

# Effects of Prolonged Freezing on the Preparation Quality of Fresh Material Destined for Bird Collections

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The preparation of animal specimens destined for zoological collection is a key step to ensure and maintain an optimal conservation state in the long term. Animal skins and bones are a common element in zoological collections and they are usually prepared from recently deceased animals that have been frozen before their preparation. Sometimes, the preparation of the specimen is carried out many years after the freezing process. The deleterious effects on the skins and bones of the specimens from freezing, has rarely been assessed.

The aim of this study was to determine whether or not prolonged freezing caused ageing of the soft tissues. Two bird species (*Buteo buteo* and *Tyto alba*) were used as biological models. Our hypothesis is that freezing causes dehydration which in turn makes the skins more difficult to prepare because of changes in skin flexibility or marrow texture from acidification of the bone. We prepared 132 Buzzards and 139 Barn Owls that had been frozen for a period of time between 1995 - 2012. The results showed that, in both species, those which were frozen for longer periods of time, had less mass, less elasticity of the skin, the pH of the bone marrow was more acidic and its texture was more solid. Along with these results we also found that sexing of the birds and preparation of the skins, proved more difficult in specimens that had been frozen for a longer period of time.

Our results suggest that, prolonged freezing of specimens pending preparation, can compromise the maintenance of their optimal state and their scientific utility in the long term. We propose several solutions to avoid these deleterious effects.

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