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PAPERS

THE EFFECTS OF FREEZING AND FREEZE-DRYING ON NATURAL HISTORY SPECIMENS

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Abstract. - Fresh specimens may be frozen to prevent deterioration or to prepare them for preservation by freeze-drying. However, even at 0o, very little water in most biological materials is actually frozen. Specimens held at freezing temperatures are still subject to protein and lipid changes and to damage from the growth of microorganisms. Tissues may be severely damaged by ice formation. Freezing for specimen storage and freeze-drying for specimen preparation have only limited application. depending on the intended use of the specimens.

CHARACTERISTICS OF A COLLECTION OF FLUID-PRESERVED MAMMALS AND IMPLICATIONS FOR COLLECTION MANAGEMENT

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Abstract. - During a major recuration process, data were collected to document basic storage conditions of a collection of fluid-preserved Recent mammal specimens, then analysed for trends. Parameters studied pertained to the type and size of jar, the ratio of specimens to fluid, the pH and alcohol content of the fluid, the number of specimens and the year the specimens were collected. Preparation and management procedures for fluid-preserved specimens were also considered. These data provide a profile for the collection at a point in time and document the result of a relatively typical pattern of care for fluid-preserved materials over a 50 year span. Implications for collection management are discussed.

INFRARED SPECTROSCOPIC ANALYSIS OF CENTRAL AND SOUTH AMERICAN AMBER EXPOSED TO AIR POLLUTANTS, BIOCIDES, LIGHT AND MOISTURE

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Abstract. - Specimens of Central and South American amber were exposed to high levels of common air pollutants, biocides, light and varying relative humidity to identify potentially damaging conditions. Changes were assessed visually and by Fourier Transform Infrared spectroscopy. Changes in spectra were consistent with the effects of oxidation due to

ageing. Knowledge gained from this on-going study will be used to plane preventative conservation strategies for the storage and display of amber.

OBSERVATIONS ON ENZYME PREPARATION EFFECTS ON SKELETAL MATERIALS

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Abstract. - Enzyme based methods for preparing disarticulated skeletons form dry storage have been described in several publications. A large collection of lower vertebrate skeletons, primarily fish, was donated to the Vertebrate Paleontology Laboratory, Texas Memorial Museum, in 1979. Recent observations indicate that many specimens in this collection are damaged by the preparation method (maceration in a heated solution of a commercial enzyme-based laundry compound). An analysis of the problems in this and other comparable collections suggests that any enzyme-based preparation method may lead to similar problems if the enzymes are not specifically known, used in controlled concentrations and durations, and specifically denatured at the conclusion of preparation.

INTEGRATING SPECIMEN DOCUMENTATION, PROCESSING AND DATA AUTOMATION IN A MAMMAL COLLECTION: A CASE STUDY OF AN ACCESSION DATABASE

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Abstract. - A microcomputer database has been designed to house accession or acquisition information for single specimens and collections of mammal specimens. Locations and status fields in the access database permit the tracking of physical location, stage of preparation, curation and data automation of the specimens. Single specimen data from the accession database can be directly uploaded to the departmental collection database. The system optimizes the efficiency with which departmental staff are able to perform their functions relative to specimen processing. It also serves to integrate specimen documentation, processing and data automation activities.

Reviews

- A guide to museum pest control, by L.A. Zycherman and J.R. Schrock
- Notes from a workshop on bird specimen preparation, by S.P. Rogers and D.S. wood, compilers.
- Handbook of paleo-preparation techniques, by H.H.Converse.