

CURRICULUM VITAE

ANDREW LOWE

Nationality: British
Date of birth: 15 December 1968
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Education

1992–1996 Ph.D Plant Evolutionary Genetics: University of St Andrews, UK
'The origin and maintenance of a new *Senecio* hybrid in England'

1987-1991 BSc (Hons) Applied Biology: University of Bath, UK
Included placements at MAFF, IGER and Purdue University, USA

Career Details

2003- Lecturer, University of Queensland, Australia

Researcher and lecturer in ecological and evolutionary genetics. Research focus on population and evolutionary genetic questions of Australian, SE Asian and pacific interest, and new research into ecological and evolutionary functional genomics.

1998-2003 Senior/Higher Scientific Officer, Centre for Ecology & Hydrology, UK

Managed and supervised staff and resources of the ecological genetics lab within the Biosystem Management section. Responsible for attracting section funding, covering salary costs of staff, fulfilling contracts, delivering reports and publications. Attracted more than 5 million Euros of funding for international projects, and setup an internally housed commercial service to undertake genotyping of economically important tree species.

1998 Postdoctoral Scientist, John Innes/Long Ashton Research Stations, UK

Developed microsatellites and database management tools for genetic mapping

1997 Postdoctoral Scientist, Scottish Crop Research Institute/CEH, UK

Assessed genetic conservation priorities for African multipurpose trees

1996 Consultant, International Livestock Research Institute, Kenya & Ethiopia

Molecular characterisation of germplasm collection of African forage grasses

1991-1992 Science Officer, Society for Environmental Exploration, UK & Tanzania

Coordinated biodiversity work of 18 volunteers in Tanzanian Coastal Forests

Evidence of impact

Publications and Presentations

- Published more than 50 papers, many in high impact journals, and three book chapters
- Lead author of a book *Ecological Genetics; Design, Analysis and Application*, published in 2004, which received an outstanding review in *Trends in Ecology and Evolution*. It is now in its third reprint (selling approx 5000 copies) with publisher Blackwells
- In UQ School Review (2003), placed second out of all academics (and first in the Ecology and Evolution division) for publication impact over the last 5 years (a combined algorithm based on average number of citations per, impact factor and half life of journal)
- Commissioned to write and coordinate five review articles with international experts for journal *Heredity*, on population genetics in neotropical trees, published in 2005.
- Given 24 scientific presentations at international and national meetings and public meetings in last 5 years, 11 of which were invited; including session convenor.

Research and Teaching

- Awarded >20 research grants since 2000, with a total budget of approximately \$16 million (equivalent), of which approx. \$3 million (equivalent) has come to my research group
- Scientific coordinator of 3 large EU projects (total budget > 5 million Euros).
- Commissioned to review microsatellite use within wooded landscape restoration for UK Forestry Commission. Used to define and lead government policy and priorities
- Supervised 3 PhD, 4 Msc and 6 Honours students to completion
- Currently supervising and cosupervising 2 postdocs, 6 PhDs and 2 Honours student
- Received high evaluations for teaching (top 25% of teachers at UQ, the highest category in the evaluation system). Upon taking over coordination of the first year ecology and environment course (approx 350 students), increased student satisfaction rating by 26%.

Awards and Service

- Awarded Institute of Chartered Foresters' 2004 Silvicultural prize for Lowe *et al* 2004 *Forestry* 77: 335-347 'an original and much valued contribution to the genetics of oak'
- Elected to Editorial board of *Silvae Genetica* in 2004
- Elected to coordinate scientific research objectives of *Macadamia Conservation Committee* by industry (*Australian Macadamia Society*) and government (EPA, CSIRO)
- Invited PhD external examiner for *vivas* at Oxford University (2001, attended), University of Adelaide (2002, written), Uppsala University (2003, attended). Reviewer for five UQ PhDs
- Article and book reviewer for *Trends in Ecology and Evolution*, *Molecular Ecology*, *Heredity*, *Genome*, *Genetics*, *Conservation Genetics*, *American Journal of Botany*, *Theoretical and Applied Genetics*, *Forest Ecology and Management*, *Silvae Genetica*
- Grant reviewer for Natural Environment Research Council (NERC, UK), EU, Department for International Development (DfID UK Government), National Geographic Society (NGS, USA), Department for Environment, Farming and Regions (DEFRA, UK Government), The Darwin Initiative, Scottish Executive

- **Research focus**

My main research interests can be described as examining gene flow at different spatial, temporal and biological organisational scales, and to date my major scientific contributions of theoretical and societal importance are as follows:

Gene flow between individuals – population genetics – I have developed laboratory and analytical techniques to describe gene flow between individuals and populations for a range of organisms and landscapes. Such studies are fundamental to understanding the gene flow dynamics associated with land-use change (e.g. habitat fragmentation) and exploitation, and have led to extraction rate threshold setting, adopted by government agencies (e.g. Costa Rican and UK governments). Recently I have used simulation modelling to test outcomes of recommended land-use strategies, in terms of genetic diversity and population connectivity, further improving management advice. Current work is developing genomics approaches to describe the distribution of variation at gene loci encoding environment adaptations (e.g. drought) and to examine the divergent influences of gene flow and selection within natural populations.

Gene flow between populations – phylogeography – I have applied molecular and statistical procedures to examine species colonization dynamics since the last ice age for a range of plant and animal systems. Recently I have used simulation modelling procedures to examine the influence of long distance dispersal/migration on a species' ability to respond to both past and future climate change scenarios. This work has led to dispersal lag being included in global climate change predictive models. Ongoing work is examining the contrasting models of long distance dispersal and vicariance on wide-spread species spanning regions of major geological and climatic change in the SW Pacific. In addition, ancient DNA approaches are being developed to improve calculation of evolutionary rates and time major dispersal episodes.

Gene flow between species – hybridisation and speciation - I have studied the evolution of Britain's newest plant species, discovered only 30 years ago, and described it as a new species, *Senecio eboracensis* Abbott & Lowe, based on ecological and molecular evidence. The origin of a new species within our time and its adaptation to man-made habitats (car parks) captured the public imagination. In addition to scientific articles, press releases resulted in international media coverage (e.g. front page of The Times). The story also caused raging debate in creationist vs. evolution web chat rooms, and a young British artist, Nich Relph, was inspired to produce an installation at the Finnish National Gallery (Helsinki) after hearing the story. Recent and continuing work is examining the genomic composition, gene expression and selective sweeps of hybridising and invasive species, including weeds.

The political and economic dimension of gene flow – I have used data describing the distribution and dynamics of genetic variation to develop management plans and best practice policies for a range of genetic resource issues. Habitat management and collection strategies have been implemented by end users internationally, driving a reassessment of the CITIES conservation status of mahogany in Central and South America, nationally, Forestry Commission and English Nature have reassessed their oak seed sourcing strategy, and locally, by conservation groups seeking to replant native forest (e.g. Carrifran Wildwood project). In addition, I have been developing specific markers to aid the tracking and identification of material from unknown or dubious sources, and have setup an internally incubating company (EcoGeneLabs) to perform fingerprinting tests on a commercial basis.

Funding

I am research coordinator of two multi-partner projects examining the distribution of genetic variation in tropical plants (GENEO-TROPECO, 1.2M Euros: www.edinburgh.ceh.ac.uk/geneo and TEAKDIV, 1.25M Euros www.edinburgh.ceh.ac.uk/teakdiv), and a partner of a project examining gene flow in oaks (OAKFLOW: <http://www.pierroton.inra.fr/Oakflow>). In 2005 I also started leading an international consortium of 8 European and Latin American partners targeting seed sourcing and regional genotyping strategies in the neotropics (SEEDSOURCE, 2.6M Euros)

Submitted

- Rieseberg L, Adams K, Whitton J, Otto S, Michelmore R, Lowe AJ, Knapp S. (submitted, Jan 2006) Genomics of invasive plants. Genome Canada (\$12.8 M).
- Barker B, Lowe AJ, Gardner M (submitted, Nov 2005) Providing a molecular basis for species delimitation in *Glossostigma* (Phrymaceae ~ Scrophulariaceae). ABRIS Project (36K).

Awarded

25. Lowe AJ, Clarke AR, Schenk PM, Rieseberg LH, Abbott RJ (Nov 2005) Why do some exotics become invasive? Using ecological and genomic approaches to test alternative hypotheses in an Australian weed, fireweed. ARC Discovery (\$600 K).
24. Lowe AJ, Rossetto M, Crayne D, Pole M, Lambert D, Hollingsworth P (submitted, February 2005) Quantifying rates of long distance dispersal and genomic evolution in divergent plant lineages of the SW Pacific region. ARC Discovery (\$250 K).
23. Morgan-Richards M, Robertson A, Lowe A (Nov 2005) Does geneflow limit species' ranges? Royal Society of New Zealand Marsden grant (\$30 K).
22. Shapcott A, Accad A, Lowe AJ, Mengersen KL, Williams KJ, Hardner CM, Westcott D, Austin MP (May 2005) Macadamia National Macadamia Conservation. ARCLinkage (\$120 K).
21. Lowe AJ (2005) Combining phylogeographic connectivity and habitat modeling to establish the historical response of Wet Tropic montane vegetation to climate change. Rainforest CRC (\$25K).
20. Schmidt S, Lowe AJ (2005-2006) Spontaneous Evolution Technologies. UniQuest subcontract (\$160 K).
19. Kremer A, Koelewijn HP, Berenyi M, Degen B, Vendramin GG, Boerjan W, Bradshaw R, Finkeldey R, Lenee P, Amaral W, Lowe A, Brandl R, Gugerli F, Paule L, Muller-Starck G, Alia R, Morgante M, Frascaria-Lacoste N, Bhalerao R, Burczyk J, Savolainen O, Taylor G, Matyas C, Lascoux M, Reineke A, (2006-2010) EVOLUTION of TREES as drivers of terrestrial biodiversity, **EVOLTREE**. EU-FP6 (€14.7 M)
18. Bacles C, Lowe AJ, Kremer A (2005) Ecological Genomics of Sub-tropical Eucalypt Woodlands: Comparing the Structure and Dynamics of Neutral and Adaptive Genes across a Sharp Environmental Cline in Queensland Eucalyptus. **ADaPtE**. EU -Marie Currie Outgoing Fellowship (€300 K).
17. Lowe AJ, Boshier D, Kremer A, Degen B, Finegan B, Vendremin G, Gribel R, Margis R, Navarrete H, Dick C, Parolin P (2005-2008) Developing best practice for seed sourcing for planting and natural regeneration in the neotropics, **SEEDSOURCE**. EU (€2.6 M).
16. Lowe AJ, Possingham H (2005) Combining spatial and molecular ecology methods to understanding regeneration dynamics of Australian rainforest trees. Research Development Grant, University of Queensland (\$57 K).
15. Buckley Y, Lowe AJ, De Barro P, Schellhorn N (2005) Population genetic structure of *Bemisia tabaci* biotype B at different spatial scales. Joint CSIRO/UQ student fellowship (\$75 K)
14. Lowe AJ (2005) Phylogeography and genetic identity of cats claw in its native and introduced ranges. Department of Primary Industries (\$5 K).
13. Lowe AJ, Loy T (2005) Shiver-me-timbers. Using ancient DNA to identify the origin of oak timbers from the Elizabethan flagship, the Mary Rose. English Archaeology (\$2 K).
12. Lowe AJ, Gresshoff P, Degnan B, Botella J, Birch R, Merritt D, Scott K, Goldizen A, Blows M, Aitken L, Duke N, Barker S, Carroll B, O'Neill S (2004) Ecological and evolutionary

genomics facility. University of Queensland, Major equipment and infrastructure grant (\$425 K).

11. Goldizen A, Lowe AJ, Pople T (2004) Assessing the impact of drought on the population dynamics of an endangered wallaby rescued from extinction by a flagship translocation program. The Australian and Pacific Science Foundation (\$25 K).
10. Lowe AJ (2004) Fine scale genetic structure of four tree species within undisturbed tropical forests: developing indicators for genetic resource management. University of Queensland, New staff grant (\$12 K).
9. Lowe AJ (2004) Ecological Genomics of Sub-tropical Eucalypt Woodlands. Mobility grant, University of Queensland (\$1 K).
8. Lowe AJ (2003) Hybridisation in European oaks. University of Queensland, Early researcher grant (\$27 K).
7. Lowe AJ (2003) UQ start up grant (\$50 K)
6. Lowe AJ, Cavers S (2003) EcoGeneLabs. NERC Innovation funding, part B (£25 K).
5. Lowe AJ (2003) EcoGeneLabs. NERC Innovation funding, part A (£20 K).
4. Lowe AJ, Finegan B, Kremer A, Degen B, Gribel R, Margis R, Gheysen G (2002-2005) Sustainable Management of Neo-Tropical Tree Genetic Resources: Combining molecular and modelling methods to understand the structure and dynamics of gene diversity, **GENEO-TROPECO**. EU-FP5 contract (€1.2 M; £225,000 to my group).
3. Lowe AJ, Indira EP, Sudarsono, Volkaert H, Van Der Straeten D, Wellendorf H (2002-2004) Developing know-how for the improvement and sustainable management of teak genetic resources, **TEAKDIV**. EU-FP5 contract (€1.25 M; £200,000 to my group).
2. Muir G, Lowe AJ, Schlötterer C, Kremer A, (2001-2003) Identification and characterisation of genomic regions differentiating two hybridising oaks (*Quercus robur* L. and *Q. petraea* (Matt.) Liebl). Austrian Science Fund, FWF (0.74 M Austrian Shillings).
1. Kremer A, Fineschi S, Buiteveld J, Goicoechea P, Cottrell J, Burg K, Lowe AJ, Jensen JS, Dreyer E, Lascoux M, Gugerli F, Bordács S, Koenig AO, Himmelreich R (2000-2004) Intra and interspecific gene flow in oaks as mechanisms promoting genetic diversity and adaptive potential, **OAKFLOW**. EU-FP5 contract (€2.5 M; £200,000 to my group).

Publications

Books

Lowe AJ, Harris SA, Ashton P (2004). *Ecological Genetics: Design, Analysis and Application*. Blackwells, Oxford. 326 pp.

Journal papers

Accepted

53. Bacles CFE, Lowe AJ, Ennos RA (accepted November 2005) Seed dispersal across a fragmented landscape. *Science*.
52. Navarro C, Cavers S, Colpaert N, Hernandez G, Breyne P, Lowe AJ (accepted November 2005) Chloroplast and total genomic diversity in the endemic Costa Rican tree *Lonchocarpus costaricensis* (J.D.Smith) Pittier (Papilionaceae). *Silvae Gentica*.
51. Navarro C, Cavers S, Pappinen A, Tigerstedt P, Lowe AJ, Merilä J (accepted October 2005) Comparing and contrasting quantitative traits and neutral genetic markers for genetic resource assessment of Mesoamerican *Cedrela odorata*. *Silvae Gentica*.
50. Cavers S, Navarro C, Hopkins P, Ennos RA, Lowe AJ (accepted, September 2005) Regional and population-scale influences on genetic diversity partitioning within Costa Rican populations of the pioneer tree *Vochysia ferruginea* Mart. Special Issue, *Silvae Gentica*.
49. Colpaert N, Cavers S, Bandou E, Caron H, Gheysen G, Lowe AJ (accepted, July 2005) Sampling tissue for DNA analysis of trees: trunk cambium as an alternative to canopy leaves. Special Issue, *Silvae Gentica*.
48. Lowe AJ, Hicks BJ, Worley K, Ennos RA, Morman JD, Stone G, Watt AD (accepted, May 2005) Dispersal, colonisation and host range expansion within Scottish populations of the pine beauty moth, *Panolis flammea*. *Bulletin of Entomological Research*.
47. Hannan-Jones MA, Lowe AJ, Scott KD, Graham GC, Playford JP, Zalucki MP (2005) Isolation and characterisation of microsatellite loci from mother-of-millions, *Bryophyllum delagoense* (Crassulaceae), and its hybrid with *B. daigremontianum* "Houghton's hybrid". *Molecular Ecology Notes*, pre-published online.

Published

46. Lowe A (2005) Population genetics of neotropical trees focus issue. *Heredity* **95**: 243-245.
45. Lowe AJ, Boshier D, Ward M, Bacles CFE, Navarro C (2005) Genetic resource loss following habitat fragmentation and degradation; reconciling predicted theory with empirical evidence. *Heredity* **95**: 255-273.
44. Ward M, Dick CW, Gribel R, Lemes M, Caron H, Lowe AJ (2005) To inbreed, or not to inbreed: A review of mating systems and pollen dispersal variance in neotropical trees. *Heredity* **95**: 246-254.
43. Cavers S, Degen B, Caron H, Hardy O, Lemes M, Gribel R, Margis R, Salgueiro F, Lowe AJ (2005) Optimal sampling strategy for estimation of spatial genetic structure in tree populations. *Heredity* **95**: 281-289.
42. Kremer A, Caron H, Cavers S, Colpaert N, Gheysen L, Gribel R, Lemes M, Lowe A, Margis R, Navarro C, Salgueiro F (2005) Monitoring genetic diversity in tropical trees with multilocus dominant markers. *Heredity* **95**: 274-280.
41. Taylor KJ, Lowe AJ, Hunter RJ, Ridgway T, Gresshoff PM, Rossetto M (accepted, March 2005) Genetic diversity and regional identity in the Australian remnant *Nothofagus moorei*. *Australian Journal of Botany* **53**: 437-444.
40. Scott KD, Wilkinson KS, Lawrence N, Lange CL, Scott LJ, Merritt MA, Lowe AJ, Graham GC (accepted, Dec 2004) Gene-flow between populations of the economic pest Cotton bollworm *Helicoverpa armigera* Hübner (Lepidoptera: Noctuidae) are highly variable between years: Records from across Australia's major cotton and grain growing regions from November 1999 – March 2003. *Bulletin of Entomological Research* **94**: 381-392.
39. Bacles CFE, Burczyk J, Lowe AJ, Ennos RA (2005) Historical and contemporary mating patterns in remnant populations of the forest tree *Fraxinus excelsior* L. *Evolution* **59**: 979-990.

38. Davies S, White A, Lowe AJ (2004) An investigation into effects of long-distance seed dispersal on organelle population genetic structure and colonization rate: a model analysis. *Heredity*. **93**:566-576.
37. Lowe AJ, Munro RC, Samuel S, Cottrell J (2004) The utility and drawbacks of chloroplast DNA for identifying native British oak stands. *Forestry*. **77**: 335-347.
36. Abbott RJ, Lowe AJ (2004) Origins, establishment and evolution of two new polyploid species of *Senecio* in the British Isles. *Biological Journal of the Linnean Society*. **82**: 467-474.
35. Lowe AJ, Abbott RJ (2004) Reproductive isolation of a new hybrid species, *Senecio eboracensis*. *Heredity*. **92**:386-395.
34. Muir C, Lowe AJ, Fleming CC, Vogl C (2004) High nuclear genetic diversity, high levels of outcrossing and low differentiation among remnant populations of *Quercus petraea* at the margin of its range in Ireland. *Annals of Botany*. **93**:691-697.
33. Cavers S, Navarro C, Lowe AJ (2004) Targeting genetic resource conservation in widespread species: a case study of *Cedrela odorata* L. *Forest Ecology and Management*. **197**:285-294.
32. Lowe AJ, Moule C, Trick M, Edwards KJ (2004) Efficient large-scale development of microsatellites for marker and mapping applications in Brassica crop species. *Theoretical and Applied Genetics*. **108**:1103-1112.
31. Bacles CFE, Lowe AJ, Ennos RA (2004) Genetic effects of chronic habitat fragmentation on tree species: the case of *Sorbus aucuparia* in a deforested Scottish landscape. *Molecular Ecology* **13**:573-584.
30. Cottrell JE, Munro RC, Tabbener HE, Milner AD, Forrest GI & Lowe AJ (2003) Comparison of fine-scale genetic structure within two British oakwoods using microsatellites; consequences of recolonisation dynamics and past management. *Forest Ecology and Management* **176**:287-303.
29. Menozzi P, Lowe AJ (2003) Spatial dynamics and natural regeneration: Dynamics and conservation of genetic diversity in forest ecosystems. *Forest Genetics* **9**:336-337.
28. Cavers S, Navarro C, Lowe AJ (2003) A combination of molecular markers (cpDNA PCR-RFLP, AFLP) identifies evolutionarily significant units in *Cedrela odorata* L. (Meliaceae) in Costa Rica. *Conservation Genetics* **4**:571-580.
27. Lowe AJ, Abbott RJ (2003) A new British species, *Senecio eboracensis* (Asteraceae), another hybrid derivative of *S. vulgaris* L. and *S. squalidus* L. *Watsonia* **24**:375-388.
26. Lowe AJ, Jourde B, Breyne P, Colpaert N, Navarro C, Wilson J, Cavers S (2003) Fine scale genetic structure and gene flow within Costa Rican populations of mahogany (*Swietenia macrophylla*). *Heredity* **90**:268-275.
25. Lowe AJ, Thorpe W, Teale A & Hanson J (2003) Characterisation of germplasm accessions of Napier grass (*Pennisetum purpureum* and *P. purpureum* x *P. glaucum* hybrids) and comparison with farm clones using RAPD. *Genetic Resources and Crop Evolution* **50**: 121-132.
24. Squirrell J, Hollingsworth PM, Woodhead M, Russell J, Lowe AJ, Gibby M, Powell W (2003) How much effort is required to isolate nuclear microsatellites from plants? *Molecular Ecology* **12**:1339-1348.
23. Cavers S, Navarro C, Lowe AJ (2003) Chloroplast DNA phylogeography reveals colonisation history of a Neotropical tree, *Cedrela odorata* L., in Mesoamerica. *Molecular Ecology* **12**:1451-1460.
22. Jensen JS, Olrik DC, Siegismund HR, Lowe AJ (2003) Population genetics and spatial autocorrelation in an unmanaged stand of *Quercus petraea* (Matt.) Liebl. in Denmark. *Scandinavia Journal of Forestry* **18**:295-304.
21. Kremer A, Dupouey JL, Deans JD, Cottrell J, Csaikl U, Finkeldey R, Espinel S, Jensen J, Kleinschmit J, Dam BV, Ducouso A, Forrest I, Heredia ULd, Lowe AJ, Tutkova M, Munro RC, Steinhoff S, Badeau V. (2002) Morphological variation in mixed oak stands (*Quercus robur* and *Quercus petraea*) is stable across western European populations. *Annals of Forest Science* **59**:777-787.
20. Cottrell J, Munro RC, Tabbener H, Gillies ACM, Deans D, Lowe AJ (2002) Distribution of Chloroplast DNA variation in British Oaks (*Quercus robur* and *Q. petraea*): the influence of postglacial colonisation and human management. *Forest Ecology and Management (Special Issue)* **156**:181-196.

19. Jensen JS, Gillies ACM, Csaikl U, Munro RC, Madsen SF, Roulund H, Lowe AJ (2002) Chloroplast DNA variation within the Nordic countries. *Forest Ecology and Management (Special Issue)* 156:167-180.
18. Petit RJ, Csaikl U, Bordacs S, Burg K, Coart E, Cottrell J, van Dam B, Deans JD, Glaz I, Dumolin-Lapègue S, Fineschi S, Finkelday R, Gillies ACM, Goicoechea PG, Jensen JS, König A, Lowe AJ, Madsen SF, Matyas G, Munro RC, Olalde M, Pemonge M-H, Popescu F, Slade D, Tabbener H, Turchini D, de Vries SGM, Ziegenhagen B, Kremer A (2002) Chloroplast DNA variation in European white oaks: Phylogeography and patterns of diversity based on data from over 2,600 populations. *Forest Ecology and Management (Special Issue)* 156:5-26.
17. Petit RJ, Brewer S, Bordacs S, Burg K, Cheddadi R, Coart E, Cottrell J, Csaikl U, Fineschi S, Goicoechea P, Jensen JS, König A, Lowe AJ, Madsen SF, Matyas G, Oledska I, Popescu F, Slade D, Van Dam B, de Beaulieu J-L, Kremer A (2002) Identification of refugia and post-glacial colonisation routes of European white oaks based on chloroplast DNA and fossil pollen evidence. *Forest Ecology and Management (Special Issue)* 156:49-74.
16. Kremer A, Kleinschmit J, Koenig A, Cundall N, Deans JD, Lowe AJ, Munro RC, Petit RJ, Stephan R (2002) Is there a correlation between chloroplastic divergence and phenotypic or nuclear genetic divergence in European oaks? *Forest Ecology and Management (Special Issue)* 156: 75-88.
15. Lowe AJ, Goodall-Copestake WP, Caron H, Kremer A, Decroocq S (2002) A set of polymorphic microsatellites for *Vochysia ferruginea*, a promising tree for land reclamation in the Neotropics. *Molecular Ecology Notes* 2:153-155.
14. Lowe AJ, Jones AE, Raybould AF, Trick M, Moule CJ, Edwards K (2002) Transferability and genome specificity of a new set of microsatellite primers among *Brassica* species of the U triangle. *Molecular Ecology Notes*. 2:7-11.
13. Mariette S, Cottrell J, Csaikl UM, Goicoechea P, König A, Lowe AJ, Van Dam BC, Barreneche T, Bodénès C, Streiff R, Burg K, Groppe K, Munro RC, Tabbener H, Kremer A (2002) Comparison of levels of genetic diversity detected with AFLP and microsatellite markers within and among mixed *Q. petraea* (Matt.) Liebl. and *Q. robur* L. stands. *Silvae Genetica* 51:72-79.
12. Lowe AJ, Bandou E, Breyne P, Caron H, Cavers S, Colpaert N, Degen B, Gribel R, Hernandez M, Kremer A, Labbe P, Lemes M, Margis R, Margis-Pinheiro M, van Montagu M, Navarro C, Wilson J (2001) Assessment of Levels and Dynamics of Intra-Specific Genetic Diversity of Latin American Tropical Trees for Conservation and Sustainable Management. *European Tropical Forest Network Newsletter* 34:20-22.
11. Lowe AJ, Wilson J, Gillies ACM, Dawson I (2000) Conservation genetics of bush mango from central/west Africa, implications from RAPD analysis. *Molecular Ecology*. 9:831-841.
10. Lowe AJ, Abbott RJ (2000) Routes of origin of two recently evolved hybrid taxa: *Senecio vulgaris* var. *hibernicus* and York radiate groundsel (Asteraceae). *American Journal of Botany*. 87:1159-1167.
9. Newton AC, Allnutt T, Gillies ACM, Lowe AJ, Ennos RA (1999) Molecular phylogeography, intraspecific variation and the conservation of tree species. *Trends in Ecology and Evolution*. 14:140-145.
8. Gillies ACM, Navarro C, Lowe AJ, Newton AC, Hernandez M, Wilson J, Cornelius JP (1999) Genetic diversity in Mesoamerican populations of mahogany (*Swietenia macrophylla*), assessed using RAPDs. *Heredity*, 83, 722-732.
7. Lowe AJ, Sturrock GL (1998) Behaviour and diet of *Colobus angolensis palliatus* Peters, 1968, in relation to seasonality in a Tanzanian dry coastal forest. *Folia Primatologica*. 69:121-128.
6. Lowe AJ, Russell JR, Powell W, Dawson IK (1998) Identification and characterization of nuclear, cleaved amplified polymorphic sequences (CAPS) loci in *Iringia gabonensis* and *I. wombolu*, indigenous fruit trees of west and central Africa. *Molecular Ecology*. 7:1771-1788.
5. Abbott RJ, Harris SA, Lowe AJ (1997) Interspecific hybridization and the origin of new plant taxa in Scotland. *Botanical Journal of Scotland*. 49: 247-256.
4. Lowe AJ, Abbott RJ (1996) Origins of the new allopolyploid species *Senecio cambrensis* (Asteraceae) and its relationship to the Canary Islands endemic *Senecio teneriffae*. *American Journal of Botany*. 83(10):1365-1372.

3. Lowe AJ, Hanotte O, Guarino L (1996) Standardisation of molecular genetic techniques for the characterisation of germplasm collections: The case for random amplified polymorphic DNA (RAPD). *Plant Genetic Resources Newsletter*. 107:50-54.
2. Lowe AJ, Hanson J, Teale A (1996) Molecular characterisation of Napier grass (*Pennisetum purpureum*) using random amplified polymorphic DNA (RAPD) markers. *African Feed Resources Network Newsletter*. 6:4-8.
1. Gould MS, Lowe AJ, Clarke GP (1993) The frequency of termite (Isoptera) damage to tree species in Namakutwa Forest, Tanzania. *Sociobiology*, 23(2):189-198.

Book chapters and conference proceedings

4. Lowe AJ (2004) Why use spatially explicit and direct gene flow approaches in conservation genetics? In M.F. Fay, J. Sutcliffe, B. Jones, I. Taylor (eds). *Proceedings of a Conservation Genetics Workshop, Royal Botanic Gardens, Kew*. pp. 28-29. English Nature Research Reports, No. 607. Peterborough, UK.
3. Cavers C, Lowe AJ (2002) Regional scale genetic structure within two Central American tree species; the influence of geography, biology and geological history. In B. Degen, M.D. Loveless & A. Kremer (eds). *Modelling and Experimental Research on Genetic Processes in Tropical and Temperate Forests, Conference Proceedings, Kourou, French Guiana, 2000*. pp. 179-190. Embrapa Amazônia Oriental, Belem, PA, Brazil.
2. Lowe AJ, Clarke GP (2000) Vegetation structure of the coastal forests. In N. Burgess & G.P. Clarke (eds.) *The Coastal Forests of East Africa*. pp. 103-114. IUCN. WWF.
1. Abbott RJ, Lowe AJ (1996) A review of hybridization and evolution in British *Senecio*. In D.J.N. Hind & H.J. Beetje (eds). *Compositae: Systematics. Proceedings of the International Compositae Conference, Kew, 1994*. (D.J.N. Hind, Editor-in-Chief), vol. 1. pp. 679-689. Royal Botanic Gardens, Kew.

Reports

19. Cavers *et al.* (2005) 3rd year report for GENEOTROPECO - Distribution of genetic diversity in tree species from the Neotropics based on DNA fingerprinting assays: Implications for conservation, sustainable utilization and management. EU 5th Framework, International Cooperation – Developing Countries. 125pp.
18. Volkaert H *et al.* (2005) 3rd year report for TEAKDIV - Developing know-how for the improvement and sustainable management of teak genetic resources. EU 5th Framework, International Cooperation – Developing Countries. 105pp.
17. Kremer A *et al.* (2005) 4th year report for OAKFLOW - Intra and interspecific gene flow in oaks as mechanisms promoting genetic diversity and adaptive potential. EU 5th Framework, Quality of Life and Management of Living Resources. 300pp.
16. Lowe (2004) Restoration of wooded landscapes – Informing assumptions with microsatellite technology. Written under contract for Forestry Commission, UK. 98 pp.
15. Cavers *et al.* (2004) 2nd year report for GENEOTROPECO - Distribution of genetic diversity in tree species from the Neotropics based on DNA fingerprinting assays: Implications for conservation, sustainable utilization and management. EU 5th Framework, International Cooperation – Developing Countries. 98pp.
14. Bacles *et al.* (2004) 2nd year report for TEAKDIV - Developing know-how for the improvement and sustainable management of teak genetic resources. EU 5th Framework, International Cooperation – Developing Countries. 95pp.
13. Kremer A *et al.* (2004) 3rd year report for OAKFLOW - Intra and interspecific gene flow in oaks as mechanisms promoting genetic diversity and adaptive potential. EU 5th Framework, Quality of Life and Management of Living Resources. 250pp.
12. Lowe AJ, Abbott RJ (2003) Evolution in action: Britain's newest plant species is an unparalleled opportunity to study evolution. *Planet Earth* (Summer) pp 24-25.
11. Lowe *et al.* (2003) 1st year report for GENEOTROPECO - Distribution of genetic diversity in tree species from the Neotropics based on DNA fingerprinting assays: Implications for conservation, sustainable utilization and management. EU 5th Framework, International Cooperation – Developing Countries. 75pp.
10. Lowe *et al.* (2003) 1st year report for TEAKDIV - Developing know-how for the improvement and sustainable management of teak genetic resources. EU 5th Framework, International Cooperation – Developing Countries. 85pp.

9. Kremer A *et al.* (2003) 2nd year report for OAKFLOW - Intra and interspecific gene flow in oaks as mechanisms promoting genetic diversity and adaptive potential. EU 5th Framework, Quality of Life and Management of Living Resources. 210pp.
8. Kremer A *et al.* (2002) 1st year report for OAKFLOW - Intra and interspecific gene flow in oaks as mechanisms promoting genetic diversity and adaptive potential. EU 5th Framework, Quality of Life and Management of Living Resources. 131pp.
7. Cottrell JE, Tabbener HE, Munro RC, Gillies ACM, Forrest GI, Deans JD, Lowe AJ (2000) Chloroplast DNA Variation in British Oak Populations. *Forest Research Annual Report*. pp 39-41.
6. Wilson J, Lowe AJ, Cavers S, Navarro C, Hernandez M, Kremer A, Caron H, Labbe P, Margis R, Margis M, Breyne P, Gribel R, Lemas M. (2001) Assessment of levels and dynamics of intra-specific genetic diversity of tropical trees. Final Scientific Report 1997-2001. European Commission. 76pp.
5. Wilson J, Cavers S, Lowe AJ, Navarro C, Hernandez M, Kremer A, Caron H, Labbe P, Margis R, Margis M, Breyne P, Gribel R, Lemas M. (2000) Assessment of levels and dynamics of intra-specific genetic diversity of tropical trees. Third Annual Scientific Report 1998-1999. European Commission. 120pp.
4. Cavers S, Navarro C, Wilson J, Lowe AJ (2000) Hidden in the trees: Genetic variation in tropical trees helping to inform forest conservation. *NERC News*. Autumn, pp 10-11.
3. Lowe AJ, Olsen KB, Gillies AMC, Siregar U, Wilson J. (1999) Impact of logging on the magnitude and dynamics of genetic diversity within *Shorea parvifolia* and *S. laevis*, two Dipterocarp timber species of Indonesia. Final scientific report to CIFOR April 1996-March 1999. Department for International Development. 149pp.
2. Lowe A, Sudarmonawati E. (1999) The impact of logging on genetic diversity in tropical moist forests. Final technical report to DFID. Department for International Development. 9p+Annexes.
1. Wilson J, Lowe AJ, Cavers S, Navarro C, Hernandez M, Kremer A, Caron H, Labbe P, Margis R, Margis M, Breyne P, Gribel R, Lemas M. (1999) Assessment of levels and dynamics of intra-specific genetic diversity of tropical trees. Second Annual Scientific Report 1998-1999. European Commission. 92pp.

Websites

- <http://www.seed-source.net> 2005. Designed layout and contributed content to project website for INCO-EU project SEEDSOURCE Developing best practice for seed sourcing of planted and natural regeneration in the neotropics. Site programmed and maintained by J Cordero.
- <http://www.nbu.ac.uk/geneo> 2000-2003. Designed, constructed and maintain project website for INCO-EU funded 'Distribution of genetic diversity in tree species from the Neotropics based on DNA fingerprinting assays: Implications for conservation, sustainable utilization and management'.
- <http://www.nbu.ac.uk/teakdiv> 2002-2003. Designed and contributed to construction of TEAKDIV site, programmed and maintained by S. Davies.
- <http://www.nbu.ac.uk/tropical> 2000. Contributed to design and construction of CEH-Edinburgh site. programmed and maintained by S. Cavers.
- <http://www.nbu.ac.uk/inco> 1999-2000. Constructed and maintained project website for INCO-EU funded 'Assessment of levels and dynamics of intra-specific genetic diversity of tropical trees for conservation and sustainable management'.

Presentations (posters and oral)

48. Lowe AJ (2005) Estimating long distance dispersal, combining top down and bottom up approaches in molecular ecology. Atlantic Oakwoods Conference, Botanical Society of Scotland, Oban, Scotland, 14-16th September. **Invited presentation.**
47. Lowe AJ (2005) Advances in genetic resource knowledge of mahogany, *Swietenia macrophylla*, Melicaceae Special Forum. 22nd International Union of Forest Research Organizations (IUFRO), Brisbane, Australia, 8-13th August. **Invited presentation.**
46. Lowe AJ (2005) Advances in Ecological Genetics. XVII International Botanical Congress, Austria Centre, Vienna, Austria, 17th-23rd July. **Invited presentation.**
45. Lowe AJ (2005) Estimating long distance dispersal, combining top down and bottom up approaches in molecular ecology. Fourth International Symposium on Frugivores and Seed Dispersal, Brisbane, Australia, 9-16th July.
44. Lowe AJ (2005) Ecological and genomic drivers of origin and extinction in a hybrid neospecies. School Seminar, School of Integrative Biology, University of Queensland, 22nd April.
43. Lowe AJ (2005) Quantifying long distance dispersal; Combining top down and bottom up approaches in molecular ecology. University of Tasmania, 21st April.
42. Lowe AJ (2005) Estimating long distance dispersal, combining top down and bottom up approaches in molecular ecology. CSIRO-Atherton, 12th April.
41. Lowe AJ (2004) Can gene flow mitigate against the impacts of fragmentation? James Cook University, 23rd November.
40. Lowe AJ (2004) Using evolutionary genetics to follow species dynamics and their relation to past and future climate change. Science Teachers Press Club Dinner, Education Queensland, Geebung and Stafford District, 13th October. **Invited presentation.**
39. Lowe AJ (2004) From origin to extinction, the brief history of a neospecies. Brisbane Botanic Gardens, May.
38. Lowe AJ (2004) The role of genetic tools in tree domestication. 1st World Congress of Agroforestry, Lake Buena Vista, Orlando, Florida, USA, 27th June – 2nd July. **Invited presentation.**
37. Lowe AJ, Davies A, White A (2004) Colonisation, seed dispersal and spatial genetic structure within Costa Rican populations of the tropical pioneer *Vochysia ferruginea*. Special symposium *Measuring tropical seed dispersal using molecular markers*. Association for Tropical Biology and Conservation, Miami, Florida, USA, July 12-15. **Invited presentation.**
36. Bacles C, Ennos R, Lowe AJ (2003) Comparing the effects of habitat fragmentation on gene flow for rowan and ash in a Scottish landscape. Ecological Genetics Group, University of Edinburgh, Edinburgh, March. Oral.
35. Cavers S, Navarro C, Lowe AJ (2003) Chloroplast DNA phylogeography reveals colonization history of a Neotropical tree, *Cedrela odorata*, in Mesoamerica. *Biotic Interactions in The Tropics: A Special Symposium of the British Ecological Society and The Annual Meeting of the Association for Tropical Biology and Conservation*, University of Aberdeen, 7th-10th July. **Invited presentation.**
34. Lowe AJ, Menozzi P (2002) Spatial dynamics and natural regeneration summary. *Dynamics and conservation of genetic diversity in forest ecosystems*, Strasbourg, France, 2nd-5th December. **Invited seminar and session convenor.**
33. Bacles C, Ennos R, Lowe AJ (2002) Comparing the effects of habitat fragmentation on gene flow for rowan and ash in a Scottish landscape. *Dynamics and Conservation of Genetic Diversity in Forest Ecosystems*, European Parliament, Strasbourg, France, 2nd-5th December. Oral.
32. Cavers S, Navarro C, Lowe AJ (2002) Conservation strategy and management policy must consider both local and rangewide scale: Preservation of natural genetic variation in the widespread tree species Spanish cedar. *Dynamics and conservation of genetic diversity in forest ecosystems*, Strasbourg, France, 2nd-5th December. Oral.
31. Lowe AJ, Cottrell J, Davies S, Munro RC, Tabbener H, Forrest L, Kelleher C, King A, Muir G, White A (2002) Route, speed and mode of oak postglacial colonisation across the British Isles: Integrating Chloroplast DNA, gene flow, fossil pollen and modelling data. *Dynamics and conservation of genetic diversity in forest ecosystems*, European Parliament, Strasbourg, France, 2nd-5th December. Poster.

30. Bacles C, Ennos R, Lowe AJ (2002) Comparing the effects of habitat fragmentation on gene flow for rowan and ash in a Scottish landscape. *Scottish Biodiversity Group*, Forest Research, Royal Botanic Garden, Edinburgh, 27-28th March. Poster.
29. Cavers S, Navarro C, Lowe AJ (2002) Chloroplast DNA phylogeography of Spanish Cedar in Central America reveals vicariant origins of contemporary diversity'. IUFRO symposium, Stara Lesna, Slovakia, August. Poster.
28. Lowe AJ (2001) Patterns and routes of postglacial recolonisation of oak across Britain, evidence from new molecular data. Trinity College, Dublin, February. **Invited Seminar**
27. Bacles CFE, Ennos RA, Lowe AJ (2001) Indirect vs direct measurements of gene flow: Testing the island model in fragmented tree populations. European Society for Evolutionary Biology, Denmark. August. Poster.
26. Bacles CFE, Ennos RA, Lowe AJ (2001) Indirect vs direct measurements of gene flow: Testing the island model in fragmented tree populations. Petit Pois, Ecological Genetics Meeting, Paris, France. August. Oral.
25. Lowe AJ, Cavers S, Navarro C (2000) Comparative phylogeographic structure at a regional scale with three Central American tree species. Symposium on: *Modelling and Experimental Research on Genetic Processes in Tropical and Temperate Forests*; Kourou, French Guyane, September. Oral.
24. Lowe AJ (2000) Genetic distance estimation and dendrogram building. 44th annual Ecological Genetics Group meeting. University of Lancaster, Edge Hill. April. **Invited Workshop**
23. Lowe AJ (2000) Role of Molecular Ecology in Tropical Forests. Edinburgh Centre for Tropical Forests workshop. University of Edinburgh. January. **Invited presentation**
22. Lowe AJ (2000) Pattern and route of oak postglacial recolonisation across Britain, evidence from new data. University of Edinburgh, March. **Invited seminar**
21. Lowe AJ (2000) Genetic distance estimation and dendrogram building. Molecular Techniques Workshop, 44th annual Ecological Genetics Group meeting. University of Lancaster, Edge Hill, April. **Invited presentation**
20. Lowe AJ (2000). Patterns and routes of postglacial recolonisation of oak across Britain, evidence from new molecular data. University of Oxford, November. **Invited seminar**
19. Lowe AJ (2000). Patterns and routes of postglacial recolonisation of oak across Britain, evidence from new molecular data. University of Aberdeen, November. **Invited seminar**
18. Cavers S, Navarro C, Wilson J, Lowe AJ (2000) Regional scale structure of chloroplast and nuclear DNA variation in Spanish cedar (*Cedrela odorata*) in Central America. Special Symposium, *Plants Stand Still but Their Genes Don't*, British Ecological Society, Royal Holloway College, London. September. Poster.
17. Lowe AJ, Bye-Olsen K, Gillies ACM, Boyle T, Siregar U (2000) Impact of logging on genetic diversity within *Shorea parvifolia* and *S. laevis*, two dipterocarp timber species from Indonesia. The role of science in forest policy development: Indonesia & Malaysia; Edinburgh Centre for Tropical Forests, RBG-Edinburgh. October. Poster.
16. Lowe AJ (1999) What can molecular markers tell us about the genetic resources of important tropical trees? Royal Botanic Gardens, Edinburgh, July. **Invited seminar**
15. Lowe AJ, Caron H (1999) Distribution of genetic diversity in tropical tree species from the New World based on DNA fingerprinting assays: Implications for conservation, sustainable utilisation and management. Launch of the EU 5th framework. Essen, Germany. February. Invited presentation of posters and websites of research project
14. Lowe AJ, Wilson J, Dawson IK (1999) Distribution of genetic variation in bush mango from West Africa, based on PCR based assays. Populations Genetics Group; Cambridge University. January. Oral.
13. Lowe AJ (1998) Conservation genetics of bush mango from central/west Africa, implications from RAPD analysis. Royal Botanic Gardens, Edinburgh, December. **Invited seminar**
12. Lowe AJ (1998) Phylogeography of bush mango from West Africa; influence of glacial maxima and elephant mediated dispersal. 42nd meeting of Ecological Genetics Group; University of St Andrews, April. Oral.
11. Lowe AJ (1997) Patterns of Genetic Variation in Bush Mango. 41st meeting of the Ecological Genetics Group; University of Leicester. April. Oral.

10. Lowe AJ (1997) Molecular phylogeny of the family Irvingiaceae based on chloroplast and nuclear PCR-RFLP analysis. *Advances in Plant Molecular Systematics*; University of Glasgow. August. Poster.
9. Lowe AJ (1996) Reproductive Isolation of a Recently Established Senecio Hybrid Species. 50th meeting of the Society for the Study of Evolution; Washington University, St Louis. USA. August. Oral.
8. Hanotte O, Lowe A, Teale A, Hanson J (1996) Semi-automated fluorescent genotyping, a new approach to RAPDs analysis. Society for the Study of Evolution; Washington University, St Louis. August. Poster.
7. Lowe AJ, Hanson J, Teale A (1996) Molecular Characterisation of Napier Grass using Random Amplified Polymorphic DNA (RAPD) markers. First meeting of the Edinburgh Centre for Plant Molecular Conservation; Royal Botanic Gardens, Edinburgh, October. Oral.
6. Abbott RJ, Harris SA, Lowe AJ (1996) Interspecific hybridization and the origin of new plant taxa in Scotland. *Conservation of Scottish Endemic Species*; SNH, Stirling, April. Oral.
5. Lowe AJ (1995) *The Origin and Maintenance of a New Tetraploid Senecio Hybrid in York, England*. 49th meeting of the Society for the Study of Evolution; McGill University, Montreal. Canada, July. Oral.
4. Abbott RJ, Lowe AJ, (1995) The Origins and Evolutionary Relationship of *Senecio cambrensis* Rosser and *S. teneriffae* Schultz Bip (Asteraceae). Population Genetics Group; University of Exeter. January. **Invited plenary**
3. Lowe AJ (1995) The Origin and Spread of a New Tetraploid *Senecio* hybrid in York. 39th meeting of the Ecological Genetics Group; University of Newcastle Upon Tyne, April. Oral.
2. Lowe AJ, McCormack K, Abbott RJ (1994) The Origins and Evolutionary Relationship of *Senecio cambrensis* Rosser and *S. teneriffae* Schultz Bip. 38th Ecological Genetics Group; University of York, March. Oral.
1. Abbott RJ, Lowe AJ (1994) Hybridization and evolution in British *Senecio*. International Compositae Conference; Royal Botanic Gardens, Kew, July. Oral.