

Jeffrey Ross-Ibarra

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Education

PhD Genetics, University of Georgia 2006
MS Botany, University of California Riverside 2000
BA Botany, University of California Riverside 1998

Academic Employment

Professor, Dept. Plant Sciences, University of California Davis 2016-present
Associate Professor, Dept. Plant Sciences, University of California Davis 2012-2016
Assistant Professor, Dept. Plant Sciences, University of California Davis 2009-2012
Postdoctoral Researcher (with BS Gaut), University of California Irvine 2006-2008
Profesor de Asignatura, Universidad Nacional Autónoma de México 2001

Selected Fellowships and Awards

Mid-Career Excellence in Maize Genetics Award 2016
Faculty Development Award in recognition of university service 2015
DuPont Young Professor Award 2012
Presidential Early Career Award for Scientists and Engineers 2009
Dean's Award for Postdoctoral Excellence, UC Irvine 2008

Instruction and Advising

Current (total) advisees: 2 (10) postdoc, 4 (5) graduate, 1 (20) undergraduate
Instructor, Frontiers and Techniques in Plant Science, CSHL, July 2015
Genetics (UC Davis, BIS 101, undergraduate), 2013-present
Ecological Genomics (UC Davis, ECS243, graduate), 2014-present
Faculty advisor, Pioneer Hi-Bred/CAES graduate student symposium in plant breeding, 2012-present
Faculty advisor, US-Mexico graduate student exchange program, 2011-2015
Population and Quantitative Genetics (GGG 201D, graduate), 2010-2013
Plant Genetics (PLS 152, undergraduate), 2010-2011
Biología de Plantas I (undergraduate), UNAM, 2001

Service: selected from last 2 years

University

College representative, UC Davis High Performance Computing Advisory Committee, 2016-present

UC Davis representative, UC-Mexico Initiative committee on the environment, 2014-present

Section Chair for Agricultural Plant Biology, 2014-present

Plant Sciences executive committee, 2014-present

Search committees: Dept. Chair of Plant Sciences (Chair, 2016), Director Genome Center Sequencing Core (2014)

Dept. of Plant Sciences academic planning committee, 2010-2016

Professional

Advisory Board, PeerJ Preprints, 2016-present

Editorial Boards: Genes, Genomes, and Genetics (2014-present), *PeerJ* (2013-present), Axios Reviews (2013-present), PLoS Genetics (Guest Editor, 2014)

External search committee member, Dept. Plant Biology, Swedish University of Agricultural Sciences

Journal peer review: Nature (3), Nature Genetics, eLife, Nature Plant (3), PLoS Genetics (4), eLife, Current Biology, Molecular Biology & Evolution (4), Genome Research (3), Genetics, Trends in Plant Science (2), Genome Biology & Evolution (2), Molecular Ecology (2), G3 (2), BMC Biology, PLoS ONE (2)

Proposal review: NSF (2016), Swiss National Science Foundation (2016), GWIS (2016), Israeli Science Foundation (2016)

Current Funding

NSF Plant Genome Research Program: "The genetics of highland adaptation in maize" (PI), 2016-2021

UC-Mexico Initiative: "Maize adaptation to climate in Mexico" (PI), 2015-2016

UCMEXUS: "Adaptive gene flow from teosinte to highland maize in central Mexico" (Co-PI), 2015-2016

NSF Plant Genome Research Program: "Biology of Rare Alleles" (Co-PI), 2013-2018

Invited Seminars: last 12 months

Max Planck Institute for Plant Breeding, Germany, July 2017

SMBE structural variation symposium, San Antonio, July 2017

Davis Science Cafe, Aug 2016

SMBE domestication symposium, Queensland, Australia, July 2016

UC Master Gardeners, May 2016

U. Arizona, Apr. 2016

Joint Genome Institute, Mar. 2016

U. Southern California, Feb. 2016

Publications (lab members in bold, *equal contribution, †cover article, ‡undergraduate, §corresponding)

Preprints

Renny-Byfield §, Rodgers-Melnick E, **Ross-Ibarra** J§. Gene fractionation and function in the ancient subgenomes of maize

Jiao Y, Peluso P, Shi J, Liang T, **Stitzer** MC, Wang B, Campbell M, Stein JC, Wei X, Chin C-S, Guill K, Regulski M, Kumari S, Olson A, Gent J, Schneider KL, Wolfgruber TK, May MR, Springer N, Antoniou E, McCombie R, Presting GG, McMullen M, **Ross-Ibarra** J, Dawe RK, Hastie A, Rank DR, Ware D. [The complex sequence landscape of maize revealed by single molecule technologies](#)

Yang J*, **Mezmouk** S*, Baumgarten A, Buckler ES, Guill KE, McMullen MD, Mumm RH, **Ross-Ibarra** J§. [Incomplete dominance of deleterious alleles contribute substantially to trait variation and heterosis in maize](#)

Bilinski P§, Han Y, **Hufford** MB, **Lorant** A, Zhang P, Jiang J, **Ross-Ibarra** J§. [Diverse origins of high copy tandem repeats in grass genomes](#)

O'Brien A§, Sawers R, **Ross-Ibarra** J, Straus SY§. [Extending the Stress-Gradient hypothesis: increased local adaptation between teosinte and soil biota at the stressful end of a climate gradient](#)

Bukowski R, Guo X, Lu Y, Zou C, He B, Rong Z, Wang B, Xu D, Yang B, Xie C, Fan L, Gao S, Xu X, Zhang G, Li Y, Jiao Y, Doebley K, **Ross-Ibarra** J, **Buffalo** V, Buckler ES, Xu Y, Lai J, Ware D, Sun Q. [Construction of the third generation *Zea mays* haplotype map](#)

In press or in print

H-Index 29 (3865 citations as of Mon Dec 19 15:37:15 2016)

61. **Velasco** D, Aradhya M, and **Ross-Ibarra** J§ (2016) Evolutionary genomics of peach and almond domestication. *G3 In press*
60. Ramos-Madriral J, Smith BD, Moreno-Mayar JV, Gopalakrishnan S, **Ross-Ibarra** J, Gilbert MTP, Wales N (2016) Genome sequence of a 5310-year-old maize cob provides insights into the early stages of maize domestication. *CURRENT BIOLOGY In Press*
59. **Durvasula** A†, Hoffman PJ*, **Kent** TV†, Liu C, Kono TJY, Morrell PL§, **Ross-Ibarra** J§ (2016) ANGSD-wrapper MOLECULAR ECOLOGY RESOURCES *In Press*
Citations: 0
58. **Beissinger** TM§, Wang L, **Crosby** K, **Durvasula** A†, Hufford MB, **Ross-Ibarra** J§ (2016) Recent demography drives changes in linked selection across the maize genome *NATURE PLANTS* 2:16084
Citations: 0
57. Wolfgruber TK, Nakashima MM, Schneider KL, Sharma A, Xie Z, Albert PS, Xu R, **Bilinski** P, Dawe RK, **Ross-Ibarra** J, Birchler JA, Presting G (2016) High quality maize centromere 10 sequence reveals evidence of frequent recombination events. *FRONTIERS IN PLANT SCIENCE* 7
Citations: 2
56. Orozco-Ramírez Q, Santacruz-Varela A, **Ross-Ibarra** J, Brush B (2016) Maize diversity associated with social origin and environmental variation in southern Mexico. *HEREDITY* 116:477-484.
Citations: 1

55. Gerke JP^S, Edwards JW, Guill KE, **Ross-Ibarra J^S**, McMullen MD. The genomic impacts of drift and selection for hybrid performance in maize (2015) *GENETICS* 201: 1201âһ Citations: 11
54. Sosso D, Luo D, Li Q-B, Sassse J, **Yang J**, Gendrot G, Suzuki M, Koch KE, McCarty DR, Chourey PS, Rogoswky PM, **Ross-Ibarra J**, Yang B, Frommer WB (2015) Seed filling in domesticated maize and rice depends on SWEET-mediated hexose transport. *NATURE GENETICS* 47:1489-1493 Citations: 10
53. **Takuno S**, Ralph P, Swarts K, Elshire RJ, Glaubitz JC, Buckler ES, **Hufford MB**, **Ross-Ibarra J^S** (2015) Independent molecular basis of convergent highland adaptation in maize. *GENETICS* 200:1297-1312 Citations: 10
52. **Vann LE**, **Kono T**, **Pyhäjärvi T**, **Hufford MB^S**, **Ross-Ibarra J^S** (2015) Natural variation in teosinte at the domestication locus teosinte branched1 (tb1). *PEERJ* 3:e900 Citations: 3
51. Hake S, **Ross-Ibarra J** (2015) Genetic, evolutionary and plant breeding insights from the domestication of maize. *ELIFE* 2015;4:e05861 Citations: 10
50. Fonseca RR, Smith B, Wales N, Cappellini E, Skoglund P, Fumagalli M, Samaniego JA, Caroe C, Avila-Arcos MC, Hufnagel D, Korneliussen TS, Vieira FG, Jakobsson M, Arriaza B, Willerslev E, Nielsen R, Hufford MB, Albrechtsen A, **Ross-Ibarra J**, Gilbert MT (2015) The origin and evolution of maize in the American Southwest. *NATURE PLANTS* 1:14003 Citations: 14
49. Dyer GA, López-Feldman A, Yúnez-Naude A, Taylor JE, **Ross-Ibarra J** (2015) Reply to Brush *et al.*: A wake up call for crop conservation science. *PNAS* 112 (1), E2-E2 (letter). Citations: 3
48. Makarevitch I, Waters M, West P, **Stitzer M**, **Ross-Ibarra, J**, Springer NM (2015) Mobile elements contribute to activation of genes in response to abiotic stress. *PLOS GENETICS* 11 (1): e1004915. Citations: 45
47. Tiffin P, **Ross-Ibarra J** (2014) Advances and limits of using population genetics to understand local adaptation. *TRENDS IN ECOLOGY AND EVOLUTION* 29:673-680 Citations: 57
46. **Bilinski P**, **Distor KD**, **Gutierrez-Lopez J**, **Mendoza Mendoza G**, Shi J, Dawe K, **Ross-Ibarra J^S** (2014) Diversity and evolution of centromere repeats in the maize genome. *CHROMOSOMA* 0009-5915 Citations: 7
45. **Mezmouk S**, **Ross-Ibarra J^S** (2014) The pattern and distribution of deleterious mutations in maize. (2014) *G3* 4:163-171 Citations: 14
44. Waters AJ, **Bilinski P**, Eichten SR, Vaughn MW, **Ross-Ibarra J**, Gehring M, Springer NM (2013) Comprehensive analysis of imprinted genes in maize reveals allelic variation for imprinting and limited conservation with other species. *PNAS* 110:19639-19644

Citations: 28

43. **Pyhäjärvi T, Hufford MB, Mezouk S, Ross-Ibarra J[§]** (2013) Complex patterns of local adaptation in teosinte. *GENOME BIOLOGY AND EVOLUTION* 5: 1594-1609.[†]
Citations: 42
42. Wills DM, Whipple C, **Takuno S**, Kursel LE, Shannon LM, **Ross-Ibarra J**, Doebley JF (2013) From many, one: genetic control of prolificacy during maize domestication. *PLoS GENETICS* 9(6): e1003604.
Citations: 27
41. McCouch S, Baute GJ, Bradeen J, Bramel P, Bretting PK, Buckler E, Burke JM, Charest D, Cloutier S, Cole G, Dempewolf H, Dingkuhn M, Feuillet C, Gepts P, Grattapaglia D, Guarino L, Jackson S, Knapp S, Langridge P, Lawton-Rauh A, Lijua Q, Lusty C, Michael T, Myles S, Naito K, Nelson RL, Pontarollo R, Richards CM, Rieseberg L, **Ross-Ibarra J**, Rounsley S, Hamilton RS, Schurr U, Stein N, Tomooka N, van der Knaap E, van Tassel D, Toll J, Valls J, Varshney RK, Ward J, Waugh R, Wenzl P, Zamir. (2013) Agriculture: Feeding the future. *NATURE* 499:23-24
Citations: 137
40. **Hufford MB**, Lubinsky P, **Pyhäjärvi T**, **Devenengo MT[†]**, Ellstrand NC, **Ross-Ibarra J[§]** (2013) The genomic signature of crop-wild introgression in maize. *PLoS GENETICS* 9(5): e1003477.
Citations: 66
39. **Provance MC[§]**, Garcia Ruiz I, **Thommes C[†]**, **Ross-Ibarra J** (2013) Population genetics and ethnobotany of cultivated *Diospyros riojae* Gómez Pompa (Ebenaceae), an endangered fruit crop from Mexico. *GENETIC RESOURCES AND CROP EVOLUTION* 60: 2171-2182.
Citations: 2
38. Melters DP*, Bradnam KR*, Young HA, Telis N, May MR, Ruby JG, Sebra R, Peluso P, Eid J, Rank D, Fernando Garcia J, DeRisi J, Smith T, Tobias C, **Ross-Ibarra J[§]**, Korf IF[§], Chan SW-L. (2013) Patterns of centromere tandem repeat evolution in 282 animal and plant genomes. *GENOME BIOLOGY* 14:R10
Citations: 89
37. Kanizay LB, **Pyhäjärvi T**, Lowry E, **Hufford MB**, Peterson DG, **Ross-Ibarra J**, Dawe RK (2013) Diversity and abundance of the Abnormal chromosome 10 meiotic drive complex in *Zea mays*. *HEREDITY* 110: 570-577.
Citations: 6
36. **Hufford MB**, Bilinski P, **Pyhäjärvi T**, **Ross-Ibarra J[§]** (2012) Teosinte as a model system for population and ecological genomics. *TRENDS IN GENETICS* 12:606-615[†]
Citations: 17
35. Muñoz Diez C, Vitte C, **Ross-Ibarra J**, Gaut BS, Tenaillon MI (2012) Using nextgen sequencing to investigate genome size variation and transposable element content. In Grandbastien M-A, Casacuberta JM, editors. *TOPICS IN CURRENT GENETICS v24: Plant Transposable Elements - Impact on Genome Structure & Function*. pp. 41-58
Citations: 8
34. **van Heerwaarden J[§]**, **Hufford MB**, **Ross-Ibarra J[§]** (2012) Historical genomics of North American maize. *PNAS* 109: 12420-12425
Citations: 58

33. Swanson-Wagner R, Briskine R, Schaefer R, **Hufford MB**, **Ross-Ibarra J**, Myers CL, Tiffin P, Springer NM. Reshaping of the maize transcriptome by domestication. (2012) PNAS 109: 11878-11883
Citations: 49
32. **Hufford MB***, Xun X*, **van Heerwaarden J***, **Pyhäjärvi T***, Chia J-M, Cartwright RA, Elshire RJ, Glaubitz JC, Guill KE, Kaeppler S, Lai J, Morrell PL, Shannon LM, Song C, Spinger NM, Swanson-Wagner RA, Tiffin P, Wang J, Zhang G, Doebley J, McMullen MD, Ware D, Buckler ES[§], Yang S[§], **Ross-Ibarra J**[§] (2012) Comparative population genomics of maize domestication and improvement. NATURE GENETICS 44:808-811[†]
Citations: 282
31. Chia J-M*, Song C*, Bradbury P, Costich D, de Leon N, Doebley JC, Elshire RJ, Gaut BS, Geller L, Glaubitz JC, Gore M, Guill KE, Holland J, **Hufford MB**, Lai J, Li M, Liu X, Lu Y, McCombie R, Nelson R, Poland J, Prasanna BM, **Pyhäjärvi T**, Rong T, Sekhon RS, Sun Q, Tenaillon M, Tian F, Wang J, Xu X, Zhang Z, Kaeppler S, **Ross-Ibarra J**, McMullen M, Buckler ES, Zhang G, Xu Y, Ware, D (2012) Maize HapMap2 identifies extant variation from a genome in flux. NATURE GENETICS 44:803-807[†]
Citations: 263
30. Fang Z, **Pyhäjärvi T**, Weber AL, Dawe RK, Glaubitz JC, Sánchez González J, **Ross-Ibarra C**, Doebley J, Morrell PL[§], **Ross-Ibarra J**[§] (2012) Megabase-scale inversion polymorphism in the wild ancestor of maize. GENETICS 191:883-894
Citations: 27
29. Cook JP, McMullen MD, Holland JB, Tian F, Bradbury P, **Ross-Ibarra J**, Buckler ES, Flint-Garcia SA (2012) Genetic architecture of maize kernel composition in the Nested Association Mapping and Inbred Association panels. PLANT PHYSIOLOGY 158: 824-834
Citations: 141
28. Morrell PL, Buckler ES, **Ross-Ibarra J**[§] (2012) Crop genomics: advances and applications. NATURE REVIEWS GENETICS 13:85-96[†]
Citations: 233
27. Studer A, Zhao Q, **Ross-Ibarra J**, Doebley J (2011) Identification of a functional transposon insertion in the maize domestication gene *tb1*. NATURE GENETICS 43:1160-1163.
Citations: 200
26. **van Heerwaarden J**[§], Doebley J, Briggs WH, Glaubitz JC, Goodman MM, Sánchez González JJ, **Ross-Ibarra J**[§] (2011) Genetic signals of origin, spread and introgression in a large sample of maize landraces. PNAS 108: 1088-1092
Citations: 158
25. **Hufford MB**[§], Gepts P, **Ross-Ibarra J** (2011) Influence of cryptic population structure on observed mating patterns in the wild progenitor of maize (*Zea mays* ssp. *parviglumis*). MOLECULAR ECOLOGY 20: 46-55
Citations: 11
24. Tenaillon MI, **Hufford MB**, Gaut BS, **Ross-Ibarra J**[§] (2011) Genome size and TE content as determined by high-throughput sequencing in maize and *Zea luxurians*. GENOME BIOLOGY AND EVOLUTION 3: 219-229
Citations: 89

23. Eckert AJ, **van Heerwaarden J**, Wegrzyn JL, Nelson CD, **Ross-Ibarra J**, González-Martínez SC, and Neale DB (2010) Patterns of population structure and environmental associations to aridity across the range of loblolly pine (*Pinus taeda* L, Pinaceae). *GENETICS* 185: 969-982
Citations: 216
22. Fuchs EJ, **Ross-Ibarra J[§]**, Barrantes G (2010) Reproductive biology of *Macleania rupestris*: a pollen-limited Neotropical cloud-forest species in Costa Rica. *JOURNAL OF TROPICAL ECOLOGY* 26: 351-354
Citations: 3
21. Whitney KD, Baack EJ, Hamrick JL, Godt MJW, Barringer BC, Bennett MD, Eckert CG, Goodwillie C, Kalisz S, Leitch I, **Ross-Ibarra J** (2010) A role for nonadaptive processes in plant genome size evolution? *EVOLUTION* 64: 2097-2109
Citations: 51
20. **van Heerwaarden J**, **Ross-Ibarra J[§]**, Doebley J, Glaubitz JC, Sánchez González J, Gaut BS, Eguiarte LE (2010) Fine scale genetic structure in the wild ancestor of maize (*Zea mays* ssp. *parviglumis*). *MOLECULAR ECOLOGY* 19: 1162-1173
Citations: 29
19. Shi J, Wolf S, Burke J, Presting G, **Ross-Ibarra J**, Dawe RK (2010) High frequency gene conversion in centromere cores. *PLoS BIOLOGY* 8: e1000327
Citations: 62
18. Hollister JD, **Ross-Ibarra J**, Gaut BS (2010) Indel-associated mutation rate varies with mating system in flowering plants. *MOLECULAR BIOLOGY AND EVOLUTION* 27: 409-416.
Citations: 27
17. **van Heerwaarden J**, van Eeuwijk FA, **Ross-Ibarra J** (2010) Genetic diversity in a crop metapopulation. *HEREDITY* 104: 28-39
Citations: 28
16. Gore MA*, Chia JM*, Elshire RJ, Sun Q, Ersoz ES, Hurwitz BL, Peiffer JA, McMullen MD, Grills GS, **Ross-Ibarra J**, Ware DH, Buckler ES (2009) A first-generation haplotype map of maize. *SCIENCE* 326: 1115-1117.
Citations: 456
15. **May MR[‡]**, **Provance MC**, Sanders AC, Ellstrand NC, **Ross-Ibarra J[§]** (2009) A pleistocene clone of Palmer's Oak persisting in Southern California. *PLoS ONE* 4: e8346.
Citations: 16
14. Zhang LB, Zhu Q, Wu ZQ, **Ross-Ibarra J**, Gaut BS, Ge S, Sang T (2009) Selection on grain shattering genes and rates of rice domestication. *NEW PHYTOLOGIST* 184: 708-720.
Citations: 82
13. **Ross-Ibarra J**, Tenaillon M, Gaut BS (2009) Historical divergence and gene flow in the genus *Zea*. *GENETICS* 181: 1399-1413.
Citations: 98
12. **Ross-Ibarra J***, Wright SI*, Foxe JP, Kawabe A, DeRose-Wilson L, Gos G, Charlesworth D, Gaut BS (2008) Patterns of polymorphism and demographic history in natural populations of *Arabidopsis lyrata*. *PLoS ONE* 3: e2411.

Citations: 126

11. Lockton S, **Ross-Ibarra J**, Gaut BS (2008) Demography and weak selection drive patterns of transposable element diversity in natural populations of *Arabidopsis lyrata*. PNAS 105: 13965-13970.
Citations: 55
10. **Ross-Ibarra J^S**, Gaut BS (2008) Multiple domestications do not appear monophyletic. PNAS 105: E105 (letter).
Citations: 15
9. Gaut BS, **Ross-Ibarra J** (2008) Selection on major components of angiosperm genomes. SCIENCE 320: 484-486.
Citations: 57
8. **Ross-Ibarra J**, Morrell PL, Gaut BS (2007) Plant domestication, a unique opportunity to identify the genetic basis of adaptation. PNAS 104 Suppl 1: 8641-8648.
Citations: 216
7. **Ross-Ibarra J^S** (2007) Genome size and recombination in angiosperms: a second look. JOURNAL OF EVOLUTIONARY BIOLOGY 20: 800-806.
Citations: 22
6. Wares JP, Barber PH, **Ross-Ibarra J**, Sotka EE, Toonen RJ (2006) Mitochondrial DNA and population size. SCIENCE 314: 1388-90 (letter).
Citations: 26
5. **Ross-Ibarra J^S** (2005) QTL and the study of plant domestication. GENETICA 123: 197-204.
Citations: 24
4. **Ross-Ibarra J^S** (2004) The evolution of recombination under domestication: a test of two hypotheses. AMERICAN NATURALIST 163: 105-112.
Citations: 54
3. **Ross-Ibarra J** (2003) Origin and domestication of chaya (*Cnidoscolus aconitifolius* Mill I. M. Johnst): Mayan spinach. MEXICAN STUDIES 19: 287-302.
Citations: 5
2. **Ross-Ibarra J^S**, Molina-Cruz A (2002) The ethnobotany of Chaya (*Cnidoscolus aconitifolius* ssp. *aconitifolius* Breckon): A nutritious Maya vegetable. ECONOMIC BOTANY 56: 350-365.
Citations: 44
1. Neel MC, **Ross-Ibarra J**, Ellstrand NC (2001) Implications of mating patterns for conservation of the endangered plant *Eriogonum ovalifolium* var. *vineum*. AMERICAN JOURNAL OF BOTANY 88: 1214-1222.
Citations: 30