

# 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

## 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

## Instruction and Advising

Current thesis committees: 3 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

## Professional Service

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

Admissions committees: Plant Biology, Population Biology, 2013

Search committees: Bioinformatician (chair), Science Writer, Director Plant Breeding Center, Pop/Quant Geneticist 2012-2013

Global Crop Diversity Trust Crop Relative Genomics workshop, 2012

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

Scientific Advisory Board, AMAIZING Project (€30 million to INRA), 2011-present

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

Executive Committee, Genetics Graduate Group, 2009-2012

Associate editor, American Journal of Botany 2009-2011

NSF-USDA Phenomics workshop, 2011

College committee on strategic planning for plant breeding, 2011

Grant panel review (last 2 years): USDA NIFA, UC MEXUS

Ad-hoc grant review (last 2 years): BARD, NSF, France ANR,

Guest editor, PLoS Genetics (2012), Axios Reviews (2013)

Journal peer review (last 12 months): Nature, Current Biology, Genetics (4), Scientific Reports, PNAS (3), Genome Research, Peerage of Science, PLoS ONE, PLoS Biology, PLoS Genetics, Economic Botany, The Plant Journal, Nature Genetics, Evolution, Theoretical & Applied Genetics, Plant Physiology, Heredity

## Invited Seminars: last 12 months

Plant and Animal Genome Conference, symposium on domestication 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

UCD@BGI featured speaker, UC Davis 2013

Plant and Animal Genome Conference, symposium on translational genomics (CA) 2013

Featured Speaker, UC Davis Seed Central 2013

Crop Wild Relative Genomics meeting (CA) 2012

Germplasm Enhancement of Maize, ASTA Conference (IA) 2012

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

### *In review*

**Mezmouk S, Ross-Ibarra J<sup>§</sup>**. The pattern and distribution of deleterious mutations maize. Preprint: <http://arxiv.org/abs/1308.0380>

Waters AJ, **Bilinski P**, Eichten SR, Vaugh MW, **Ross-Ibarra J**, Gehring M, Springer NM. Conservation and divergence of imprinting in maize. Preprint: <http://arxiv.org/abs/1307.7678>

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**, Toulson-Wimmer A, Katz LA, **Ross-Ibarra J<sup>§</sup>**, Merritt RB. Nuclear and chloroplast DNA sequence variation in *Yucca brevifolia* (Joshua tree). Preprint: <http://goo.gl/XvhPN>

### *In press or in print*

43. **Pyhäjärvi T, Hufford MB, Mezmouk S, Ross-Ibarra J<sup>§</sup>** (2013) Complex patterns of local adaptation in teosinte. *textscGenome Biology and Evolution In Press: Online Early Access<sup>†</sup>*
42. Wills DM, Whipple C, **Takuno S**, Kursela 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 Studies of *Diospyros riojae* (Ebenaceae), an endangered fruit crop from Mexico. *GENETIC RESOURCES AND CROP EVOLUTION In Press*.
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 TOPICS IN CURRENT GENETICS: PLANT TRANSPOSABLE ELEMENTS - IMPACT ON GENOME STRUCTURE & FUNCTION. In press*
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, Spinger 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) Capturing extant variation from a genome in flux: maize HapMap II. *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, Bennet 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>§</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>§</sup> (2005) Quantitative trait loci and the study of plant domestication. *GENETICA* 123: 197-204.
4. **Ross-Ibarra J**<sup>§</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. Johnston): Mayan spinach. *MEXICAN STUDIES* 19: 287-302.
2. **Ross-Ibarra J**<sup>§</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.