1. Record Nr. UNINA9910816001503321

Autore	Linacre Adrian
Titolo	Wildlife DNA analysis : applications in forensic science / / Adrian M.T. Linacre and Shanan S. Tobe
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : John Wiley & Sons Inc., 2013
ISBN	1-118-49641-8 1-118-49655-8 1-118-49652-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (360 p.)
Collana	Essential Forensic Science
Classificazione	MED030000
Altri autori (Persone)	TobeShanan S
Disciplina	363.25/9628591
Soggetti	Wildlife crime investigation Forensic sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Wildlife DNA Analysis; Contents; Foreword; Preface; About the Authors; Acknowledgements; 1 Introduction; 1.1 Importance of wildlife forensic science investigations; 1.2 Role of forensic science in wildlife crimes; 1.3 Legislation covering wildlife crime; 1.4 Role of non-human DNA in forensic science; 1.5 Development of wildlife DNA testing; 1.5.1 History and current state of wildlife DNA forensic science; 1.5.2 Wildlife forensic science testing; 1.5.3 Performing DNA typing in wildlife investigations; 1.6 Accreditation and certification; 1.7 Standardisation and validation 1.8 Collection of evidential material, continuity of evidence and transportation to the laboratory1.9 Note taking and maintenance of a casefile; 1.10 Case assessment and initial testing; 1.11 Scope of book; Useful websites; References; 2 DNA, Genomes and Genetic Variation; 2.1 Introduction; 2.2 The DNA molecule; 2.3 Chromosomes and nuclear DNA; 2.4 Genomes; 2.4.1 Nuclear DNA; 2.4.2 Mitochondrial and chloroplast DNA; 2.5 DNA mutation and genetic variation; 2.5.1 Genetic variation of repetitive DNA; 2.5.2 Single base changes leading to genetic variation 2.5.3 Genetic loci used in species testing2.6 DNA polymorphisms leading to speciation; 2.6.1 Genetic isolation; 2.6.2 Other processes leading to speciation; 2.7 What is a species?; 2.7.1 Subspecies; 2.7.2

Genus to Kingdom; 2.8 Summary; References; 3 Methods in Wildlife Forensic DNA Analysis; 3.1 Introduction; 3.2 Protein polymorphisms; 3.3 DNA isolation, purification and concentration; 3.3.1 Generic aspects of DNA isolation; 3.3.2 Lysis step; 3.3.3 DNA purification: silica-based extraction; 3.3.4 DNA purification: Chelex R 100 resin; 3.3.5 DNA purification: organic extraction
3.3.6 Microconcentration3.4 DNA quantification; 3.5 Restriction fragment length polymorphisms (RFLP); 3.6 Methods based on the polymerase chain reaction; 3.6.1 Factors affecting PCR efficiency and optimisation of PCR; 3.6.2 PCR-based methods of DNA quantification; 3.6.3 Random amplification of polymorphic DNA; 3.6.4 Amplification of fragment length polymorphisms (AFLP); 3.7 PCR set-up; 3.8 PCR clean-up; 3.9 DNA sequencing; 3.10 SNP typing; 3.11 New generation of DNA sequence methods; Suggested reading; 4 Species Testing; 4.1 Introduction; 4.2 Species
4.2.1 Genetic variation and correspondence with taxonomy4.3 Attributes of a species testing locus; 4.4 Application of a locus to a species; 4.5 Tests available and how they are performed; 4.5.1 Sequencing; 4.5.2 Species-specific primers; 4.6 Developing a species test; 4.6.1 Use of data on GenBank and sequence alignment; 4.6.2 Designing primers; 4.6.3 Validation; 4.7 Interpretation and reporting of results; 4.7.1 Interpretation and reporting sequencing results; 4.7.2 Interpretation and reporting species-specific testing results; 4.8 Other limitations: hybrids and wild/captive bred
4.9 Future methodologies

Sommario/riassunto

"This book is the first to approach the fast developing field of wildlife forensics with a focus on the application of DNA profiling and analysis. Case studies throughout link theory and practice and highlight the use of DNA testing in species testing. The text assumes only a basic background knowledge of DNA, so offers information boxes clarifying technical information, step-by-step guidance on sequence comparisons, and a discussion of the different markers used in species testing. This produces a highly accessible introduction for both students and forensic professionals"--