

REFERENCES

- Abbot, P., Abe, J., Alcock, J., *et al.* 2011. Inclusive fitness theory and eusociality. *Nature* **471**: E1–4; author reply E9–10.
- Ackermann, M., Stearns, S. C. and Jenal, U. 2003. Senescence in a bacterium with asymmetric cell division. *Science* **300**: 1920.
- Acosta, O., Solano, L., Escobar, J., *et al.* 2014. Frequencies of blood group system MNS, Diego, and Duffy and clinical phases of Carrion's disease in Amazonas, Peru. *Interdisciplinary Perspectives on Infectious Diseases* **2014**: 576107.
- Aker, C. L. and Udovic, D. 1981. Oviposition and pollination behavior of the yucca moth, *Tegeticula maculata* (Lepidoptera: Prodoxidae), and its relation to the reproductive biology of *Yucca whipplei* (Agavaceae). *Oecologia* **49**: 96–101.
- Al-Bustan, S., El-Zawahri, M., Al-Azmi, D. and Al-Bashir, A. A. 2002. Allele frequencies and molecular genotyping of the ABO blood group system in a Kuwaiti population. *International Journal of Hematology* **75**: 147–53.
- Alexander, R. D., Hoogland, J. L., Howard, R. D., Noonan, K. M. and Sherman, P. W. 1979. Sexual dimorphism and breeding systems in pinnipeds, ungulates, primates and humans. In: Chagnon, N. and Irons, W., eds. *Evolutionary Biology and Human Social Behaviour: An Anthropological Perspective*, pp 402–35. Duxbury, North Scituate, MA.
- Allen, J. A. 1877. The influence of physical conditions in the genesis of species. *Radical Review* **1**: 108–40.
- Allison, A. C. 1956. The sickle-cell and haemoglobin C genes in some African populations. *Annals of Human Genetics* **21**: 67–89.
- Anderson, J. M. and Coe, M. J. 1974. Decomposition of elephant dung in an arid, tropical environment. *Oecologia* **14**: 111–25.
- Anderson, T. R. 2006. *Biology of the Ubiquitous House Sparrow: From Genes to Populations*. Oxford University Press, Oxford.
- Andersson, M. 1982. Female choice selects for extreme tail length in a widowbird. *Nature* **299**: 818–20.
1994. *Sexual Selection*. Princeton University Press, Princeton, NJ.
2005. Evolution of classical polyandry: three steps to female emancipation. *Ethology* **111**: 1–23.
- Andersson, S. 1992. Female preference for long tails in lekking Jackson's widowbirds: experimental evidence. *Animal Behavior* **43**: 379–88.
- Anisiu, M.-C. 2014. Lotka, Volterra and their model. *Didactica Mathematica* **32**: 9–17.
- Austad, S. N. 1993. Retarded senescence in an insular population of Virginia opossums (*Didelphis virginiana*). *Journal of Zoology* **229**: 695–708.
- Ayala, F. J., Gilpin, M. E. and Ehrenfeld, J. G. 1973. Competition between species: theoretical models and experimental tests. *Theoretical Population Biology* **4**: 331–56.
- Barnard, C. J. 2004. Predators and prey. In: *Animal Behavior: Mechanism, Development, Function, and Evolution*, pp. 357–405. Prentice Hall, Essex, UK.

- Bateman, A. J. 1948. Intra-sexual selection in *Drosophila*. *Heredity* **2**: 249–68.
- Beebe, T. J. C. and Rowe, R. 2008. *An Introduction to Molecular Ecology*, 2nd edn. Oxford University Press, Oxford.
- Behé, M. J. 1996. *Darwin's Black Box: The Biochemical Challenge to Evolution*. Simon & Schuster, New York, NY.
- Benayoun, B. A., Pollina, E. A. and Brunet, A. 2015. Epigenetic regulation of ageing: linking environmental inputs to genomic stability. *Nature Reviews Molecular Cell Biology* **16**: 593–610.
- Berglund, A., Rosenqvist, G. and Svensson, I. 1986. Mate choice, fecundity and sexual dimorphism in two pipefish species (Syngnathidae). *Behavioral Ecology and Sociobiology* **19**: 301–7.
1989. Reproductive success of females limited by males in two pipefish species. *American Naturalist* **133**: 506–16.
- Berry, R. J. 1990. Industrial melanism and peppered moths (*Biston betularia* (L.)). *Biological Journal of the Linnean Society* **39**: 301–22.
- Bersaglieri, T., Sabeti, P. C., Patterson, N., et al. 2004. Genetic signatures of strong recent positive selection at the lactase gene. *American Journal of Human Genetics* **74**: 1111–20.
- Bethel, W. M. and Holmes, J. C. 1977. Increased vulnerability of amphipods to predation owing to altered behavior induced by larval acanthocephalans. *Canadian Journal of Zoology* **55**: 110–115.
- Bishop, J. A. 1972. An experimental study of the cline of industrial melanism in *Biston betularia* (L.) (Lepidoptera) between urban Liverpool and rural North Wales. *Journal of Animal Ecology* **41**: 209–43.
- Bishop, J. A. and Cook, L. M. 1975. Moths, melanism and clean air. *Scientific American* **232**: 90–9.
- Boake, C. R. B. (ed.) 1994. *Quantitative Genetic Studies of Behavioral Evolution*. University of Chicago Press, Chicago, IL.
- Bodmer, W. F. and Cavalli-Sforza, L. L. 1976. *Genetics, Evolution, and Man*. W. H. Freeman, San Francisco, CA.
- Bonduriansky, R. and Day, T. 2009. Nongenetic inheritance and its evolutionary implications. *Annual Review of Ecology, Evolution, and Systematics* **40**: 103–25.
- Bonnell, M. L. and Selander, R. K. 1974. Elephant seals: genetic variation and near extinction. *Science* **184**: 908–9.
- Bonsall, M. B. and Hassell, M. P. 2007. Predator–prey interactions. In: May, R. M. and McLean, A. R., eds. *Theoretical Ecology: Principles and Applications*. pp. 45–61. Oxford University Press, Oxford.
- Booth, L. N. and Brunet, A. 2016. The aging epigenome. *Molecular Cell* **62**: 728–44.
- Bouzat, J. L., Lewin, H. A. and Paige, K. N. 1998. The ghost of genetic diversity past: historical DNA analysis of the greater prairie chicken. *American Naturalist* **152**: 1–6.
- Bowland, A. E, Bishop, K. S, Taylor, P. J., et al. 2001. Estimation and management of genetic diversity in small populations of plains zebra (*Equus quagga*) in KwaZulu-Natal, South Africa. *Biochemical Systematics and Ecology* **29**: 563–83.
- Bowlby, J. 1990. *Charles Darwin: A New Life*. W. W. Norton & Company, New York, NY.
- Bronikowski, A. M. and Promislow, D. E. L. 2005. Testing evolutionary theories of aging in wild populations. *Trends in Ecology and Evolution* **20**: 271–3.
- Brotherton, P. N. M., Pemberton, J. M., Komers, P. E. and Malarky, G. 1997. Genetic and behavioural evidence of monogamy in a mammal, Kirk's dik-dik (*Madoqua kirkii*). *Proceedings of the Royal Society of London B: Biological Sciences* **264**: 675–81.
- Brower, J. V. Z. and Brower, L. P. 1962. Experimental studies of mimicry. 6. The reaction of toads (*Bufo terrestris*) to honeybees (*Apis mellifera*) and their dronefly mimics (*Eristalis vinetorum*). *American Naturalist* **96**: 207–207.

- Brown, J. H. and Davidson, D. W. 1977. Competition between seed-eating rodents and ants in desert ecosystems. *Science* **196**: 880–2.
- Browne, J. 1995. *Charles Darwin: Voyaging*. Princeton University Press, Princeton, NJ.
2002. *Charles Darwin: The Power of Place*. Princeton University Press, Princeton, NJ.
- Brumfield, R. T., Beerli, P., Nickerson, D. A., and Edwards, S. V. 2003. The utility of single nucleotide polymorphisms in inferences of population history. *Trends in Ecology and Evolution* **18**: 249–56.
- Buechner, H. K. and Schleoth, R. K. 1965. Ceremonial mating behavior in Uganda kob (*Adenota kob thomsi* Neuman). *Zeitschrift für Tierpsychologie* **22**: 209–25.
- Buri, P. 1956. Gene frequency in small populations of mutant *Drosophila*. *Evolution* **10**: 367–402.
- Burt, A. and Trivers, R. 2006. *Genes in Conflict: The Biology of Selfish Genetic Elements*. Harvard University Press, Cambridge, MA.
- Campbell, A. L., Naik, R. R., Sowards, L. and Stone, M. O. 2002. Biological infrared imaging and sensing. *Micron* **33**: 211–225.
- Carey, N. 2013. *The Epigenetics Revolution*. Columbia University Press, New York, NY.
- Caro, T. 2005. *Antipredator Defenses in Birds and Mammals*. University of Chicago Press, Chicago, IL.
- Carpenter, G. D. H. 1921. Experiments on the relative edibility of insects, with special reference to their coloration. *Transactions of the Royal Entomological Society of London* **54**: 1–105.
- Carroll, S. B. 2006. *The Making of the Fittest: DNA and the Ultimate Forensic Record of Evolution*. W. W. Norton & Company, New York, NY.
- Castro-Prieto, A., Wachter, B. and Sommer, S. 2011. Cheetah paradigm revisited: MHC diversity in the world's largest free-ranging population. *Molecular Biology and Evolution* **28**: 1455–68.
- Caswell, H. 2001. *Matrix Population Models: Construction, Analysis, and Interpretation*, 2nd edn. Sinauer Associates, Sunderland, MA.
- Caughley, G. 1966. Mortality patterns in mammals. *Ecology* **47**: 906–18.
1977. *Analysis of Vertebrate Populations*. John Wiley & Sons, New York, NY.
- Chambers, G. K., Curtis, C., Millar, C. D., Huynen, L. and Lambert, D. M. 2014. DNA fingerprinting in zoology: past, present, future. *Investigative Genetics* **5**: 3.
- Charlesworth, B. 1994. *Evolution in Age Structured Populations*, 2nd edn. Cambridge University Press, Cambridge.
2000. Fisher, Medawar, Hamilton and the evolution of aging. *Genetics* **156**: 927–31.
- Charnov, E. L. and Schaffer, W. M. 1973. Life history consequences of natural selection: Cole's result revisited. *American Naturalist* **107**: 791–3.
- Chase, J. M. and Leibold, M. A. 2003. *Ecological Niches: Linking Classical and Contemporary Approaches*. University of Chicago Press, Chicago, IL.
- Clarke, C. A. and Sheppard, P. M. 1963. A local survey of the distribution of industrial melanic forms in the moth *Biston betularia* and estimates of the selective values of these in an industrial environment. *Proceedings of the Royal Society of London B: Biological Sciences* **165**: 424–39.
- Clarke, C. A., Clarke, F. M. M. and Dawkins, H. C. 1990. *Biston betularia* (the peppered moth) in West Kirby, Wirral, 1959–1989: updating the decline in *f. carbonaria*. *Biological Journal of the Linnean Society* **39**: 323–6.
- Clegg, S. M., Degnan, S. M., Kikkawa, J., et al. 2002. Genetic consequences of sequential founder events by an island-colonizing bird. *Proceedings of the National Academy of Sciences U S A* **99**: 1827–32.
- Clutton-Brock, T. H. 2007. Sexual selection in males and females. *Science* **318**: 1883–5.

- Clutton-Brock, T. H., Hodge, S. J., Spong, G., *et al.* 2006. Intrasexual competition and sexual selection in cooperative mammals. *Nature* **444**: 1065–8.
- Clutton-Brock, T. H. and Huchard, E. 2013. Social competition and selection in males and females. *Philosophical Transactions of the Royal Society B* **368**: 20130074.
- Cole, L. C. 1954. The population consequences of life history phenomena. *Quarterly Review of Biology* **29**: 103–37.
- Collins, F. S., Brooks, L. D., Chakravarti, A. 1998. A DNA polymorphism discovery resource for research on human genetic variation. *Genome Research* **8**: 1229–31.
- Congdon, J. D., Dunham, A. E. and van Lobel Sels, R. C. 1994. Demographics of common snapping turtles (*Chelydra serpentina*): implications for conservation and management of long-lived organisms. *American Zoologist* **34**: 397–408.
- Congdon, J. D., Nagle, R. D., Kinney, O. M. and van Loben Sels, R. C. 2001. Hypotheses of ageing in a long-lived vertebrate, Blanding's turtle (*Emydoidea blandingii*). *Experimental Gerontology* **36**: 813–27.
- Congdon, J. D., Nagle, R. D., Kinney, O. M., *et al.* 2003. Testing hypotheses of aging in long-lived painted turtles (*Chrysemys picta*). *Experimental Gerontology* **38**: 765–72.
- Conner, J. K. and Hartl, D. L. 2004. *A Primer of Population Genetics*. Sinauer Associates, Sunderland, MA.
- Conrad, D. F., Keebler, J. E. M., DePristo, M. A., *et al.* 2011. Variation in genome-wide mutation rates within and between human families. *Nature Genetics* **43**: 712–5.
- Cook, L. M. 2000. Changing views on melanic moths. *Biological Journal of the Linnean Society* **69**: 431–41.
2003. The rise and fall of the carbonaria form of the peppered moth. *Quarterly Review of Biology* **78**: 399–417.
- Cook, L. M. and Turner, J. R. G. 2008. Decline of melanism in two British moths: spatial, temporal and inter-specific variation. *Heredity* **101**: 483–9.
- Cook, L. M., Sutton, S. L. and Crawford, T. J. 2005. Melanic moth frequencies in Yorkshire, an old English industrial hot spot. *Journal of Heredity* **96**: 522–8.
- Cook, L. M., Grant, B. S., Saccheri, I. J. and Mallet, J. 2012. Selective bird predation on the peppered moth: the last experiment of Michael Majerus. *Biology Letters* **8**: 609–12.
- Costa, J. T. 2009. *The Annotated Origin: A Facsimile of the First Edition of On the Origin of Species*. Belknap Press of Harvard University Press, Cambridge, MA.
- Coyne, J. A. 2009. *Why Evolution is True*. Penguin Books Ltd, London.
- Coyne, J. A., Barton, N. H. and Turelli, M. 1997. Perspective: a critique of Sewall Wright's shifting balance theory of evolution. *Evolution* **51**: 643–71.
- Creed, E. R., Lees, D. R. and Bulmer, M. G. 1980. Pre-adult viability differences of melanic *Biston betularia* (L.) (Lepidoptera). *Biological Journal of the Linnean Society* **13**: 251–62.
- Crespi, B. J. and Teo, R. 2002. Comparative phylogenetic analysis of the evolution of semelparity and life history in salmonid fishes. *Evolution* **56**: 1008–20.
- Crombie, A. C. 1946. Further experiments on insect competition. *Proceedings of the Royal Society of London B: Biological Sciences* **133**: 76–109.
- Crow, J. F. 1986. *Basic Concepts in Population, Quantitative, and Evolutionary Genetics*. W. H. Freeman, New York, NY.
2000. The origins, patterns and implications of human spontaneous mutation. *Nature Reviews Genetics* **1**: 40–7.

2008. Mid-century controversies in population genetics. *Annual Review of Genetics* **42**: 1–16.

Cumming, D. and Jones, B. 2005. *Elephants in Southern Africa: Management Issues and Options*. WWF – SARPO Occasional Paper No. 11. WWF – SARPO, Harare, Zimbabwe.

Darwin, C. 1845. *Journal of Researches into the Natural History and Geology of the Countries Visited During the Voyage of H.M.S. Beagle Round the World, 1832–1836*, 2nd edn. John Murray, London.

1859. *On The Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. John Murray, London.

1862. *On the Various Contrivances by Which British and Foreign Orchids are Fertilized by Insects, and on the Good Effects of Intercrossing*. John Murray, London.

1871. *The Descent of Man, and Selection in Relation to Sex*, Volumes 1 and 2. John Murray, London.

Davies, N. B. 1978. Territorial defence in the speckled wood butterfly (*Pararge aegeria*): the resident always wins. *Animal Behaviour* **26**: 138–47.

Dawkins, R. 1986. *The Blind Watchmaker*. Oxford University Press, Oxford.

1989. *The Selfish Gene*. Oxford University Press, Oxford.

1996. *Climbing Mount Improbable*. Oxford University Press, Oxford.

2009. *The Greatest Show on Earth: The Evidence for Evolution*. Free Press, London.

de Belle, J. S. and Sokolowski, M. B. 1987. Heredity of rover/sitter: alternative foraging strategies of *Drosophila melanogaster* larvae. *Heredity* **59**: 73–83.

Deevey, E. S., Jr. 1947. Life tables for natural populations of animals. *Quarterly Review of Biology* **22**: 283–314.

de Ruiter, L. 1951. Some experiments on the camouflage of stick caterpillars. *Behaviour* **4**: 222–32.

Desmond, A. and Moore, J. 1992. *Darwin: The Life of a Tormented Evolutionist*. Warner Books, New York, NY.

Deutsch, J. C. 1994. Uganda kob mating success does not increase on larger leks. *Behavioral Ecology and Sociobiology* **34**: 451–9.

Dhondt, A. A. 1977. Interspecific competition between great and blue tit. *Nature* **268**: 521–3.

Diamond, J. M. 1973. Distributional ecology of New Guinea birds. *Science* **179**: 759–69.

di Prisco, G., Eastman, J. T., Giordano, D., Parisi, E., and Verde, C. 2007. Biogeography and adaptation of Notothenioid fish: hemoglobin function and globin-gene evolution. *Gene* **398**: 143–55.

Dobrynin, P., Liu, S., Tamaziani, G., et al. 2015. Genomic legacy of the African cheetah, *Acinonyx jubatus*. *Genome Biology* **16**: 277.

Dobzhansky, T. 1955. A review of some fundamental concepts and problems of population genetics. *Cold Spring Harbour Symposium on Quantitative Biology* **20**: 1–15.

Doube, B. M. 1991. Dung beetles of Southern Africa. In: Hanski, I. and Cambefort, Y., eds. *Dung Beetle Ecology*, pp. 133–55. Princeton University Press, Princeton, NJ.

Dudley, J. W. 1977. 76 generations of selection for oil and protein percentage in maize. In: Pollack, E., Kempthorne, O. and Bailey, T. B., eds. *Proceedings of the International Conference on Quantitative Genetics*, pp. 459–73. Iowa State University Press, Ames, IA.

Dudley, J. W. and Lambert, R. J. 2004. 100 generations of selection for oil and protein in corn. *Plant Breeding Reviews* **24**: 79–110.

Dugatin, L. E. 2006. *The Altruism Equation: Seven Scientists Search for the Origins of Goodness*. Princeton University Press, Princeton, NJ.

East, E. M. 1916. Studies on size inheritance in *Nicotiana*. *Genetics* **1**: 164–76.

Elton, C. S. 1924. Periodic fluctuations in the numbers of animals: their causes and effects. *Journal of Experimental Biology* **2**: 119–63.

- Elton, C. 1927. *Animal Ecology*. Sidgwick & Jackson, London.
- Emlen, S. T. and Oring, L. W. 1977. Ecology, sexual selection, and the evolution of mating systems. *Science* **197**: 215–23.
- Enattah, N. S., Jensen, T. G. K., Nielsen, M., *et al.* 2008. Independent introduction of two lactase-persistence alleles into human populations reflects different history of adaptation to milk culture. *American Journal of Human Genetics* **82**: 57–72.
- Epling, C. and Dobzhansky, T. 1942. Genetics of natural populations. VI. Microgeographic races in *Linanthus parryae*. *Genetics* **27**: 317–32.
- Epling, C., Lewis, H. and Ball, F. M. 1960. The breeding group and seed storage: a study in population dynamics. *Evolution* **14**: 238–55.
- Falconer, D. S. and Mackay, T. F. C. 1996. *Introduction to Quantitative Genetics*, 4th edn. Longman, Harlow, UK.
- Fay, J. C., Wyckoff, G. J. and Wu, C.-I. 2002. Testing the neutral theory of molecular evolution with genomic data from *Drosophila*. *Nature* **415**: 1024–6.
- Feldman, M. W. 1992. Heritability: some theoretical ambiguities. In: Keller, E. F. and Lloyd, E. A., eds. *Keywords in Evolutionary Biology*, pp. 151–7. Harvard University Press, Cambridge, MA.
- Festa-Blanchet, M., Jorgenson, J. T., Bérumbé, C. H., Portier, C. and Wishart, W. D. 1997. Body mass and survival of bighorn sheep. *Canadian Journal of Zoology* **75**: 1372–9.
- Fisher, D. O., Dickman, C. R., Jones, M. E., and Blomberg, S. P. 2013. Sperm competition drives the evolution of suicidal reproduction in mammals. *Proceedings of the National Academy of Sciences U S A* **110**: 17910–4.
- Fisher, R. A. 1930. *The Genetical Theory of Natural Selection*. Oxford University Press, London.
- Fiske, P., Rintamaki, P. T. and Karvonen, E. 1998. Mating success in lekking males: a meta-analysis. *Behavioral Ecology* **9**: 328–38.
- FitzGibbon, C. D. 1990. Anti-predator strategies of immature Thomson's gazelles hiding and the prone response. *Journal of Animal Behaviour* **40**: 846–55.
1993. Antipredator strategies of female Thomson's gazelles with hidden fawns. *Journal of Mammalogy* **74**: 758–62.
- Fleming, I. A. 1998. Pattern and variability in the breeding system of Atlantic salmon (*Salmo salar*), with comparisons to other salmonids. *Canadian Journal of Fisheries and Aquatic Science* **55** (Suppl. 1): 59–76.
- Ford, E. B. 1975. *Ecological Genetics*, 4th edn. Chapman & Hall, London.
- Fraga, M. F., Ballestar, E., Paz, M. F., *et al.* 2005. Epigenetic differences arise during the lifetime of monozygotic twins. *Proceedings of the National Academy of Sciences U S A* **102**: 10604–9.
- Francis, R. C. 2011. *Epigenetics: How Environment Shapes Our Genes*. W. W. Norton & Company, New York, NY.
- Freeland, J. R., Kirk, H. and Petersen, S. D. 2011. *Molecular Ecology*, 2nd edn. John Wiley & Sons, Chichester, UK.
- Fujiwara, T. M., Morgan, K., Schwartz, R. H., *et al.* 1989. Genealogical analysis of cystic fibrosis families and chromosome 7q RFLP haplotypes in the Hutterite Brethren. *American Journal of Human Genetics* **44**: 327–37.
- Futuyma, D. J. 1982. *Science on Trial: The Case for Evolution*. Pantheon Books, New York, NY.
2009. *Evolution*, 2nd edn. Sinauer Associates, Sunderland, MA.
- Gan, S. 2010. Senescence processes in plants. In: Davies, P. J., ed. *Plant Hormones: Biosynthesis, Signal Transduction, Action!*, 3rd edn, pp. 597–617. Springer-Verlag, New York, NY.

- Gandolfi, G. 1972. Selection for high and low reactivity to alarm substance in the zebra fish, *Brachydanio rerio*. *Atti Società Italiana di Scienze Naturali* **113**: 28–36.
- Gause, G. F. 1934. *The Struggle for Existence*. Williams & Wilkins, Baltimore, MD.
- Gotelli, N. J. 2008. *A Primer of Ecology*. Sinauer Associates, Sunderland, MA.
- Gough, K. F. and Kerley, G. I. H. 2006. Demography and population dynamics in the elephants *Loxodonta africana* of Addo Elephant National Park, South Africa: is there evidence of density dependent regulation? *Oryx* **40**: 434–41.
- Gould, S. J. 1980. Death before birth, or a mite's *Nunc Dimittis*. In: Gould, S. J. *The Panda's Thumb*, pp. 69–75. W. W. Norton & Company, New York, NY.
- Grant B. R. and Grant, P. R. 1989. *Evolutionary Dynamics of a Natural Population: The Large Cactus Finch of the Galápagos*. University of Chicago Press, Chicago, IL.
- Grant, K. T. and Estes, G. B. 2009. *Darwin in Galápagos: Footsteps to a New World*. Princeton University Press, Princeton, NJ.
- Grant, P. R. 1986. *Ecology and Evolution of Darwin's Finches*. Princeton University Press, Princeton, NJ.
- Grant, P. R. and Grant, B. R. 2014. *40 years of Evolution: Darwin's Finches on Daphne Major Island*. Princeton University Press, Princeton, NJ.
- Grime, J. P., Mackey, J. M. L., Hillier, S. H. and Read, D. J. 1987. Floristic diversity in a model system using experimental microcosms. *Nature* **328**: 420–2.
- Grinnell, J. 1917. The niche-relationships of the California thrasher. *Auk* **34**: 427–33.
- Gurevitch, J., Scheiner, S. M. and Fox, G. A. 2006. *The Ecology of Plants*. Sinauer Associates, Sunderland, MA.
- Haldane, J. B. S. 1924. A mathematical theory of natural and artificial selection. *Transactions of the Cambridge Philosophical Society* **23**: 19–41.
1932. *The Causes of Evolution*. Longmans, Green and Co., London.
1955. Population Genetics. *New Biology* **18**: 34–51.
- Hall, B. G. 2003. The EBG system of *E. coli*: origin and evolution of a novel β -galactosidase for the metabolism of lactose. *Genetica* **118**: 143–156.
- Hall, C. A. S. 1988. An assessment of several of the historically most influential theoretical models used in ecology and of the data provided in their support. *Ecological Modelling* **43**: 5–31.
- Halliday, T. R. 1978. Sexual selection and mate choice. In Krebs, J. R. and Davies, N. B., eds. *Behavioural Ecology: an Evolutionary Approach*, pp. 180–213. Blackwell Scientific Publications, Oxford.
1993. Sexual selection and mating systems. In: Skelton, P., ed. *Evolution: A Biological and Palaeontological Approach*, pp. 264–306. Addison-Wesley, Wokingham, UK.
- Hamilton, W. D. 1963. The evolution of altruistic behavior. *American Naturalist* **97**: 354–6.
- 1964a. The genetical evolution of social behaviour. I. *Journal of Theoretical Biology* **7**: 1–16.
- 1964b. The genetical evolution of social behaviour. II. *Journal of Theoretical Biology* **7**: 17–52.
1966. The moulding of senescence by natural selection. *Journal of Theoretical Biology* **12**: 12–45.
1967. Extraordinary sex ratios. *Science* **156**: 477–88.
1971. Geometry for the selfish herd. *Journal of Theoretical Biology* **31**: 295–311.
- Hannum, G., Guinney, J., Zhao, L., et al. 2013. Genome-wide methylation profiles reveal quantitative views of human aging rates. *Molecular Cell* **49**: 359–67.
- Hanski, I. and Cambefort, Y. 1991. Competition in dung beetles. In: Hanski, I. and Cambefort, Y., eds. *Dung Beetle Ecology*, pp. 305–29. Princeton University Press, Princeton, NJ.
- Hardy, G. H. 1908. Mendelian proportions in a mixed population. *Science* **18**: 49–50.

- Harper, J. L. 1977. *Population Biology of Plants*. Academic Press, New York, NY.
- Harris, H. 1966. Enzyme polymorphism in man. *Proceedings of the Royal Society of London B: Biological Sciences* **164**: 298–310.
- Hartl, D. L. and Clark, A. G. 1989. *Principles of Population Genetics*, 2nd edn. Sinauer Associates, Sunderland, MA.
2007. *Principles of Population Genetics*, 4th edn. Sinauer Associates, Sunderland, MA.
- Hawkins, C. E., Baars, C., Hesterman, H., *et al.* 2006. Emerging disease and population decline of an island endemic, the Tasmanian devil *Sarcophilus harrisii*. *Biological Conservation* **131**: 307–24.
- Hedrick, P. W. 2011. *Genetics of Populations*, 4th edn. Jones & Bartlett Publishers, Sudbury, MA.
- Heinrich, B. and Bartholemew, G. A. 1979. Roles of endothermy and size in inter- and intraspecific competition for elephant dung in an African dung beetle, *Scarabaeus laevistratus*. *Physiological Zoology* **52**: 484–96.
- Hilfinger, A. 2005. *Dynamics of Cilia and Flagella*. Ph.D. thesis, Technische Universität, Dresden, Germany.
- Hill, W. G. 2005. A century of corn selection. *Science* **307**: 683–4.
- Hoelzel, A. R., Halley, J., O'Brien, S. J., *et al.* 1993. Elephant seal genetic variation and the use of simulation models to investigate historical population bottlenecks. *Journal of Heredity* **84**: 443–9.
- Holling, C. S. 1959a. The components of predation as revealed by a study of small mammal predation of the European sawfly. *Canadian Entomologist* **91**: 293–320.
- 1959b. Some characteristics of simple types of predation and parasitism. *Canadian Entomologist* **91**: 385–398.
1961. Principles of insect predation. *Annual Review of Entomology* **6**: 163–182.
1963. An experimental component analysis of population processes. *Memoirs of the Entomological Society of Canada* **32**: 22–32.
1964. The analysis of complex population processes. *Canadian Entomologist* **96**: 335–47.
1965. The functional response of predators to prey density and its role in mimicry and population regulation. *Memoirs of the Entomological Society of Canada* **45**: 1–60.
1966. The functional response of invertebrate predators to prey density. *Memoirs of the Entomological Society of Canada* **48**: 1–87.
- Hooper, J. 2002. *Of Moths and Men: Intrigue, Tragedy and the Peppered Moth*. Fourth Estate, London.
- Hope-Simpson, J. F. 1940. Studies of the vegetation of the English chalk: VI. Late stages in succession leading to chalk grassland. *Journal of Ecology* **28**: 386–402.
- Howlett, R. J. and Majerus, M. E. N. 1987. The understanding of industrial melanism in the peppered moth (*Biston betularia*) (Lepidoptera: Geometridae). *Biological Journal of the Linnean Society* **30**: 31–44.
- Huffaker, C. B. 1958. Experimental studies on predation: dispersion factors and predator–prey oscillations. *Hilgardia* **27**: 343–83.
- Huffaker, C. B., Shea, K. P. and Herman, S. G. 1963. Experimental studies on predation: complex dispersion and levels of food in acarine predator–prey interactions. *Hilgardia* **34**: 305–30.
- Hughes, K. A. and Reynolds, R. M. 2005. Evolutionary and mechanistic theories of aging. *Annual Review of Entomology* **50**: 421–45.
- Hunter, L. T. B. and Skinner, J. D. 1998. Vigilance behaviour in African ungulates: the role of predation pressure. *Behaviour* **135**: 195–211.
- Hutchinson, G. E. 1959. Homage to Santa Rosalia, or why there are so many kinds of animals? *American Naturalist* **93**: 145–59.

- Huttley, G. A., Easteal, M. C., Southey, M. C., *et al.* 2000. Adaptive evolution of the tumor suppressor *BRCA1* in humans and chimpanzees. *Nature Genetics* **25**: 410–3.
- Ingram, C. J. E., Elamin, M. F., Mulcare, C. A., *et al.* 2007. A novel polymorphism associated with lactose tolerance in Africa: multiple causes for lactase persistence? *Human Genetics* **120**: 779–88.
- Jablonka, E. and Raz, G. 2009. Transgenerational epigenetic inheritance: prevalence mechanisms, and implications for the study of heredity and evolution. *Quarterly Review of Biology* **84**: 131–76.
- Janzen, D. H. 1976. Why bamboos wait so long to flower. *Annual Review of Ecology and Systematics* **7**: 347–91.
- Jarvis, J. U. M. 1982. Eusociality in a mammal: cooperative breeding in naked mole-rat colonies. *Science* **212**: 571–3.
- Johnston, R. F. and Selander, R. K. 1964. House sparrows: rapid evolution of races in North America. *Science* **144**: 548–50.
1971. Evolution in the house sparrow. II. Adaptive differentiation in North American populations. *Evolution* **25**: 1–28.
1973. Evolution in the house sparrow. III. Variation in size and sexual dimorphism in Europe and North and South America. *American Naturalist* **107**: 373–90.
- Johnston, R. F., Niles, D. M. and Rohwer, S. A. 1972. Hermon Bumpus and natural selection in the house sparrow *Passer domesticus*. *Evolution* **26**: 20–31.
- Jones, M. E., Cockburn, A., Hamede, R., *et al.* 2008. Life-history change in disease-ravaged Tasmanian devil populations. *Proceedings of the National Academy of Sciences U S A* **105**: 10023–7.
- Joubert, D. 2006. Hunting behaviour of lions (*Panthera leo*) on elephants (*Loxodonta africana*) in the Chobe National Park, Botswana. *African Journal of Ecology* **44**: 279–81.
- Jung, M. and Pfeifer, G. P. 2015. Aging and DNA methylation. *BMC Biology* **13**: 7.
- Kaeberlein, M., McVey, M. and Guarente, L. 1999. The SIR2/3/4 complex and SIR2 alone promote longevity in *Saccharomyces cerevisiae* by two different mechanisms. *Genes & Development* **14**: 2570–80.
- Kaplan, J. 2008. The end of the adaptive landscape metaphor? *Biology and Philosophy* **23**: 625–38.
- Keddy, P. A. 2001. *Competition*, 2nd edn. Kluwer Academic Publishers, London.
- Kennedy, B. K., Austriaco, N. R. Jr, Zhang, J. and Guarente, L. 1995. Mutation in the silencing gene *SIR4* can delay aging in *S. cerevisiae*. *Cell* **80**: 485–96.
- Kenward, R. E. 1978. Hawks and doves: factors affecting success and selection in goshawk attacks on wild pigeons. *Journal of Animal Ecology* **47**: 449–60.
- Kettlewell, H. B. D. 1955. Selection experiments on industrial melanism in the Lepidoptera. *Heredity* **9**: 323–42.
1956. Further selection experiments on industrial melanism in the Lepidoptera. *Heredity* **10**: 287–301.
1958. The importance of the micro-environment to evolutionary trends in the Lepidoptera. *Entomologist* **91**: 214–24.
- Kimura, M. 1968. Evolutionary rate at the molecular level. *Nature* **217**: 624–6.
1983. *The Neutral Theory of Molecular Evolution*. Cambridge University Press, Cambridge.
- King, J. (2011) *Reaching for the Sun*, 2nd edn. Cambridge University Press, Cambridge.
- Kingsland, S. 1982. The refractory model: the logistic curve and the history of biology. *Quarterly Review of Biology* **57**: 29–52.
1991. Defining ecology as a discipline. In Real, L. A. and Brown, J. H, eds. *Foundations of Ecology*. University of Chicago Press, Chicago, IL.

- Klinger, K. W. 1983. Cystic fibrosis in the Ohio Amish: gene frequency and founder effect. *Human Genetics* **65**: 94–8.
- Knight, T. M. 2003. Effects of herbivory and its timing across populations of *Trillium grandiflorum* (Liliaceae). *American Journal of Botany* **90**: 1207–14.
- . 2004. The effects of herbivory and pollen limitation on a declining population of *Trillium grandiflorum*. *Ecological Applications* **14**: 913–28.
- . 2007. Population-level consequences of herbivory timing in *Trillium grandiflorum*. *American Midland Naturalist* **157**: 27–38.
- Knight, T. M., Barfield, M., and Holt, R. D. 2008. Evolutionary dynamics as a component of stage-structured matrix models: an example using *Trillium grandiflorum*. *American Naturalist* **172**: 375–92.
- Kohn, D., Murrell, G., Parker, J. and Whitehorn, M. 2005. What Henslow Taught Darwin. *Nature* **436**: 643–645.
- Komers, P. E. and Brotherton, P. N. M. 1997. Female space use is the best predictor of monogamy in mammals. *Proceedings of the Royal Society of London B: Biological Sciences* **264**: 1261–70.
- Kwiatkowski, D. P. 2005. How malaria has affected the human genome and what human genetics can teach us about malaria. *American Journal of Human Genetics* **77**: 171–92.
- Lack, D. 1947. *Darwin's Finches*. Cambridge University Press, Cambridge.
- Lahdenperä, M., Lummaa, V., Helle, S., Tremblay, M. and Russell, A. F. 2004. Fitness benefits of prolonged post-reproductive lifespan in women. *Nature* **428**: 178–81.
- Lanner, R. F. and Connor, K. F. 2001. Does bristlecone pine senesce? *Experimental Gerontology* **36**: 675–85.
- Larson, D. W. 2001. The paradox of great longevity in a short-lived tree species. *Experimental Gerontology* **36**: 651–73.
- Laughlin, R. 1965. Capacity for increase: a useful population statistic. *Journal of Animal Ecology* **34**: 77–91.
- Laurie, C. C., Chasalow, S. D., LeDeaux, J. R., et al. 2004. The genetic architecture of response to long-term artificial selection for oil concentration in the maize kernel. *Genetics* **168**: 2141–55.
- Law, R., Murrell, D. J. and Dieckmann, U. 2003. Population growth in space and time: spatial logistic equations. *Ecology* **84**: 252–62.
- Leake, J. R. 2005. Plants parasitic on fungi: unearthing the fungi in myco-heterotrophs and debunking the 'saprophytic' plant myth. *Mycologist* **19**: 113–22.
- Lederberg, J. and Lederberg, E. M. 1952. Replica plating and indirect selection of bacterial mutants. *Journal of Bacteriology* **63**: 399–406.
- Lees, D. R. 1981. Industrial melanism: genetic adaptation of animals to air pollution. In: Bishop, J. A. and Cook, L. M., eds. *Genetic Consequences of Man-Made Change*, pp. 129–76. Academic Press, London.
- Lesser, M. R. and Jackson, S. T. 2012. Making a stand: five centuries of population growth in colonizing populations of *Pinus ponderosa*. *Ecology* **93**: 1071–81.
- Lewontin, R. C. 1985. Population genetics. *Annual Review of Genetics* **19**: 81–102.
- Lewontin, R. C. and Hubby, J. L. 1966. A molecular approach to the study of genic heterozygosity in natural populations. II. Amount of variation and degree of heterozygosity in natural populations of *Drosophila pseudoobscura*. *Genetics* **54**: 595–609.
- Liebl, A. L., Schrey, A. W., Richards, C. L. and Martin, L. B. 2013. Patterns of DNA methylation throughout a range expansion of an introduced songbird. *Integrative and Comparative Biology* **53**: 351–8.

- Liebl, A. L., Schrey, A. W., Andrew, S. C., Sheldon, E. L. and Griffith, S. C. 2015. Invasion genetics: lessons from a ubiquitous bird, the house sparrow *Passer domesticus*. *Current Zoology* **61**: 465–76.
- Lieske, D. J. 1997. *Population Dynamics of Urban Merlins*. M.Sc. thesis, University of Saskatchewan, Saskatoon, Canada.
- Lill, A. 1974. Sexual behaviour of the lek-forming white-bearded manakin (*Manacus manacus trinitatis* Hartert). *Zeitschrift für Tierpsychologie* **36**: 1–36.
- Long, J. L. 1981. *Introduced Birds of the World: The Worldwide History, Distribution and Influence of Birds Introduced to New Environments*. Universe Books, New York, NY.
- Longevin, S. M. and Kelsey, K. T. 2013. The fate is not always written in the genes: epigenomics in epidemiologic studies. *Environmental and Molecular Mutagenesis* **54**: 533–41.
- López-Otín, C., Blasco, M. A., Partridge, L., Serrano, M. and Kroemer, G. 2013. The hallmarks of aging. *Cell* **153**: 1194–217.
- Lowe, A., Harris, S. and Ashton, P. 2004. *Ecological Genetics: Design, Analysis, and Application*. Blackwell Publishing, Oxford.
- Luria, S. and Delbrück, M. 1943. Mutations of bacteria from virus sensitivity to virus resistance. *Genetics* **28**: 491–511.
- Lyell, C. 1830–3. *Principles of Geology*, Volumes 1–3. Abbreviated edition. 1997. J. A. Secord, ed. Penguin Books Ltd, London.
- MacArthur, R. H. 1958. Ecology of some warblers of northeastern coniferous forests. *Ecology* **39**: 599–619.
1972. *Geographical Ecology: Patterns in the Distribution of Species*. Princeton University Press, Princeton, NJ.
- Majerus, M. E. N. 1998. *Melanism: Evolution in Action*. Oxford University Press, Oxford.
- Malthus, T. R. 1826. *An Essay on the Principles of Population, as It Affects the Future Improvement of Society*, 6th edn. John Murray, London.
- Marioni, R. E., Shah, S., McRae, A. F., et al. 2015. DNA methylation age of blood predicts all-cause mortality in later life. *Genome Biology* **16**: 25.
- May, R. M. 1976. Models for single populations. In: May, R.M., ed. *Theoretical Ecology: Principles and Applications*, pp. 4–25. Blackwell Scientific Publications, Oxford.
- Maynard Smith, J. 1964. Group selection and kin selection. *Nature* **201**: 1145–7.
- Maynard Smith, J. and Price, G. R. 1973. The logic of animal conflict. *Nature* **246**: 15–18.
- Mayr, E. 1982. *The Growth of Biological Thought: Diversity, Evolution, and Inheritance*. Harvard University Press, Cambridge, MA.
- McCalman, I. 2009. *Darwin's Armada: Four Voyages and the Battle for the Theory of Evolution*. W. W. Norton & Company, New York, NY.
- McKechnie, S. W., Ehrlich, P. R. and White, R. R. 1975. Population genetics of *Euphydryas* butterflies. I. Genetic variation and the neutral hypothesis. *Genetics* **81**: 571–94.
- McNeilly, T. 1968. Evolution in closely adjacent plant populations. III. *Agrostis tenuis* on a small copper mine. *Heredity* **23**: 99–108.
- Medawar, P. B. 1952. *An Unsolved Problem of Biology*. H. K. Lewis and Company, London.
- Meiri, S. and Dayan, T. 2003. On the validity of Bergmann's rule. *Journal of Biogeography* **30**: 331–51.
- Meirmans, P. G. 2012. The trouble with isolation by distance. *Molecular Ecology* **21**: 2839–46.
- Menotti-Raymond, M. and O'Brien, S. J. 1993. Dating the genetic bottleneck of the African cheetah. *Proceedings of the National Academy of Sciences U S A* **90**: 3172–6.

- Miller, J. K. 2001. Escaping senescence: demographic data from the three-toed box turtle (*Terrapene carolina triunguis*). *Experimental Gerontology* **36**: 829–32.
- Miller, K. R. 1999. *Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution*. Harper Collins, New York, NY.
- Miller, T. E., Burns, J. H., Munguia, P., *et al.* 2005. A critical review of twenty years' use of the resource-ratio theory. *American Naturalist* **165**: 439–48.
- Modig, A. O. 1996. Effects of body size and harem size on male reproductive behavior in the southern elephant seal. *Animal Behaviour* **51**: 1295–1306.
- Mørch, E. T. 1941. Chondrodystrophic dwarfs in Denmark. *Opera ex Domo Biologica Hereditariae Humanae Universitatis Hafniensis* **3**: 1–200.
- Morin, P. J. 2011. *Community Ecology*, 2nd edn, Wiley-Blackwell, Oxford.
- Mourant, A. E., Kopec, A. C. and Domaniewska-Sobczak, K. 1976. *The Distribution of the Human Blood Groups and Other Polymorphisms*, 2nd edn. Oxford University Press, Oxford.
- Murdoch, W. W. and Oaten, A. 1975. Predation and population stability. *Advances in Ecological Research* **9**: 2–131.
- Murie, A. 1944. *The Wolves of Mount McKinley*. Fauna of the National Parks of the United States. Fauna Series No. 5, US Department of the Interior, National Parks Service, Washington, DC.
- Myers, J. H. 1993. Population outbreaks in forest Lepidoptera. *American Scientist* **81**: 240–51.
- Nachman, M. W. and Crowell, S. L. 2000. Estimate of the mutation rate per nucleotide in humans. *Genetics* **156**: 297–304.
- Neal, D. 2004. *Introduction to Population Biology*. Cambridge University Press, Cambridge.
- Neel, M. C., McKelvey, K., Ryman, N., *et al.* 2013. Estimation of effective population size in continuously distributed populations: there goes the neighborhood. *Heredity* **111**: 189–99.
- Nei, M. 2005. Selectionism and neutralism in molecular evolution. *Molecular Biology and Evolution* **22**: 2318–42.
- Nevo, E. 1988. Genetic diversity in nature: patterns and theory. *Evolutionary Biology* **23**: 217–46.
- Nevo, E., Beiles, A. and Ben-Shlomo, R. 1984. The evolutionary significance of genetic diversity: ecological, demographic and life history correlates. *Evolutionary Dynamics of Genetic Diversity*, **53**: 13–213.
- Nowak, M. A., Tarnita, C. E. and Wilson, E. O. 2010. The evolution of eusociality. *Nature* **466**: 1057–62.
- Nyakaana, S. and Arctander, P. 1999. Population genetic structure of the African elephant in Uganda based on variation at mitochondrial and nuclear loci: evidence for male-biased gene flow. *Molecular Ecology* **8**: 1105–15.
- Okasha, S. 2006. *Evolution and the Levels of Selection*. Clarendon Press, Oxford.
- Oli, M. K., Slade, N. A., and Dobson, F. S. 2001. Effect of density reduction on Uinta ground squirrels: analysis of life table response experiments. *Ecology* **82**: 1921–9.
- Oliphant, L. W. and Haug, E. 1985. Productivity, population density and rate of increase of an expanding merlin population. *Raptor Research* **19**: 56–9.
- Orians, G. H. 1969. On the evolution of mating systems in birds and mammals. *American Naturalist* **103**: 589–603.
- Otto, S. P. and Day, T. 2007. *A Biologist's Guide to Mathematical Modeling in Ecology and Evolution*. Princeton University Press, Princeton, NJ.
- Paine, R. T. 1966. Food web complexity and species diversity. *American Naturalist* **100**: 65–75.
1969. A note on trophic complexity and community stability. *American Naturalist* **103**: 91–93.

1974. Intertidal community structure: experimental studies on the relationship between a dominant competitor and its principal predator. *Oecologia* **15**: 93–120.
- Park, T. 1948. Interspecies competition in populations of *Tribolium confusum* Duval and *Tribolium castaneum* Herbst. *Ecological Monographs* **18**: 265–307.
1954. Experimental studies of interspecific competition. II. Temperature, humidity, and competition in two species of *Tribolium*. *Physiological Zoology* **27**: 177–238.
- Park, T. and Frank, M. B. 1950. The population history of *Tribolium* free of sporozoan infection. *Journal of Animal Ecology* **19**: 95–105.
- Parkin, D. T. and Cole, S. R. 1985. Genetic differentiation and rates of evolution in some introduced populations of the house sparrow, *Passer domesticus* in Australia and New Zealand. *Heredity* **54**: 15–23.
- Partridge, L. and Barton, N. H. 1993. Optimality, mutation and the evolution of ageing. *Nature* **362**: 305–11.
1996. On measuring the rate of ageing. *Proceedings of the Royal Society of London B: Biological Sciences* **263**: 1365–71.
- Pearl, R. 1927. The growth of populations. *Quarterly Review of Biology* **2**: 532–48.
- Pearl, R. and Reed, L. J. 1920. On the rate of growth of the population of the United States since 1790 and its mathematical representation. *Proceedings of the National Academy of Sciences U S A* **6**: 275–88.
- Perreault, S., Lemon, R. E. and Kuhnlein, U. 1997. Patterns and correlates of extrapair paternity in American redstarts (*Setophaga ruticilla*). *Behavioral Ecology* **8**: 612–21.
- Pimental, D. 1961. Animal population regulation by the genetic feedback model. *American Naturalist* **95**: 65–79.
- Pimental, D. and Stone, F. A. 1968. Evolution and ecology of parasite–host systems. *Canadian Entomology* **100**: 655–62.
- Pimental, D., Nagel, W. P. and Madden, J. L. 1963. Space–time structure of the environment and the survival of parasite–host systems. *American Naturalist* **97**: 141–67.
- Pomiankowski, A. 1999. Intragenomic conflict. In: Keller, L., ed. *Levels of Selection in Evolution*, pp. 121–52. Princeton University Press, Princeton, NJ.
- Poulin, R. 1995. “Adaptive” changes in the behaviour of parasitized animals: a critical review. *International Journal for Parasitology* **25**: 1371–83.
1999. The functional importance of parasites in animal communities: many roles at many levels? *International Journal for Parasitology* **29**: 903–14.
- Power, R. J. and Compion, R. X. S. 2009. Lion predation on elephants in the Savuti, Chobe National Park, Botswana. *African Zoology* **44**: 33–44.
- Ralls, K., Brugger, K. and Ballou, J. 1979. Inbreeding and juvenile mortality in small populations of ungulates. *Science* **206**: 1101–3.
- Rands, C. M., Meander, S., Ponting, C. P. and Lunter, G. 2014. 8.2% of the human genome is constrained: variation in rates of turnover across functional element classes in the human lineage. *PLOS Genetics* **10**: 1–12.
- Rees, J. M., Lederman, S. A. and Kiely, J. L. 1996. Birth weight associated with lowest neonatal mortality: infants of adolescent and adult mothers. *Pediatrics* **98**: 1161–6.
- Reeve, H. K., Westneat, D. F., Noon, W. A., Sherman, P. W. and Aquadro, C. F. 1990. DNA “fingerprinting” reveals high levels of inbreeding in colonies of the eusocial naked mole-rat. *Proceedings of the National Academy of Sciences U S A* **87**: 2496–500.

- Rennie, J. 2002. 15 answers to creationist nonsense. *Scientific American* **287**: 78–85.
- Reyer, H.-U. 1984. Investment and relatedness: a cost/benefit analysis of breeding and helping in the pied kingfisher. *Animal Behaviour* **32**: 1163–78.
1990. Pied kingfishers: ecological causes and reproductive consequences of co-operative breeding. In: Stacey, P. B. and Koenig, W. D., eds. *Cooperative Breeding in Birds: Long-Term Studies of Ecology and Behavior*, pp. 527–57. Cambridge University Press, Cambridge.
- Reznick, D. N. 2010. *The Origin Then and Now: An Interpretive Guide to the Origin of Species*. Princeton University Press, Princeton, NJ.
- Reznick, D. N., Bryant, M. J., Roff, D., Ghalambor, C. K. and Ghalambor, D. B. 2004. Effect of extrinsic mortality on the evolution of senescence in guppies. *Nature* **431**: 1095–9.
- Rich, S. S., Bell, A. E. and Wilson, S. P. 1979. Genetic drift in small populations of *Tribolium*. *Evolution* **33**: 579–84.
- Ritland, D. B. and Brower, L. P. 1991. The viceroy butterfly is not a batesian mimic. *Nature* **350**: 497–8.
- Roach, J. C., Glusman, G., Smit, A. F. A., *et al.* 2010. Analysis of genetic inheritance in a family quartet by whole-genome sequencing. *Science* **238**: 636–9.
- Robbins, R. S. 1973. Introduction, spread, and present abundance of the house sparrow in North America. *Ornithological Monographs* **14**: 3–9.
- Robinson, D. and Fitter, A. 1999. The magnitude and control of carbon transfer between plants linked by a common mycorrhizal network. *Journal of Experimental Botany* **50**: 9–13.
- Roff, D. A. 1990. The evolution of flightlessness in insects. *Ecological Monographs* **30**: 389–421.
2002. *Life History Evolution*. Sinauer Associates, Sunderland, MA.
- Rogina, B. and Helland, S. L. 2004. Sir2 mediates longevity in the fly through a pathway related to calorie restriction. *Proceedings of the National Academy of Sciences U S A* **101**: 15998–16003.
- Rose, M. R. 1991. *The Evolutionary Biology of Aging*. Oxford University Press, Oxford.
- Rosvall, K. A. 2011. Intrasexual competition in females: evidence for sexual selection? *Behavioral Ecology* **22**: 1131–40.
- Rothenbuhler, W. C. 1964. Behavior genetics of nest cleaning in honey bees. *American Zoologist* **4**: 111–23.
- Rozensweig, M. L. and MacArthur, R. H. 1963. Graphical representation and stability conditions of predator–prey interactions. *American Naturalist* **97**: 209–23.
- Rudge, D. W. 2003. Judith Hooper, *Of Moths and Men: Intrigue, Tragedy and the Peppered Moth*. *Journal of the History of Biology* **36**: 207–9.
- Sabeti, P. C., Varilly, P., Fry B., *et al.* 2007. Genome-wide detection and characterization of positive selection in human populations. *Nature* **449**: 913–8.
- Samways, M. J. and Osborn, R. 1998. Divergence in a transoceanic circumtropical dragonfly on a remote island. *Journal of Biogeography* **25**: 935–46.
- Sargent, T. D., Millar, C. D. and Lambert, D. M. 1998. The “classical” explanation of industrial melanism. *Evolutionary Biology* **30**: 299–322.
- Savalli, U. M. 1994. Tail length affects territory ownership in the yellow-shouldered widowbird. *Animal Behavior* **48**: 105–11.
- Schamel, D., Tracy, D. M., Lank, D. B. and Westneat, D. F. 2004. Mate guarding, copulation strategies and paternity in the sex-role reversed, socially polyandrous red-necked phalarope *Phalaropus lobatus*. *Behavioral Ecology and Sociobiology* **57**: 110–8.
- Schemskei, D. W. and Bierzychudek, P. 2001. Perspective: evolution of flower color in the desert annual *Linanthus parryae*: Wright revisited. *Evolution* **55**: 1269–82.

- Scholtz, C. H., Davis, A. L. V. and Kryger, U. 2009. *Evolutionary Biology and Conservation of Dung Beetles*. Pensoft Publishers, Sofia, Bulgaria.
- Schrey, A. W., Grispo, M., Awad, M., *et al.* 2011. Broad-scale latitudinal patterns of genetic diversity among native European and introduced house sparrow (*Passer domesticus*) populations. *Molecular Ecology* **20**: 1133–43.
- Schrey, A. W., Coon, C. A. C., Grispo, M. T., *et al.* 2012. Epigenetic variation may compensate for decreased genetic variation with introductions: a case study using house sparrows (*Passer domesticus*) on two continents. *Genetics Research International* **2012**: 979751.
- Searcy, W. A. and Yasukawa, K. 2014. *Polygyny and Sexual Selection in Red-Winged Blackbirds*. Princeton University Press, Princeton, NJ.
- Selander, R. K. 1976. Genic variation in natural populations. In: Ayala, F. J., ed. *Molecular Evolution*, pp. 21–45. Sinauer Associates, Sunderland, MA.
- Sheriff, M. J., Krebs, C. J. and Boonstra, R. 2009. The sensitive hare: sublethal effects of predator stress on reproduction in snowshoe hares. *Journal of Animal Ecology* **78**: 1249–58.
- Sherman, P. W. 1985. Alarm calls of Belding's ground squirrels to aerial predators: nepotism or self-preservation? *Behavioural Ecology and Sociobiology* **17**: 3313–23.
- Sherman, P. W. and Morton, M. L. 1984. Demography of Belding's ground squirrels. *Ecology* **65**: 1617–28.
- Sherman, P. W., Jarvis, J. U. M. and Alexander, R. D. (eds.) 1991. *The Biology of the Naked Mole-Rat*. Princeton University Press, Princeton NJ.
- Shuster, S. M. and Wade, M. J. 2003. *Mating Systems and Strategies*. Princeton University Press, Princeton, NJ.
- Silvertown, J. 2013. *The Long and the Short of It: The Science of Life Span and Aging*. University of Chicago Press, Chicago, IL, and London.
- Simard, S. W., Perry, D. A., Jones, M. D., *et al.* 1997. Net transfer of carbon between ectomycorrhizal tree species in the field. *Nature* **388**: 579–82.
- Simard, S. W., Beiler, K. J., Bingham, M. A., *et al.* 2012. Mycorrhizal networks: mechanisms, ecology and modelling. *Fungal Biology Reviews* **26**: 39–60.
- Skinner, J. D. and Chimimba, C. T. 2005. *The Mammals of the Southern African Subregion*, 3rd edn. Cambridge University Press, Cambridge.
- Skipper, R. A. 2004. The heuristic role of Sewell Wright's 1932 adaptive landscape diagram. *Philosophy of Science* **71**: 1176–88.
- Slade, N. A. and Balph, D. F. 1974. Population ecology of Uinta ground squirrels. *Ecology* **55**: 989–1003.
- Slatkin, M. 1987. Gene flow and the geographic structure of natural populations. *Science* **236**: 787–92.
- Slobodkin, L. B. 1961. *Growth and Regulation of Animal Populations*. Holt, Reinhart & Winston, New York, NY.
1964. Experimental populations of *Hydrida*. *Journal of Animal Ecology* **33**: 131–48.
- Smith, J. N. M. and Sweatman, H. P. A. 1974. Food-searching behaviour of titmice in patchy environments. *Ecology* **55**: 1216–32.
- Sokal, R. R. and Rohlf, F. J. 1995. *Biometry*, 3rd edn. W. H. Freeman, New York, NY.
- Solomon, M. E. 1949. The natural control of animal populations. *Journal of Animal Ecology* **18**: 1–35.
- Southern, H. N. 1970. The natural control of a population of Tawny Owls (*Strix aluco*). *Journal of Zoology* **162**: 197–285.

- Spencer, P. S., Siller, E., Anderson, J. F. and Barral, J. M. 2012. Silent substitutions predictably alter translation elongation rates and protein folding efficiencies. *Journal of Molecular Biology* **422**: 328–35.
- Spinage, C. A. 1969. Territoriality and social organization of the Uganda defassa waterbuck *Kobus ellipsiprymnus defassa*. *Journal of Zoology* **159**: 329–61.
- Spooner, R. L., Mazumder, N. K., Griffin, T. K., *et al.* 1973. Apparent heterozygote excess at the amylase I locus in cattle. *Animal Production* **16**: 209–14.
- Stearns, S. C., Ackermann, M., Doebeli, M. and Kaiser, M. 2000. Experimental evolution of aging, growth, and reproduction in fruitflies. *Proceedings of the National Academy of Sciences U S A* **97**: 3309–13.
- Stewart, E. J., Madden, R., Paul, G. and Taddei, F. 2005. Aging and death in an organism that reproduces by morphologically symmetric division. *PLoS Biology* **3**: e45.
- Stott, R. 2003. *Darwin and the Barnacle*. Faber and Faber, London.
- Strahler, A. N. 1987. *Science and Earth History: The Evolution/Creation Controversy*. Prometheus Books, Buffalo, NY.
- Stringer, J. M., Barrand, S. and Western, P. 2013. Fine tuning evolution: germ-line epigenetics and inheritance. *Reproduction* **146**: R37–R48.
- Stutchbury, B. J. and Morton, E. S. 1995. The effect of breeding synchrony on extra-pair mating systems in songbirds. *Behaviour* **132**: 675–90.
- Sulloway, F. J. 1982a. Darwin and his finches: the evolution of a legend. *Journal of the History of Biology* **15**: 1–53.
- 1982b. Darwin's conversion: the Beagle voyage and its aftermath. *Journal of the History of Biology* **15**: 325–96.
- 1982c. The Beagle collection of Darwin's Finches (Geospizinae). *Bulletin of the British Museum of Natural History (Zoology)* **43**: 49–94.
- Taber, R. D. and Dasmann, R. F. 1957. The dynamics of three natural populations of the deer *Odocoileus hemionus columbianus*. *Ecology* **38**: 233–46.
- Tilman, D. 1976. Ecological competition between algae: experimental confirmation of resource-based competition theory. *Science* **192**: 463–5.
1977. Resource competition between planktonic algae: an experimental and theoretical approach. *Ecology* **58**: 338–48.
1980. Resources: a graphical-mechanistic approach to competition and predation. *American Naturalist* **116**: 362–93.
- Tilman, D. 1982. *Resource Competition and Community Structure*. Princeton Monographs in Population Biology 17. Princeton University Press, Princeton, NJ.
1986. Nitrogen-limited growth in plants from different successional stages. *Ecology* **67**: 555–63.
2007. Interspecific competition and multispecies coexistence. In: May, R. M. and McLean, R. M., eds. *Theoretical Ecology: Principles and Applications*, pp. 84–97. Oxford University Press, Oxford.
- Tilman, D. and Wedin, D. 1991a. Plant traits and resource reduction for five grasses growing on a nitrogen gradient. *Ecology* **72**: 685–700.
- 1991b. Dynamics of nitrogen competition between successional grasses. *Ecology* **72**: 1038–49.
- Tinsley, M. C. and Reilly, S. 2002. Reproductive ecology of the saltmarsh-dwelling marine ectoparasite *Paragnathia formica* (Crustacea: Isopoda). *Journal of the Marine Biological Association of the United Kingdom* **82**: 79–84.

- Tishkoff, S. A., Reed, F. A., Ranciaro, A., *et al.* 2007. Convergent adaptation of human lactase persistence in Africa and Europe. *Nature Genetics* **39**: 31–40.
- Tissenbaum, H. A. and Guarente, L. 2001. Increased dosage of a *sir-2* gene extends lifespan in *Caenorhabditis elegans*. *Nature* **410**: 227–30.
- Trivers, R. L. 1972. Parental investment and sexual selection. In: Campbell, B., ed. *Sexual Selection and the Descent of Man*, pp. 136–79. Aldine, Chicago, IL.
- Troast, D., Suhling, F., Jinguji, H., Sahlén, G. and Ware J. 2016. A global population genetic study of *Pantela flavesceus*. *PLoS One* **11**: e0148949.
- Tutt, J. W. 1896. *British Moths*. George Routledge, London.
- Udevitz, M. S. and Gogan, P. J. P. 2012. Estimating survival rates with time series of standing age-structure data. *Ecology* **93**: 726–32.
- Upton, N. P. D. 1987. Asynchronous male and female life cycles in the sexually dimorphic, harem-forming isopod *Paragnathia formica* (Crustacea: Isopoda). *Journal of Zoology* **212**: 677–90.
- Utida, S. 1953. Interspecific competition between two species of bean weevil. *Ecology* **34**: 301–7.
1957. Population fluctuation, an experimental and theoretical approach. *Cold Spring Harbour Symposia on Quantitative Biology* **XXII**: 139–51.
- Vandermeer, J. H. 1969. The competitive structure of communities: an experimental approach using protozoa. *Ecology* **50**: 362–71.
- Van't Hof, A. E., Edmunds, N., Dalíková, M., Marec, F. and Saccheri, I. J. 2011. Industrial melanism in British peppered moths has a singular and recent origin. *Science* **332**: 958–60.
- van Strien, M. J., Holderegger, R. and Van Heck, H. J. 2015. Isolation-by-distance in landscapes: considerations for landscape genetics. *Heredity* **114**: 27–37.
- Verhulst, P. F. 1838. Notice sur la loi que la population suit dans son accroissement. *Correspondances Mathématiques et Physiques* **10**: 113–21.
- Wagner, R. H., Schug, M. and Morton, E. S. 1996. Condition-dependent control of paternity by female purple martins: implications for coloniality. *Behavioral Ecology and Sociobiology* **38**: 379–89.
- Wang, J. 2005. Estimation of effective population sizes from data on genetic markers. *Philosophical Transactions of the Royal Society B: Biological Sciences* **360**: 1395–409.
- Waples, R. S., Antao, T. and Luikart, G. 2014. Effects of overlapping generations on linkage disequilibrium estimates of effective population size. *Genetics* **197**: 769–80.
- Wedin, D. and Tilman, D. 1993. Competition among grasses along a nitrogen gradient: Initial conditions and mechanisms of competition. *Ecological Monographs* **63**: 199–229.
- Weinberg, W. 1908. Über den Nachweis der Vererbung beim Menschen. *Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg* **64**: 368–82.
- Wells, J. 2000. *Icons of Evolution: Science or Myth?* Regnery Publishing, Washington, DC.
- West, S. A., Griffin, A. S. and Gardner, A. 2007. Social semantics: altruism, cooperation, mutualism, strong reciprocity and group selection. *Journal of Evolutionary Biology* **20**: 415–32.
2008. Social semantics: how useful has group selection been? *Journal of Evolutionary Biology* **21**: 374–85.
- Westneat, D. F. and Sherman, P. W. 1997. Density and extra-pair fertilizations in birds: a comparative analysis. *Behavioral Ecology and Sociobiology* **41**: 205–15.
- Whitehouse, A. M. and Harley, E. H. 2001. Post-bottleneck genetic diversity of elephant populations in South Africa, revealed using microsatellite analysis. *Molecular Ecology* **10**: 2139–49.

- Whitlock, M. C. and McCauley, D. E. 1999. Indirect measures of gene flow and migration: $F_{ST} \neq 1/(4Nm+1)$. *Heredity* **82**: 117–125.
- Whitlock, M. C. and Phillips, P. C. 2000. The exquisite corpse: a shifting view of the shifting balance. *Trends in Ecology and Evolution* **15**: 347–8.
- Wickman, P. O. and Wicklund, C. 1983. Territorial defence and its seasonal decline in the speckled wood butterfly, *Pararge aegeria*. *Animal Behaviour* **31**: 1206–16.
- Wiklund, C. and Järvi, T. 1982. Survival of distasteful insects after being attacked by naïve birds: a reappraisal of the theory of aposematic coloration evolving through individual selection. *Evolution* **36**: 998–1002.
- Williams, G. C. 1957. Natural selection and the evolution of senescence. *Evolution* **11**: 398–411.
1966. *Adaptation and Natural Selection*. Princeton University Press, Princeton, NJ.
1996. *Plan and Purpose in Nature*. Weidenfeld & Nicolson, London.
- Williams, R. A., Mamotte, C. D. S. and Burnett, J. R. 2008. Phenylketonuria: an inborn error of phenylalanine metabolism. *Clinical Biochemist Reviews* **29**: 31–41.
- Wilson, D. S. 1983. The group selection controversy: history and current status. *Annual Review of Ecology and Systematics* **14**: 159–87.
2008. Social semantics: toward a genuine pluralism in the study of social behaviour. *Journal of Evolutionary Biology* **21**: 368–73.
- Wink, M. and Dyrce, A. 1999. Mating systems in birds: a review of molecular studies. *Acta Ornithologica* **34**: 91–109.
- Wise, D. U. 1998. Creationism's geologic time scale. *American Scientist* **86**: 160–73.
- Wodinsky, J. 1977. Hormonal inhibition of feeding and death in octopus: control by optic gland secretion. *Science* **198**: 948–51.
- Woodd, A. M. 1999. A demographic model to predict future growth of the Addo elephant population. *Koedoe* **42**: 97–100.
- Woolf, L. 1986. The heterozygote advantage in phenylketonuria. *American Journal of Human Genetics* **38**: 773–5.
- Wright, S. 1922. Coefficients of inbreeding and relationship. *American Naturalist* **56**: 330–8.
1931. Evolution in Mendelian populations. *Genetics* **16**: 97–159.
1932. The roles of mutation, inbreeding, crossbreeding and selection in evolution. *Proceedings of the 6th International Congress of Genetics* **1**: 356–66.
- 1943a. Isolation by distance. *Genetics* **28**: 114–38.
- 1943b. Analysis of variability of flower color in *Lynanthus parryae*. *Genetics* **28**: 139–56.
1945. Tempo and mode in evolution: a critical review. *Ecology* **26**: 415–19.
1951. The genetical structure of populations. *Annals of Eugenics* **15**: 323–54.
1978. *Evolution and the genetics of populations*. Vol. 4: *Variability within and among natural populations*. University of Chicago Press, Chicago, IL.
1988. Surfaces of selective value revisited. *American Naturalist* **131**: 115–23.
- Yan, G., Stevens, L., Goodnight, C. J. and Schall, J. J. 1998. Effects of a tapeworm parasite on the competition of *Tribolium* beetles. *Ecology* **79**: 1093–103.
- Zahavi, A. and Zahavi, A. 1997. *The Handicap Principle: A Missing Piece of Darwin's Puzzle*. Oxford University Press, Oxford.