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CHAPTER 3: Genetic variation in natural populations: chromosomes and proteins; 3.1 Chromosomes; 3.1.1 Karyotypes; 3.1.2 Sex chromosomes; 3.1.3 Polyploidy; 3.1.4 Numbers of chromosomes; 3.1.5 Supernumerary chromosomes; 3.1.6 Chromosomal size; 3.1.7 Inversions; 3.1.8 Translocations; 3.1.9 Chromosomal variation and conservation  
3.2 Protein Electrophoresis 3.2.1 Strengths and limitations of protein electrophoresis; 3.3 Genetic Variation within Natural Populations; 3.3.1 Data from natural populations; 3.4 Genetic Divergence Among Populations; Guest Box 3: E. M. Tuttle, Chromosomal polymorphism in the white-throated sparrow; CHAPTER 4: Genetic variation in natural populations: DNA; 4.1 Mitochondrial and Chloroplast Organelle DNA; 4.1.1 Restriction endonucleases and RFLPs; 4.1.2 Polymerase chain reaction; 4.2 Single-Copy Nuclear Loci; 4.2.1 Microsatellites; 4.2.2 PCR of protein-coding loci  
4.2.3 Single nucleotide polymorphisms 4.2.4 Sex-linked markers; 4.3 Multiple Locus Techniques; 4.3.1 Minisatellites; 4.3.2 AFLPs and ISSRs; 4.4 Genomic Tools and Markers; 4.4.1 High-throughput sequencing; 4.4.2 Inferences from sequence data; 4.4.3 EST sequencing applications; 4.4.4 SNP discovery and genotyping by sequencing; 4.5 Transcriptomics; 4.6 Other 'Omics' and The Future; 4.6.1 Metagenomics; Guest Box 4: Louis Bernatchez Rapid evolutionary changes of gene expression in domesticated Atlantic salmon and its consequences for the conservation of wild populations  
PART II: Mechanisms of Evolutionary Change CHAPTER 5: Random mating populations: Hardy-Weinberg principle; 5.1 Hardy-Weinberg Principle; 5.2 Hardy-Weinberg Proportions; 5.3 Testing for Hardy-Weinberg Proportions; 5.3.1 Small sample sizes or many alleles; 5.3.2 Multiple simultaneous tests; 5.4 Estimation of Allele Frequencies; 5.4.1 Recessive alleles; 5.4.2 Null alleles; 5.5 Sex-Linked Loci; 5.5.1 Pseudoautosomal inheritance; 5.6 Estimation of Genetic Variation; 5.6.1 Heterozygosity; 5.6.2 Allelic richness; 5.6.3 Proportion of polymorphic loci  
Guest Box 5: Paul Sunnucks and Birgita D. Hansen, Null alleles and Bonferroni 'abuse': treasure your exceptions (and so get it right for Leadbeater's possum)

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## Sommario/riassunto

Loss of biodiversity is among the greatest problems facing the world today. Conservation and the Genetics of Populations gives a comprehensive overview of the essential background, concepts, and tools needed to understand how genetic information can be used to conserve species threatened with extinction, and to manage species of ecological or commercial importance. New molecular techniques, statistical methods, and computer programs, genetic principles, and methods are becoming increasingly useful in the conservation of biological diversity. Using a balance of data and theory, coupled w

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