

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2018-86
Project Title:	Building a natural history collection of Hong Kong's amphibians for conservation and education, with a genetic case-study on the endangered Romer's tree frog (<i>Liuixalus romeri</i>)
Principal Investigator:	Dr Jonathan Julio Fong, Core Curriculum and General Education Office, Lingnan University
Total Approved Grant:	\$1,094,304
Duration:	1/6/2019 to 30/11/2021
Project Status/Remarks:	Completed
Project Scope:	<p>As stated in the Biodiversity Strategy and Action Plan, conservation in Hong Kong would benefit from the building of a natural history museum. The project team proposes to build a small-scale natural history collection of amphibians as a proof of concept. This specimen collection will document the amphibian diversity across Hong Kong, and include tissue samples for molecular studies. This collection will be an important resource for research, conservation, and education. For research and conservation, the specimens themselves will be used for taxonomic and phylogenetic studies, and the database will provide baseline data for future comparative studies (e.g., impact of habitat modification on amphibian diversity), all of which can be used to inform conservation management. For education, the specimen collection will immediately be used in classes and special events at Lingnan University and The University of Hong Kong, and the project team will explore ways to use the collection in primary and secondary education. Additionally, to demonstrate the usefulness of a natural history collection, the project team will use specimens to undertake a population genomics study of the endangered Romer's tree frog (<i>Liuixalus romeri</i>). From this study, the project team will clarify the genetic diversity of <i>L. romeri</i>, which will be used to inform conservation management of this species.</p>
Summary of the Findings/Outcomes:	<p>The project team has collected a total of 744 amphibian specimens, which represent the 24 species distributed in Hong Kong including the thought to be extirpated and likely re-introduced <i>Occidozyga lima</i>, and five non-native species (the introduced <i>Eleutherodactylus planirostris</i>, <i>Andrias davidianus</i>, <i>Ceratophrys</i> sp., <i>Leptobrachium ailaonicum</i> and <i>Lithobates catesbeianus</i>). Some of the species that have low number of individuals are relatively uncommon in the wild, such as <i>Amolops albispinus</i>, <i>Quasipaa spinosa</i>, and <i>Hylarana taipehensis</i>. The project team has successfully used the collection to complete a research project focusing on the population genetics of the Romer's tree frog. Has identified four independently genetic cluster in this species: three clusters corresponding to Lamma, Lantau and Po Toi islands, one cluster corresponding to the translocation sites.</p> <p>The project team has achieved the goal to study the genetics of this species and understand the impact of translocation by demonstrating the usefulness of specimens by performing a genetic study of the Romer's tree frog (<i>Liuixalus romeri</i>). It is found that each natural island population is</p>

	<p>genetically unique; translocated populations preserved the Chek Lap Kok population and translocated populations are differentiating from each other. These results aid conservation, informing that each population is distinct and needs to be protected.</p>
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