

Contents

Introduction: What is "The Organismal Side" of Molecular Ecology and Evolution?	xi
 Part 1. Genetic Variation, Population Structure, and Phylogeography	 1
1. Avise, J.C. and R.K. Selander. 1972. Evolutionary genetics of cave-dwelling fishes of the genus <i>Astyanax</i> . Evolution 26:1-19.	9
2. Avise, J.C., M.H. Smith, R.K. Selander, T.E. Lawlor, and P.R. Ramsey. 1974. Biochemical polymorphism and systematics in the genus <i>Peromyscus</i> . V. Insular and mainland species of the subgenus <i>Haplomyloms</i> . Systematic Zoology 23:226-238.	28
3. Avise, J.C., C. Gibling-Davidson, J. Laerm, J.C. Patton, and R.A. Lansman. 1979. Mitochondrial DNA clones and matriarchal phylogeny within and among geographic populations of the pocket gopher, <i>Geomys pinetis</i> . Proceedings of the National Academy of Sciences USA 76:6694-6698.	41
4. Avise, J.C., G.S. Helfman, N.C. Saunders, and L.S. Hales. 1986. Mitochondrial DNA differentiation in North Atlantic eels: population genetic consequences of an unusual life history pattern. Proceedings of the National Academy of Sciences USA 83:4350-4354.	46
5. Saunders, N.C., L.G. Kessler, and J.C. Avise. 1986. Genetic variation and geographic differentiation in mitochondrial DNA of the horseshoe crab, <i>Limulus polyphemus</i> . Genetics 112:613-627.	51
6. Ball, R.M., Jr., S. Freeman, F.C. James, E. Bermingham, and J.C. Avise. 1988. Phylogeographic population structure of red-winged blackbirds assessed by mitochondrial DNA. Proceedings of the National Academy of Sciences USA 85:1558-1562.	66
7. Meylan, A.B., B.W. Bowen, and J.C. Avise. 1990. A genetic test of natal homing versus social facilitation models for green turtle migration. Science 248:724-727.	71
8. Karl, S.A. and J.C. Avise. 1992. Balancing selection at allozyme loci in oysters: implications from nuclear RFLPs. Science 256:100-102.	75
9. Avise, J.C., W.S. Nelson, B.W. Bowen, and D. Walker. 2000. Phylogeography of colonially nesting seabirds, with special reference to global matrilineal patterns in the sooty tern (<i>Sterna fuscata</i>). Molecular Ecology 9:1783-1792.	79
 Part 2. Clonality, Unisexuality, and Hermaphroditism	 89
10. Neigel, J.E. and J.C. Avise. 1983. Histocompatibility bioassays of population structure in marine sponges: clonal structure in <i>Verongia longissima</i> and <i>Iotrochota birotulata</i> . Journal of Heredity 74:134-140.	95

11. Avise, J.C. and R.C. Vrijenhoek. 1987. Mode of inheritance and variation of mitochondrial DNA in hybridogenetic fishes of the genus *Poeciliopsis*. **Molecular Biology and Evolution** 4:514-525. 102
12. Quattro, J.M., J.C. Avise, and R.C. Vrijenhoek. 1992. An ancient clonal lineage in the fish genus *Poeciliopsis* (Atheriniformes: Poeciliidae). **Proceedings of the National Academy of Sciences USA** 89:348-352. 114
13. Prodöhl, P.A., W.J. Loughry, C.M. McDonough, W.S. Nelson, and J.C. Avise. 1996. Molecular documentation of polyembryony and the micro-spatial dispersion of clonal sibships in the nine-banded armadillo, *Dasypus novemcinctus*. **Proceedings of the Royal Society of London B** 263:1643-1649. 119
14. Avise, J.C., A.J. Power, and D. Walker. 2004. Genetic sex determination, gender identification, and pseudohermaphroditism in the knobbed whelk, *Busycon carica* (Mollusca: Melongenidae). **Proceedings of the Royal Society of London B** 271:641-646. 126
15. Mackiewicz, M., A. Tatarenkov, B.J. Turner, and J.C. Avise. 2006. A mixed-mating strategy in a hermaphroditic vertebrate. **Proceedings of the Royal Society of London B** 273:2449-2452. 132
16. Mackiewicz, M., A. Tatarenkov, D.S. Taylor, B.J. Turner, and J.C. Avise. 2006. Extensive outcrossing and androdioecy in a vertebrate species that otherwise reproduces as a self-fertilizing hermaphrodite. **Proceedings of the National Academy of Sciences USA** 103:9924-9928. 136
17. Tatarenkov, A., S.M.Q. Lima, D.S. Taylor, and J.C. Avise. 2009. Long-term retention of self-fertilization in a fish clade. **Proceedings of the National Academy of Sciences USA** 106:14456-14459. 141
- Part 3. Genetic Parentage, Kinship, and Mating Behaviors** 145
18. Avise, J.C. and D.Y. Shapiro. 1986. Evaluating kinship of newly settled juveniles within social groups of the coral reef fish *Anthias squamipinnis*. **Evolution** 40:1051-1059. 151
19. Jones, A.G., S. Östlund-Nilsson, and J.C. Avise. 1998. A microsatellite assessment of sneaked fertilizations and egg theft in the threespine stickleback. **Evolution** 52:848-858. 160
20. Jones, A.G., G. Rosenqvist, A. Berglund, S.J. Arnold, and J.C. Avise. 2000. The Bateman gradient and the cause of sexual selection in a sex-role-reversed pipefish. **Proceedings of the Royal Society of London B** 267:677-680. 171
21. Jones, A.G., D. Walker, C. Kvarnemo, K. Lindström, and J.C. Avise. 2001. How cuckoldry can decrease the opportunity for sexual selection: data and theory from a genetic parentage analysis of the sand goby, *Pomatoschistus minutus*. **Proceedings of the National Academy of Sciences USA** 98:9151-9156. 175
22. Jones, A.G., D. Walker, and J.C. Avise. 2001. Genetic evidence for extreme polyandry and extraordinary sex-role reversal in a pipefish. **Proceedings of the Royal Society of London B** 268:2531-2535. 181

23. Pearse, D.E., F.J. Janzen, and J.C. Avise. 2001. Genetic markers substantiate long-term storage and utilization of sperm by female painted turtles. Heredity 86:378-384.	186
24. DeWoody, J.A., D.E. Fletcher, S.D. Wilkins, and J.C. Avise. 2001. Genetic documentation of filial cannibalism in nature. Proceedings of the National Academy of Sciences USA 98:5090-5092.	193
25. Walker, D., B.A. Porter, and J.C. Avise. 2002. Genetic parentage assessment in the crayfish <i>Orconectes placidus</i> , a high-fecundity invertebrate with extended maternal brood care. Molecular Ecology 11:2115-2122.	196
26. Barreto, F.S. and J.C. Avise. 2009. Polygynandry and sexual size dimorphism in the sea spider <i>Ammothea hilgendorfi</i> (Pycnogonida: Ammotheidae), a marine arthropod with brood-carrying males. Molecular Ecology 17:4149-4160.	204
Part 4. Hybridization and Introgression Phenomena	217
27. Avise, J.C. and S.W. Duvall. 1977. Allelic expression and genetic distance in hybrid macaque monkeys. Journal of Heredity 68:23-30.	223
28. Avise, J.C., E. Bermingham, L.G. Kessler, and N.C. Saunders. 1984. Characterization of mitochondrial DNA variability in a hybrid swarm between subspecies of bluegill sunfish (<i>Lepomis macrochirus</i>). Evolution 38:931-941.	231
29. Lamb, T. and J.C. Avise. 1986. Directional introgression of mitochondrial DNA in a hybrid population of treefrogs: the influence of mating behavior. Proceedings of the National Academy of Sciences USA 83:2526-2530.	242
30. Avise, J.C., W.S. Nelson, J. Arnold, R.K. Koehn, G.C. Williams, and V. Thorsteinsson. 1990. The evolutionary genetic status of Icelandic eels. Evolution 44:1254-1262.	247
31. Avise, J.C., J.C. Trexler, J. Travis, and W.S. Nelson. 1991. <i>Poecilia mexicana</i> is the recent female parent of the unisexual fish <i>P. formosa</i> . Evolution 45:1530-1533.	256
32. Scribner, K.T. and J.C. Avise. 1994. Cytonuclear genetics of experimental fish hybrid zones inside Biosphere 2. Proceedings of the National Academy of Sciences USA 91:5066-5069.	260
33. Karl, S.A., B.W. Bowen, and J.C. Avise. 1995. Hybridization among the ancient mariners: characterization of marine turtle hybrids with molecular genetic assays. Journal of Heredity 86:262-268.	264
34. Hare, M.P. and J.C. Avise. 1996. Molecular genetic analysis of a stepped multilocus cline in the American oyster (<i>Crassostrea virginica</i>). Evolution 50:2305-2315.	271
35. Avise, J.C., P.C. Pierce, M.J. Van Den Avyle, M.H. Smith, W.S. Nelson, and M.A. Asmussen. 1997. Cytonuclear introgressive swamping and species turnover of bass after an introduction. Journal of Heredity 88:14-20.	282

Part 5. Genetic Diagnoses of Endangered Species	289
36. Laerm, J., J.C. Avise, J.C. Patton, and R.A. Lansman. 1982. Genetic determination of the status of an endangered species of pocket gopher in Georgia. Journal of Wildlife Management 46:513-518.	295
37. Avise, J.C. and W.S. Nelson. 1989. Molecular genetic relationships of the extinct Dusky Seaside Sparrow. Science 243:646-648.	301
38. Bowen, B.W., A.B. Meylan, and J.C. Avise. 1991. Evolutionary distinctiveness of the endangered Kemp's ridley sea turtle. Nature 352:709-711.	305
39. Lamb, T. and J.C. Avise. 1992. Molecular and population genetic aspects of mitochondrial DNA variability in the diamondback terrapin, <i>Malaclemys terrapin</i> . Journal of Heredity 83:262-269.	308
40. Rising, J.D. and J.C. Avise. 1993. Application of genealogical-concordance principles to the taxonomy and evolutionary history of the sharp-tailed sparrow (<i>Ammodramus caudacutus</i>). The Auk 110:844-856.	316
41. Bowen, B.W., N. Kamezaki, C.J. Limpus, G.R. Hughes, A.B. Meylan, and J.C. Avise. 1994. Global phylogeography of the loggerhead turtle (<i>Caretta caretta</i>) as indicated by mitochondrial DNA haplotypes. Evolution 48:1820-1828.	329
42. Walker, D., G. Ortí, and J.C. Avise. 1998. Phylogenetic distinctiveness of a threatened aquatic turtle (<i>Sternotherus depressus</i>). Conservation Biology 12:639-645.	338
Part 6. Phylogeny and Macroevo-lutionary Patterns	345
43. Avise, J.C. 1977. Is evolution gradual or rectangular? Evidence from living fishes. Proceedings of the National Academy of Sciences USA 74:5083-5087.	351
44. Avise, J.C., J.C. Patton, and C.F. Aquadro. 1980. Evolutionary genetics of birds. III. Comparative molecular evolution in New World warblers (Parulidae) and rodents (Cricetinae). Journal of Heredity 71:303-310.	356
45. Bowen, B.W., A.B. Meylan, and J.C. Avise. 1989. An odyssey of the green sea turtle: Ascension Island revisited. Proceedings of the National Academy of Sciences USA 86:573-576.	365
46. Bowen, B.W., W.S. Nelson, and J.C. Avise. 1993. A molecular phylogeny for marine turtles: trait mapping, rate assessment, and conservation relevance. Proceedings of the National Academy of Sciences USA 90:5574-5577.	369
47. Johns, G.C. and J.C. Avise. 1998. A comparative summary of genetic distances in the vertebrates from the mitochondrial cytochrome <i>b</i> gene. Molecular Biology and Evolution 15:1481-1490.	373
48. Avise, J.C. and D. Walker. 1998. Pleistocene phylogeographic effects on avian populations and the speciation process. Proceedings of the Royal Society of London B 265:457-463.	383

49. Avise, J.C., D. Walker, and G.C. Johns. 1998. Speciation durations and Pleistocene effects on vertebrate phylogeography. Proceedings of the Royal Society of London B 265:1707-1712.	390
50. Mank, J.E., D.E.L. Promislow, and J.C. Avise. 2005. Phylogenetic perspectives in the evolution of parental care in ray-finned fishes. Evolution 59:1570-1578.	396
51. Mank, J.E. and J.C. Avise. 2006. Comparative phylogenetic analysis of male alternative reproductive tactics in ray-finned fishes. Evolution 60:1311-1316.	405
Part 7. Population-Genetic, Speciation, and Evolutionary Theory	411
52. Asmussen, M.A., J. Arnold, and J.C. Avise. 1987. Definition and properties of disequilibrium statistics for associations between nuclear and cytoplasmic genotypes. Genetics 115:755-768.	419
53. Avise, J.C., R.M. Ball, Jr., and J. Arnold. 1988. Current versus historical population sizes in vertebrate species with high gene flow: a comparison based on mitochondrial DNA lineages and inbreeding theory for neutral mutations. Molecular Biology and Evolution 5:331-344.	433
54. Neigel, J.E., R.M. Ball, Jr., and J.C. Avise. 1991. Estimation of single generation migration distances from geographic variation in animal mitochondrial DNA. Evolution 45:423-432.	447
55. Avise, J.C. and K. Wollenberg. 1997. Phylogenetics and the origin of species. Proceedings of the National Academy of Sciences USA 94:7748-7755.	457
56. Avise, J.C. and D. Walker. 1999. Species realities and numbers in sexual vertebrates: perspectives from an asexually transmitted genome. Proceedings of the National Academy of Sciences USA 96:992-995.	465
57. Avise, J.C. and G.C. Johns. 1999. Proposal for a standardized temporal scheme of biological classification for extant species. Proceedings of the National Academy of Sciences USA 96:7358-7363.	469
58. Pearse, D.E., C.M. Eckerman, F.J. Janzen, and J.C. Avise. 2001. A genetic analogue of 'mark-recapture' methods for estimating population size: an approach based on molecular parentage assessments. Molecular Ecology 10:2711-2718.	475
59. Jones, A.G., G.I. Moore, C. Kvarnemo, D. Walker, and J.C. Avise. 2003. Sympatric speciation as a consequence of male pregnancy in seahorses. Proceedings of the National Academy of Sciences USA 100:6598-6603.	483
60. Dakin, E.E. and J.C. Avise. 2004. Microsatellite null alleles in parentage analysis. Heredity 93:504-509.	489
61. Mank, J.E., D.W. Hall, M. Kirkpatrick, and J.C. Avise. 2006. Sex chromosomes and male ornaments: a comparative evaluation in ray-finned fishes. Proceedings of the Royal Society of London B 273:233-236.	495

62. Avise, J.C. and D. Mitchell. 2007. Time to standardize taxonomies. Systematic Biology 56:130-133.	499
63. Avise, J.C. and T.J. Robinson. 2008. Hemiplasy: a new term in the lexicon of phylogenetics. Systematic Biology 57:503-507.	503
Part 8. Molecular-Level Features and Processes	509
64. Lansman, R.A., J.C. Avise, and M.D. Huettel. 1983. Critical experimental test of the possibility of "paternal leakage" of mitochondrial DNA. Proceedings of the National Academy of Sciences USA 80:1969-1971.	513
65. Bermingham, E., T. Lamb, and J.C. Avise. 1986. Size polymorphism and heteroplasmy in the mitochondrial DNA of lower vertebrates. Journal of Heredity 77:249-252.	516
66. Ortí, G., D.E. Pearse, and J.C. Avise. 1997. Phylogenetic assessment of length variation at a microsatellite locus. Proceedings of the National Academy of Sciences USA 94:10745-10749.	520
67. Jones, A.G., G.A. Stockwell, D. Walker, and J.C. Avise. 1998. The molecular basis of a microsatellite null allele from the White Sands pupfish. Journal of Heredity 89:339-342.	525
68. Jones, A.G., G. Rosenqvist, A. Berglund, and J.C. Avise. 1999. Clustered microsatellite mutations in the pipefish <i>Syngnathus typhle</i> . Genetics 152:1057-1063.	529
69. Tatarenkov, A. and J.C. Avise. 2007. Rapid concerted evolution in animal mitochondrial DNA. Proceedings of the Royal Society of London B 274:1795-1798.	536
Appendix. Complete list of publications by Avise and colleagues from 1972-2010.	541