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PAPERS

PLAGUE AT THE MUSEUM: DISEASE TRANSMISSION POTENTIAL AND BIOSAFETY PRECAUTIONS

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Abstract. – A case study involving the discovery of plague-killed woodrats (Neotoma cinerea) is described. Recommendations are made for the safe handling and preparation of animal specimens based on federal biosafety standards.

MINIMIZATION OF POTENTIAL PROBLEMS ASSOCIATED WITH THE MORPHOMETRY OF SPIRIT-PRESERVED BAT WINGS

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Abstract. – An important but largely ignored problem in using museum specimens of bats in morphometric studies is that changes are induced in the specimens during the preservation process. Values obtained from preserved specimens may thus differ markedly from those obtained from the living animal. A brief diagnosis of this problem in dealing with chiropteran specimens is presented, as is a summary of the current knowledge dealing with potential changes during preservation of study skins and alcoholic chiropteran specimens. Finally, it is suggested that a standardized procedure for obtaining wing tracings be used by specimen collectors, museums, and chiropteran researchers to alleviate or at least minimize these problems for bat specimens.

METHODS OF PROCESSING OSTEOLOGICAL MATERIAL FOR RESEARCH VALUE AND LONG-TERM STABILITY

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Abstract. – Investigations were conducted on alternative treatments for cleaning osteological material that would be superior to other methods by enhancing specimen research potential, as well as specimen stability for long-term preservation. The procedures developed relied heavily on the management of a dermestid colony to produce completely cleaned skeletal material. Following the removal of non-osseous tissues, the remaining dermestids and debris were removed by a vacuum process using an aspirator hooked to a forced-air supply. Tissue remnants were removed in

a similar manner with the aid of probes, forceps, and brushes, when necessary. To ensure against the survival of insects that might remain inside specimens, the skeletal material of smaller specimens was stored in closed vials for at least three weeks. Results show the effectiveness of this quarantine procedure. Discussion is given to possible methods for controlling pests in the skeletal material of larger specimens.

IMPROVING THE SELECTIVITY OF A SELECTIVE DISSOLUTION PROCESS: A SOLUTION FOR REMOVING CALCITE FROM FLUORAPATITE

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Abstract. – A solution has been formulated which is capable of dissolving calcite from fluorapatite without causing damage to fluorapatite surfaces. This solution has a pH of 3.7 which is the point of maximum difference in the molar solubilities of calcite and fluorapatite. It was formulated to be just saturated with fluorapatite. The solution contains 0.100 mol/L of the disodium salt of ethylenediamine tetra-acetic acid, 0.050 mol/L of calcium chloride, 1.5×10^{-1} mol/L of sodium dihydrogen phosphate, 5×10^{-1} mol/L of sodium fluoride, and a buffer mixture, 0.100 mol/L of sodium formate with enough free formic acid to achieve the pH required. Experimental determinations of dissolution rate and scanning electron micrographs of treated surfaces confirm that the solution is capable of dissolving calcite at a reasonable rate without damaging fluorapatite crystal surfaces.

Reviews

- Ivory and related materials: An illustrated guide, by O. Krzyszkowska
- Natural history museums: Directions for Growth, by P> S. Cato and C. Jones, eds.
- Natural history collections: Their management and value, by E. M. Herholdt, ed.