

Raptor DNA profiling

Using new advances in laboratory techniques it is now possible to develop unique DNA profiles for the key raptor breeds. A bird's DNA profile is a permanent characteristic as it remains the same throughout life. DNA makes up the genetic material contained in the cells of all living things. The genetic material is equally contributed to by mother and father, consequently siblings and other related birds have closer DNA profiles than unrelated birds.

The initial stage in DNA profiling involves taking an appropriate sample from which DNA can be extracted. As DNA is contained within cells, the sample must contain cellular material. Suitable sample materials include blood, feathers, egg membrane material and cheek swabs. Care must be taken that no extraneous material such as food is included as it may contain contaminating DNA.

Once the sample arrives in the laboratory, the DNA is extracted using a method that disrupts the cells and allows collection of the DNA. Polymerase chain reaction (PCR) is used to amplify parts of DNA, called microsatellite regions, which are known to vary considerably in length between individuals. Around 10 microsatellite regions in each DNA sample are amplified and labelled with differently coloured markers to allow identification. The PCR products are measured by a process known as electrophoresis - the amplified DNA strands migrate at different rates in an electric current, according to their length. Electrophoresis is carried out by a specially designed instrument, which determines the length of each amplified region and records them altogether as the 'DNA profile'. A record of the DNA profile can be presented on a certificate and stored permanently to be retrieved when required.

This new advance will be of interest to raptor breeders and owners. It is currently available for Golden Eagle, Gyr, Saker, Goshawk and Peregrine. Breeders can confirm bloodlines, while owners will seek the re-assurance of a bloodline certificate and find the data useful should the bird ever be lost and recovered. Raptor profiling is supported by the Independent Bird Registry. In addition the results from different individuals can be compared and the degree of similarity determined.

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