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

Associate Professor, Dept. Plant Sciences, University of California Davis 2012-present

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

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

Dissertation Completion Fellowship, University of Georgia 2005-2006

NIH Training Grant, predoctoral research assistantship 2003-2005

University-wide Fellowship, University of Georgia 2001-2003

Chancellor's Distinguished Fellowship, UC Riverside 1998-2000

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

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

College of Ag. and Environ. Sciences Visioning Committee, 2013

Search committees: Director Genome Center Sequencing Core (2014), Bioinformatician (chair, 2013), Director Plant Breeding Center (2013)

Chair, Dept. of Plant Sciences IT committee, 2011-2013

Dept. of Plant Sciences academic planning committee, 2010-2015

Professional

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

Journal peer review: Nature, Nature Genetics (2), Nature Plant (2), PLoS Genetics (5), eLife, Current Biology, Molecular Biology & Evolution (6), Genetics, Trends in Plant Science, Genome Biology & Evolution (2), American Naturalist, Molecular Ecology (2), G3 (2), BMC Genomics, BMC Biology, PLoS ONE (2)

Proposal review: Swiss National Science Foundation (2016)

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

Current Funding

UC-Mexico Initiative: "Maize adaptation to climate in Mexico", 2015-2016 (PO, $20,000 total)

UCMEXUS: "Adaptive gene flow from teosinte to highland maize in central Mexico", 2015-2016 (Co-PI, $24,897 total)

NSF Plant Genome Research Program: "Biology of Rare Alleles" (Co-PI, $3.2M to JRI), 2013-2018

NSF Plant Genome Research Program (Co-PI, $754,409 to JRI, 2010-2016) "Functional Genomics of Maize Centromeres"

Invited Seminars: last 12 months

SMBE domestication symposium, Queensland, July 2016

U. Arizona, Apr. 2016

Joint Genome Institute, Mar. 2016

U. Southern California, Feb. 2016

LANGEBIO, Irapuato, Mexico, Nov. 2015

U. Toronto, Oct. 2015

Danforth Center, Sept. 2015

SMBE workshop on adaptation and next-gen sequencing, Montpellier, June 2015

San Francisco Exploratorium, May 2015

Dept. of Ecology and Evol. Bio, UC Irvine, April 2015

Cornell Plant Breeding Symposium, March 2015

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

Preprints

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

Durvasula A‡, Hoffman PJ, **Kent TV**‡, Liu C, Kono TJY, Morrell PL§, **Ross-Ibarra J**§. ANGSD-wrapper

Beissinger TM§, Wang L, **Crosby K**, **Durvasula A**‡, Hufford MB, **Ross-Ibarra J**§. Recent demography drives changes in linked selection across the maize genome

In press or in print

56. Orozco-Ramìrez Q, Santacruz-Varela A, **Ross-Ibarra J**, Brush B (2016) Maize diversity associated with social origin and environmental variation in southern Mexico. Heredity
Citations: 0

55. Gerke JP§, Edwards JW, Guill KE, **Ross-Ibarra J**§, McMullen MD. The genomic impacts of drift and selection for hybrid performance in maize (2015) Genetics *In Press*
Citations: 7

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 *In Press*
Citations: 0

53. **Takuno S**, Ralph P, Swarts K, Elshire RJ, Glaubitz JC, Buckler ES, **Hufford MB**, and **Ross-Ibarra J**§ (2015) Independent molecular basis of convergent highland adaptation in maize. Genetics 200:1297-1312
Citations:3

52. **Vann LE**, **Kono T**, **Pyhäjärvi T**, **Hufford MB**[§], **Ross-Ibarra J**[§] (2015) Natural variation in teosinte at the domestication locus teosinte branched1 (tb1). PeerJ 3:e900
Citations: 0

51. Hake S, **Ross-Ibarra J** (2015) Genetic, evolutionary and plant breeding insights from the domestication of maize. eLife 2015;4:e05861
Citations: 2

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(1)
Citations: 4

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: 1

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: 14

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: 21

46. **Bilinski P**, **Distor KD**, **Gutierez-Lopez J**, **Mendoza Mendoza G**, Shi J, Dawe K, **Ross-Ibarra J**[§] (2014) Diversity and evolution of centromere repeats in the maize genome. Chromosoma 0009-5915
Citations: 4

45. **Mezmouk S**, **Ross-Ibarra J**[§] (2014) The pattern and distribution of deleterious mutations in maize. (2014) G3 4:163-171
Citations: 5

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: 13

43. **Pyhäjärvi T**, **Hufford MB**, **Mezmouk S**, **Ross-Ibarra J**[§] (2013) Complex patterns of local adaptation in teosinte. Genome Biology and Evolution 5: 1594-1609.[†]
Citations: 26

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: 16

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: 82

40. **Hufford MB**, Lubinsky P, **Pyhäjärvi T**, **Devengenzo MT**‡, Ellstrand NC, **Ross-Ibarra J**§ (2013) The genomic signature of crop-wild introgression in maize. PLoS Genetics 9(5): e1003477.
Citations: 48

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: 1

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: 52

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: 5

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: 10

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: 5

34. **van Heerwaarden J**§, **Hufford MB**, **Ross-Ibarra J**§ (2012) Historical genomics of North American maize. PNAS 109: 12420-12425
Citations: 40

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: 35

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: 208

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: 194

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: 19

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: 107

28. Morrell PL, Buckler ES, **Ross-Ibarra J**[§] (2012) Crop genomics: advances and applications. Nature Reviews Genetics 13:85-96[†]
Citations: 171

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: 149

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: 123

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: 8

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: 70

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: 177

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: 2

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: 48

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: 21

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: 53

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: 24

17. **van Heerwaarden J**, van Eeuwijk FA, **Ross-Ibarra J** (2010) Genetic diversity in a crop metapopulation. Heredity 104: 28-39
Citations: 23

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: 396

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: 15

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: 70

13. **Ross-Ibarra J**, Tenaillon M, Gaut BS (2009) Historical divergence and gene flow in the genus Zea. Genetics 181: 1399-1413.
Citations: 82

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: 112

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: 51

10. **Ross-Ibarra J**§, Gaut BS (2008) Multiple domestications do not appear monophyletic. PNAS 105: E105 (letter).
Citations: 12

9. Gaut BS, **Ross-Ibarra J** (2008) Selection on major components of angiosperm genomes. Science 320: 484-486.
Citations: 49

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: 183

7. **Ross-Ibarra J**§ (2007) Genome size and recombination in angiosperms: a second look. Journal of Evolutionary Biology 20: 800-806.
Citations: 20

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**§ (2005) QTL and the study of plant domestication. Genetica 123: 197-204.
Citations: 23

4. **Ross-Ibarra J**§ (2004) The evolution of recombination under domestication: a test of two hypotheses. American Naturalist 163: 105-112.
Citations: 49

3. **Ross-Ibarra J** (2003) Origin and domestication of chaya (*Cnidoscolus aconitifolius* Mill I. M. Johnst): Mayan spinach. Mexican Studies 19: 287-302.
   Citations: 4

2. **Ross-Ibarra J**[§], Molina-Cruz A (2002) The ethnobotany of Chaya (*Cnidoscolus aconitifolius* ssp. *aconitifolius* Breckon): A nutritious Maya vegetable. Economic Botany 56: 350-365.
   Citations: 34

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: 32