

CURRICULUM VITAE OF THOMAS A. KURSAR

DEGREES:

- 1982 Ph.D., University of Chicago, Chicago, Illinois, Biophysics and Theoretical Biology
- 1976 M.A., University of Chicago, Chicago, Illinois, Biophysics
- 1971 B.A., Rutgers College, New Brunswick, New Jersey, Biochemistry

UNIVERSITY POSITIONS HELD:

- 2008-present Professor, Department of Biology, University of Utah, Salt Lake City, Utah.
- 1998-2008 Associate Professor, Department of Biology, University of Utah.
- 1995-present Research Associate, Smithsonian Tropical Research Institute, Republic of Panama.
- 1994-1995 Visiting Scientist, Scripps Institution of Oceanography, La Jolla, CA.
- 1983-1997 Research Assistant Professor, Department of Biology, University of Utah, Salt Lake City, Utah.
- 1982-1985 NIH Postdoctoral Fellow, Department of Biology, University of Utah, Salt Lake City, Utah, Dr. Gordon Lark, advisor.
- 1982 Smithsonian Institution Postdoctoral Fellow, Smithsonian Tropical Research Institute, Republic of Panama.
- 1979-1980 Experimental Marine Botany Program, MBL, Woods Hole, MA.
- 1979-1982 NIH Predoctoral Trainee, University of Chicago, Chicago, IL.

AWARDS:

- 2013 Myriad Award for Research Excellence in the University of Utah College of Science.

GRANTS:

Continual funding since 1992

ARTICLES IN REFERRED JOURNALS AND BOOK CHAPTERS:

- Wolfe, B. T. and T. A. Kursar. (2015) Diverse patterns of stored water use among saplings in seasonally dry tropical forests. *Oecologia* (in press).
- Oliveira, K. N., P. D. Coley, T. A. Kursar, L. A. Kaminski, M. Z. Moreira, and R. I. Campos. (2015) The effect of symbiotic ant colonies on plant growth: a test using an *Azteca-Cecropia* system. PLoS ONE DOI:10.1371/journal.pone.0120351
- Forister, M. L., V. Novotny, A. K. Panorska, L. Baje, Y. Basset, P. T. Butterill, L. Cizek, P. D. Coley, F. Dem, I. R. Diniz, P. Drozd, M. Fox, A. E. Glassmire, R. Hazen, J. Hrcek, J. P. Jahner, O. Kaman, T. J. Kozubowski, T. A. Kursar, O. T. Lewis, J. Lill, R. J. Marquis, S. E. Miller, H. C. Morais, M. Murakami, H. Nickel, N. A. Pardikes, R. E. Ricklefs, M. S. Singer, A. M. Smilanich, J. O. Stireman, S. Villamarín-Cortez, S. Vodka, M. Volf, D. L. Wagner, T. Walla, G. D. Weiblen and L. A. Dyer. (2015) The global distribution of diet breadth in insect herbivores. *Proceedings of the National Academy of Sciences USA* 112: 442–447. doi:10.1073/pnas.1423042112
- Spear, E. R., P. D. Coley and T. A. Kursar. (2015) Do pathogens limit the distributions of tropical trees across a rainfall gradient? *Journal of Ecology* 103: 165–174. DOI: 10.1111/1365-2745.12339

- Almeida, C., H. Ortega, S. Higginbotham, C. Spadafora, A. E. Arnold, P. D. Coley, T. A. Kursar, W. H. Gerwick and L. Cubilla-Rios. (2014) Chemical and bioactive natural products from *Microthyriaceae* sp., an endophytic fungus from a tropical grass. *Letters in Applied Microbiology* 59: 58-64. doi: 10.1111/lam.12245.
- Higgins, K. L., A. E. Arnold, P. D. Coley and T. A. Kursar. (2014) Communities of fungal endophytes in tropical forest grasses: highly diverse host- and habitat generalists characterized by strong spatial structure. *Fungal Ecology* 8: 1-11.
- Higginbotham, S. J., A. E. Arnold, A. Ibañez, C. Spadafora, P. D. Coley and T. A. Kursar. (2013) Bioactivity of fungal endophytes as a function of endophyte taxonomy and the taxonomy and distribution of their host plants. *PLoS ONE*, 8(9), e73192. doi:10.1371/journal.pone.0073192
- Ortega, H. E., P. R. Graupner, Y. Asai, K. TenDyke, D. Qiu, Y. Y. Shen, N. Rios, A. E. Arnold, P. D. Coley, T. A. Kursar, W. H. Gerwick, and L. Cubilla-Rios. (2013) Mycoleptodiscins A and B, cytotoxic alkaloids from the endophytic fungus *Mycoleptodiscus* sp. F0194. *Journal of Natural Products* 76: 741-744.
- Brenes-Arguedas, T., A. B. Roddy and T. A. Kursar. (2013) Plant traits in relation to the performance and distribution of woody species in wet and dry tropical forest types in Panama. *Functional Ecology* 27: 392–402.
- Bixenmann, R. J., P. D. Coley and T. A. Kursar (2013) Developmental changes in direct and indirect defenses in the young leaves of the Neotropical tree genus *Inga* (Fabaceae). *Biotropica* 45: 175–184.
- Sinimbu, G., P. D. Coley, M. R. Lemes, J. Lokvam and T. A. Kursar. (2012) Do the antiherbivore traits of developing leaves in the Neotropical tree *Inga paraensis* (Fabaceae) vary with light availability? *Oecologia* 170: 669-676.
- Varughese, T., N. Rios, S. Higginbotham, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, and L. Cubilla Rios. (2012) Antifungal depsidone metabolites from *Cordyceps dipterigena*, an endophytic fungus antagonistic to the phytopathogen *Gibberella fujikuroi*. *Tetrahedron letters* 53: 1624-1626. doi:10.1016/j.tetlet.2012.01.076
- Moreno, E., T. Varughese, C. Spadafora, A. E. Arnold, P. D. Coley, T. A. Kursar, W. H. Gerwick and L. Cubilla-Rios. (2011) Chemical constituents of the new endophytic fungus *Mycosphaerella* sp. nov. and their anti-parasitic activity. *Natural Product Communications* 6: 835-840.
- Brenes-Arguedas, T., A. B. Roddy, P. D. Coley and T. A. Kursar. (2011) Do differences in understory light contribute to species distributions along a tropical rainfall gradient? *Oecologia* 166: 443-456.
- Higgins, K. L., P. D. Coley, T. A. Kursar and A. E. Arnold. (2011) Culturing and direct PCR suggest prevalent host-generalism among diverse fungal endophytes of tropical forest grasses. *Mycologia* 103: 247-260.
- Kursar, T. A. (2011) What are the implications of the Nagoya Protocol for research on biodiversity? *BioScience* 4: 256-257. [a commentary]
- Bixenmann, R. J., P. D. Coley and T. A. Kursar. (2011) Is extrafloral nectar production induced by herbivores or ants in a tropical facultative ant-plant mutualism? *Oecologia* 165: 417-425.
- Kursar, T. A., K. G. Dexter, J. Lokvam, R. T. Pennington, J. E. Richardson, M. G. Weber, E. T.

- Murakami, C. Drake, R. McGregor and P. D. Coley. (2009) The evolution of anti-herbivore defenses and their contribution to species coexistence in the tropical tree genus *Inga*. *Proceedings of the National Academy of Sciences USA* 106: 18073-18078.
- Brenes-Arguedas, T., P. D. Coley and T. A. Kursar. (2009) Pests versus drought as determinants of plant distribution along a tropical rainfall gradient. *Ecology* 90: 1751-1761.
- Kursar, T. A., B. M. J. Engelbrecht, A. Burke, M. T. Tyree, B. El Omari and J. P. Giraldo. (2009) Tolerance to low leaf water status of tropical tree seedlings is related to drought performance and distribution. *Functional Ecology* 23: 93-102.
- Brenes-Arguedas, T., M. Ríos, G. Rivas-Torres, C. Blundo, P. D. Coley and T. A. Kursar. (2008) The effect of soil on the growth performance of tropical species with contrasting distributions. *Oikos* 117: 1453-1460.
- Kursar, T. A., T. L. Capson, L. Cubilla-Rios, D. A. Emmen, W. Gerwick, M. P. Gupta, M. V. Heller, K. McPhail, E. Ortega-Barría, D. I. Quiros, L. I. Romero, P. N. Solis and P. D. Coley. (2008) Linking insights from ecological research with bioprospecting to promote conservation, enhance research capacity and provide economic uses of biodiversity. In: W. P. Carson and S. A. Schnitzer (eds.) *Tropical Forest Community Ecology*, Wiley-Blackwell, West Sussex, UK. pages 429-441.
- Martínez-Luis, S., G. Della-Togna, P.D. Coley, T.A. Kursar, W.H. Gerwick and L. Cubilla-Rios. (2008) Antileishmanial constituents of the Panamanian endophytic fungus *Edenia* sp. *Journal of Natural Products* 71: 2011-2014.
- Matsubara, S, G. H. Krause, M. Seltmann, A. Virgo, T. A. Kursar, P. Jahns and K. Winter. Lutein epoxide cycle, light harvesting and photoprotection in species of the tropical tree genus *Inga*. (2008) *Plant, Cell & Environment* 31: 548-561.
- Brenes-Arguedas, T., P. D. Coley and T. A. Kursar. (2008) Divergence in the chemical ecology of *Inga* between two Neotropical sites. *Journal of Ecology* 96: 127–135.
- Engelbrecht, B. M. J., M. T. Tyree and T. A. Kursar. (2007) Visual assessment of wilting as a measure for leaf water potential and seedling drought survival. *Journal of Tropical Ecology* 23: 497-500.
- Lopez, O. L. and T. A. Kursar. (2007) Interannual variation in rainfall, drought stress and seedling mortality may mediate monodominance in tropical flooded forests. *Oecologia* 154: 35-43.
- Kursar, T. A., C. C. Caballero-George, T. L. Capson, L. Cubilla-Rios, W. H. Gerwick, M. V. Heller, A. Ibáñez, R. G. Linington, K. L. McPhail, E. Ortega-Barría, L. I. Romero and P. D. Coley. (2007) Linking bioprospecting with sustainable development and conservation: the Panama case. *Biodiversity and Conservation* 16: 2789-2800.
- Dyer, L. A., M. S. Singer, J. T. Lill, J. O. Stireman III, G. L. Gentry, R. J. Marquis, R. E. Ricklefs, H. F. Greeney, D. L. Wagner, H. C. Morais, I. R. Diniz, T. A. Kursar, and P.D. Coley. (2007) Host specificity of Lepidoptera in tropical and temperate forests. *Nature* 448: 696-699.
- Engelbrecht, B. M. J., L. S. Comita, R. Condit, T. A. Kursar, M. T. Tyree, B. L. Turner and S. P. Hubbell. (2007) Drought sensitivity shapes species distribution patterns in tropical forests. *Nature* 447: 80-83.
- Lokvam, J., T. P. Clausen, D. Grapov, P. D. Coley and T. A. Kursar. (2007) Galloyl depsides of

- tyrosine from young leaves of *Inga laurina*. *Journal of Natural Products* 70: 134-136.
- Quiros, D. I., D. A. Emmen, E. Dominguez, M. V. Heller, P. D. Coley and T. A. Kursar. (2006) A rapid, efficient method for the bioassay of extracts, fractions and compounds for activity against tropical aphids. *International Journal of Pest Management* 52: 333-342.
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- Kursar, T. A., B. T. Wolfe, M. J. Epps and P. D. Coley. (2006) Food quality, competition, and parasitism influence feeding preference in a Neotropical lepidopteran. *Ecology* 87: 3058-3069.
- Coley, P. D., M. L. Bateman and T.A. Kursar. (2006) The effects of plant quality on caterpillar growth and defense against natural enemies. *Oikos* 115: 219-228.
- Molinar-Toribio, E., J. González, E. Ortega-Barría, T. L. Capson, P. D. Coley, T. A. Kursar, K. McPhail and L. Cubilla-Rios. (2006) Antiprotozoal activity against *Plasmodium falciparum* and *Trypanosoma cruzi* of xanthones isolated from *Chrysochlamys tenuis*. *Pharmaceutical Biology* 44: 550-553.
- Lokvam, J., T. Brenes-Arguedas, J. S. Lee, P. D. Coley and T. A. Kursar. (2006) Allelochemic function in a primary metabolite: the case of L-tyrosine hyper-production in *Inga umbellifera* (Fabaceae). *American Journal of Botany* 93: 1109-1115.
- Brenes-Arguedas, T., M. W. Horton, P. D. Coley, J. Lokvam, R. A. Waddell, B. E. Meizoso-O'Meara and T. A. Kursar. (2006) Contrasting mechanisms of secondary metabolite accumulation during leaf development in two tropical tree species with different leaf expansion strategies. *Oecologia* 149: 91-100.
- Svenning, J.-C., B. M. J. Engelbrecht, D. A. Kinner, T. A. Kursar, R. F. Stallard and S. J. Wright. (2006) The relative roles of environment, history, and local dispersal in controlling the distributions of common tree and shrub species in a tropical forest landscape, Panama. *Journal of Tropical Ecology* 22: 575-586.
- Engelbrecht, B. M. J., J. W. Dalling, R. L. Wolf, T. R. H. Pearson, D. A. Galvez, T. Koehler, M. T. Tyree and T. A. Kursar. (2006) Short dry spells in the wet season increase mortality of tropical pioneer seedlings. *Oecologia* 148: 258-269.
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- Coley, P. D., J. Lokvam, K. Rudolph, K. Bromberg, T. E. Sackett, L. Wright, T. Brenes-Arguedas, D. Dvoretz, S. Ring, A. Clark, C. Baptiste, R. T. Pennington and T. A. Kursar. (2005) Divergent defensive strategies of young leaves in two species of *Inga*. *Ecology* 86: 2633-2643.

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- Kursar, T. A., B. M. J. Engelbrecht and M. T. Tyree. (2005) Comparison of soil moisture release curves for two tropical forest sites with similar rainfall but distinct tree communities. *Journal of Tropical Ecology* 21: 297–305.
- Torres-Mendoza, D., L. D. Ureña-González, E. Ortega-Barría, P. D. Coley, T. A. Kursar, T. L. Capson, K. McPhail and L. Cubilla-Rios. (2004) Novel cassane and cleistanthane diterpenes from *Myrospermum frutescens*: Absolute stereochemistry of cassane diterpene series. *Journal of Natural Products* 67: 1711-1715.
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- Corbett Y., L. Herrera, J. Gonzalez, L. Cubilla, T. L. Capson, P. D. Coley, T. A. Kursar, L. I. Romero and E. Ortega-Barría. (2004) A novel DNA-based microfluorimetric method to evaluate antimalarial drug activity. *American Journal of Tropical Medicine and Hygiene* 70: 119–124.
- Lokvam, J., P. D. Coley and T. A. Kursar. (2004) Cinnamoyl glycosides from young leaves of *Inga umbellifera* (Fabaceae). *Phytochemistry* 65: 351–358.
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- Hussein, A. A., B. Bozzi, M. Correa, T. L. Capson, T. A. Kursar, P. D. Coley, P. N. Solis and M. P. Gupta. (2003) Bioactive constituents from three *Vismia* species. *J. Natural Products* 66: 858-860.
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- Lopez, O. R. and T. A. Kursar. (2003) Does flood tolerance explain tree species distribution in tropical seasonally flooded habitats? *Oecologia* 136: 193-204.
- Kursar, T. A. and P. D. Coley. (2003) Convergence in defense syndromes of young leaves in tropical rainforests. *Biochemical Systematics and Ecology* 31: 929-949.
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- Lopez, O. R. and T. A. Kursar. (1999) Flooding tolerance of four tropical tree species. *Tree Physiology* 19: 925-932.
- Grauel, W. T. and T. A. Kursar. (1999) Species diversity and stand dynamics of cativo (*Prioria copaifera* Griseb.) forests in Darien Province, Panama. In: C Kleinn and M. Kohl (eds.) *Long-Term Observations and Research in Forestry*. Proceedings of an International Union of Forest Research Organizations Symposium (IUFRO) S4.11 International Symposium, held at CATIE, Costa Rica, Feb 23-27, 1999, pp 69-77.
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- Coley, P. D. and T. A. Kursar. (1996) Causes and consequences of epiphyll colonization. In: S. S. Mulkey, R. L. Chazdon, and A. P. Smith (eds.) *Tropical Forest Plant Ecophysiology*, Chapman and Hall, N. Y., pp 337-362.
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- Kursar, T. A. and P. D. Coley (1991) Nitrogen content and expansion rates of young leaves of rainforest species: Implications for herbivory. *Biotropica* 23: 141-150.
- Kursar, T. A. (1989) Evaluation of soil respiration and soil CO₂ concentration in a lowland moist forest in Panama. *Plant and Soil* 113: 21-29.
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- Kursar, T. A. and G. Holzwarth (1976) Backbone conformational change in the A to B transition of deoxyribonucleic acid. *Biochemistry* 15: 3352-3357.

POPULAR ARTICLES:

- Coley, P. D. and T. A. Kursar (2003) Reading the tree leaves. *Natural History* 112:12.
- Kursar, T. A. and W. Grauel. (2002) Manejo sostenible de los cativales del Darién. In: S. Heckadon (ed.), *Las Charlas Smithsonian del Mes*.

RESEARCH INTERESTS:

Evolution of defenses of tropical rainforest plants against herbivores; adaptations of tropical rainforest plants to the abiotic environment, including drought; bioprospecting in tropical rainforests as a way to promote conservation.

MEMBERSHIPS:

American Pharmacognosy Society
American Society of Plant Physiologists
Association for Tropical Biology and Conservation

POST-DOCTORAL ASSOCIATES:

John Lokvam, 2000-2012. Evolution of chemical defenses in tropical trees.

Tania Brenes-Arguedas, 2007-2010. The factors that determine the habitat specializations of tropical rainforest trees along a rainfall gradient.

Bettina Engelbrecht, 1999-2003. What role does water availability play in determining plant diversity of tropical forests?

Sarah Higginbotham, 2008-2013. Training, conservation and drug discovery using Panamanian microorganisms.

Alexander Weinhold, 2012-2013. Coexistence, herbivore host choice, and plant-herbivore evolution in the recently radiated and speciose Neotropical tree genus, *Inga*.

Natasha Wiggins, 2013-present. Coexistence, herbivore host choice, and plant-herbivore evolution in the recently radiated and speciose Neotropical tree genus, *Inga*.