Apr 16th, 2:00 PM - 3:00 PM

Predicting Incubation Period: A Case Study of the North Island Brown Kiwi (*Apteryx Australis Mantelli*) and the Elephant Bird (*Aepyornis* SPP)

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Poster Presentation P10

PREDICTING INCUBATION PERIOD: A CASE STUDY OF THE NORTH ISLAND BROWN KIWI (*APTERYX AUSTRALIS MANTELLI*) AND THE ELEPHANT BIRD (*AEPYORNIS* SPP)

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Avian embryonic development requires gas exchange through eggshell pores between the embryo and the external environment. In most studies rates of gas exchange have been predicted based upon measurements of external eggshell pore diameters. However, pore diameters can vary throughout the eggshell and gas exchange is limited by the minimum pore diameter. In this study, polyurethane casts were made of eggshell pores from two closely related species: the extant North Island Brown Kiwi (*Apteryx australis mantelli)* and the extinct Elephant Bird (*Aepyornis* spp). We compared estimates of gas conductance and egg incubation periods based on measurements of the external and minimum pore diameters as determined from images of casts for both species. Based on average estimates of gas conductance from the external and minimum pore diameters, we calculated the Kiwi incubation period as 21 and 77 days, respectively. The incubation period based on the minimum pore diameter is within the known range of incubation periods (75±5 days) for this species. This method will allow us to estimate the incubation period for Elephant bird eggs.