DNA of kiwi cloaks reveals history of Maori feather trade

May 25 2011, by Bob Yirka

(PhysOrg.com) -- A DNA analysis of Kiwi cloaks, the Kahu kiwi, worn by the Maori tribe people in New Zealand, has revealed a previously unknown trade route among early tribes on the various islands that make up the country as it is today. New evidence by David Lambert and his team from Griffith University in Australia, as reported in *Molecular Biology and Evolution*, shows that there existed a trade route, that until recently, nobody knew about, between the islands that make up the small country in the South Pacific Ocean.

In the abstract to the paper, Lambert points out that the highly valued feathered cloaks worn by Maori tribesmen, despite being well known throughout the country, have been a bit of mystery up until now, regarding their origin. The DNA analysis lifts the veil, so to speak, and shows that the cloaks, made up of thousands of kiwi feathers, come from many parts of the multi-island country; indicating a previously unknown trade route must have been in existence.

The DNA analysis showed that most of the feathers (nearly 99%) used to construct the cloaks came from the North Island brown kiwi; a small brown flightless bird about the size of a domestic chicken. It also showed that up to 15% of the feathers used in the cloaks contained feathers from different geographic regions, which suggests previously unknown trading relationships between the various tribes in those areas. It also showed that one region in particular; the east end of the north island, had the most prolific cloak producers, as they accounted for nearly half of those studied.

One of the first known modern reports of the feathered cloaks came from Captain James Cook, who visited the islands that make up New Zealand, in 1759-60; he described them in his log as flax woven cloaks, some of which were decorated using the skin off of dogs.
Lambert suggests the DNA findings show that more movement of the various isolated tribes might have occurred after the so-called "Musket Wars," during the early part of the nineteenth century, gradually resulting in established trade patterns which in turn could have resulted in exchanges of the feathers used to make the cloaks by various tribes throughout the region.

More information: Ancient DNA recovers the origins of Māori feather cloaks, Mol Biol Evol (2011) doi:10.1093/molbev/msr107 First published online: May 10, 2011.

Abstract
Feather cloaks (kakahu), particularly those adorned with kiwi feathers, are treasured items or taonga to the Māori people of Aotearoa / New Zealand. They are considered iconic expression of Māori culture. Despite their status, much of our knowledge of the materials used to construct cloaks, the provenance of cloaks and the origins of cloak making itself, has been lost. We used ancient DNA methods to recover mitochondrial DNA sequences from 849 feather samples taken from 109 cloaks. We show that almost all (>99%) of the cloaks were constructed using feathers from North Island brown kiwi. Molecular sexing of nuclear DNA recovered from 92 feather cloak samples also revealed that the sex ratio of birds deviated from a ratio of 1:1 observed in reference populations. Additionally, we constructed a database of 185 mitochondrial control region DNA sequences of kiwi feathers comprising samples collected from 26 North Island locations together with data available from the literature. GST, NST and SAMOVA analyses revealed high levels of genetic structuring in North Island brown kiwi. Together with sequence data from previously studied

ancient and modern kiwi samples, we were able to determine the geographic provenance of 847 cloak feathers from 108 cloaks. A surprising proportion (15%) of cloaks were found to contain feathers from different geographic locations, providing evidence of kiwi trading among Māori tribes or organised hunting trips into other tribal areas. Our data also suggest that the east of the North Island of New Zealand was the most prolific of all kiwi cloak making areas, with over 50% of all cloaks analysed originating from this region. Similar molecular approaches have the potential to discover a wealth of lost information from artefacts of endemic cultures worldwide.