

ORGANISMS - OB 1.5 Lectures 17 - 19 (Hilary Term 2013)
READING & REFERENCE LIST

GENERAL

Southwood R. (2002) *The Story of Life* OUP You have heard the lectures but before you sit the exam read the book. The late Professor Sir Richard Southwood (former Vice—Chancellor & lecturer to first years) has written a very readable account of 4,000 million years of history. Unsurprisingly there is a serious bias towards animals but despite that it is a fascinating read.

Fortey, R. (1997) *LIFE an unauthorised biography* HarperCollins. ISBN 000 255560 3 The book is sub-titled “a natural history of the first four thousand million years of life on Earth”. With A levels and the first year behind you it will still be a challenging but enthralling read.

Hazen R.M. (2005) *Gen.e.sis – the scientific quest for life’s origins* Joseph Henry Press ISBN 0-309-09432-1 This is very readable account of the on-going research into where life may have come from.

Pier Luigi Luisi (2006) *The emergence of Life from chemical origins to synthetic biology* CUP ISBN 0-521-82117-7 This book is written by a chemist rather than a biologist but this is an advantage because it is an objective view of this fundamental piece of biology that has yet to be explained in anything approaching a satisfactory manner.

Gensel P.G. & Edwards D. (2001) *Plant Invade the Land* Columbia University Press ISBN 0-231-11161-4 The investigation of the early evolution of land plants (500 – 360 Myr BP) is a detective story that is by no means finished. This book summarises and evaluates the current evidence.

Keddy P.A. (2007) *Plants and vegetation – origins, processes, consequences* CUP ISBN 0-521-86480-1 This new book is very broad in its scope and is a good introduction to many aspects of whole plant biology.

Kendrick P. & Davis P. (2004) *Fossil Plants* Natural History Museum ISBN 0-565-09176-X This is a perfect introduction to the bewildering world of land plant evolution. It is written for the interested layman and this helps to make the subject less bewildering

Willis K.J. & McElwain J.C. (2002) *The Evolution of Plants* OUP ISBN 0 19 850065 3 This is a book that many of us have been waiting for – another good book to read in the first summer vacation.

Erwin D.H. (2006) *Extinction – how life on Earth nearly ended 250 mya* PUP ISBN 0-691-00524-9 This book looks at the mass extinction event at the end of the Permian. It is an easy read and gives shows how resilient Life can be in adversity. However, it has important questions about the present levels of species loss & habitat transformation.

Lamb S. & Sington D. (1999) *Earth Story* BBC Books. ISBN 0 563 38799 8 If you think that climate change is a new phenomenon, or if you have found geology bewildering, then I cannot recommend this book too highly.

Rensing et al (2008) *The Physcomitrella genome reveals evolutionary insights into the conquest of land by plants* Science vol.319 p.64

LIFE CYCLES AND TAXONOMY

Heywood, V.H. (ed.) (2007) *Flowering Plants of the World* Oxford. ISBN 0 192 17674 9 Despite the fact that this book was first published when this lecturer was an undergraduate sitting where you are now, it remains the very best introduction to all the families of flowering plants currently recognised. A new edition is imminent.

Humphries, J.M. (1996) *Ray, the father of taxonomic method* D.Phil. Thesis, University of Oxford. The first part of this thesis provides a fascinating insight into the work of a natural scientist before science was fully accepted as an academic discipline and when religion influenced many people’s thinking. The thesis proves how important the study of the history of science can be in understanding how we think today.

Judd W.S. et al. (2002) *Plant Systematics: a phylogenetic approach* Sinauer ISBN 0 87893 404 9 In many ways this is the update of Heywood without much of the economic botany and with a North American bias. If you are intending to take the plants option through to finals this is an important book.

Mabberley, D.J. (1997) *The Plant Book* (2nd edition) CUP. ISBN 0 521 41421 0 Do not be put off by the lack of illustrations or the title. This is simply one of the most useful botany books ever published. It contains an encyclopaedic amount of information in an unbelievably small book. Taken with Heywood (1978), to which Mabberley was a contributor, it is the definitive over-view of the plant kingdom. The next edition is now out

Moore, R., Clark, W.D. & Vodopich D.S. (1998) *Botany* (2nd edition) McGraw-Hill ISBN 0-697 28623-1 A standard textbook that is anything but standard. Of particular relevance to these lectures are Chapters 1, 24, 28 - 33 and the epilogue. This book, together with Raven *et al.* is a very useful reference book.

Raven, P.H., Evert, F.E. & Eichhorn S.E.. (1992) *Biology of Plants* (5th edition) Worth Publishers ISBN 0-87901-532-2 This is a very good general textbook because it is both readable and factual. Of particular

relevance to this part of the Biological Sciences course are chapter 1, Section 3 (ch.10 & 15 - 19) and Section 6 (ch. 30 & 31)

Ridley M. (1997) *Can classification do without evolution?* In *Evolution* ed. Ridley ISBN 0 19 289287 8 This short paper is a very good introduction to the modern science of plant taxonomy. The third edition of this standard work is now out.

Simpson M.G. (2006) *Plant Systematics* Elsevier ISBN 0-12-644460-9 This is an excellently written, & lavishly illustrated, account of the morphology, evolution and classification of land plants. There are very good passages on the techniques involved in plant classification.

Soltis et al. (2005) *Phylogeny & evolution of Angiosperms* Sinauer ISBN 0-87893-817-6 This the standard account of our present understanding of the subject written by four of the major players

Stace, C.A. (1989) *Plant Taxonomy and Biosystematics* (2nd Edition) CUP. ISBN (paperback) 0 521 42785 1 This excellent work, by the author of the present standard Flora for the British Isles, contains a lot of very important information on the theory, practice and value of plant taxonomy.

Tudge, C, (2000) *The Variety of Life* OUP ISBN 0-19-850311-3 This is a very readable over view. Of relevance here are Part 1, ch 23-25 of part 2 and part 3 BY THE SAME AUTHOR **(2006) *The Secret Life of trees*** This includes a lot of basic biology with trees as the examples

Palmer et al. (2004) *The Plant Tree of life* Amer. J. Bot 91(10) 1437-1445

Pryer et al. (2004) *Phylogeny & evolution of ferns* Amer. J. Bot 91(10) 1582-1598

Burleigh & Mathews (2004) *Phylogenetic signal in nucleotide data* Amer. J. Bot 91(10) 1599-1613

Soltis & Soltis (2004) *Origin & diversification of angiosperms* Amer. J. Bot 91(10) 11614-1626

Judd & Olstead (2004) *Survey of tricolpate phylogenetic relationships* Amer. J. Bot 91(10) 1627-1644

Davies et al. (2004) *Darwin's abominable mystery: insights from a super tree of the angiosperms* PNAS vol.101 no.7 p1904-1909

Bateman, Hilton & Rudall (2006) *Morphological & molecular phylogenetic context of the angiosperms: contrasting the top-down & bottom-up approaches used to infer the likely characteristics of the first flowers* J of Experimental Botany vol.57 no.13 p.3471-3503

Prusiniewicz et al (2007) *Evolution & development of inflorescence architectures* Science vol.316 p.1452

McCormick (2007) *Reproductive dialog* Science vol.317 p.606

Menand et al (2007) *An ancient mechanism controls the development of cells with a rooting function in Land Plants* Science vol/316 p.1477

POLLINATION

Books

- **Buchmann, S.L., & Nabhan G.P., (1996) *The forgotten pollinators*** Island Press ISBN 1-55963-352-2 This is a timely reminder that plant conservation bereft of pollinator conservation is rather foolish. The style of this book takes some getting used to but it contains a vast amount of information about plant conservation and pollination.
- **Chittka, L. & Thomson J.D. (eds) (2001) *Cognitive ecology of Pollination - animal behaviour & floral evolution*** CUP ISBN 0-521-78195-7 This collection of papers treats pollination from the animal's side but nevertheless contains a lot of information on how plants & animals have evolved together.
- **Faegri K. & van der Pijl L.. (1971) *The principles of Pollination Ecology*** (2nd edition) Pergamon ISBN 0-08-016421-8 This was the standard text book for many years and still contains many good specific examples. There is a more recent edition.
- **Hader Barrett eds (2006) *Ecology & Evolution of Flowers*** OUP ISBN 0 19 857086-4 This is an advanced text book on many aspects of the reproduction of flowering plants.
- **Procter, M., Yeo, P., & Lack, A.. (1996) *The Natural History of Pollination*** Harper Collins ISBN 000-219906-8 The standard work that contains a vast amount of good information.
- **Schoonhoven, L.M., Jermy, T. & van Loon (1998) *Insect - Plant Biology from physiology to evolution*** Chapman & Hill ISBN 0-412-58700-9 This is an excellent publication because it approaches many subjects from both directions i.e. plant and animal.
- **Thomas, P. (2000) *Trees: their natural history*** CUP ISBN 0-521-45963-X Chapter 5 of this very readable book is relevant to not only pollination but also the seed biology of trees.
- **Waser & Ollerton (2006) *Plant-Pollinator Interactions*** UCP ISBN 0-226-87400-1 This book examines pollination in the context not only of plant life histories but also within the much wider context of community biology & evolution.

Papers

- **Cronberg et al (2006) *Microarthropods mediate sperm transfer in mosses*** Science vol 313 p 1255

- **Anderson S.H. (2011)** *Cascading effects of bird functional extinction reduce pollination and plant diversity* *Science* **331** p.1068
- **Biesmeijer et al (2006)** *Parallel declines in pollinators & insect-pollinated plants in Britain & the Netherlands* *Science* vol.313 p.351
- **Brown M.J.F. (2011)** *The trouble with bumblebees* *Nature* **469** p169-170
- **Dixon (2009)** *Pollination and Restoration* *Science* vol.325 p.571
- **Ellis A. & Johnson S., (2010)** *Crazy for you, Daisy* *Am Nat* doi:10.1086/656487
- **Goldberg E.E. et al. (2010)** *Species selection maintains self-incompatibility* *Science* **330** p4938i
- **Govers F & Angenent G.C.. (2010)** *Fertility Goddesses as Trojan Horses* *Science* **330** p922-923
- **Heenan (1998)** *The pollination system and stigmatic cuticle of Clianthus puniceus* *N.Z. Journal of Botany* vol.36. p.311-4
- **Indriolo E. & Goring D.R.. (2010)** *Pollen gets more complex* *Science* **330** p767
- **Inouye D.W. (2010)** *Mosquitoes; more likely nectar thieves than pollinators* *Nature* **467** p27
- **Ken-ichi Kubo et al.** *Collaborative non-self recognition system in S-RNase based self-incompatibility* *Science* **330** p796
- **Kessler S.A. et al. (2010)** *Conserved molecular components for pollen tube reception and fungal invasion* *Science* **330** p968-971
- **Li W., (2010)** *A pollen factor linking inter- & intraspecific pollen rejection in tomato* *Science* **330** p1827
- **Ollerton & Coulthard (2009)** *Evolution of Animal Pollination* *Science* vol 326. p.808
- **Ollerton et al. (2009)** *Fly pollination in Ceropogia; biogeographic & phylogenetic perspectives* *Annals of Botany*
- **Ollerton et al. (2009)** *A global test of the Pollination Syndrome hypothesis* *Annals of Botany*
- **Ollerton et al (2007)** *Multiple meanings and modes: on the way to be a generalist flower* *Annals of Botany* vol.56 (3)
- **Ollerton et al. (2007)** *Multiple meanings and modes: on the many ways to be a generalist flower* *Taxon* **56**(3) p.717-728
- **Olerton, Winfree & Tarrant (2011)** *How many flowering plants are pollinated by animals?* *Oikos* **120**: 321-326
- **Petherick (2008)** *Agriculture unaffected by pollinator declines* *Nature* 16 October 2008
- **Raguso (2008)** *The "invisible hand" of floral chemistry* *Science* vol.321 p.1163
- **Ratnieks & Carreck (2010)** *Clarity on honey bee collapse?* *Science* vol.327 p.152
- **Ren et al (2009)** *A probable pollination mode before angiosperms: Eurasian, long-proboscid scorpionflies* *Evolution of Animal Pollination* *Science* vol 326. p.840
- **Sekercioglu C.H., (2011)** *Functional extinctions of bird pollinators cause plant declines* *Science* **331** p1091
- **Settele & Kuhn (2009)** *Insect Conservation* *Science* vol.325 p.41
- **Seymour & Matthews (2006)** *The role of thermogenesis in the pollination biology of the Amazon Waterlily Victoria amazonica* *Annals of Botany* vol.98: 1129-1135
- **Sun, Gong, Renner & Huang (2008)** *Multifunctional bracts in Davidia involucrata: rain protection and pollinator attraction* *American Naturalist* vol.171 p.119
- **Thomas, Simcox & Clarke (2009)** *Successful conservation of a threatened Maculinea butterfly (UK large blues)* *Science* vol.325 p.80
- **Wheeler et al. (2009)** *Identification of the pollen self-incompatibility determinant in Papaver rhoeas* *Nature* vol.459 p.992
- **Whitney et al. (2009)** *Floral iridescence, produced by diffractive optics, acts as a cue for animal pollinators* *Science* vol.323 p.130
- **Wright S.I. & Barrett S.C.H. (2010)** *The long-term benefits of self rejection* *Science* **330** p459

SEEDS

- **Abbott A., (2010)** *Growth Industry* *Nature* vol 468 p886-888
- **Baskin, C.C. & Baskin, J.M. (2001)** *Seeds, the ecology, biogeography & evolution of Dormancy and Germination* Academic Press ISBN 0-12-080263-5 This is a new standard text book that is cited as a reference in almost every paper on seeds.
- **Dennis, Schupp, Green & Westcott eds (2007)** *Seed Dispersal – theory & its application in a changing world* CABI ISBN 978 1 84593 165 0 This a new advanced text book on a wide variety of seed related themes.

- **Fenner, M. (ed) (2000) *Seeds, the ecology of regeneration in plant communities*** (2nd edition) CABI ISBN 0-85199-432-6 There are 16 review papers in this book that shows just how much we do not know yet about seeds. This is a good place to find inspiration for projects.
- **Fenner & Thompson (2006) *The ecology of seeds*** CUP ISBN 0-521-65368-1 This book is an update of the above and looks at many of the questions raised by these lectures.
- **Jordano p., (2010) *Pollen, seeds and genes: the movement ecology of plants*** Heredity **105** p329-330
- **Levey D.J., Silva W.R. & Galetti M. (2001) *Seed Dispersal and Frugivory*** CABI ISBN 0-085199 525 X This weighty tome contains lots of good examples about seed biology.
- **Silvertown J., Franco M., & Harper J.L.. (1997) *Plant Life Histories - ecology, phylogeny & evolution*** CUP ISBN 0-521-57495-1 This is a small book that covers a huge area of biological sciences including seeds among many other things.
- **Elbaum et al (2007) *The role of wheat awns in the seed dispersal unit*** Science vol.316 p.884

ETHNOBOTANY

- **Balick, M.J. & Cox, P.A. (1996) *Plants, People and Culture - the science of Ethnobotany*** Scientific American Library. ISSN 1040-3213 This is a first-class, well written introduction to the subject of ethnobotany with some very well chosen examples of the many ways in which Man interacts with plants.
- **Lewington, A. (2003) *Plants for People*** Eden Project. 2nd Edition This is an intentionally “popular” book about the uses to which we put plants. It is richly illustrated and easy to read but do not think that it is therefore a trivial book. It contains a great deal of well-researched information and it has contributed a great deal to the public understanding of science.
- **Mabey, R. (1996) *Flora Britannica*** Sinclair-Stevenson. ISBN 1 85619 377 2 This is a wonderful account of the ethnobotany of the British Isles. If you think that the British Flora is just a stabilised, post-glacial weed flora then read this book.
- **Swerdlow J.L. *Nature's medicine - plants that heal*** National Geographic ISBN 0 7922 7586 1 As you would expect from National Geographic this is a ruthlessly researched and beautifully photographed book on the role of plants in medicine all over the World
- **Dillehay et al. (2007) *Pre-ceramic adoption of peanut, squash & cotton in Northern Peru*** Science vol.316 p.1890
- **Balter (2007) *Seeking agriculture's ancient roots*** Science vol.316 p.1830-1835
- **Zong et al (2007) *Fire & flood management of coastal swamp enabled first rice paddy cultivation in east China*** Nature vol.449 p.459