UCONN | COLLEGE OF LIBERAL ARTS AND SCIENCES

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

January 31, 2024

Corresponding Member Selection Committee
Botanical Society of America

Dear Colleagues,

With great pleasure, I nominate Dr. Mark E. Olson from the Universidad Nacional Autónoma de México in Mexico City to become a Corresponding Member of the Botanical Society of America. Although Mark was born in the US, he has worked at UNAM for his entire career since completing his doctoral research at Washington University in 2001. During his time at UNAM, Mark has established himself as a world-renowned scientist who is known for his work on evolution of plant growth forms and stem structure. To address these questions, he views plants through a phylogenetic, ecological, and sometimes developmental lens as he combines anatomical, morphological, biomechanical, physiological, and phylogenetic approaches. His scientific papers are widely cited because they are characterized by clear and accessible motivations for the study, clever tests of hypotheses, novel insights and thoughtful discussions. Many of his recent papers are solidly grounded in philosophy—his understanding of how his work fits into this grand endeavor we call science is sophisticated and scholarly. His 105 peer-reviewed papers have been cited over 4000 times, including 64 citations in 2024 already! Just in the last four years, he has been an author on 33 papers. I offer these statistics to illustrate that Mark is a productive and highly regarded scientist who satisfies all criteria to be a BSA Corresponding Member several times over. These thoughts are reflected in supporting letters from three highly esteemed scientists, Dr. Erika Edwards from Yale University, Dr. Marcelo Pace, a colleague from UNAM, and Dr. William (Ned) Friedman from Harvard. As Erika Edwards puts it: "Mark strikes me as, without any doubt, the most creative and unique thinker currently working in the field of plant ecology and evolution."

Mark sees his work in four categories (http://explorelifeonearth.org/people/pubs.html): Evolutionary theory; Plant morphological evolution and systematics; Evolution and applied research in *Moringa*; and Outreach, conservation and exploration. I first became aware of Mark's work when he investigated the evolution of growth forms in the genus *Moringa*. In this work, he combined systematics and phylogenetics with stem anatomy of roots and shoots, to follow evolutionary patterns. However, not content to stop here, Mark was among the first to consider stem and root anatomical changes underlying the evolution of whole plant growth form from a devo-evo perspective. Two of his papers, one published in 2006 in Evolution and a second published in 2007 in Systematics and Biodiversity, are unparalleled in their careful articulation of specific devo-evo concepts and resulting implications for interpretation of empirical results.

Mark's interest in the evolution of phenotypes and their stem anatomy led him to form a life-long friendship with the most highly revered wood anatomist of all time, Sherwin Carlquist. However fond he was of Carlquist, though, Mark challenged many of Carlquist's assertions, resulting in discussions and disagreements which greatly advanced the science of wood anatomy and evolution. The influence of these discussions can be seen in the evolution of thought expressed in the work of both scientists over the next decade and a half; they are cleverly summarized in his 2023 paper in the IAWA special issue devoted to seeing Carlquist's work in a modern framework. Mark is clearly a leader in the study of wood structure, perhaps as Erika Edwards writes "the central figure in this field," not because he focuses on the descriptions of woods, but because he has combined physiological, biomechanical and ecological approaches toward understanding the evolution of differences in structure, at the physiological, anatomical and the whole plant level. Perhaps most notably for wood anatomists, Mark was one of the first anatomists to introduce rigorous, modern statistical analyses to test functional explanations. Some of my personal favorites are his contributions to understanding Corner's Rules, an assertion first proposed in the 1940's that leaf size and stem diameter are positively related. Olson, et al. (2009) is a landmark study that reexamines this allometric relationship in light of metabolic scaling theory, while also considering biomechanics. From this work emerges the critically important insight that leaf

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size is inversely related to Young's modulus, i.e. that large leaves are father apart on stems, and the stems are thicker due to larger piths, with the consequence that shoots with larger leaves do not require greater carbon investments than those with small leaves on highly branched stems. Mark continues to investigate allometric relationships among stems and leaves at a variety of scales. Another contribution to the literature on stem structure is the first ever rigorous analysis of the role of bark in stem biomechanics that was competed by Julietta Rosell, a student in his lab at the time. More recently, Mark has been deeply engaged in the ongoing discussion of the possible mechanistic basis of the frequent observation that wider vessels are more susceptible to embolism formation. As early as 2013 (International Journal of Plant Science), Mark began to question both the pattern of vessel diameter scaling and the underlying ecological associations. In 2014, he published a paper in Ecology Letters (IF=10.69 in 2014) showing that plant size is a major driver of vessel dimensions. This insight was nothing short of revolutionary in the hydraulics literature (see similar statements in letters by Edwards and Friedman), and although subsequently challenged, it has not been refuted. Since that time, Mark has led several other papers related to vessel diameters, including one in PNAS. Friedman's description of this paper is that "It is a brilliantly analyzed piece of scholarship, with sophisticated methodologies, and even with important implications for what will happen to trees under climate change (the larger ones die first!)."

Over the same period, Mark's lab also contributed significant papers in systematics, conservation biology, and exploration of biodiversity, particularly in the genus *Moringa* and its family, the Moringaceae, as well as other genera in the Euphorbiaceae. Not content to contribute only to basic science, Mark has led applied studies in *Moringa*, ranging from analyses of protein content and glucosinolate composition to effects of drought on the "miracle tree." He has been recognized for this work by the international "Moringa Champion Award" in 2016. In addition, one of his other interests is in the philosophy of how science is done. He is passionate about the history of the philosophy of science and evolutionary theory. As Erika Edwards comments: "He is not afraid to make bold arguments that often are at odds with mainstream opinion, and he loves to illuminate the shaky ground that many of our basic assumptions are built on." In summary, Mark Olson has had an outsized effect on our approach to studying evolution in plant form, particularly shoot construction. He is one of the most thoughtful, creative and engaging scientists I've had the pleasure of reading and occasionally talking to.

Mark's CV shows that he has received several international speaking engagements, reviewed for numerous journals, and served on the Board of Advisors for New Phytologist, all hallmarks of a highly respected senior scientist. At a more local level, he has supervised numerous graduate students, both Master's and Doctoral, and served on graduate committees of even more. His influence on one junior scientist is described in the accompanying support letter provided by Dr. Marcelo Pace, who is a colleague of Mark's at UNAM. In his supporting letter, Marcelo provides examples that show Mark to be a generous colleague, both in actions and in sharing his encyclopedic knowledge. He has served on numerous committees dedicated to institutional improvement within UNAM and his list of outreach activities spans more than 5 single-spaced pages in his CV. In short, the goal of the Corresponding Members Award is to recognize "distinguished scientists who have made outstanding contributions to the plant sciences." I agree with Marcelo Pace, that it is an "honor and a privilege" to nominate Mark Olson for this recognition from the Botanical Society of America. He is a perfect candidate.

Sincerely,

Cynthia Jones
Emeritus Professor

Mexico City, 12 January 2024

Subject: Recommendation to nominate Mark E.Olson as Corresponding Member of the BSA

Writing a letter of support for the nomination of Mark Olson is both an honor and a privilege. His impact to the field of botany as a whole and wood anatomy in particular is tremendous, with his CV talking by itself, with over 100 publications, numerous courses taught and students formed. But I want to detail his impact to the field from the perspective first of that of a student in plant anatomy and now as his colleague at the Institute of Biology of the National Autonomous University of Mexico.

I first heard of Mark Olson when I was planning my MSc's thesis with Veronica Angyalossy and Lúcia Lohmann at the University of São Paulo (USP), in Brazil, back in 2005. My dream was to work in the intersection of wood anatomy, systematics and evolution. Very naturally these two leaders in the field, one already a Senior Professor at the University and the second starting her career at USP, brought up the name of Mark Olson, both saying: *You need to know what this guy is doing!* I then started reading his papers, amazed by their content and realizing how they went much beyond what most works in plant anatomy usually do, by always closely connecting structure, function and with deep roots in broad evolutionary questions and hypotheses. Years went by and, while I was doing my PhD in 2014, I heard that Mark was coming to Brazil to work with Carmen Marcati at a city named Botucatu and was going to deliver a talk. I didn't think twice, I jumped into a bus and traveled 4 hours to attend to his seminar. I was beyond inspired, not only by the content of the seminar, as I already knew I would be, but above all by how welcoming and generous with his thoughts and ideas he was. He saved no time in sitting with me, discussing ideas, picking my brain and sharing knowledge. And this is how he always has been.

Years later, now in 2017, while I was doing my post-doc at the Smithsonian Institution in Washington DC, I received a job offer to work at UNAM in Mexico City, the same Institute where Mark had been developing his career. I promptly accepted, and moved to Mexico City in March 2018, where I've worked ever since.

Now in Mexico I got to know yet another side of Mark's passion and enthusiasm for the field of botany. Beyond his impact in the advanced courses that he teaches in evolutionary biology and scientific writing to nonnative-English speakers, Mark is not only generous with his almost encyclopedic knowledge, but also with his enormous plant collection. Mark has travelled all over the world collecting plants in all possible environments. I cannot express enough my surprise when he then recently donated his entire spirit collection to our Institute's Wood Collection, where I currently act as Curator. We are talking about thousands of plants collected in alcohol from all over the world, belonging to all different orders of all major plant lineages (mosses, lycophytes, gymnosperms and angiosperms), spanning the entire tree of life. His donation of plants conserved in alcohol will allow researches for years to come, to numerous students and scholars. Thanks to him, our collection will be the first in the world with all plant orders conserved in alcohol. In addition, because he has the highest rank in the Mexican National Science Foundation, he's entitled to hire a personal technician. Instead of using it to himself, he contacted me and offered this fund to hire a technician to work for the Wood Collection, helping us to prepare anatomical slides from all the numerous plants we have, which will allow material to teach courses and to do research for years to come. The impact for our Institute and Mexico as a whole is incommensurable.

In summary I cannot think of any better candidate to be nominated as corresponding member of the BSA than Mark Olson, which I do wholeheartedly. His impact in the field of botany, evolutionary biology and plant anatomy is unparalleled, and I believe it will still be for many years to come. For me, it is a privilege to have him as a colleague.

Please, do not hesitate to contact me for any additional information.

"POR MI RAZA HABLARÁ EL ESPÍRITU"

Yours truly,

Dr. Marcelo R. Pace
Investigador Titular "A" de Tiempo Completo
Research Associate Smithsonian Institution NMNH
Editor-in-chief IAWA Journal of the International Association of Wood Anatomists
Curator of the Wood Collection of the Mexican National Herbarium

Yale University

Erika J Edwards, Ph.D.

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25 January 2024

Dear Selection Committee:

I write to express my deep support for the nomination of Dr. Mark Olson as a Corresponding Member of BSA. Mark strikes me as, without any doubt, the most creative and unique thinker currently working in the field of plant ecology and evolution. Even his career trajectory is extremely unusual- a California native, he pursued a Ph.D. at the Washington University at St. Louis and the Missouri Botanical Garden, but then took a faculty position at the Universidad National Autonoma de Mexico, in Mexico City. This required him to become fluent in Spanish and also to develop a research program with far fewer resources than he would have had he stayed in the United States. He embraced this life fully, immersing himself in the hyper diverse Mexican flora and becoming a cherished mentor and colleague, training dozens of Mexican students while developing an ambitious and highly successful global field research program on a shoestring budget.

Olson is a trained plant anatomist and specializes in the structure and function of wood. There were perhaps never all that many wood anatomists, but there are surely fewer now, and I would argue that Mark is *the* central figure in this field. Among other important contributions, he has singlehandedly turned one of the most celebrated patterns of wood ecological adaptation completely on its head. Xylem vessels, which are the cells in wood that are responsible for conducting water from the roots to the leaves of plants, vary widely in their sizes. There are well established global patterns in the relative widths of vessels, with woody plants from mesic and warm places having wider vessels than plants living in arid and cold places. The party line has long been that these patterns are caused by the dysfunction of wide vessels when exposed to freezing temperatures or extreme drought stress. Olson's new thesis, supported by years of difficult fieldwork that includes sampling of tree twigs from 200-foot-tall canopies in forests all over the world, is quite different: all plants share a similar allometric scaling relationship of vessel dimensions along their length, such that the widest vessels are found in the tallest plants. The ecological patterns that others have documented are largely reflecting the relative heights of trees in different ecosystems! Olson's work has so gracefully demonstrated a global scaling law that can simultaneously explain global patterns in wood anatomy as well as the limits to tree height in different environments.

His scholarship is unique in another way, as well. While an outstanding empiricist, he has also written some very impressive conceptual essays, even collaborating with philosophers of science to unpack how we approach the study of evolutionary adaptation. He is not afraid to make bold arguments that often are at odds with mainstream opinion, and he loves to illuminate the shaky

ground that many of our basic assumptions are built on. He is my most thought-provoking colleague – I will continue to think about conversations we have had long, long after we have had them.

I'd also like to briefly comment on his dedicated mentorship of students during his years working at UNAM- 5 finished PhD students, with 3 currently in progress; and a handful of master's students as well. I've been in the field with Mark and his students and can attest to his great skill and care in challenging and supporting his students and enabling everyone to aim high and achieve their ambitions. His passion for biology is contagious and inspiring, and he has changed the lives of many young people in monumentally positive ways.

I hope it is clear that I think the world of Mark as a botanist, a collaborator, a mentor, and as a worthy ambassador for our society – he embodies the very best of our BSA community. I can't imagine anyone I would rather see honored with this important recognition- and I know it will mean a lot to him as well, as BSA has been an important "home" for him for his entire career.

Sincerely,

Erika J Edwards
Professor of Ecology and Evolutionary Biology
Director, Marsh Botanical Garden
Curator of Botany and Paleobotany, Peabody Museum of Natural History
Yale University

DEPARTMENT OF ORGANISMIC AND EVOLUTIONARY BIOLOGY
HARVARD UNIVERSITY

26 OXFORD STREET
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January 29, 2024

Dear members of the evaluation committee for Corresponding Members of the BSA:

I am pleased to *strongly advocate* for the election of Mark Olson to be a Corresponding Member of the Botanical Society of America. As the nominator Cindi Jones will have already explained, Mark is a world-class plant anatomist who scholarship sits at the intersection of structure, function, ecology, and evolution. For years, Mark has been at the forefront not only of creating a deeper understanding of wood anatomy and its ecological context, but also of challenging long standing ideas with new data and ways of thinking. In the best possible way, Mark Olson is an iconoclast and as such, he has done much to shake up the broader ecological anatomy and comparative biology communities with his tightly reasoned papers.

In addition to having published an amazing number of papers in top journals, it is worth noting that for many (if not most) of his publications, Mark is the first, senior, or only author. His paper have appeared in *Evolution*, *PNAS*, *AJB*, *Nature Communications*, *Systematic Biology*, *New Phytologist*, *Evolution and Development*, and a host of other leading journals. At the same time, Mark continues to publish what I would call important wood anatomical studies in the *International Association of Wood Anatomists Journal*.

It would take pages to describe all that Mark has accomplished, but one example of his scientific process should suffice. As lead author on the 2018 *PNAS* paper, "Plant height and hydraulic vulnerability to drought and cold," Olson took a long-held view on the relationship between conduit diameter and aridity and cold climates and turned it entirely on its head: the real relationship is between conduit diameter and plant size (height), which happens to correlate with aridity and cold. It is a brilliantly analyzed piece of scholarship, with sophisticated methodologies, and even with important implications for what will happen to trees under climate change (the larger ones die first!). In many ways, Mark is the true successor to Sherwin Carlquist, incredibly knowledgeable about plant diversity with a keen eye for patterns and a tight focus on understanding wood anatomy within an ecological context.

I will note that Mark continues to publish what I would view as philosophy of science papers. He has taken on Gould and Lewontin's famous paper on spandrels and architectural constraint, challenged others working with comparative methodologies with the question of whether they can claim they are studying macroevolution (as is often represented in the field). What I can say with these papers is that when we discuss them in lab meetings or reading groups, they are so thoroughly thought provoking and provocative that things can even get a bit heated.

Here are just a few titles to give a flavor of his work on the underpinnings of modern biology:

The phylogeography debate and the epistemology of model-based evolutionary biology

How to study adaptation (and why to do it that way)

Practice-oriented controversies and borrowed epistemic credibility in current evolutionary biology: phylogeography as a case study

Spandrels and trait delimitation: no such thing as “architectural constraint

From Carlquist's ecological wood anatomy to Carlquist's Law: why comparative anatomy is crucial for functional xylem biology

The comparative method is not macroevolution: interspecific pattern, intraspecific process

Simply put, the Botanical Society of America is the perfect learned society to recognize Mark Olson’s lifetime achievements. He is a prolific author of what are always truly interesting papers!

Sincerely,

William (Ned) Friedman
Arnold Professor of Organismic and Evolutionary Biology
Director of the Arnold Arboretum

CURRICULUM VITAE

Mark Earl Olson
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Employment

Investigador Titular "C", Instituto de Biología, Universidad Nacional Autónoma de México, septiembre 2019-present.
Investigador Titular "B", Instituto de Biología, Universidad Nacional Autónoma de México, septiembre 2009-2019.
Investigador Titular "A", Instituto de Biología, Universidad Nacional Autónoma de México, 9 septiembre 2005-septiembre 2009.
Investigador Asociado "C", Instituto de Biología, Universidad Nacional Autónoma de México, 13 noviembre 2001- septiembre 2005.

EDUCATION

Ph.D., Evolutionary and Population Biology, Washington University, St. Louis, Missouri, 2001.
B. A., Botany, University of California at Santa Barbara, 1992.

AWARDS

Moringa Champion Award. Awarded by the Moringaling Foundation, in collaboration with the International Society for Horticultural Science, AVRDC- The World Vegetable Center, Central Philippines University, and Farm Systems International Organization "in grateful recognition of his valuable contribution, service and expertise in advancing and promoting moringa through successful and fruitful research and develpmment efforts in the field of botany and germplasm". Presented at the First International *Moringa* Symposium, Manila, Philippines, November 17, 2016.

Mexican Science Foundation National Researchers System (economic stimulus program based on productivity)**:**

- Level III, January 1, 2022 - present
- Level II, January 1, 2003 - December 31, 2021
- Level I, January 1, 2006 - December 31, 2012.

PAPIIT-DGAPA, UNAM (internal university stimulus program based on productivity)**:**

- Level D, May 22, 2012 - Present
- Level C, February 10, 2003 - March 2, 2012.

"The Way I See It" award. Awarded by Starbucks Coffee Company in June 2006. My name and some of my work were printed on millions of cups in Starbucks branches across the United States and Canada.
National Geographic Society Emerging Explorer 2004.
"Research Associate" Missouri Botanical Garden in 2002-present.
Excellence in Teaching Award Washington University, 1999-2000.
Rotary International's "Diplomatic" Scholarship 1992-1994 in Santa Barbara, California, and Verona, Italy.
Best Botany Student Award Santa Barbara City College, 1989.

PUBLICATIONS (SCI)

Bold = corresponding author
*student as first author

1. Berry, P., M. E. Olson. 1998. *Eucaerea rhaeophytica*, a new rheophyte from the Guayana region of Venezuela. *Brittonia* 50: 493-496.
2. **Olson, M. E.**, S. G. Razafimandimbison. 2000. *Moringa hildebrandtii*: A tree extinct in the wild but preserved by indigenous horticultural practices in Madagascar. *Adansonia* sér. 3 22(2) 217-221.
3. **Olson, M. E.** 2001. Stem and root anatomy of *Moringa* (Moringaceae). *Haseltonia* 8: 56-96.
4. **Olson, M. E.**, and S. Carlquist. 2001. Stem and root anatomical correlations with life form diversity, ecology, and systematics in *Moringa* (Moringaceae). *Botanical Journal of the Linnean Society* 135(4): 315-348.
5. **Olson, M. E.** 2002. Combining data from DNA sequences and morphology for a phylogeny of Moringaceae. *Systematic Botany* 27(1): 55-73.
6. **Olson, M. E.** 2002. Intergeneric relationships within the Caricaceae-Moringacecae clade (Brassicales), and potential morphological synapomorphies of the clade and its families. *International Journal of Plant Sciences* 163(1):51-65.
7. **Olson, M. E.** 2003. Ontogenetic origins of floral bilateral symmetry in Moringaceae. *American Journal of Botany* 90(1): 49-71.
8. **Olson, M. E.**, Gaskin, J.F., Ghahremani-nejad, F. 2003. Stem anatomy is congruent with molecular phylogenies placing *Hypericopsis persica* in *Frankenia* (Frankeniaceae); comments on vasicentric tracheids. *Taxon* 52(3): 525-532.
9. **Olson, M. E.** 2003. Stem and leaf anatomy of the arborescent Cucurbitaceae *Dendrosicyos socotrana*, with comments on the evolution of pachycauls from lianas. *Plant Systematics and Evolution* 239 (3 and 4): 199-214.
10. **Olson, M. E.** 2005. Wood, bark, and pith anatomy in *Pittocaulon* (*Senecio*, Asteraceae): water storage and systematics. *Journal of the Torrey Botanical Society* 132(2): 173-186.
11. **Olson, M. E.** 2005. Typology, homology, and homoplasy in comparative wood anatomy. *International Association of Wood Anatomists Journal* 26 (4): 507-523.
12. **Olson, M. E.**, J. A. Lomelí S. y N. Ivalú Cacho. 2005. Extinction threat in the *Pedilanthus* clade (*Euphorbia*, Euphorbiaceae), with special reference to the recently-rediscovered *E. conzattii (P. pulchellus). American Journal of Botany* 92 (4): 634-641.

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14. **Olson, M. E.** 2006. Powered paragliders in biodiversity exploration. *Revista Mexicana de Biodiversidad* 77(2): 297-305.
15. **Olson, M. E.** 2007. Wood ontogeny as a model for studying heterochrony. *Systematics and Biodiversity* 5(2): 145–158.
16. *Rosell, J. A. y **M. E. Olson**. 2007. Testing implicit assumptions regarding the age vs. size dependence of stem biomechanics using *Pittocaulon* (~*Senecio*) *praecox* (Asteraceae). *American Journal of Botany* 94(2): 161–172.
17. *Rosell, J. A., **M. E. Olson,** R. Aguirre y S. Carlquist. 2007. Logistic regression in comparative wood anatomy : tracheid types, wood anatomical terminology, and new inferences from the Carquist & Hoekman southern California dataset. *Botanical Journal of the Linnean Society* 154: 331-351.
18. **Olson, M. E.**, R. Aguirre-Hernández y J. A. Rosell. 2009. Universal foliage-stem scaling across environments and species in dicot trees: plasticity, biomechanics, and Corner's Rules. *Ecology Letters* 12: 210-219.
19. Feria A., T. P, M. E. Olson, A. García-Mendoza y E. Solano. 2009. A GIS-based comparison of the Mexican national and IUCN criteria for determining extinction risk. *Conservation Biology* 23: 1156-1166.
20. **Olson, M. E.** y A. Arroyo. *2009.* Thinking in continua: beyond the "adaptive radiation" metaphor. *BioEssays* 31: 1337 – 134.
21. *Rosell, J. A., M. E. Olson, A. Weeks, J. A. De-Nova, R. Medina Lemos, J. Pérez Camacho, T. P. Feria, R. Gómez-Bermejo, J. C. Montero y L. E. Eguiarte. 2010. Diversification in species complexes: Tests of species origin and delimitation in the *Bursera simaruba* clade of tropical trees (Burseraceae). *Molecular Phylogenetics and Evolution* 57(2): 798–811.
22. Cacho, N. I., P. E. Berry, M. E. Olson, V. W. Steinmann y D. A. Baum. 2010. Are spurred cyathia a key innovation? Molecular systematics and trait evolution in the slipper-spurges (*Pedilanthus* clade - *Euphorbia*, Euphorbiaceae). *American Journal of Botany* 97(3): 493-510.
23. **Olson, M. E.** y J. W. Fahey. 2011. *Moringa oleifera*: un árbol multiusos para las zonas tropicales secas (*Moringa oleifera*: a multipurpose tree for the dry tropics). *Revista Mexicana de Biodiversidad* 82(4): 1071-1082.
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16. Rosell, J., M. E. Olson, J. Fornoni, and C. Domínguez. Developmental and functional tradeoffs affect interspecific diversification in the woody stems of the Simaruba clade of *Bursera* (Burseraceae). Oral presentation, International Botanical Congress, Melbourne, Australia, 23-30 July 2011.
17. Olson, M. E., J. A. Rosell, and R. Aguirre-Hernández. Searching for evolutionarily independent traits in tree structure. Oral presentation, International Botanical Congress, Melbourne, Australia, 23-30 July 2011.
18. Olson, M. E. The inferential structure of adaptationist explanations in evolutionary biology. University of Sydney-Australian National University Philosophy of Biology Meeting. Oral presentation. Australian National University-University of Sydney. Bundanoon, New South Wales, Australia. November 12, 2012.
19. Olson, M. E., J. A. Rosell. The adaptive causes of drought resistance via vessel diameter and plant size; stem size, not environment, predicts vessel diameter worldwide. Oral presentation. Ecological Society of Australia Annual Conference 2012. Ecological Society of Australia. Melbourne, Australia. December 3 - 7, 2012.
20. Julieta Rosell, Mark Olson, Rodrigo Méndez-Alonzo, Wade Tozer, Mark Westoby. Insights into bark trait ecology based on 90 species from dry scrub to rainforest. Oral presentation. Ecological Society of Australia Annual Conference 2012. Ecological Society of Australia. Melbourne, Australia. December 3 - 7, 2012.
21. Olson, M. E. The inferential structure of adaptationist explanations in evolutionary biology. University of Sydney-Australian National University Philosophy of Biology Meeting. Presentación oral. Australian National University-University of Sydney. Bundanoon, New South Wales, Australia. 12 de noviembre de 2012
22. Olson, M. E., J. A. Rosell. The adaptive causes of drought resistance via vessel diameter and plant size; stem size, not environment, predicts vessel diameter worldwide. Presentación oral. Ecological Society of Australia Annual Conference 2012. Ecological Society of Australia. Melbourne, Australia, Australia. 03 - 07 de diciembre de 2012
23. Julieta Rosell, Mark E. Olson, Rodrigo Méndez-Alonzo, Wade Tozer, Mark Westoby. Insights into bark trait ecology based on 90 species from dry scrub to rainforest. Presentación oral. Ecological Society of Australia Annual Conference 2012.

Ecological Society of Australia. Melbourne, Australia, Australia. 03 - 07 de diciembre de 2012

24. Leonardo Alvarado Cárdenas, Mark E. Olson. Convergencia o divergencia: exploración del espacio morfológico entre cactus de América contra suculentas de África. Cartel. 1er Congreso de Morfometría. Universidad del Mar, Oax. Puerto Ángel Oax, México. 24 - 26 de septiembre de 2012
25. Claudia Gabriela Montes Cartas, 1er Congreso de Morfometría. Modularidad en el xilema secundario del clado *simaruba*. Universidad del Mar, Puerto Ángel, Oaxaca del 22 al 27 de octubre de 2012.
26. Lucas Florentino, B., R. R. Herrera Zambrano, M. E. Olson. 2012. Valor nutritivo y contenido de factores tóxicos naturales en hojas de moringa (*Moringa oleifera*) de diferentes partes del país. 30º Congreso Latinoamericano de Química, Cancún, Quintana Roo, 27-31 de octubre
27. Méndez-Alonzo, R., H. Paz Hernández, J. A. Rosell García, M. E. Olson. Integración de los espectros económicos foliares y del tallo en árboles de selva tropical seca. III Congreso Mexicano de Ecología, Boca del Río, Veracruz. 4 abril 2012
28. L. O. Alvarado Cárdenas, E. Martínez Meyer, L. Eguiarte Fruns, M. E. Olson. Evaluación de la convergencia ambiental entre plantas suculentas globulares de América y Africa. Presentación Oral. XIX Congreso Mexicano de Botánica. Tuxtla Gutiérrez, Chis, México. 20 - 25 de octubre de 2013.
29. Olson, M. E. La evolución de algoritmos ontogenéticos en la diversificación de un clado de árboles tropicales mexicanos. Presentación oral. I simposio de modelación y análisis en morfogénesis. C3, UNAM, México. 12 de abril de 2013.
30. Lucas Florentino, B., R. R. Herrera Zambrano, M. E. Olson. 2013. Composición nutritiva y contenido de factores tóxicos naturales en hojas de moringa (*Moringa oleifera*) de diferentes regiones de México. III Seminario Internacional de Histoterapia Placentaria, La Habana, Cuba 15-17 de abril.
31. Olson, M. E. El "árbol milagro" Moringa oleifera: potencial y prueba. V Jornadas de Nutrición Animal. Presentación oral. Facultad de Veterinaria, UNAM, México. 13 de noviembre de 2014.
32. Olson, M. E., Julieta Rosell, Tommaso Anfodillo, Giai Petit, Alan Crivellaro, Sandrine Isnard, Calixto León, Leonardo Alvarado, Matiss Castorena. Lianas do not have wide vessels and climate does not predict vessel diameter: vessel-stem length scaling across the angiosperms. Presentación oral. New Perspectives on Plant Structural Botany. Carmen Marcati. Universidade Estadual Paulista, Botucatu, Brasil. 17 Oct 2014.
33. Mark E Olson, Tommaso Anfodillo, Julieta Rosell, Giai Petit, Alan Crivellaro, Leonardo Alvarado, Matiss Castorena. Global patterns of xylem conduit size. Axial variation in xylem conduits: differentiation, patterns, and evolution. Tommaso Anfodillo. Università degli Studi di Padova, Padua, Italy. March 21, 2014.
34. Mark E. Olson, Julieta Rosell, Tommaso Anfodillo, Giai Petit, Alan Crivellaro, Sandrine Isnard, Calixto León, Leonardo Alvarado, Matiss Castorena. Lianas do not have wide vessels and climate does not predict vessel diameter: vessel-stem length scaling across the angiosperms. Oral presentation. XI Latin American Botanical Congress. Carmen Marcati. Salvador, Bahía, Brazil. October 19 - 24, 2014.

35. Mark E Olson. *Moringa oleifera*: potencial y prueba. Primer Simposio Nacional del Cultivo de *Moringa* y sus Propiedades. Presentación oral. Facultad de Agronomía de la Universidad Autónoma de Nuevo León, Monterrey, NL, México. 23 de mayo de 2014.
36. Mark E. Olson. Moringa oleifera: preguntas frecuentes y prioridades para la investigación. II Simposio Nacional del Cultivo de Moringa y sus Propiedades. Emilio Olivares. Monterrey NL, México. 22 de mayo de 2015
37. Trejo, L., T. P. Feria Arroyo, K. M. Olsen, L. E. Eguiarte, B. Arroyo, J. A. Gruhn, M. E. OlsonR. Bye. 2015. Ancestro silvestre de nochebuena (*Euphorbia pulcherrima*) en los bosques tropicales secos de México: evidencia histórica, genética y ambiental. Simposio Latinoamericano "Domesticación y Manejo de Recursos Genéticos," Lima, Perú, 9-11 julio 2015.
38. Trueba, S., R. Pouteau, S. Delzon, F. Lens, T. S. Feild, S. Isnard, and M. E. Olson. Basal angisperm species as barometers for climate change in New Caledonia, an ecophysiological and biogegraphical approach. Association of Tropical Biology and Conservation, Honolulu, Hawaii, 12-16 July 2015.
39. Mark E. Olson. Overcoming regional bias in *Moringa* research: the International *Moringa* Germplasm Collection. First International Symposium on *Moringa*: a Decade of Advances in Research and Development, Manila, Philippines. 15-18 November 2015.
40. Mark Olson, Julieta Rosell, Tommaso Anfodillo, Diana Soriano, Alberto Echeverría, Cameron Williams, Todd Dawson, Calixto León. Cartel. Tip to base vessel widening and maximum vegetation height. Gordon Research Conference, Multiscale Plant Vascular Biology, Sunday Valley, Maine, USA, Jun 2016.
41. Mark E. Olson, Julieta A. Rosell, Calixto León-Gómez, Alberto Echeverría, Víctor Figueroa, Diana Soriano, Tommaso Anfodillo, Jesús Julio, Michael Donoghue, Patrick Sweeney, Erika Edwards, Alex Fajardo, Rivete, Carmen Marcati, Rodrigo Méndez-Alonzo. Poster. Plant size, not climate, the main driver of vessel diameter. Ecological Society of Australia, Perth. 28 Nov 2016.
42. Soriano, D., A. EcheverríaM. E. Olson. Hidráulica vegetal y la respuesta de la vegetación al cambio climático. Presentiación oral, VI congreso Mexicano de Ecología, León, Guanajuato, 30 julio-4 agosto 2017.
43. Mark E. Olson, Julieta A. Rosell, Calixto León-Gómez, Alberto Echeverría, Víctor Figueroa, Diana Soriano, Tommaso Anfodillo, Jesús Julio, Michael Donoghue, Patrick Sweeney, Erika Edwards, Alex Fajardo, Rivete, Carmen Marcati, Rodrigo Méndez-Alonzo. Plant height and hydraulic vulnerability to drought and cold. XIII Colloquium on Plant Ecophysiology. Parque Katalapi, Región de los Lagos, Chile. 21-24 enero 2018.
44. Mark E. Olson. Invited oral presentation. Adaptive plasticity, phenotypic accommodation, and the universal pattern of tip-to-base vessel widening across the seed plants. Gordon Research Conference, Multiscale Plant Vascular Biology, Mount Snow, Vermont, USA. 17-22 Jun 2018.
45. Mark E. Olson, Diana Soriano, Julieta A. Rosell, Tommaso Anfodillo, Calixto León-Gómez, Jesús Julio Camarero Martínez, Matiss Castorena, Todd Dawson, Michael J. Donoghue, Alberto Echeverría, Erika J. Edwards, Carlos I. Espinosa, Alex Fajardo, Antonio Gazol, Sandrine Isnard, Rivete Lima, Carmen R. Marcati, Rodrigo Méndez-

Alonzo. Cartel. Plant height and hydraulic vulnerability to drought and cold. 42nd New Phytologist Symposium, The biology of wood: from cell to trees, Lake Tahoe CA, USA, 10–12 Jul 2018.

46. Mark E. Olson. Invited oral presentation. Shedding comparative wood anatomy of its Baileyan baggage. Botany 2018, Rochester, Minnesota, USA, 21-25 Jul 2018.
47. Moeglein, Morgan; Park, Brian; Olson, Mark; Cacho, N. Ivalu; Eaton, Deren; Donoghue, Michael; Edwards, Erika. Oral presentation. Leaf Trait Evolution in Mexican *Viburnum*. Botany 2018, Rochester, Minnesota, USA, 21-25 jul 2018.
48. Mark E. Olson. Invited oral presentation. Plant Evolutionary Ecology in The Age of The Extended Evolutionary Synthesis. The Society for Integrative and Comparative Biology, 3-7 January 2019, Tampa, Florida, USA.
49. Moeglein MK, Park B, Cacho NI, Olson ME, Eaton DA, Donoghue MJ, Edwards EJ; Yale University, National Autonomous University of Mexico, Columbia University. Leaf Trait Evolution in *Viburnum*. The Society for Integrative and Comparative Biology, 3-7 Jan 2019, Tampa, Florida, USA
50. Olson, M. E., Garima, R. Geeta, Priya Panjabi-Massand, Wasif Nouman, Jed Fahey, David Odee. Where did *Moringa oleifera* come from and where is it going? Germplasm diversity as the basis for *Moringa* improvement. Second International Symposium on Moringa. 10-13 November, 2019, Pretoria, South Africa.
51. santa fe
52.

Invited Lectures

2003 *The plant biomechanical universe and the evolution of trees from vining ancestors*. Institute of Biology, UNAM, 26 August

2003 Diversification in the plant biomechanical universe. University of Wisconsin-Madison Botany Department Colloquium, 20 November

2004 Diversification in the plant biomechanical universe. University of Arizona-Tucson Ecology and Evolution Departmental Seminars, Tucson, Arizona, USA 3 April

2005 *Fractals inside and out? Universal scaling in trees.* Institute of Biology, UNAM, 2 August

2007 *Allometry, plasticity, and the epigenetic billiard table of trees*. Institute of Biology, UNAM, 2 August

2009 “Adaptation and ontogenetic potential in woody plant stems,” OEB Seminar Series, Department of Organismic and Evolutionary Biology, Harvard University, 2 de febrero de 2011

2009 “Radiación adaptativa: más allá de la metáfora,” Seminarios del Instituto de Biología, 26 de mayo de 2009

2009 “Escalamiento universal en los árboles,” Seminarios de la Estación de Biología Chamela, 25 de junio de 2009

2011 Ontogeny, constraint, and adaptation: adaptationism's developmental renaissance. 22 April, University of Colorado, Boulder

2011 “Adaptación,” Simposio “Evolución Orgánica,” Facultad de Ciencias, UNAM, 13 de mayo de 2011

2012 The inferential structure of adaptationist explanations in evolutionary biology. 2 April, University of Sydney Department of Philosophy Current Projects seminar series.
2012 "Adaptation, constraint and development," Division of Evolution, Ecology and Genetics, Research School of Biology, Australian National University, 30 de noviembre de 2012
2013 "Adaptación, restriccón y desarrollo," Seminarios de la Estación de Biología Chamela, 14 de marzo de 2013
2015 "Cómo estudiar la adaptación (y porqué hacerlo de esta forma)," Seminarios del Instituto de Ecología, UNAM, 26 de mayo de 2015
2015 "How to study adaptation and why to do it that way," Ecology and Evolutionary Biology Seminar Series, Yale University, 9 de septiembre de 2015
2015 "How to study adaptation and why to do it that way," Ecology and Evolutionary Biology Special Seminar, Brown University, 11 de septiembre de 2015
2017 "Plant height drives hydraulic vulnerability to drought and cold," serie de seminarios de la Faculdade de Ciências Agronômicas, Universidade Estadual Paulista, Botucatu, 12 de mayo de 2017
2019 "Biología evolutiva de las plantas en la época de la síntesis evolutiva extendida," ponencia dentro del curso "Hablemos de plantas bajo una perspectiva evolutiva," Facultad de Ciencias, UNAM, 22 de enero de 2019
2019 Mark E. Olson. How to study adaptation and why to do it that way. Biological Sciencies Departmental Seminars. University of Cape Town, South Africa. 14 October 2019
2019 Mark E. Olson. Cuarenta años de los Spandrels de San Marco (Forty years of the Spandrels of San Marco). Instituto de Biología seminar series. Instituto de Biología, UNAM, México. 20 August 2019
2020 Mark E. Olson. La ciencia detrás de Moringa, el árbol milagro. Seminarios del Instituto de Biología. Ciudad de México, México. 4 August 2020
2023 Mark E. Olson Living stones, elephant's feet, and barrel trees: cacti and succulents of Mexico. Biodiversity Research Center, Academia Sinica, Taipei, Taiwan, 23 June, 2023
2023 Mark E. Olson 2 talks: *Moringa oleifera* the "miracle tree" recent advances and their implications in using *Moringa*, and Where did *Moringa oleifera* come from and where is it going? Germplasm diversity as the basis for *Moringa* improvement, First Chiba Moringa forum, Narita, Chiba, Japan. Jul 16 and 17, 2023

ADVISING

Thesis supervision-completed

Undergraduate

2003 Cacho González, N. I. "Correlaciones en forma de vida y ecología con características de elementos de vaso en *Pedilanthus* (Euphorbiaceae), con comentarios sobre su estado de conservación actual basados en trabajo de campo reciente". Facultad de Ciencias, UNAM. 15 agosto 2003.

2007 Arballo García J.,Vázquez Cabrera, A. A. (tesis mancomunada) "Desarrollo de algoritmo para la predicción de comportamiento biomecánico comparativo entre *Bursera simaruba* y *Bursera grandifolia*". Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzadas, Instituto Politécnico Nacional, 26 junio de 2007.

2008 García Sánchez M. "Desarrollo de un sistema para calcular el momento de incercia de los tallos de *Pittocaulon praecox* en sus cortes transversales para la caracterización biomecánica de sus estructuras". Licenciatura en Ingeniería Biónica, Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzadas, Instituto Politécnico Nacional, 2 junio 2008.

2008 Hernández García L. H. "Automatización del conteo y parametrización celular con el uso de redes neuronales en tallos de *Bursera cuneata*". Licenciatura en Ingeniería Biónica, Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzadas, Instituto Politécnico Nacional, 2 junio 2008.

2008 Rojas Piña, Vanessa. "Filogenia molecular y evolución estructural en las hojas del clado *Beaucarnea-Calibanus* (Ruscaceae)". Facultad de Ciencias, UNAM, 11 agosto 2008.

Master's:

2005 Rosell García, J. A. "Correlaciones entre propiedades biomecánicas y características estructurales en tres niveles de organización (forma de vida, órgano y tejido) en tallos del clado Simaruba (*Bursera*, Burseraceae)". Posgrado en Ciencias Biológicas, Instituto de Biología, UNAM. 9 diciembre de 2005.

2008 Cervantes Alcayde, M. A. "Filogenia molecular del clado mexicano de *Manihot*: ¿convergencia de ecomorfotipos?" Posgrado en Ciencias Biológicas, Instituto de Biología, UNAM, 17 octubre de 2008.

2016 Matiss Castorena Salaks. La alometría de la actividad metabólica de los árboles. Posgrado en Ciencias Biológicas, UNAM. 4 noviembre 2016

2020 Alí Citlalli Segovia Rivas. Hidráulica vegetal y altura de las plantas en *Viburnum* a lo largo de gradientes climáticos. Posgrado en Ciencias Biológicas, UNAM. 17 septiembre 2020

2021 Olson, M.E. S. Gleason, K. McCulloh, R. Spicer, K. Zieminska. The proximate-ultimate causation distinction is still relevant: examples from plant hydraulics. Philosophy of Plant Biology Workshop. Egenis, the Centre for the Study of Life Sciences, University of Exeter. Exeter, UK. 05-07 May 2021

2021 Segovia-Rivas, Alí, Olson, Mark, Donoghue, Michael, Edwards, Erika, Rosell, Julieta, Anfodillo, Tommaso, Moeglein, Morgan. Plant hydraulics and height of *Viburnum* across climate gradients. Botany 2020. Botanical Society of America. Alaska, USA. 27 - 31 Jul 2021

Doctorate:

2010 Rosell García, J. A. Diversificación adaptativa en las plantas leñosas: sostén mecánico, almacenamiento y conducción en los tallos del clado *simaruba* (*Bursera*, Burseraceae). Posgrado en Ciencias Biológicas, UNAM. 8 November

2012 Laura Trejo Hernández. Filogegrafía de la nochebuena (Euphorbia pulcherrima, Euphorbiaceae): su origen geográfico y domesticación. Posgrado en ciencias biologicas.10 de diciembre
2013 Leonardo Osvaldo Alvarado Cárdenas. Convergencia en grupos vegetales de zonas áridas. Posgrado en Ciencias Biológicas. 18 de septiembre de 2013.
2015 Vanessa Rojas Piña. Estudio morfológico y sistemática moelcular del complejo *Beaucarnea-Calibanus* y sus relaciones con *Nolina* y *Dasylirion*. Nov 2015.
2016 María Angélica Cervantes Alcayde. Modularidad funcional y diversificación morfológica en las especies mexicanas de *Manihot* (Euphorbiaceae). Posgrado en ciencias biológicas. 10 de octubre de 2016.
2018 Claudia Gabriela Montes Cartas. Patrones de covariación en las células del tallo del clado *simaruba* de *Bursera*. Posgrado en Ciencias Biomédicas, UNAM. Junio 2018.
2023 Emilio Petrone Mendoza. El potencial ontogenético de las células troncales de la madera en la evolución morfológica de las plantas vasculares. Posgrado en Ciencias Biológicas, UNAM. 5 December 2023

Theses in progress

Doctorate:

2016 Alberto Echeverría Serur. El reto de la altura en los árboles: un enfoque ontogenético. Posgrado en Ciencias Biológicas, UNAM.
2016 Figueroa Abúndiz, Víctor. Adaptación, morfoespacio y la alometría conductos-tallos en las plantas. Posgrado en Ciencias Biológicas, UNAM.
2023 Ana Isabel Pérez Maussan. Nueva teoría sobre la ramificación de los árboles: da Vinci después de 500 años. Posgrado en Ciencias Biológicas, UNAM.

Postdocs

Diana Soriano Fernández, funded by DGAPA-UNAM, Sept 2015-Aug 2017
Cecilia Martínez Pérez, funded by DGAPA-UNAM, Feb 2018-mar 2020
Eapsa Berry, funded by the Mexican ministry of the exterior AMEXCID-SER, Aug 2018-Aug 2019
Eunice Romero, funded by Mexican Science Foundation project A1-S-26934, Jul-Dec 2021
Gilberto Alemán Sanchezhulz, funded by DGAPA-UNAM, Dec 2023-present

Graduate student committees

Master's

José Cervantes Avila. "Análisis de la estructura genética de una población de *Crotalus molossus nigrescens* altamente perturbada en el estado de Guanajuato, México". Posgrado en Ciencias Biológicas, UNAM. 2008-2011.
Sergio León Hernández. Proyecto de maestría "Inferencia filogenética para las especies de *Pinus*, sección Trifoliae (Pinaceae) con base en secuencias de cpDNA, caracteres morfológicos y tradicionales en análisis separados y combinados". Posgrado en Ciencias Biológicas, UNAM. 2008-2011.

Ricardo Miranda González. Proyecto de maestría "Líquenes costrosos de la estación de biología de Chamela, un análisis de biodiversidad y composición de especies en diferentes microhábitats". Posgrado en Ciencias Biológicas, Instituto de Biología, UNAM. 2008-2012.

Everardo Robredo. Proyecto de maestría "modelo para predecir el cambio de coberturas en la región de Chamela usando algoritmos genéticos y autómatas celulares". Posgrado en Ciencias Biológicas, Instituto de Biología, UNAM. 2009-2013.

Bárbara Carolina Larraín Barrios. Determinación de áreas prioritarias para la conservación de las cactáceas endémicas de la región del desierto sonorense. Posgrado en Ciencias Biológicas, UNAM. 2009-2011.

Reyna Leticia Moyers Arévalo. Estimación de la inercia filogenética sobre el tamaño de puesta en tortugas. Posgrado en Ciencias Biológicas, UNAM. 2010-2012.

Rosario Gálvez Flores. El origen evolutivo de las aves: objetividad científica y la epistemología de la paleontología contemporánea. Posgrado en Ciencias Biológicas, UNAM. 2012-2015.

Gabriela López Carapia. Evaluación de materiales y actividades de educación ambiental en la zona aledaña a la estación de biología chamela UNAM. Posgrado en Ciencias Biológicas, UNAM. 2012-2015.

Oscar Ugartechea Salmerón. Valor económico y disyuntivas ambientales en el manejo del bosque tropical seco en Chamela, Jalisco. Posgrado en Ciencias Biológicas, UNAM. 2012-2015.

Carlos Emiliano Mora Carrera. Selección natural sobre tasas de entrecruzamiento de *Solanum rostratum*. Posgrado en Ciencias Biológicas, UNAM. 2014-2016.

González Martínez César Adrián. *Dictyanthus* Decne. (Apocynaceae: Asclepiadoideae) género casi endémico de México e ignorado en las filogenias. Posgrado en Ciencias Biológicas, UNAM. 2016-presente.

César Ríos Santos. Identificación de maderas gimnospérmicas del mesozóico de Baja California de Puebla: un análisis de su estructura anatómica. Posgrado en Ciencias Biológicas, UNAM. 2017-presente.

Doctorate

Fabricio Villalobos. Áreas de distribución y riqueza de taxa, el campo de diversidad en diferentes niveles taxonómicos. Posgrado en Ciencias Biológicas, UNAM. 2006-2011.

Alejandro López Reyes. Estudio del límite de especie entre *Pinus douglasiana y P. maximinoi* (coniferales: Pinaceae) usando secuencias de DNA y datos morfológicos. Posgrado en Ciencias Biológicas, UNAM. 2009-2017.

Santiago Ramírez Barahona. Gentética de poblaciones y filogeografía de helechos arborescentes. Posgrado en Ciencias Biológicas, UNAM. 2009-2014.

Eunice Karinho Betancourt. Evolución de la defensa en *Datura*. Posgrado en Ciencias Biológicas, UNAM. 2010-2015.

Ivan Darío Camargo Rodríguez. Valor adaptative de los mecanismos plásticos del crecimiento expresdos en la tolerancia dal daño foliar de *Datura stramonium*. Posgrado en Ciencias Biológicas, UNAM. 2010-2017.

Gala Cortés Ramírez. Análisis empírico de las consecuencias de la categorización del continuo morfológico: Un ejemplo con Aves. 2011-presente.

Santiago Trueba Sánchez. Ecology, forms and function of the basal angiosperms of New Caledonia. École doctorale GAIA y Unité de Recherche AMAP, Université de Montpellier. 2013-2016.

Myriam Campos Aguilar. Delimitación de especie y biología de la conservación den *Beaucarnea inermis* S. Watson y *B. recurvata* Lemaire. Posgrado en Ciencias Biológicas, UNAM. 2014-presente.

Laura Patricia Olguín Pérez. Comportamiento sexual de *Megacormus* Karsch, 1881 (Scorpiones: Euscorpiidae: Magacorminiinae): implicaciones ecológico-evolutivos. Posgrado en Ciencias Biológicas, UNAM. 2015-presente.

Gabriel Merino Díaz. Patrones altitudinales de variación genética y morfológica en helechos arborescentes (Cyatheaceae). Posgrado en Ciencias Biológicas, UNAM. 2015-presente.

María de Jesús Xóchitl Damián Domínguez. Variación intrapolacional, geográfica y filogenética de la integración fenotípica. Posgrado en Ciencias Biológicas, UNAM. 2015-presente.

Saúl Filemón Domínguez Guerrero. Evolución de características ecológicas y de historias de vida en *Sceloporus torquatus* (Squamata: Phrynosomatidae). Posgrado en Ciencias Biológicas, UNAM. 2015-presente.

Garima. Filogeografía de las especies de *Moringa* del subcontinente de la India. Posgrado en Botánica, Universidad de Delhi, India. 2015-presente.

Martín Sánchez Vilchis. Genética de la conservación aplicada al águila real (*Aguila chrysachaetos*) en México. Posgrado en Ciencias Biológicas, UNAM. 2016-presente.

Marisol Sandoval Ocampo. Efecto de la interacción colibrí-flor y variación geográfica del espacio morfológico de *Phaethornis mexicanus* (Aves: Trochilidae). Posgrado en Ciencias Biológicas, UNAM. 2016-2019.

Bruno Barrales Alcalá. Rasgos functionales del género *Bursera* a lo largo de un gradiente de aridez. Posgrado en Ciencias Biológicas, UNAM. 2016-presente.

Taggert Butterfield. Indirect Interactions, Trait Evolution, and Turtles. grado en Ciencias Biológicas, UNAM. 2018-presente.

Teaching

Formal courses

2004 Curso “Morfología adaptativa de las plantas” para el Posgrado en Ciencias Biológicas de la UNAM. 5 estudiantes inscritos, 2 oyentes. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana). Semestre 2004-2.

2006 Curso “Filogenias, adaptación y la relación estructura-función en plantas y animales” para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2006-2. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2006 Curso “Sistemática Tropical”, para la Organización para Estudios Tropicales, Costa Rica. 28 junio-10 julio 2006.

2007 Curso “Macroevolución: la expansión jerárquica de la teoría darwiniana” para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2008-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2008 Curso “Filogenias, adaptación y la relación estructura-función en plantas y animales” para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2009-

1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana). 12 de agosto del 2008 – 11 de diciembre del 2008.

2009 Curso de campo sobre técnicas de escalada y colecta de muestras para estudios anatómicos en el bosque tropical caducifolio durante curso "Técnicas aplicadas para la botánica de campo" con Víctor Steinmann, Programa de Posgrado del Instituto de Ecología, A.C. 8 horas.

2009 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2009-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana). 11 de agosto del 2009 – 3 de diciembre del 2008.

2009 Tropical dry forest field biology at the Chamela research station, 31 October-3 November 2009 for fifth semester undergraduates of the Environmental Sciences degree program, UNAM. Team taught with Alejandro Casas and Alicia Castillo.

2010 "Redacción científica en inglés" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2011-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana). 11 de agosto del 2010 – 1 de diciembre del 2010.

2011 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2011-2. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana). 8 de febrero del 2011 – 3 de junio del 2011.

2012 "Redacción científica en inglés" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2012-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2014 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 26-29 marzo 2014, 4 horas al día, 16 horas total.

2014 "Scientific Writing in English" para el Pos-Graduação en Ciências Biológicas (Botânica), Universidad Paulista Botucatu, Brasil. 7-9 de octubre de 2014, 4 horas al día.

2014 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2014-2. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2014 "Redacción científica en inglés" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2015-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2015 "Redacción científica en inglés" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2016-1. 16 sesiones, 4 sesiones por semana de 4 horas c/u

2015 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 23-26 marzo 2015, 4 horas al día, 16 horas total.

2016 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2015-2. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2016 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 15-18 feb 2016, 4 horas al día, 16 horas total.

2017 "Redacción científica en inglés" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2017-2. 16 sesiones, 4 sesiones por semana de 4 horas c/u

2017 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 6-10 marzo 2017, 4 horas al día, 20 horas total.

2017 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2018-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2018 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 12-16 marzo 2018, 4 horas al día, 20 horas total.

2018 Curso "Patrones filogenéticos, macroevolución y adaptación" para el Posgrado en Ciencias Biológicas de la UNAM Semestre 2019-1. 32 sesiones, 2 sesiones por semana de 2 horas c/u (= 4 horas/semana).

2019 "Scientific Writing in English," curso obligatorio de PhD en el Departamento de Territorio, Ambiente, Agricultura y Ciencias Forestales, 15-19 April 2010, 4 horas al día, 20 horas total.

2021 Rasgos funcionales de plantas: desde la delimitación de una pregunta hasta la comunicación de los resultados. Instituto de Biología. 22 de septiembre de 2020 - 28 de enero de 2021.

2021 Patrones filogenéticos, macroevolución y adaptación. Instituto de Biología. 17 de agosto - 11 de noviembre de 2021.

Workshops

2005 Curso intensivo de campo "Práctica de Investigación en la Estación de Biología Los Tuxtlas" para 12 estudiantes de bachillerato del Sistema Incorporado, a través de la Dirección General de Incorporación y Revalidación de Estudios. 9-13 marzo 2005.

2006 Curso intensivo de campo "Práctica de Investigación en la Estación de Biología Los Tuxtlas" para 9 estudiantes de bachillerato del Sistema Incorporado, a través de la Dirección General de Incorporación y Revalidación de Estudios. 9-13 febrero 2006.

2006-2008 Taller "Genética evolutiva: de las bacterias a los grandes clados de angiospermas". Facultad de Ciencias, UNAM.

2010 Taller intensivo "Redacción científica en inglés" 22-26 February 2010, a través de la *Revista Mexicana de Biodiversidad.* Institute of Biology, UNAM. 5 sesiones de 3 horas c/u.

2010 Taller intensivo "Redacción científica en inglés" 10-12 abril 2016, Merck México. 3 sesiones de 5 horas c/u.

Curricula

Módulos sobre mi investigación para cuatro niveles: 1. Hasta 2º año de la primaria; 2. años 3-5 de la primaria; 3. secundaria; 4. preparatoria (*el ejemplo presentado aquí*). Estos módulos se insertan en un programa de estudios sobre la exploración. Disponible mundialmente del sitio de National Geographic Xpeditions.

Módulos sobre mi investigación para cuatro niveles: 1. Hasta 2º año de la primaria; 2. años 3-5 de la primaria; 3. secundaria (*el ejemplo presentado aquí*); 4. preparatoria. Estos módulos se insertan en un programa de estudios sobre la conservación. Disponible mundialmente del sitio de National Geographic Xpeditions.

FUNDED PROJECTS

1992 Lompoc Botanical Society, Santa Barbara County, CA. $1200 para documentación de aguajes estacionales de Santa Barbara County.

1997 US Cactus and Succulent Society. $1.800 para la construcción de un invernadero en Santa Barbara, California, para el cultivo de *Moringa* para estudios de ontogenia.

1998 United States National Science Foundation Doctoral Dissertation Improvement Grant DEB-9801128. Heterochrony in the dry tropics: the Moringaceae. $12500 para trabajo de laboratorio.

1998 (13 enero de 1998-29 de febrero de 2000) National Geographic Society Committee for Research and Exploration Grant #6141-98 $18000 para trabajos de campo en zonas tropicales secas de Africa, Asia y Madagascar, y trabajo de laboratorio en los EEUU. (Véase National Geographic Magazine noviembre 1999, vol. 196(5) artículo en la sección Earth Almanac "Strange plants abound in tropical dry forests" para un resumen de este trabajo).

2002 Dirección General de Asuntos del Personal Académico/Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica, UNAM. Un enfoque con base en caracteres multiples para el estudio de la evolución estructural en las angiospermas $190500 para equipo de laboratorio, trabajo de campo y becas para estudiantes (con S. Magallón).

2003 (13 de enero) National Geographic Society Committee for Research and Exploration Grant # 7400-03. US$16000 (MXN$202,010, tipo de cambio ene 2013) para el proyecto "An aerial view of plant life form diversity in the Mexican dry tropics".

2003 (17 mayo de 2004) US Cactus and Succulent Society. US$1600 (MXN$18,502.04, tipo de cambio del mayo del 2004) para el estudio de biomecánica de *Bursera*

2005 (28 de octubre) Consejo Nacional de Ciencia y Tecnología. $3,566,900 para proyecto número 46475 "Diversificación de angiospermas de México: relojes moleculares, tasas de especiación, biomecánica y espacios ecológicos". Corresponsable con Luis E. Eguiarte Fruns.

2007 Dirección General de Asuntos del Personal Académico/Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica, UNAM. $486,193 para el proyecto "El método comparativo filogenético y la evolución estructural en las plantas". Corresponsable: Dra. Rebeca Aguirre Hernández, Facultad de Medicina, UNAM.

2010 National Geographic Society Committee for Research and Exploration grant # 8701-09. US$18,214.00 (MXN$223,491.00, tipo de cambio de mayo del 2010), "The geographic origin of the poinsettia and the evolution of morphology under domestication."

2010 Consejo Nacional de Ciencia y Tecnología. $4,393,827 para proyecto número 132404 *"*La evolución de fenotipos complejos: el valor adaptativo de la

integración”

2013 Trees for Life. Moringa germplasm rescue. US$15,000 (MXN$189,623.00 tipo de cambio de 2013) para el establecimiento de un jardín botánico del género *Moringa* en la costa de Jalisco e investigación aplicada y básica correspondiente.

2015 UC-MEXUS. Plant hydraulics and vegetation height response to climate change. US$25,000 (MXN$382,120.00 tipo de cambio de 2015) para investigación sobre las causas de la mortalidad global de árboles altos.

2015 Dirección General de Asuntos del Personal Académico/Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica, UNAM. $635,176 para el proyecto “Estudios aplicados en el "árbol milagro" *Moringa*”.

2018 PAPIIT “”IN210719 “Técnicas específicas para reducir la mortalidad forestal ante la sequía inducida por el cambio climático”, $780,000.00.

2018 Conacyt Ciencia Básica A1-S-26934 “Cambio climático y la adaptación de las plantas a la sequía” $1,999,019.00

CONSULTING

2004-2005 Asesoría técnica a Fundación Agape IAP en Pochutla, Oaxaca, con cultivos de *Moringa oleifera*

2005 Asesoría técnica en cultivos de *Moringa oleifera* a Jesús González Pérez, incluyendo visitas a las plantaciones en Morelos

2007 Plática “Usos y potencial de la *Moringa oleifera*” como parte del II Foro de Tecnologías Alternativas para el Desarrollo Rural, SEMARNAT/ Gobierno de Morelos, Oaxtepec, Morelos, 26 septiembre de 2007.

2010 Organicé y conduje la Primera Reunión Nacional de Productores y Distribuidores de la Moringa, Instituto de Biología, UNAM, 12 de enero

2010 Organicé y conduje la Segunda Reunión Nacional de Productores y Distribuidores de la Moringa, Instituto de Biología, UNAM, 18 de octubre

REVIEWING

Acta Botánica Mexicana; Alcheringa; Allertonia; American Journal of Botany; Annals of Botany; Australian Journal of Botany; Boletín de la Sociedad Mexicana de Botánica; Botanical Journal of the Linnean Society; Botanical Science; Ecology and Evolution; Ecology Letters; Economic Botany; Evolution; Frontiers in Ecology and Evolution; Frontiers in Plant Genetics and Genomics; Functional Ecology; IAWA Journal; International Journal of Plant Sciences; Journal of Ecology; Journal of Evolutionary Biology; Journal of the Botanical Research Institute of Texas; Journal of Tropical Forest Science; Methods in Ecology and Evolution; Molecular Phylogenetics and Evolution; Nature; New Phytologist; Oryx; Phytomorphology; Plant Biosystems; Plant, Cell, and Environment; Proceedings of the National Academy of Science; Proceedings of the Royal Society B: Biological Sciences; Protein and Peptide Letters; Revista Mexicana de Biodiversidad; Science; Systematic Botany; Tree Physiology; Trees Structure and Function; Trends in Ecology and Evolution.

Revisor de proyectos para CONACYT, National Geographic Society Committee for

Research and Exploration, United States National Science Foundation, PAPIIT.

Board of Advisors, *New Phytologist*, 1 Jan 2022- present

Edited, together with Marcelo Pace, Carlquist tribute in *IAWA Journal* 2023

Rojas-Pina, V.Alvarado-Cardenas, L.O., 2016. *Beaucarnea* olsonii (Ruscaceae), a new species of ponytail palm from southwestern Puebla, Mexico. *Phytotaxa*, 286(1), pp.13-22.

INSTITUTIONAL DEVELOPMENT

Within UNAM

2004 Participación en el jurado el I Congreso del IBUNAM, 8-9 diciembre 2004.

2005-presente Participación como editor del uso del idioma inglés para la *Revista Mexicana de Biodiversidad*

2005 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Maestría en Biología Ambiental). Mayo y noviembre de 2005.

2006 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Maestría en Biología Ambiental). mayo de 2006.

2006 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Doctorado en Ciencias). noviembre de 2006

2006 Participación en el "Taller para el establecimiento de crierios de evaluación del personal académico del IBUNAM" Hotel Pedregal Palace, México, DF 28 de agosto de 2006.

2006-2008 Representante de los Tutores del Insituto de Biología ante el Comité de Posgrado en Ciencias Biológicas para el periodo marzo 2006- marzo 2008.

2007 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Doctorado en Ciencias). mayo de 2007.

2008 Presidente del Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Doctorado en Ciencias). noviembre de 2008

2008-2010 Representante titular del Departamento de Botánica ante el Consejo Interno del Instituto de Biología, UNAM

2009-*presente* Digitalización de miles de mis diapositivas de plantas del mundo para el portal Irekani de la Unidad de Informática para la Biodiversidad del Instituto de Biología, UNAM: http://unibio.unam.mx/irekani/

2009 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Doctorado en Ciencias). 18 de noviembre del 2009.

2010-2012 Miembro externo del Comité Evaluadora para el Programa de Primas al Desempeño del Personal Académico de Tiempo Completo del Instituto de Ecología, UNAM

2010-2012 Representante suplente del Departamento de Botánica ante el Consejo Interno del Instituto de Biología, UNAM
2010 Subcomité de Admisión encargado de los proceso de evaluación para ingresar al Posgrado en Ciencias Biológicas (Doctorado en Ciencias). 29 de noviembre del 2010.
2010 Contribución de fotografías para ilustrar el Atlas de las Plantas de la Medicina Tradicional Mexicana, de la Bibiolteca Digital de la Medicina Tradicional Mexicana, del Programa Universitario México Nación Multicultural
2010 Contribución de fotografías para el portal de la Unidad de Informática del Instituto de Química, UNAM
2010 Taller de la Revista Mexicana de Biodiversidad: Redacción Científica en Inglés, 22-26 Feb 2010.
2010 Traducción del español al inglés del folleto que acompañó al calendario 2010 del Instituto de Biología "Especies mexicanas del bicentenario."
2014 Participación en el evento "Puertas abiertas" de la Estación de Biología Tropical "Chamela," 6 de dicembre de 2014
2015 Contribución de fotografías para el portal de la Unidad de Informática del Instituto de Química, UNAM, 21 de mayo de 2015
2015 Contribución de fotografías para el portal de la Unidad de Informática del Instituto de Química, UNAM, 16 de junio de 2015
fotos Pabellón, entrevistas
22022-2024 Representante suplente del Departamento de Botánica ante el Consejo Interno del Instituto de Biología, UNAM

Outside UNAM
2006 Participación el el "Subgrupo Plantas" encargado de los trabajos en materia nde normalización durante la modificación de la NOM-059-SEMARNAT-2001.
2006 Fichas técnicas evaluando el estado de conservación de las especies mexicanas del clado *Pedilanthus* de *Euphorbia* (Euphorbiaceae) para inclusión o no en la NOM-059-SEMARNAT-2001.
2022 Kaplan Award Committee, Botanical Society Of America 1 January 2022-31 December 2023

OUTREACH (SELECTED EXAMPLES)

1994 Artículo Olson, M. E. 1994. Julianiaceae. *The World of Plants Weekly Encyclopaedia* 32 (3): 235-236. Asahi Shimbun, Chuo-ku, Japón.
1998- presente Mi página web www.explorelifeonearth.org
1999 Huntington Botanical Garden. Simposio "Results of the Last Century's Botanical Exploration": "Living collections of Moringaceae: What are they good for?"; 19 de octubre de 1999
1999 Washington University Herpetology Group. "Reptiles, amphibians, and other animals of Madagascar"; 30 de octubre 1999
2000 Midwest Cactus and Succulent Congress. "The succulent hobby and conservation

of dryland plants"; 16 de junio de 2000

2002 Plática “Biología en el campo: importante, divertida, peligrosa y a veces triste”. Museo de las Ciencias *Universum*, junio 2002.

2002- presente. Alrededor de 50 asesorías por año por vía electrónica sobre la biología, cultivo y la propagación de *Moringa oleifera* y otras plantas del trópico seco a nivel mundial.

2003 Artículo de divulgación Olson, M. E.N. I. Cacho. 2003. Redescubrimiento de planta mexicana el norte de Pochutla. *El Faro* 29 (14 de agosto): 7.

2003 Plática “El universo biomecánico de las plantas y la evolución de tallos rígidos a partir de ancestros trepadores”. Insituto de Biología, UNAM, 26 de agosto de 2003.

2003 Plática “Diversification in the plant biomechanical universe”, como parte de la serie “Coloquios del Departamento de Botánica” de la Universidad de Wisconsin-Madison, 20 de noviembre del 2003.

2004 Artículo de National Geographic News “Scaring up ghost plants in Mexico” acerca de mi investigación sobre las plantas mexicanas que no han sido colectadas en más de 50 años. 17 de marzo de 2004.

2004 Entrevista en programa radiofónica “Debates en la Ciencia” de Radio UNAM, conducido por el Dr. René Drucker Colín, 4 de marzo de 2004.

2004 Artículo sobre los Xalapazcos de los Llanos de Puebla y el Valle de Tehuacán basado en una entrevista conmigo en *National Geographic Adventure* noviembre 2004, p 26.

2004 University of Arizona-Tucson. Serie de Seminarios del Departamento de Ecología y Evolución: “Diversification in the plant biomechanical universe”. Tucson, Arizona, EEUU.; 3 de abril de 2004.

2004 Video en internet sobre mi investigación y mi trayectoria personal y académica como parte del nombramiento “Emerging Explorer” de National Geographic, www. nationalgeographic.com/ emerging/profiles/olson.html.

2005 Entrevista sobre la imporatancia de la biodiversidad para el programa “Mundo de Trabajo” elaborado por parte de la Secretaria del Trabajo y Previsión Social, 21 de abril de 2005.

2005 Cápsula “Diversificación morfológica, anatomía y biomecánica en plantas” para la serie radiofónica “¿Por qué me dedico a la ciencia?”, Dirección General de Divulgación de la Ciencia, 13 de mayo de 2005.

2005 Plática “¿Fractales por dentro y por fuera? Escalamiento universal en los árboles” Insituto de Biología, UNAM, 2 de agosto de 2005.

2005 Plática para 1500 estudiantes de enseñanza media hispanos “Biological Exploration in Mexico”. Semana Hispana de Ingeniería, Ciencia y Tecnología, Sesión sobre Geografía, University of Texas-Pan American, Edinburg, Texas, EEUU. http://www.panam.edu/2000/news/index.cfm. http://www.hestec.org/olson.html. 29 de septiembre de 2005.

2005 Entrevista sobre la importancia de la biodiversidad para Telemundo. Edinburg, Texas. 28 de septiembre de 2005.

2005 Artículo sobre mi participación en el "Geography summit" de la Semana Hispana de Ingeniería, Ciencia y Tecnología, Sesión sobre Geografía, University of Texas-Pan American, Edinburg, Texas, EEUU.

2005 Plática abierta "Botanical Exploration in Mexico". Exposición "Focus on Mexico", Frelinghuysen Arboretum, Morristown, Nueva Jersey, EEUU. 25 de septiembre de 2005.

2005 Anuncios periodísticos sobre mi plática "Botanical Exploration in Mexico". Exposición "Focus on Mexico", Frelinghuysen Arboretum, Morristown, Nueva Jersey, EEUU. 25 de septiembre de 2005.

2005 Video sobre mi investigació disponible en podcast ditribuido por parte de National Public Radio, EUU y parte de la programación del National Geographic Chanel y Televisión Pública en los EEUU durante 2005 y 2006.

2005 Participación en el video "Moringa. The Miracle Tree" de Producciones Dan Birman. Junio de 2005.

2006 Plática "Radiación adaptativa en las plantas" a estudiantes de Biología del CCH Sur, Sistema de Laboratorios para el Desarrollo y la Innovación, turno matutino, 3 de abril de 2006.

2006 Entrevista con el tema "Percepción remota" para programa de televisión "Ciencia ¿para qué?", conducido por el Dr. René Drucker Colín transmitido el 31 de marzo de 2006 en TVUNAM.

2006 Artículo sobre mi investigación en la revista *Washington Unversity* de verano de 2006.

2006 Conferencia Magistral "Radiación adaptativa en las plantas" dentro del "Ciclo de conferencias sobre tópicos actuales de biodiversidad", Departamento de Biología Evolutiva de la Facultad de Ciencias, UNAM, 23 de octubre de 2006.

2006 Curso de Evolución Molecular del Posgrado en Ciencias Biológicas, UNAM: Plática "Introducción a los métodos comparativos filogenéticos". México, D. F.; semestre 2005-2.

2007 Plática "Radiación adaptativa en las plantas" a estudiantes de Biología del CCH Sur, Sistema de Laboratorios para el Desarrollo y la Innovación, turno matutino, 25 de abril de 2007.

2007 Plática "Alometría, plasticidad y la mesa de billar epigenética de los árboles" Insituto de Biología, UNAM, 2 de agosto de 2005.

2007 Artículo sobre *Moringa oleifera*, *Reforma* 18 de octubre de 2007.

2009 Ewing, E. Professor paramotor. Artículo sobre mi investigación en *Paramotor Magazine* 16 Dec-Jan, pp. 52-53

2009 Entrevista sobre nuestra investigación sobre *Moringa* el el periódico Es Más, 27 de julio de 2009

2009 Lopez P. La moringa, útil para mejorar la nutrición. *Gaceta UNAM* 17 agosto, p. 11.

2009 Conferencia de divulgación científica para profesores de secundaria y bachillerato "Distribución geográfica de plantas," 3 de octubre de 2009

2010 Entrevista en el programa "Animal Nocturno" con Ricardo Rocha y Patricia Llaca, sobre Olson et al. 2009 *Ecology Letters*, 2 de febrero de 2010

2010 Plática de divulgación "México Megadiversidad de Plantas" en el marco de la XXXI Feria Internacional del Libro del Palacio de Mineria, marzo de 2010

2010 Miembro del panel en programa televisivo "La biodiversidad de México: herencia en peligro", episodio "Maravillas de la biodiversidad" 10 de abril en TeleUNAM

2010 Plática de divulgación "Plantas útiles de México para el mundo," Feria de las Ciencias, Escuela Secundaria Técnica Particular "Agustín García Conde," 25 de mayo de 2010

2010 Porqué no ir al cine con botánicos: explicando la distribución de las plantas. Universum, 7 Nov 2010.

2010 Coloquio "Potencial del árbol moringa den el desarrollo nacional", Culiacán, Sinaloa, 15 de noviembre 2010

2010 Reportaje televisivo sobre nuestra investigación sobre el origen geográfico de la nochebuena *Euphorbia pulcherrima* en TV EsMás

2010 Reportaje periodístico sobre nuestra investigación sobre el origen geográfico de la nochebuena Euphorbia pulcherrima en noticias.universia.net, 17 de diciembre de 2010

2011 Plática de divulgación "Biología Evolutiva," ENP-UNAM Plantel 3 "Justo Sierra," 3 de marzo de 2011

2011 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" Moringa oleifera, Inter Press News Agency "Mexico: food from trees to fight malnutrition," 4 de marzo de 2011

2011 México olvida a la moringa como remedio vegetal contra la desnutrición, reportaje periodístico sobre nuestra investigación sobre el "árbol milagro," *Moringa oleifera* en periódico Vox, 27 de septiembre de 2011

2011 MEXICO: Food from Trees to Fight Malnutrition, reportaje periodístico sobre nuestra investigación sobre el "árbol milagro," *Moringa oleifera* en periódico Global Issues, http://www.globalissues.org/, 29 de septiembre de 2011

2011 Plática de divulgación "Evolución y usos de la flora mexicana," Curso de Formación en Comunicación de la Ciencia, Dirección General de Divulgación de la Ciencia, UNAM, 18 de octubre de 2011

2012 Blog "Evolutionary Psychology" sobre Olson 2012 *TREE*, 26 de marzo de 2012

2012 Renton, K., P. Balvanera, M. E. Olson y A. Castillo (ilustraciones Mark Olson). 2012. *¿Por qué es importante el monte?* UNAM ISBN 978-607-02-3733-1.

2012 Artículo sobre nuestra investigación sobre la mortalidad de árboles en todo el mundo por el cambio climático, blog *Biological Posteriors*, 28 de diciembre de 2012

2012 La Nochebuena, una de las plantas más importantes a escala mundial. Periódico La Jornada, 12 de diciembre de 2012.

2012 Estudiantes de la UNAM descubren que la Nochebuena procede del norte de Guerrero. Periódico El Milenio, 12 de diciembre de 2012.

2012 Reportaje sobre Olson, M. E. 2012. The renaissance of development in adaptationism. *Trends in Ecology and Evolution*. http://web.sas.upenn.edu/kurzbanepblog/2012/03/26/guest-post-evolution-is-the-control-of-development-by-ecology/

2013 México megadiverso. Plática en la Escuela Secundaria Técnica Particular No. 2 "Agustín García Conde," Tlalpan, DF, como parte de su evento "Semana de la Ciencia" del lunes 18 de febrero 2013 al viernes 22 de febrero del 2013

2013 Plomería vegetal. Por Guillermo Ángeles Álvarez. Incluye teoría de Olson y Rosell 2013. http://www.bio-gea.org/2015/11/plomeria-vegetal.html

2013 Reportaje periodístico sobre especies en peligro de extinción en México, incluyendo nuestro trabajo sobre especies de *Euphorbia* extintas en el periódico 24 Horas, 19 de mayo de 2013

2013 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" *Moringa oleifera* de la Dirección General de Divulgación de la Ciencia, 25 de junio de 2013

2013 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" *Moringa oleifera* en el Publimetro, 13 de agosto de 2013

2014 Visita guiada del Jardín Botánico del IB para artistas botánicos, 3 de marzo de 2014

2014 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" Moringa oleifera del periódico SuMedico, 25 de junio de 2014

2014 Cartel en estaciones de Metro, etc. "UNAMirada a la Ciencia" sobre nuestra investigación sobre el origen geográfico de la nochebuena Euphorbia pulcherrima "Nochebuena: tan mexicana como el nopal." Año VIII, Núm 97, 2014

2015 Reportaje periodístico (y foto en la portada) sobre nuestra investigación sobre las causas de la muerte por cambio climático de árboles a nivel mundial "La ciencia de escalar árboles," en la sección "Dominical" del periódico Milenio, 15 de febrero de 2015

2015 Reportaje televisivo sobre nuestra investigación sobre las causas de la muerte por cambio climático de árboles a nivel mundial, en el programa "Creadores Universitarios" de Noticieros Televisa, 24 de febrero de 2015

2015 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" *Moringa oleifera* del periódico Veracruzenred.com, 4 de marzo de 2015

2015 Plática de divulgación "México: megadiversidad de plantas," Jardín Etnobotánico de Oaxaca, 15 de mayo de 2015

2016 Can superfoods boost the planet's health too?, por Rachel Cernasky. (http://ensia.com/features/cansuperfoodsboosttheplanetshealthtoo/) 19 de abril del 2016

2016 Meet the moringa tree: an overqualified, underachieving superfood, por Amanda Little. *New Yorker* 27 de junio de 2016

2016 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" *Moringa oleifera*, jagran.com, 11 de julio de 2016

2017 Reportaje periodístico sobre nuestra investigación sobre el "árbol milagro" *Moringa oleifera* "Why moringa is the new superfood you need to know about," por Claudia McNeilly *Vogue*, 3 de mayo de 2017

2017 How to study adaptation the proper way. Ensayo divulgativo sobre Olson y Arroyo-Santos 2015. https://platofootnote.wordpress.com/ 2017/06/26/how-to-properly-study-adaptation/

2017 Los árboles más espectaculares del mundo. Noticieros Televisa 28 jun. Mark Olson, investigador de la UNAM colaboró para seleccionar algunos de los árboles más espectaculares del mundo. *https://noticieros.televisa.com/videos/los-arboles-mas-espectaculares-mundo/*

2017 Prefacio de la novela "edu-tenimiento" sobre la conservación de la biodiversidad *Tooth and Claw* Eoclogía-CSIC, 21 de diciembre de 2017

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "Sequía por cambio climático, factor mortal en grandes árboles. UNAM," Teorema Ambiental, 27 de junio de 2018

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "Sequías son responsables de la muerte de grandes árboles, según un estudio," Vanguardia, 4 de julio de 2018

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "Las 'cañerías' de los árboles influyen en su resistencia al cambio climático," por parte del Instituto Pirenaico de Ecología-CSIC, 11 de julio de 2018

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "Las 'cañerías' de los árboles influyen en su resistencia al cambio climático," por parte del Servicio de Información y Noticias Científicas, 13 de julio de 2018

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "La altura de los árboles, clave para evitar que mueran por sequías," por parte de SciDev, 1 de agosto de 2018

2018 Reportaje periodístico sobre nuestra investigación sobre la causa de la mortalidad global de los árboles con el cambio climático "Warming climate boosts plants' height and vulnerability," Day, C., Physics Today 71: 21, 1 de agosto de 2018

2021 Reportaje "Estudio de la UNAM revela grandes beneficios de la moringa, ¿Cuáles son?" 29 de enero del 2021. https://heraldodemexico.com.mx/nacional/2021/1/29/estudio-de -la-unam-revela-grandes-beneficios-de-la-moringa-cuales-son- 250737.html

2021 "Moringa: estudio de la UNAM revela los beneficios reales del árbol mexicano" 14 de Febrero de 2021 https://www.infobae.com/america/mexico/2021/02/14/moringa- estudio-de-la-unam- revela-los-beneficios-reales-del-arbol- mexicano/

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2021 Ramos, Eliesheva. "¿La moringa es tan buena como dicen? Especialistas dicen sí" 8 de marzo del 2021. https://selecciones.com.mx/la-moringa-es-tan-buena-como-dicen-especialistas-dicen-si/

2021 Robledo, Karen. "Moringa ¿por qué se considera un árbol milagroso?" 12 de marzo del 2021. Revista Plumas Atomicas

https://plumasatomicas.com/noticias/mexico/moringa-por-que- se-considera-un-arbol-milagroso/

2022 Entrevista para artículo "Morfología, anatomía y función" para El Faro 200 especial, año xxi

ORGANIZATION OF ACADEMIC EVENTS

2006 Organización de Simposio “Radiaciones adaptativas: procesos ecológicos y patrones filogenéticos”, como parte del Congreso Mexicano de Ecología, Morelia Michoacán. 28 noviembre 2006.

2007 Organización de Simposio “Radiaciones vegetales que han moldeado el paisaje mexicano”, como parte del Congreso Mexicano de Botánica, Zacatecas, Zac. 17 octubre 2007.

2015 Comité científico del Primer Simposio Internacional de la Moringa, Manila, Filipinas. 15-18 November 2015.

Botanical Society of America Professional Conduct Disclosure Form

Completed by (your name) Cynthia Jones
In reference to (nominee's name or speaker's name) Mark Olson
Your relationship to nominee I have met him and am aware of his work; we do not have a personal friendship.

*Circle one **answer** for each statement)*

To the best of my knowledge,

1. X **Yes** **No** **Abstain** I attest that the nominee has strong scientific integrity.
2. X **Yes** **No** **Abstain** I attest that the nominee treats students, mentees, staff, and colleagues with professional behavior, both within and outside the discipline of Botany.
3. X **Yes** **No** **Abstain** **I** attest the nominee does not practice nor allow discrimination or harassment in any form, and when they perceive it in the action of others, they take appropriate corrective steps.
4. X **Yes** **No** **Abstain** I attest the nominee has not been the subject of a filed allegation, complaint, investigation, sanction or other legal, civil or institutional proceeding, where there was a finding of misconduct, nor are they currently the subject of such an allegation, complaint, or investigation in which their professional conduct is at issue.

By completing this form, I consent to being contacted for follow up questions.

SIGNATURE Cynthia Jones DATE January 22, 2024

Preferred contact information (phone or email): cynthia.s.jones@uconn.edu

_____I request to be contacted soon by a member of the search committee to further discuss any of my answers or any concerns about the nominee.

(For Award Self Nominations Only)
I affirm that I have read, understand, and agree to abide by the Botanical Society of America Guidelines for Professional Ethics https://botany.org/home/governance/guidelines-for-professional-ethics.html. By signing this document, I certify that, to the best of my knowledge, the above response and all information provided by me related to this Professional Conduct Disclosure Form are truthful, accurate, and complete, and I agree to notify BSA promptly of any material changes required in my responses to the above question. I acknowledge that failure to comply with BSA's policies may result in my ineligibility to receive, or revocation of, any BSA award, honor, other type of BSA recognition, or governance position, and is grounds for potential sanctions against me.

SIGNATURE_____ DATE_____

Botanical Society of America Professional Conduct Disclosure Form

Completed by (your name) Erika Edwards
In reference to (nominee's name or speaker's name) Mark Olson
Your relationship to nominee collaborator

*Circle one **answer** for each statement)*

To the best of my knowledge,

1. **Yes** **No** **Abstain** I attest that the nominee has strong scientific integrity.
2. **Yes** **No** **Abstain** I attest that the nominee treats students, mentees, staff, and colleagues with professional behavior, both within and outside the discipline of Botany.
3. **Yes** **No** **Abstain** **I** attest the nominee does not practice nor allow discrimination or harassment in any form, and when they perceive it in the action of others, they take appropriate corrective steps.
4. **Yes** **No** **Abstain** I attest the nominee has not been the subject of a filed allegation, complaint, investigation, sanction or other legal, civil or institutional proceeding, where there was a finding of misconduct, nor are they currently the subject of such an allegation, complaint, or investigation in which their professional conduct is at issue.

By completing this form, I consent to being contacted for follow up questions.

SIGNATURE_____ DATE 25 January 2024

Preferred contact information (phone or email): erika.edwards@yale.edu

X I request to be contacted soon by a member of the search committee to further discuss any of my answers or any concerns about the nominee.

(For Award Self Nominations Only)
I affirm that I have read, understand, and agree to abide by the Botanical Society of America Guidelines for Professional Ethics https://botany.org/home/governance/guidelines-for-professional-ethics.html. By signing this document, I certify that, to the best of my knowledge, the above response and all information provided by me related to this Professional Conduct Disclosure Form are truthful, accurate, and complete, and I agree to notify BSA promptly of any material changes required in my responses to the above question. I acknowledge that failure to comply with BSA's policies may result in my ineligibility to receive, or revocation of, any BSA award, honor, other type of BSA recognition, or governance position, and is grounds for potential sanctions against me.

SIGNATURE_____ DATE_____

Botanical Society of America Professional Conduct Disclosure Form

Completed by (your name) Marcelo R. Pace
In reference to (nominee's name or speaker's name) Mark E. Olson
Your relationship to nominee co-workers at Institute

*Circle one **answer** for each statement)*

To the best of my knowledge,

1. **Yes** **No** **Abstain** I attest that the nominee has strong scientific integrity.
2. **Yes** **No** **Abstain** I attest that the nominee treats students, mentees, staff, and colleagues with professional behavior, both within and outside the discipline of Botany.
3. **Yes** **No** **Abstain** **I** attest the nominee does not practice nor allow discrimination or harassment in any form, and when they perceive it in the action of others, they take appropriate corrective steps.
4. **Yes** **No** **Abstain** I attest the nominee has not been the subject of a filed allegation, complaint, investigation, sanction or other legal, civil or institutional proceeding, where there was a finding of misconduct, nor are they currently the subject of such an allegation, complaint, or investigation in which their professional conduct is at issue.

By completing this form, I consent to being contacted for follow up questions.

SIGNATURE Marcelo R. Pace DATE 24 January 2024

Preferred contact information (phone or email): e-mail

_____I request to be contacted soon by a member of the search committee to further discuss any of my answers or any concerns about the nominee.

(For Award Self Nominations Only)
I affirm that I have read, understand, and agree to abide by the Botanical Society of America Guidelines for Professional Ethics https://botany.org/home/governance/guidelines-for-professional-ethics.html. By signing this document, I certify that, to the best of my knowledge, the above response and all information provided by me related to this Professional Conduct Disclosure Form are truthful, accurate, and complete, and I agree to notify BSA promptly of any material changes required in my responses to the above question. I acknowledge that failure to comply with BSA's policies may result in my ineligibility to receive, or revocation of, any BSA award, honor, other type of BSA recognition, or governance position, and is grounds for potential sanctions against me.

SIGNATURE_____ DATE_____

Botanical Society of America Professional Conduct Disclosure Form

Completed by (your name) William Edward Friedman
In reference to (nominee's name or speaker's name) Mark Olson
Your relationship to nominee Colleague

*Circle one **answer** for each statement)*

To the best of my knowledge,

1. **Yes** **No** **Abstain** I attest that the nominee has strong scientific integrity.
2. **Yes** **No** **Abstain** I attest that the nominee treats students, mentees, staff, and colleagues with professional behavior, both within and outside the discipline of Botany.
3. **Yes** **No** **Abstain** **I** attest the nominee does not practice nor allow discrimination or harassment in any form, and when they perceive it in the action of others, they take appropriate corrective steps.
4. **Yes** **No** **Abstain** I attest the nominee has not been the subject of a filed allegation, complaint, investigation, sanction or other legal, civil or institutional proceeding, where there was a finding of misconduct, nor are they currently the subject of such an allegation, complaint, or investigation in which their professional conduct is at issue.

By completing this form, I consent to being contacted for follow up questions.

SIGNATURE William E. Friedman DATE 1/31/24

Preferred contact information (phone or email): ned@oeb.harvard.edu

_____I request to be contacted soon by a member of the search committee to further discuss any of my answers or any concerns about the nominee.

(For Award Self Nominations Only)
I affirm that I have read, understand, and agree to abide by the Botanical Society of America Guidelines for Professional Ethics https://botany.org/home/governance/guidelines-for-professional-ethics.html. By signing this document, I certify that, to the best of my knowledge, the above response and all information provided by me related to this Professional Conduct Disclosure Form are truthful, accurate, and complete, and I agree to notify BSA promptly of any material changes required in my responses to the above question. I acknowledge that failure to comply with BSA's policies may result in my ineligibility to receive, or revocation of, any BSA award, honor, other type of BSA recognition, or governance position, and is grounds for potential sanctions against me.

SIGNATURE_____ DATE_____