

# Jeffrey Ross-Ibarra

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## Education

PhD Genetics (with JL Hamrick), University of Georgia 2006

MS Botany (with NC Ellstrand and A Gomez-Pompa), 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

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

University of California Regents Honorarium 1995-1998

## Instruction and Advising

Current thesis committees: 5 PhD, 1 MS

Genetics (BIS 101, undergraduate), Spring 2012-present

Faculty advisor, Pioneer Hi-Bred/CAES graduate student symposium in plant breeding, 2012-present

Guest Instructor, UC Davis Plant Breeding Academy, 2012

Faculty advisor, US-Mexico graduate student exchange program, 2011-present

Population and Quantitative Genetics (GGG 201D, graduate), 2010-2013

Plant Genetics (PLS 152, undergraduate), 2010-2011

Guest lecturer, College Success Institute, UCD Academic Preparation Programs, 2009

Biología de Plantas I (undergraduate), UNAM, 2001

## Service

### *University*

Hellman Review Committee, 2014

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

Admissions committees: Plant Biology (2013), Population Biology, (2013-2014)

Search committees: Bioinformatician (chair), Science Writer, Director Plant Breeding Center, Pop/Quant Geneticist 2012-2014

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

Executive Committee, Genetics Graduate Group, 2009-2012

College committee on strategic planning for plant breeding, 2011

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

### *Professional*

Academic Editor for *PeerJ*, 2013-present

Associate Editor for Axios Reviews, 2013-present

Global Crop Diversity Trust Crop Relative Genomics workshop, 2012

Scientific Advisory Board, AMAIZING Project (INRA), 2011-present

Associate editor, American Journal of Botany 2009-2011

NSF-USDA Phenomics workshop, 2011

Guest editor, PLoS Genetics (2012, 2014)

Journal peer review (last 12 months): Nature (2), Nature Genetics (2), PNAS (3), Current Biology, PLoS Genetics (2), Genome Research, American Naturalist, Molecular Ecology, BMC Genomics, , Scientific Reports, Peerage of Science

## Invited Seminars: last 12 months

Bioagricultural Sciences and Pest Management, Colorado State May 2014

Plant Breeding Genetics and Biotechnology Program, Michigan State (MI) Apr. 2014

National Maize Improvement Center of China, China Agricultural University (Beijing) Mar. 2014

Plant and Animal Genome Conference, maize workshop Jan. 2014

Plant and Animal Genome Conference, symposium on domestication Jan. 2014

Featured Speaker, Ecological Genomics Symposium, Ecological Genetics Institute (MO) Nov. 2013

Department of Genetics, U. Georgia 2013

Plenary Speaker, Canadian Plant Genomics Workshop (Halifax) 2013

Organizer, Evolutionary Genomics symposium, ASPB (RI) 2013

Biodesign Institute, Arizona State U. 2013

Interdisciplinary Plant Group, U. Missouri 2013

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

### Submitted

Makarevitch I, Waters M, West P, **Stitzer M**, **Ross-Ibarra J**, Springer NM. Mobile elements contribute to activation of genes in response to abiotic stress

**Bilinski P**, **Distor KD**, **Gutierrez-Lopez J**, **Mendoza Mendoza G**, Shi J, Dawe K, **Ross-Ibarra J**§. Diversity and evolution of centromere repeats in the maize genome.

Preprint: <http://biorxiv.org/content/early/2014/05/12/005058>

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. The origin and evolution of maize in the American Southwest

Gerke JP, Edwards JW, Guill KE, **Ross-Ibarra J**, McMullen MD. The genomic impacts of drift and selection for hybrid performance in maize

Preprint: <http://arxiv.org/abs/1307.7313>

**Vann LE**, **Kono T**†, **Pyhäjärvi T**, **Hufford MB**§, **Ross-Ibarra J**§. Natural variation in teosinte at the domestication locus *teosinte branched1* (*tb1*).

Preprint: <http://biorxiv.org/content/early/2014/06/03/005819>

### In press or in print

H-Index 21 (1783 citations as of Wed Jun 4 23:54:19 2014)

45. **Mezmouk S**, **Ross-Ibarra J**§. The pattern and distribution of deleterious mutations in maize. (2014) *G3* 4:163-171 Preprint: <http://arxiv.org/abs/1308.0380>
44. Waters AJ, **Bilinski P**, Eichten SR, Vaughn MW, **Ross-Ibarra J**, Gehring M, Springer NM. Comprehensive analysis of imprinted genes in maize reveals allelic variation for imprinting and limited conservation with other species. (2013) *PNAS* 110:19639-19644 Preprint: <http://arxiv.org/abs/1307.7678>
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.†
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.
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

40. **Hufford MB**, Lubinsky P, **Pyhäjärvi T**, **Devenzenzo MT<sup>†</sup>**, Ellstrand NC, **Ross-Ibarra J<sup>§</sup>** (2013) The genomic signature of crop-wild introgression in maize. *PLoS GENETICS* 9(5): e1003477.
39. **Provance MC<sup>§</sup>**, Garcia Ruiz I, **Thommes C<sup>†</sup>**, **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.
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<sup>§</sup>**, Korf IF<sup>§</sup>, Chan SW-L. (2013) Patterns of centromere tandem repeat evolution in 282 animal and plant genomes. *GENOME BIOLOGY* 14:R10
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.
36. **Hufford MB**, Bilinski P, **Pyhäjärvi T**, **Ross-Ibarra J<sup>§</sup>** (2012) Teosinte as a model system for population and ecological genomics. *TRENDS IN GENETICS* 12:606-615<sup>†</sup>
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
34. **van Heerwaarden J<sup>§</sup>**, **Hufford MB**, **Ross-Ibarra J<sup>§</sup>** (2012) Historical genomics of North American maize. *PNAS* 109: 12420-12425
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
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, Springer NM, Swanson-Wagner RA, Tiffin P, Wang J, Zhang G, Doebley J, McMullen MD, Ware D, Buckler ES<sup>§</sup>, Yang S<sup>§</sup>, **Ross-Ibarra J<sup>§</sup>** (2012) Comparative population genomics of maize domestication and improvement. *NATURE GENETICS* 44:808-811<sup>†</sup>
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<sup>†</sup>
30. Fang Z, **Pyhäjärvi T**, Weber AL, Dawe RK, Glaubitz JC, Sánchez González J, **Ross-Ibarra C**, Doebley J, Morrell PL<sup>§</sup>, **Ross-Ibarra J<sup>§</sup>** (2012) Megabase-scale inversion polymorphism in the wild ancestor of maize. *GENETICS* 191:883-894
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
28. Morrell PL, Buckler ES, **Ross-Ibarra J<sup>§</sup>** (2012) Crop genomics: advances and applications. *NATURE REVIEWS GENETICS* 13:85-96<sup>†</sup>
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.
26. **van Heerwaarden J<sup>§</sup>**, Doebley J, Briggs WH, Glaubitz JC, Goodman MM, Sánchez González JJ, **Ross-Ibarra J<sup>§</sup>** (2011) Genetic signals of origin, spread and introgression in a large sample of maize landraces. *PNAS* 108: 1088-1092

25. **Hufford MB<sup>§</sup>**, 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
24. Tenaillon MI, **Hufford MB**, Gaut BS, **Ross-Ibarra J<sup>§</sup>** (2011) Genome size and TE content as determined by high-throughput sequencing in maize and *Zea luxurians*. *GENOME BIOLOGY AND EVOLUTION* 3: 219-229
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
22. Fuchs EJ, **Ross-Ibarra J<sup>§</sup>**, Barrantes G (2010) Reproductive biology of *Macleania rupestris* (Ericaceae): a pollen-limited Neotropical cloud-forest species in Costa Rica. *JOURNAL OF TROPICAL ECOLOGY* 26: 351-354
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
20. **van Heerwaarden J**, **Ross-Ibarra J<sup>§</sup>**, 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
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
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.
17. **van Heerwaarden J**, van Eeuwijk FA, **Ross-Ibarra J** (2010) Genetic diversity in a crop metapopulation. *HEREDITY* 104: 28-39
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.
15. **May MR<sup>‡</sup>**, **Provance MC**, Sanders AC, Ellstrand NC, **Ross-Ibarra J<sup>§</sup>** (2009) A pleistocene clone of Palmer's Oak persisting in Southern California. *PLoS ONE* 4: e8346.
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.
13. **Ross-Ibarra J**, Tenaillon M, Gaut BS (2009) Historical divergence and gene flow in the genus *Zea*. *GENETICS* 181: 1399-1413.
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.
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.
10. **Ross-Ibarra J<sup>§</sup>**, Gaut BS (2008) Multiple domestications do not appear monophyletic. *PNAS* 105: E105
9. Gaut BS, **Ross-Ibarra J** (2008) Selection on major components of angiosperm genomes. *SCIENCE* 320: 484-486.

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.
7. **Ross-Ibarra J<sup>S</sup>** (2007) Genome size and recombination in angiosperms: a second look. *JOURNAL OF EVOLUTIONARY BIOLOGY* 20: 800-806.
6. Wares JP, Barber PH, **Ross-Ibarra J**, Sotka EE, Toonen RJ (2006) Mitochondrial DNA and population size. *SCIENCE* 314: 1388-90.
5. **Ross-Ibarra J<sup>S</sup>** (2005) Quantitative trait loci and the study of plant domestication. *GENETICA* 123: 197-204.
4. **Ross-Ibarra J<sup>S</sup>** (2004) The evolution of recombination under domestication: a test of two hypotheses. *AMERICAN NATURALIST* 163: 105-112.
3. **Ross-Ibarra J** (2003) Origin and domestication of chaya (*Cnidoscolus aconitifolius* Mill I. M. Johnst): Mayan spinach. *MEXICAN STUDIES* 19: 287-302.
2. **Ross-Ibarra J<sup>S</sup>**, Molina-Cruz A (2002) The ethnobotany of Chaya (*Cnidoscolus aconitifolius* ssp. *aconitifolius* Breckon): A nutritious Maya vegetable. *ECONOMIC BOTANY* 56: 350-365.
1. Neel MC, **Ross-Ibarra J**, Ellstrand NC (2001) Implications of mating patterns for conservation of the endangered plant *Eriogonum ovalifolium* var. *vineum* (Polygonaceae). *AMERICAN JOURNAL OF BOTANY* 88: 1214-1222.