mixed effects on insect herbivores and their natural enemies. *Agriculture, Ecosystems & Environment* 355: 108587.

109. Schaeffer, R.N., Crowder, D.W., Illán, J.G., Beck, J.J., Fukami, T., **Williams, N. M**., Vannette, R. (2023) Disease management during bloom affects the floral microbiome but not pollination in a mass-flowering crop. *Journal of Applied Ecology* 60: 64-76.

108. Sardiñas, H., Ryals, R., & **Williams, N. M**. (2023) Carbon farming can enhance pollinator resources. *California Agriculture* 76(4): 104-110.

107. Stuligross, C.*, Melone, G. G.*, Wang, L., & **Williams, N. M**. (2023) Sublethal behavioral impacts of resource limitation and insecticide exposure reinforce negative fitness outcomes for a solitary bee. *Science of The Total Environment* 867: 161392.

106. Hemberger, J. A.*, Rosenberger, N. M.*, & **Williams, N. M**. (2023) Experimental heatwaves disrupt bumblebee foraging through direct heat effects and reduced nectar production. *Functional Ecology* 37(3): 591-601.

105. Wauters, V. M.*, Jarvis-Shean, K., **Williams, N**., Hodson, A., Hanson, B. D., Haring, S., ... & Gaudin, A. C. (2023) Developing cover crop systems for California almonds: Current knowledge and uncertainties. *Journal of Soil and Water Conservation* 78(1): 5A-11A.

104. Page, M. L.*, & **Williams, N. M.** (2023) Honey bee introductions displace native bees and decrease pollination of a native wildflower. *Ecology 104*(2): e3939.

103. Allen-Perkins, A., Magrach, A., Dainese, M., Garibaldi, L. A., Kleijn, D., Rader, R., ... & Montero-Castaño, A. (2022) CropPol: A dynamic, open and global database on crop pollination.

102. Genung, M. Winfree, R. & **Williams, N. M.** (2022) Rare and declining bee species are key to consistent pollination of wildflowers and crops across large spatial scales. *Ecology* 104(2): e3899 https://doi.org/10.1002/ecy.3899

101. Lemanski, N.*, **Williams, N.M.** & Winfree, R. (2022) Greater bee diversity is needed to maintain crop pollination over time. *Nature Ecology and Evolution* 6: 1516–1523. https://doi.org/10.1038/s41559-022-01847-3

100. Rundlöf, M., Stuligross, C.*, Lindh, A., Malfi, R. L., Burns, K., Mola, J. M., Cibotti, S. & **Williams, N. M.** (2022) Flower plantings support wild bee reproduction and may also mitigate pesticide exposure effects. *Journal of Applied Ecology* 9:2117–2127. https://doi.org/10.1111/1365-2664.14223

99. Fisher, K., Watrous, K. M., **Williams, N. M**., Richardson, L. L., & Woodard, S. H. (2022) A contemporary survey of bumble bee diversity across the state of California. *Ecology and Evolution* 12(3): e8505.

98. Malfi, R. L.*, Crone, E., Rundlöf, M., & **Williams, N. M**. (2022) Early resources lead to persistent benefits for bumble bee colony dynamics. *Ecology* 103(1), e03560.

97. Stuligross, C.*, & **Williams, N. M**. (2021) Past insecticide exposure reduces bee reproduction and population growth rate. *Proceedings of the National Academy of Sciences* 118(48): e2109909118

96. Page, M. L.*, Nicholson, C. C., Brennan, R. M., Britzman, A. T., Greer, J., Hemberger, J., Kahl, H, Muller, U., Peng, Y., Rosenberger, N. M., Stuligross, C., Wang, L., Yang, L. H. & **Williams, N. M**. (2021) A meta-analysis of single visit pollination effectiveness comparing honeybees and other floral visitors. *American Journal of Botany* 108(11): 2196-2207.

95. Kerr, N. Z.*, Malfi, R. L.*, **Williams, N. M**., & Crone, E. E. (2021) Larger workers outperform smaller workers across resource environments: An evaluation of demographic data using functional linear models. *Ecology and Evolution* 11(6): 2814-2827.

94. Nicholson, C.C.*, & **Williams, N. M.** (2021) Cropland heterogeneity drives frequency and intensity of pesticide use. *Environmental Research Letters* 16(7): 074008.

93. Lundin, O.*, Rundlöf, M., Jonsson, M., Bommarco, R., & **Williams, N. M**. (2021) Integrated pest and pollinator management–expanding the concept. *Frontiers in Ecology and the Environment* 19(5): 283-291.

92. Mola, J. M.*, Stuligross*, C., Page*, M. L., Rutkowski, D., & **Williams, N. M.** (2021) Impact of "non-lethal" tarsal clipping on bumble bees (*Bombus vosnesenskii*) may depend on queen stage and worker size. *Journal of Insect Conservation 25*(2): 195-201.

91. Reilly, J. R., Artz, D. R., Biddinger, D., Bobiwash, K., Boyle, N. K., Brittain, C., Brokaw, J., Campbell, J. W., Daniels, J., Elle, E., Ellis, J. D., Fleischer, S. J., Gibbs, J., Gillespie, R. L., Gundersen, K. B., Gut, L., Hoffman, G., Joshi, N., Lundin, O., Williams, N. M., Winfree, R. (2020) Crop production in the USA is frequently limited by a lack of pollinators: Pollination limitation in US crops. *Proceedings of the Royal Society B* 287(1931): 20200922. https://doi.org/10.1098/rspb.2020.0922rspb20200922

90. Boyle N.K., Artz D. R., Lundin O., Ward K., Picklum D., Wardell G. I., **Williams N. M.**, & Pitts-Singer TL. (2020) Wildflower plantings promote blue orchard bee, *Osmia lignaria* (Hymenoptera: Megachilidae), reproduction in California almond orchards. *Ecology and Evolution* 10(7):3189-99.

89. Woodard SH, Federman S, James RR, Danforth BN, Griswold TL, Inouye D, McFrederick QS, Morandin L, Paul DL, Sellers E, Strange JP, Vaughan, M., & **Williams, N. M.** et al. (2020) Towards a US national program for monitoring native bees. *Biological Conservation* 252:108821.

88. Mola, J. M.*, Miller, M. R., O'Rourke, S. M., & **Williams, N. M.** (2020) Wildfire reveals transient changes to individual traits and population responses of a native bumble bee *Bombus vosnesenskii*. *Journal of Animal Ecology 89*(8): 1799-1810.

87. Stuligross, C.*, & **Williams, N. M.** (2020) Pesticide and resource stressors additively impair wild bee reproduction. *Proceedings of the Royal Society B 287*(1935): 20201390.

86. Albrecht, M., Kleijn, D., **Williams, N. M**., Tschumi, M., Blaauw, B. R., Bommarco, R., ... & Sutter, L. (2020) The effectiveness of flower strips and hedgerows on pest control, pollination services and crop yield: a quantitative synthesis. *Ecology Letters 23*(10), 1488-1498.

85. Nicholson, C.C.*, Ward, K.L., **Williams, N. M.**, Isaacs, R., Mason, K.S. & Wilson, J.K. (2019) Mismatched outcomes for biodiversity and ecosystem services: testing the responses of crop pollinators and wild bee biodiversity to habitat enhancement. *Ecology Letters* 23:326-335.

84. **Williams, N. M.**, Mola, J.M., Stuligross, C., Harrison, T., Page, M.L., Brennan, RM, Rosenberger, N. M., & Rundlöf, M. (2019) Fantastic bees and where to find them: locating the cryptic overwintering queens of a western bumble bee. *Ecosphere* 10 (11).

83. Malfi, R.L.*, Crone, E.E., & **Williams, N. M.** (2019) Demographic benefits of early season resources for bumble bee (*B. vosnesenskii*) colonies. *Oecologia* 191: 377-388.

82. LoPresti, E.E., Goidell, J., Mola, J.M., Page, M.L., Specht, C.D., Stuligross, C., Weber, M.G., **Williams, N. M.**, & Karban, R. (2019) A lever action hypothesis for pendulous hummingbird flowers: experimental evidence from a columbine. *Annals of Botany* 125(1): 59-65. https://doi.org/10.1093/aob/mcz134

81. Mola, J.M.*, & **Williams, N. M.** (2019) A review of methods for the study of bumble bee movement. *Apidologie*: 1-18.

80. Sponsler, D. B., Grozinger, C. M., Hitaj, C., Rundlöf, M., Botías, C., Code, A, Thogmartin, W. E., Smith, D.J., Suryanarayanan, S., **Williams, N. M.,** Zhang, M., & Douglass, M.R.. (2019) Pesticides and pollinators: A socioecological synthesis. *Science of the Total Environment* 662: 1012-1027.

79. Lundin, O.*, Ward, K. L., & **Williams, N. M.** (2019) Identifying native plants for coordinated habitat management of arthropod pollinators, herbivores and natural enemies. *Journal of Applied Ecology* 56(3): 665-676.

78. Kerr, N. Z.*, Crone, E. E., & **Williams, N. M.** (2019). Integrating vital rates explains optimal worker size for resource return by bumblebee workers. *Functional Ecology* 33(3): 467-478.

77. LoPresti, E. F.*, Van Wyk, J. I., Mola, J. M.*, Toll, K., Miller, T. J., & **Williams, N. M.** (2018) Effects of wildfire on floral display size and pollinator community reduce outcrossing rate in a plant with a mixed mating system. *American Journal of Botany* 105(7): 1154-1164.

76. Sgolastra, F., Hinarejos, S., Pitts-Singer, T.L., Boyle, N., Joseph, T., Lūckmann, J., Raine, N. E., Singh, R., **Williams, N. M.** & J. Bosch. (2018) Pesticide exposure assessment paradigm for solitary bees. *Environmental Entomology* 48(1): 22-35

75. Boyle, N.K., Pitts-Singer, T.L., Abbott, J., Alix, A., Cox-Foster, D.L., Hinarejos, S., Lehmann, D.M., Morandin, L., O'Neill, B., Raine, N.E., Singh, R., Thompson, H.M., **Williams, N. M.** & T. Steeger. (2018). Workshop on pesticide exposure assessment paradigm for non-Apis bees: foundation and summaries. *Environmental Entomology* 48(1), 4-11

74. Saul-Gershenz, L.*, Millar, J. G., McElfresh, J. S., & **Williams, N. M.** (2018) Deceptive signals and behaviors of a cleptoparasitic beetle show local adaptation to different host bee species. *Proceedings of the National Academy of Sciences* 115(39): 9756-9760.

73. Iles, D.T.* **Williams, N. M.** Crone, E.E. (2018) Source-sink dynamics of bumble bees in rapidly changing landscapes. *Journal of Applied Ecology 55*(6): 2802-2811.

72. Winfree, R., Reily, J.R., Bartomeus, I, Cariveau, D.P., **Williams, N. M.**, Gibbs, J. (2018) Species turnover promotes the importance of bee diversity for crop pollination at regional scales. *Science* 359(6377): 791-793.

71. Mola, J. M.*, & **Williams, N. M.** (2018) Fire-induced change in floral abundance, density, and phenology benefits bumble bee foragers. *Ecosphere* 9(1).

70. **Williams, N. M.**, & Lonsdorf, E. V. (2018) Selecting cost-effective plant mixes to support pollinators. *Biological Conservation* 217:195-202.

69. Parker, A.*, **Williams, N. M.**, & Thomson, J. D. (2018) Geographic patterns and pollination ecotypes in *Claytonia virginica*. *Evolution* 72:202-210.

68. Lichtenberg, E. M., C. M. Kennedy, C. Kremen, P. Batáry, F. Berendse, R. Bommarco, N. A. Bosque-Pérez, L. G. Carvalheiro, W. E. Snyder, **N. M. Williams**, et al. (2017) A global synthesis of the effects of diversified farming systems on arthropod diversity within fields and across agricultural landscapes. *Global Change Biology* 23:4946-4957.

67. Isaacs, R., **Williams, N.**, Ellis, J., Pitts-Singer, T. L., Bommarco, R., & Vaughan, M. (2017) Integrated Crop Pollination: Combining strategies to ensure stable and sustainable yields of pollination-dependent crops. *Basic and Applied Ecology* 22:44-60.

66. Lundin, O.*, Ward, K. L., Artz, D. R., Boyle, N. K., Pitts-Singer, T. L., & **Williams, N. M.** (2017) Wildflower plantings do not compete with neighboring almond orchards for pollinator visits. *Environmental Entomology* 46(3): 559-564.

65. Genung, M. A.*, Fox, J., **Williams, N. M**., Kremen, C., Ascher, J. Gibbs, J. and R. Winfree. (2017) Pollinator abundance, rather than species richness, drives the temporal variability of pollination services. *Ecology* 98:1807-1816.

64. Schaeffer, R. N., Vannette, R. L., Brittain, C., **Williams, N. M.**, & Fukami, T. (2017) Non-target effects of fungicides on nectar-inhabiting fungi of almond flowers. *Environmental Microbiology Reports* 9: 79-84.

Promotion to Professor_____

63. Ullmann, K.S.*, Meisner, M. H. & **Williams, N. M.** (2016). Impact of tillage on a ground nesting, crop-pollinating bee. Agriculture Ecosystems and Environment. *Agriculture Ecosystems & Environment* 232:240-246.

62. Parker, A.*, **Williams, N. M.**, J. D. Thomson. (2016) Specialist pollinators deplete pollen in the spring ephemeral wildflower *Claytonia virginica*. *Evolution and Ecology* 6(15): 5169-5177 DOI:10.1002/ece3.2252

61. M'Gonigle, L. K., **Williams, N. M.**, Lonsdorf, E., and C. Kremen. (2016) A tool for selecting plants when restoring habitat for pollinators. *Conservation Letters* 1-7, DOI: 10.1111/conl.12261

60. Crone, E. E., **Williams, N. M.** (2016) Bumble bee colony dynamics: quantifying the importance of land use and floral resources for colony growth and queen production. *Ecology Letters* 19:460-468.

59. Rosenheim, J. A., **N. M. Williams**, S. J. Schreiber, and J. M. Rapp.* (2016) Modest pollen limitation of lifetime seed production is in good agreement with modest uncertainty in whole-plant pollen receipt. *American Naturalist* 187:397–404.

58. Koh, I.*, Lonsdorf, E.V., **Williams, N. M.**, Brittain, C.*, Isaacs, R., Gibbs, J., and T.H. Ricketts. (2015) Modeling the status, trends, and impacts of wild bee abundance in the United States. *Proceedings of the National Academy of Sciences* 113:140-145.

57. Gillespie, S.*, R. Long, & **Williams, N. M.** (2015) Indirect effects of field management on pollination service and seed set in hybrid onion seed production. *J Economic Entomology* 108 (6):2511-2517.

56. Rosenheim, J. A., S. J. Schreiber & **Williams, N. M.** (2015) Does an "oversupply" of ovules cause pollen limitation? *New Phytologist* 210:324-332.

55. Fründ, J.*, K.S. McCann and **N. M. Williams**. (2015) Sampling bias is a challenge for quantifying specialization and network structure: lessons from a quantitative niche model. *Oikos* 125:502-513.

54. **Williams, N. M**., Ward, K. L., Pope, N.*, Isaacs, R. Wilson, J., May, E. A., Ellis, J., Daniels, J., Pence, A., Ullmann, K. and J. Peters. (2015) Native wildflower plantings support wild bee abundance and diversity in agricultural landscapes across the United States. *Ecological Applications* 25:2119-2131.

53. Kleijn, D., Scheper, J., R. Winfree, et al.. (2015) Delivery of crop pollination services is an insufficient argument for wild pollinator conservation. *Nature Communications* 6:7414.

52. Bartomeus, I., Fründ, J.* and **N. M. Williams**. (2015) Invasive plants as novel food resources, the pollinators' perspective. bioRxiv Cold Spring Harbor Labs Journal. 018952.

51. Forrest, J. R. K.*, Thorp, R. W., Kremen, C. & **Williams, N. M.** (2015). Contrasting patterns in species and functional-trait diversity of bees in an agricultural landscape, *Journal of Applied Ecology* 52: 706-715.

50. Winfree, R., J. W. Fox, **N. M. Williams**, J. R. Reilly, and D. P. Cariveau. (2015) Abundance of common species, not species richness, drives delivery of a real-world ecosystem service. *Ecology Letters* 18(7): 626-635. doi: 10.1111/ele.12424.

49. Schreiber, S. J., J. A. Rosenheim, **Williams, N. M.** and L. D. Harder. (2015) Evolutionary and Ecological Consequences of multiscale variation in pollen receipt for seed production. *The American Naturalist* 185:E14–E29.

48. Wilkerson, M. L.*, Ward, K. L., **Williams, N. M.**, Ullmann, K. S.* and T. P Young. (2014) Diminishing returns from higher density restoration seedings suggest tradeoffs in pollinator seed mixes. *Restoration Ecology* 22:782-789.

47. Gillespie, S.*, Long, R., Seitz, N.* and N. M. Williams. (2014) Insecticide use in hybrid onion seed production affects pre- and post-pollination processes. *Journal of Economic Entomology* 107:29-37.

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2. Jeanne, R. L. and **N. M. Williams**. (1992) Age polyethism and defense in a tropical social wasp. *J. Insect Behav.* 5(2): 211-227.
1. Lindsay, S., **Williams, N.** and A. F. Dyer. (1992) Wet storage of fern spores: unconventional but far more effective! *Fern Horticulture*: past, present, and future perspectives. 285-294.

Book Chapters

8. Rowe, G. Hagadorn, M. A., Lindsay T.T.T., Malfi, R., Williams, N. M., Strange, J. P. (2023) Production of bumblebees (Hymenoptera: Apidae) for pollination and research. In *Mass Production of Beneficial Organisms* pp. 559-579. Academic Press.

7. Towards sustainable crop pollination services Ullmann et al 2020 FAO

6. **Williams, N. M.**, Isaacs, R., Lonsdorf, E., Winfree, R., & Ricketts, T. H. (2019). Building resilience into agricultural pollination using wild pollinators. *In* Agricultural Resilience, Cambridge University Press.
5. Isaacs, R., Blaauw, B., **Williams, N. M.**, Kwapong, P., Lee-Mader, E. Vaughan, M. (2015) Farm-tailored measures to sustain and enhance pollination services. *In* Pollination Services to Agriculture: Sustaining and Enhancing Key Ecosystem Service, Routledge ed.
4. Lonsdorf, E., T.H. Ricketts, C. Kremen, R. Winfree, S. Greenleaf, & **N.M. Williams**. (2011) Crop Pollination Services. *In* Natural Capital: Theory and Practice of Mapping Ecosystem Services. P. Kareiva, et al., Eds. Oxford University Press: Oxford.
3. Ricketts, T., **Williams, N. M.** and M. M. Mayfield. (2006) Connectivity and ecosystem services: crop pollination in agricultural landscapes *In* Connectivity Conservation. Crooks and Muttulingam, Eds. Cambridge University Press.
2. Harder, L. D., **Williams, N. M.,** Jordan, C. Y, Nelson, W. (2001) The effects of floral design and display on pollinator economics and pollen dispersal. pp.297-317 *In* Cognitive Ecology of Pollination, Chittka, L. & Thomson, J. D. (eds.) Cambridge University Press, Cambridge.
1. **Williams, N. M.** and Thomson, J. D. (2001) Pollinator quality in native bees and honey bees: comparing pollen removal and deposition on *Phacelia tanacetifolia*. *In* Whence the pollinators of the future, Strickler and Cane (eds) Symp. Proceed. Entomol. Soc. Amer.

Limited Distribution

L5. May, E., Ward, K. **Williams, N.M.**, et al. (2017). Establishing wildflower habitat to support pollinators of California row crops, Guidelines for Establishing Pollinator Habitat on California Farms. University of California, Xerces Society for Invertebrate Conservation.

L4. Ullmann, K., Isaacs, R., Vaughan, M., May, E., Ellis, J., **Williams, N**., et al. (2017). Guide to Integrated Crop Pollination. Project ICP & Xerces Society for Invertebrate Conservation.

L3. Ward, K., Cariveau, D., May, E., Roswell, M., Vaughan, M., **Williams, N. M.**, Winfree, R., Isaacs, R., and K. Gill. (2014) Streamlined Bee Monitoring Protocol for Assessing Pollinator Habitat. Xerces Society for Conservation Biology, 1-16.

L2. **Williams N.M.** and Ward, K.I. (2012) Development of wildflower mixes to promote native pollinators in agriculture. Proceedings of the 2012 California Plant and Soils Conference pp.115-119.

L1. McGlynn, E., Winfree, R. and **N. M. Williams**. How to increase native bee pollination on your farm in several simple steps (For Pennsylvania and New Jersey Farmers). Native Bee Benefits, (May 2009) 1-8.

* indicates mentoring role as undergraduate, graduate, or postdoc

INVITED TALKS

2026 Multiscale investigations of heat wave impacts on native bees. R. Morse Endowed Lecture, Cornell University, Department of Entomology. April 8.

2025 Impacts of heat waves on native bees. Ohio State University, Department of Evolution, Ecology and Organismal Biology April 18 45 Attendees

Heat wave impacts on immature stages of the solitary bee *Osmia lignaria*. *Entomological Society of America in Symposium Hot Bees: Effects of extreme heat*. Nov 9 100+ Attendees

2024 Pollinator Habitat and pollination for Avocado. *International Avocado Work group, Café*, virtual Jan 9, 30 attendees

Area-wide Approaches to Promoting Pollinators Predicting Pesticide Risk and Habitat Placement for Pollinators in Working Lands. *California Plant and Soil Conference* Fresno CA, Feb 7, 100 Attendees

Linking pollen use by foraging bees to map locations of pesticide exposure. *International Congress of Entomology,* Kyoto JP September 2024, 50-100 Attendees

Spatio-temporal nesting patterns of native sunflower bees in commercial sunflowers. *Entomological Society of America*, Phoenix, AZ Nov 9 100+ Attendees

2023 University of Idaho 2023 College of Agriculture and Life Science Annual Distinguished Speaker Lecture. *University of Idaho*, March 1, 60+Attendees

Impacts of pesticide and resource stressors on wild bees: multi-scale approaches for mitigation. *Idaho Pollinator Summit* March 1 Moscow, Idaho 50-60 attendees

2022 Effects of multiple environmental stressors across bee life stages, *Department of Ecology, Agro-Ecology Group,* Swedish Agricultural University, Uppsala

Combined impacts of pesticide and resource stressors on wild bees: multi-scale challenges and mitigation *Entomological Society of America*, Vancouver BC, Canada. Nov 14

2021 Effects of multiple stressors on *Osmia lignaria Orchard Bee Association Meeting* Utah State University, Logan UT

2019 Using structured a structured decision model to aid plant selection for pollinator mixes, *Insect Ecology Group SLU* Uppsala, SE September 25

Understanding bumble bee population dynamics. *Bombuss 2.0 Next Steps in North American Bumblebee conservation*. York University, Toronto Canada. Oct 17

Conservation and design of forage habitat for bees. *Symposium Keynote Conserving and restoring habitat for bees*. *Apimondia* September 12

Designing habitat to support pollinators and pollination service: What are where to plant, *Entomological Society of America*, San Diego, CA. April 2

Early season resource pulses and carry-over effects impact bumble bee colony growth and reproduction. *Entomological Society of America*, San Diego, CA. April 2

Floral resource effects on bumble bee colony demography and dynamics. *Department of Ecology, SLU*, Uppsala, Sweden, March 19.

2018 Floral Resource effects on bumble bee colony and population dynamics. *University of Nevada, Reno,* September 17

2017 Bumble Bees in the Lab: Rearing 2017 *BOMBUSS Conference* USDA-ARS Logan, UT

Healthy Bees and Sustainable Pollination; Dual goals of successful pollinator forage for almonds. *California Almond Conference* Dec 8, Sacramento CA

2016 Designing habitat to support pollinators and pollination service. *Iowa State University* October 8

Habitat enhancements to support pollinator diversity and pollination service in agricultural lands. *International Congress of Entomology*, Orlando FL September 25

Pollinator responses to anthropogenic land use change *University of California, San Diego, Dept. of Ecology and Evolution*. February 25

Supporting bees for a sustainable future. *Eco-Farm Conference,* Asilomar CA, January 20

2015 Working with Growers to enhance crop pollination using wildflower plantings: Decision tools to inform pollinator plantings in agricultural lands. *Symposium Integrating Ecological and Social Science to Support Synergies and Applied Solutions in Agroecosystems, Entomological Society of America Meeting.* Minneapolis MN, November 18

Designing habitat to support pollinators and pollination service: from algorithms to implementation *Pennsylvania State University, Dept. of Plant Sciences* November 5

Enhancing Forage to Support Bees. *University of California*, *UC Bee Symposium, Keeping Bees Healthy*. May 7

Enhancing Forage for Bees. *California Department of Food and Agriculture Pollinator Meeting*, Sacramento, CA June 3

2014 Selection and testing of plant species for pollinator habitat. *Entomological Society of America Meeting.* Portland OR November 12

Strategies for sustainable pollination for almonds. *Australian Almond Conference*, Adelaide, Australia (Research Keynote) October 30

Decision frameworks for designing bee forage habitat. *USDA Honey Bee Forage and Nutrition Summit*, Arlington VA, October 20

Native bee responses to anthropogenic land use change. *Michigan State University Dept. of Entomology*. April 17

California Department of Food and Agriculture, Integrated Pollination strategies: managed and wild bees for a sustainable future. *California Department of Food and Agriculture Board*. March 2014

Pollinator responses to anthropogenic land use change. *Florida State University, Dept. of Biology.* January 23

Restoration / enhancement of native bee communities in agricultural landscapes. *Florida State University Ecology Colloquium* January 24

Responses of pollinator communities to riparian restoration "Botany for a Changing World Symposium." *Northern California Botanists Annual Meeting.* Chico, CA, January 14

2013 Integrated Crop Pollination. *California State Beekeepers Conference* (Research Keynote) Tahoe, CA November 20

Bee forage and sustainable pollination for almonds, Forage Symposium, *California Almond Conference*. Sacramento, CA (November 2013)

Integrated Pollination Strategies: Managed and Wild Bees for a Sustainable Future. *INIA Agricultural Research Institute*. La Cruz, Chile October 28

Sustainable pollination strategies for specialty crops. *UC Cooperative Extension Pollinator Workshop*, Woodland CA October 10

Responses of Pollinator Communities to Riparian Restoration, "Symposium-Ecological and taxonomic perspectives for native bees responding to habitat restoration" *Society for Ecological Restoration 2013 World Conference*, Madison, WI October 8

Selecting plant materials for pollinator restoration plantings. *Entomological Society of America, Pacific Branch*. South Lake Tahoe, NV April 9

2012 The assembly of pollinator communities and pollination interactions in targeted and non-targeted restoration. Symposium "Biological basis for pollinator habitat manipulations: Population regulation and plant restoration", *4th International EcoSummit*. Columbus, OH, USA Oct 1

Selecting plant materials for pollinator restoration plantings. Pollination & Land Rehabilitation Workshop CANPOLIN, Columbus, OH Sept 29

Promoting native pollinators in California Agriculture. Native Pollinators in Agriculture Field Day, Irvine Great Park, Irvine, CA Sept 11

Integrated Pollination for specialty crops. UC Cooperative Extension Pollination Workshop. Woodland, CA February 21

Bee life history and resource distributions determine population and community responses to agricultural landscape change. Symposium "Conservation and Sustainable Use of Pollinators: towards Global Assessments." Kyushu University, Japan January 28

Pollinator responses to anthropogenic land use change. Dartmouth College, Hanover, NH Feb 13

Development of wildflower mixes to promote native pollinators in agriculture. *2012 California Plant and Soil Conference Visalia*, CA 8 February

2011 Quantifying the links between pollinator biodiversity, pollination and landscape change. Symposium "Biodiversity, Global Change and Insect-Mediated Ecosystem Services." *Annual Meeting of the Entomological Society of America.* Reno, NV 9 November

What benefit can wild insects bring to almond pollination? *Orchard Bee Association Conference* Modesto, CA 6 December

Life history, resources complementarity and the sensitivity of pollinators to land use change. (Invited opening talk) Symposium "Drivers of Pollinator Loss in Europe"). *European Ecology Federation Conference*. Ávila, Spain 25 September.

Species traits and the sensitivity of bees to environmental change. Symposium "Conservation Issues in Pollination" *10th International ICPBR Symposium of Pollination*. Cholula, Mexico 29 June

Native bee responses to anthropogenic land use change. Symposium "Pollinator Biodiversity and Pollination Services" *Annual Meeting of the Canadian Society for Ecology and Evolution*. Banff, AB, Canada 14 May

Resource complementarity and spatial correlation influence bee communities in mosaic landscapes European Union *STEP Meeting*, Novi Sad, Serbia 26 March

PUBLIC TALKS/LECTURES

2026 Optimizing habitat placement to support bee and butterflies in California Agriculture. *Annual Research Meeting California Strawberry Commission*, Santa Maria, CA, April 24

2025 Nesting and pollination by specialist bees at Jepson Prairie. *Docents Jepson Prairie*, 25 attendees

2024 Mapping pollen use and pesticide exposure *California Pollinator Coalition* Dec 18 2024, 40 Attendees, CDFA, CDFW, Commodity Boards, CDPR

2023 Native bees of Jepsen *Jepson Prairie Docents*, 25 attendees

Wild Bees pollination and biodiversity. California Honey Festival June, 50 Attendees

Modeling and validating pesticide exposure for honey bees in the Sacramento Valley. *California Department of Pesticide Regulation*, August 11, virtual, 25 attendees

Wild bees and other pollinators for diversity and pollination, *Hoes Down Festival,* Rumsey CA

2021 Native bee biodiversity and pollination services. *California Pollinator Coalition* Feb 25, 2021 ~45 Attendees Commodity Board representatives, NGO, CDFA

Silicon Valley Forum Agtech Conference Seeds of our Future: The Plight of the Honeybees Sept 2021

2020 Protecting pollinators and sustainable yield *University of California Environmental Law Symposium* March 6 ~75 Attendees

Conservation and design of forage habitat for bees *California Department of Agriculture* live Webinar June 25 =369 attendees

Expert panel for EPRI Pollinator Week Webinar –June 26

Designing habitats to benefit native bees- forage and beyond. *California Native Grasslands Landscaping with Nature Symposium* August 27– 104 attendees, plus 5 speakers

2019 Non-*Apis* bees for pollination and seed production, *Seed Biotechnology Center*, February 12

Maximizing the benefits of Cover crops in Almonds, *Almond Orchard Cover Crop Field Day (UCCE Merced Co.)*, ~50 attendees, UCCE, Growers, PCAs, March 21

Designing seed mixes to support pollinators and pollination. *Grower Workshop, California Native Grasslands Association 12th Annual Field Day*, Hedgerow Farms Esparto CA 167 growers, NRCS, extension advisors April 26,

A Tool to optimize seed selection costs and benefits. *USDA NRCS Roundtable*, CA State Offices, Davis, CA 9 attendees - NRCS State Biologist, CE, Conservation NGOs June 21

2018 California State Senate Hearing March 6 The role of bees in sustaining California agriculture.

Enhancing Forage for Bees, Cochran Fellows Meeting, University of California Davis, May 1 Grower Workshop

2017 Integrated Crop Pollination, using wild bees and honey bees for sustainable agriculture. *Western Apicultural Society Conference.* September 5

Enhancing forage for Bees II. *Sacramento Area Beekeepers,* Sacramento, CA May 2017

Decision tools to inform pollinator plantings in agricultural lands, *UC Bee Health Symposium* May 7

On-farm pollinator benefits for watermelon pollination. *eXtension*, March 10

Using non-Apis bees for seed production. *University of California Seed Course*, Feb 2

Promoting wild bees and other pollinators on farms *Hoes Down Festival*, Rumsey CA Oct 7, 2017

KALW Radio program Oct 23

2016 Providing habitat on farms to support Integrated Crop Pollination. *ICP Pollinator Symposium*, Michigan State University November 28

Integrated crop pollination for almond *Almond Grower Field Day*, Lost Hills CA March 10

Native pollinators for orchard landscapes *UC Pomology Working Group*, Davis CA March 17

Designing habitat to support pollinators and pollination service *Marin County Beekeepers,* San Anselmo, CA January 5

2015 Designing habitat to promote sustainable crop pollination, *Hoes Down Festival*, Full Belly Farm, Rumsey CA Oct 4

Enhancing Forage for Bees *Sacramento Area Beekeepers,* Sacramento, CA July 2015

Integrated crop pollination and hedgerow design. *Xerces-UC Field day,* Williams, CA June 8

Integrated Pollination strategies: managed and wild bees for a sustainable future. *UC IPM Conference*, UC Davis April 10

2014 Forage and Integrated Almond Pollination. *California Almond Conference*, December 12

Wildflowers to support bees for almond pollination. *California Almond Conference*, December 12

Fungicide application timing and other strategies for sustainable pollination for almonds *Almond Board of Australia, Grower Workshop*, Renmark, SA, Australia November 3

Native bees and almond pollination in California's Central Valley, *Colusa County UC Cooperative Extension Workshop*. October 8

Bees and the challenges of a sustainable pollination for the future. *Davis Rotary*, Davis CA. June 24

Integrated Pollination: strategies for a sustainable future. *San Mateo Beekeepers Guild*, June 5

Habitat enhancement to support bees: agricultural to urban research. *California Center for Urban Horticulture,* UC Davis March

2013 Integrated Pollination Strategies: Managed and Wild Bees for a Sustainable Future, *Robert Mondavi Institute*, UC Davis, Fall

Integrated questions of pollination in almonds, *California Almond Conference,* Modesto CA November

Bees and sustainable pollination, Almonds and Beyond, *Almond Roundtable*, Lodi, CA

Sustainable pollination strategies for specialty crops*, UC Cooperative Extension Pollination* Woodland, CA

Pollination and sustainable food systems: Current trends and opportunities for the future. *Culinary Institute of America,* Rutherford, CA

Promoting honeybees and wild bees for sustainable pollination, *Daughters of the American Revolution*, UC Davis May

2012 Promoting native pollinators in California Agriculture. *Native Pollinators in Agriculture Field Day*, Irvine Great Park, Irvine, CA Fall

Promoting Native Bees for Gardens, Farms & Native Plants. *Davis Botanical Society*, CA May 10

The importance of pollinators and strategies for conservation. *Pollinator Gardening Workshop*, California Center for Urban Horticulture, Davis, CA April 28

2011 Native Bees and Bee Plants UC Davis Arboretum. Davis, CA, Dec 3

Attracting and Maintaining Native Bees for Garden Pollination. *California Master Gardeners Conference*, Santa Rosa, CA June 3

PRESENTED PAPERS AND POSTERS

Williams, N.M., Lonsdorf, E.V., Nicholson, C.C., Rundlof, M. Evaluating predictive models of landscape-level pesticide exposure for native bumble bees. 2023 *5th International Conference on Pollination Biology and Health*

Williams, N.M., Hemberger, J., Rosenberger, N. M. Experimental heat waves disrupt bumble bee foraging through effects on bees and flowers 2023 *Annual Meeting of the Ecological Society of America*

Williams, N.M. , Buderi, A. Ward, K. Pollinator habitat enhances nesting opportunities for wild bees 2021 *Entomological Society of America Meeting*

Williams, N.M. , Lonsdorf, E., Bommarco, R., Jonsson, M. Landscape models of the potential for combined pollinator and natural enemy ecosystem services, 2020. *Annual Meeting of the Ecological Society of America*

Williams, N. M. Fagan, C. and Britzman, A. Cover crop benefits to pollinators and pollination, 2019. *California Almond Conference, Sacramento*

Borchard, K **Williams, N. M.** et al. Maximizing the potential and minimizing the cost of prairie seed mix design for wild bees, 2019. *4th International Pollinator International Conference on Pollinator Biology, Health and Policy* Davis, CA

Williams, N. M., Malfi, R. Rundlof, M. Crone, E.E. Early season resource pulses and carry-over effects impact bumble bee colony growth and reproduction, 2018. *Entomological Society of America Meeting* Vancouver, BC

Williams, N. M. Alternative forage plantings to support bees, flower borders and cover crops in almond landscapes. 2018. *California Almond Conference*. Sacramento CA

Williams, N. M., Pollinator habitat enhances nesting opportunities for wild bees. 2017. *Annual Meeting of the Ecological Society of America*, Portland, OR

Williams, N. M., Lonsdorf, E.E, Brittain, C.A. Spatial modeling of pollinators to support farm management decisions. 2017. *International Congress of Entomology*, Orlando FL.

Williams, N. M., Budery, A., Epperly, M., Tahara, K., Thorp, R. W. 2016. *International Conference on Pollinator Biology, Health and Policy*. Pennsylvania State University, PA

Williams, N. M. and Fründ, J. 2014. Agricultural land use modifies plant-pollinator interaction networks. *Annual Meeting of the Ecological Society of America*, Sacramento, CA

Fründ, J., Kevin S McCann, K. S. and **Williams, N. M.** 2014. Quantitative specialization measures in interaction networks and whether they can predict functional consequences across diversity levels. *Annual Meeting of the Ecological Society of America*, Sacramento, CA

Ullmann, K., Meisner, M. **Williams, N. M.** 2014. Effects of tillage on a ground-nesting, crop-pollinating bee. *Annual Meeting of the Ecological Society of America*, Sacramento, CA

Koh, I. Lonsdorf, E. Ricketts, T. H., **Williams, N. M.**, Isaacs, R. 2014. Spatial and temporal changes of native bee habitat quality within the United States. *North American Congress for Conservation Biology*, Missoula, MT.

Williams, N. M., Ward, K. L., Isaacs, R., May, E., Mason, K., Wilson, J., Daniels, J. C., Ellis, J. D., Pence, J. A., Peters, J., Overmyer, J. 2013. Operation Pollinator: Evaluation of flowering plant mixes for supporting pollinator biodiversity in agricultural systems. *International Conference on Pollinator Biology, Health and Policy*. Pennsylvania State University, PA

Isaacs, R., Gibbs, J., **Williams, N. M.**, Pitts-Singer, T., Vaughan, M., Garbach, K., Rickett, T. H.. 2013. The Integrated Crop Pollination Project: supporting pollination in U.S. specialty crop. *International Conference on Pollinator Biology, Health and Policy*. Pennsylvania State University, PA

Cariveau, D. P., **Williams, N. M.**, Ward, K., Roswell, M. Isaacs, R., May, E. and Winfree, R. 2013. How to assess pollinator restorations efficiently. *International Conference on Pollinator Biology, Health and Policy*. Pennsylvania State University, PA

Williams, N. M. and Isaacs, R. Operation Pollinator: Evaluation of flowering plant mixes for supporting pollinator biodiversity in agricultural systems International Conference on Pollinator Biology, Health and Policy, Pennsylvania State University, PA

Ward, K., Brittain, C. A. and Williams, N. M. 2013. How to build it so they come – identifying key floral resources and designing effective seed mixes for pollinator habitat in agricultural landscapes of California

Ward, K. I., Brittain, C.A., Rowe, L.M., and **Williams, N.M**. 2013. Wildflowers for honey bees: identifying native plants that support honey bees in agricultural landscapes of California. St Louis MO.

Jaret C. Daniels, James D. Ellis and J. Akers Pence, University of Florida; Jeff Peters, Syngenta Crop Protection; Neal Williams and Kimiora Ward, Rufus Isaacs, Julianna Tuell, Emily May and Keith Mason, Michigan State University; Don Wagge. 2012. Operation Pollinator: Evaluation of flowering plant mixes for attracting insect pollinators in agricultural systems *Annual Meeting of the Entomological Society of America.*

Williams, N. M. Lonsdorf, E. and Forrest, J. 2012 Life history and resource distribution determine bee sensitivity to land use change. *Annual Meeting of the Ecological Society of America*, Portland OR

Rosenheim, J.A. **Williams, N.M**. & Schreiber, S.J. 2011. Pollen limitation: how common should we expect it to be? *Annual Meeting of the Entomological Society of America,* Reno, NV

Gillespie, S., Long, R.F. & **Williams, N.M.** 2011. Honey bee (*Apis mellifera*) pollination affects onion seed set in California Central Valley. *Annual Meeting of the Entomological Society of America,* Reno, NV

Winfree, R. Kremen, C. & **Williams N.M**. 2011. Pollinator biodiversity and pollination services: a multiyear study. *Annual Meeting of the Entomological Society of America,* Reno, NV

Williams, N.M., Kennedy, C., Lonsdorf, E. & Kremen C. 2011. Modeling pollinators across agricultural landscapes.*10th International Symposium of Pollination,* Cholula, Mexico

Ullmann, K.# & **N.M. Williams**. 2011. Population persistence in dynamic landscapes: The role of spatiotemporal connectivity. *Annual Meeting of the Ecological Society of America,* Austin TX

Winfree, R., Kremen, C., Dushoff, J. & **N.M. Williams.** 2011.Pollinator community disassembly across land use gradients. *Annual Meeting of the Ecological Society of America,* Austin TX

Williams, N.M., Winfree, R. & Kremen, C. 2010. Landscape Change does not drive disassembly of pollinator communities or pollination of spring wildflowers. *Annual Meeting of the Ecological Society of America*, Pittsburgh, PA (poster session)

Winfree, R. **Williams, N.M.** 2010. Pollinator community change along human disturbance gradients. *Botanical Society of America Annual Meeting,* Providence, RI

Chittka, L. & **Williams, N. M.** 1996. Orientation of bumble bees without vision: foraging in total darkness. *Annual Meeting, Animal Behavior Society*, Flagstaff, AZ

Williams, N.M. & Thomson, J.D. 1995. Flocking in bumble bees: periodic foraging at focal *Penstemon strictus* plants. *Annual Meeting, Ecological Society of America,* Snowbird, UT

Graduate Advisee, * Undergraduate Advisee

TEACHING

Current Courses Taught

<u>Graduate</u>

2018-pres. Ecology and Agriculture ECL216 (alternate years)

2023-pres. Graduate Ecology, partial ECL200B

Undergraduate

2020-pres. Biology, Evolution and Diversity of Bees ECL198, Spring quarter

2018-pres. Introductory Entomology ENT10

2018-pres Sustainable Cropping Systems PLS150 (contributed lectures- annually 2 periods)

2015-pres. Pollination Biology ENT120 (alternate years)

Mentoring

Postdoctoral Scholars

Aramee Diethelm, 2025-present
Licia Weinman, 2023-2026
Uta Müller, 2020-2023
Jeremy Hemberger, 2020-2022
Vivian Wauters, 2022-2024
Charlie Nicholson, 2019-2020
Tina Harrison, 2018-2020
Rosemary Malfi, 2015-2017
Ola Lundin, 2015-2017
Josh Raup, 2015
Carmon Boershig, 2013
Claire Brittain, 2013-2015
Jochen Fründ, 2014
Jessica Forrest, 2011-2013
Sandra Gillespie, 2010-2012

Undergraduate Thesis Students

16 Thesis students between 2011-present.

Graduate Students

PhD:

2015 Katharina Ullmann
2016 Jennifer VanWyk
2016 Leslie Saul
2017 Rei Scampavia
2019 John Mola
2021 Ross Brennen
2022 Maureen Page
2022 Clara Stuligross
2023 Nick Rosenberger
current Elizabeth Reyes-Gallegos, Abigail Lehner, Sylvie Finn, Emily Pearson

External to UC: Hannah Gains (U Wisc 2013), Alison Parker (U Toronto 2014), Teagan Biatto (USC, Cornell-current), Grace Melone (U Wisconsin- current)

MSc:

2013 Ryder Diaz
2016 Felix Klaus (Univ. of Gottingen)
current Haylie Wilcox

PROFESSIONAL ACTIVITIES

Organization Leadership

2021-24 Co-Lead, National Native Bee Monitoring Network

2022-25 Member, California Pollinator Coalition

2022 International Commission for Environmental Cooperation: Native Bee Monitoring Planning, Member Representative for USA

2019 Organizing Committee BOMBUSS2.0 Toronto CA, Oct 2019

2019 Organizing Committee Apomondia, Montreal, Canada September 2019

2019 Chair, Host 4th International Conference on Pollinator Biology, Health and Policy, July 17-20 Davis CA.

2019 Organizer, Symposium Honoring Robbin Thorp, Pacific Branch Entomology Meeting, San Diego, CA April 2019

2017 Co-organizer BOMBUSS Conference, Logan UT, August 2017

2017 Co-organizer Workshop: Pesticide exposure paradigm for non-Apis bees. Washington DC, Jan 2017

2016 Co-organizer 3rd International Conference on Pollinator Biology, Health and Policy, July 18-21, Penn State University

2016 Co-organizer Bee Health Symposium, May 7 2016, Honey and Pollination Center, University of California, Davis

2015 Co-organizer Bee Health Symposium, May 9, 2015, Honey and Pollination Center, University of California, Davis

2013 Co-organizer 2nd International Conference on Pollinator Biology, Health and Policy, Aug 14-17, Penn State University

2002 Ecological Society of America Co-organized Workshop "Increasing the relevance of conservation research during graduate training."

Consulting/Advising

2024-25 California Native Plant Society (CNPS) guidelines for native pollinator plantings/ urban gardens

2024 California Department of Fish and Wildlife, Bumble bee endangered species listing process

2018-23 Bee Campus USA- guiding implementation of habitat for pollinators on university campuses

2018 California Senate Hearing - Protecting and growing California bee populations

2018 US National Fish and Wildlife Service advise potential impacts of managed honey bees on wild bees on CA refuges

2014 California Department of Agriculture Board - Wild and managed bees for a sustainable future (2014)

2014 USDA Honeybee forage and nutrition summit, Arlington VA

2012 USDA-NRCS and Xerces Society for Insect Conservation Williams is developing outreach material, including a web site http://www.xerces.org/pollinator-resource-center/, with information for farmers and land managers on how to manage landscapes to promote pollinator diversity and pollination of crops

Professional Societies

Ecological Society of America
Entomological Society of America
American Association for the Advancement of Science

PROFESSIONAL SERVICE

Grant Reviews (since 2010)

2025 Reviewer Almond Board of California, Grants Program.

2023 Adhoc reviewer, Swiss National Science Foundation

2021 Adhoc reviewer, FWF Der Wissenschaftsfonds

2020 Reviewer Almond Board of California, Grants Program.

2020 Adhoc reviewer, NSF DEB Reviewer (2 panels)

2015 Adhoc reviewer, NSERC Discovery Grants

2012 Panel member, NSF DEB Community and Population Ecology Panel Member

2011 Adhoc reviewer, France-Berkely Fund Reviewers

2010 Adhoc reviewer, Wells National Fargo Environmental Grants Program

UC Internal Grant Reviews

2011 Adhoc reviewer, UC Davis Hatch Grant
2012 Adhoc reviewer, UC ANR Pollinators in your garden
2012 Adhoc reviewer, UC Davis Hatch Grant (2 proposals)
2016 Adhoc reviewer, UC Davis Hatch Grant
2018 Adhoc reviewer, UC Davis Hatch Grant (2 proposals)
2019 Adhoc reviewer, UC ANR Common Plants to Attract Pollinators
2022 Reviewer, Graduate Travel Grants
2022 Reviewer, Graduate Fellowships
2024 Reviewer, Graduate Fellowships
2024 Adhoc reviewer, UC Davis Hatch Grant
2025 Reviewer, Graduate Fellowships

Journal Editor

2008-14 Associate-Editor Plant-Arthropod Interactions, Springer
2014-23 Subject editor, Ecology, Ecological Society of America

Journal Reviewer

Ag Ecosystems and Environment, American Naturalist, Animal Behaviour, Apidology, Basic and Applied Ecology, Behavioral Ecology, Biological Conservation, Ecology, Ecology Letters, Ecological Applications, Ecological Entomology, Functional Ecology, J. Applied Ecology, J. of Ecology, J. Insect Conservation, New Phytologist, Oecologia, Oikos, Plant-Arthropod Interactions, Proceeding of the Royal Society B,