Lantau Conservation Fund
Priority Conservation Themes – Nature Conservation

1. Research on Species

(i) Understudied taxa groups on Lantau that have potential conservation concern

Different species have different ecological roles in an ecosystem, and their co-occurrence and interactions are the result of thousands of years of evolutionary coordination. Conserving biodiversity is important to the existence and proper functioning of all ecosystems, and the continuous provision of ecosystem services to humans. However, past and current ecological studies on Lantau have focused on major habitats and taxonomic groups, and have gradually begun to cover other less-researched groups, such as various invertebrate species other than butterflies. Nonetheless, there are still some understudied taxa groups await exploration. It is important to note that the species being studied as supported by the Fund must possess potential conservation value to support related conservation efforts.

Previous successful research examples supported by the Fund :
- Insect groups including ants, bees, beetles and wasps (RE-2021-14)
- Invertebrates in stream (RE-2024-10)
- Diadromous fishes (RE-2020-12)

Other recommended research examples :
- Intertidal communities of mudflat/sandflat

(ii) Conservation on threatened, ecologically important or keystone species

Human activities such as large scale development may destroy habitats or lead to climate change. Coupled with over-exploitation, they pose a serious threat to many species such as Yellow-breasted Bunting and Three-banded Box Turtle. Lantau contains many rare species which are geographically restricted to a region and have specific habitat requirements, such as Romer's tree frog and horseshoe crab. The conservation of these species heavily relies on scientific research, along with local efforts and well-designed measures. Moreover, keystone species are critical to maintaining an ecological balance and proper functioning of an ecosystem, and their conservation is crucial to prevent ecosystem collapse. Therefore, recognising the impact and tailor-make conservation measures rooted in research evidence is of priority to stop further decline in the population of these ecologically important species (in particular the local or endemic species on Lantau, such as Lantau Star-anise).

Previous successful research examples supported by the Fund :
- Threatened species such as Eurasian Otter (RE-2024-04) and freshwater eels

(RE-2024-11)
- Lantau endemic species such as Hong Kong Asarum (RE-2022-13)

Other recommended research examples :
- Population studies of horseshoe crabs on Lantau
- The impact of human activities on horseshoe crabs on Lantau
- The impact of invasive or alien species on Lantau's wildlife

2. Research to Assist in Formulating Urban Biodiversity Strategies for Lantau

Urbanisation is one of the major causes of biodiversity loss via habitat degradation and fragmentation. Modified habitats usually support a small community of generalist species of flora and fauna which in turn provide limited ecosystem services and aesthetic functions. Therefore, promotion of urban biodiversity and their long-term maintenance, via for example strategic planning and planting to increase habitat coverage, complexity and connectivity, has received increasing attention. Integration of biodiversity components, and nature-based solutions, in urban setting or built environment has been recognised as beneficial to both ecological stability and social well-being, and as a proactive means to achieve a sustainable city. Given that some parts of Lantau are under rapid development, ideas for early implementation of biodiversity enhancement measures in the urbanized areas and assessment on their effectiveness on bringing environmental and social benefits, in particular to local communities, will be conducive to the sustainable development of the island.

Previous successful education and engagement examples supported by the Fund :
- Utilising oyster shells to enhance biodiversity in artificial coastlines (EE-2022-04)
- Establishing dragonfly ponds to enhance urban biodiversity (EE-2023-14)

Examples of urbanised areas in Lantau :
- Tung Chung new town extension area

Examples of measures to enhance urban biodiversity :
- Conduct regular monitoring to promote adaptive management and achieve long-term improvements through research and knowledge sharing once the Nature-Based Solution is constructed and put into operation. (For details please refer to the "Hong Kong Nature-Based Solutions Design Guidelines")

3. Ecosystem Services of Key Habitats on Lantau

Ecosystem services (ES) are regarded as the benefits of ecosystems to mankind. They are classified into four broad categories, including *provisioning*, such as production of food and water; *regulating*, such as control of climate, flood and disease; *supporting*,

such as providing living spaces for plants and animals and maintaining species and genetic diversity; and *cultural*, such as aesthetic inspiration, cultural identity and spiritual well-being. Comparing with the conventional biodiversity survey, the concept of ES suggests another assessment approach for habitat evaluation. Given that relevant studies of ES on Lantau are scarce, building up knowledge in the ES provided by key habitats in the four categories will enable thorough understanding on their ecological and social significance and uniqueness from a novel and enlightening perspective, in particular their benefits to local communities. The scientific information will be useful for implementing conservation management strategies and prioritizing conservation effort on different habitats, as well as enhancing public awareness and support on conservation.

Previous successful research examples supported by the Fund :

- Ecosystem services of insect pollinators (RE-2022-01)
- Carbon sequestration by terrestrial vegetation and coastal wetlands (RE-2022-14 & RE-2021-13)
- Ecosystem service functions of mangroves in Tai O (RE-2020-14)

Other recommended research examples :

- Regulating services of local habitats (such as climate regulation, water purification, biological control, pollination and seed dispersal, etc.)

4. Implementing Recommended Conservation Measures from Completed Ecological Studies

The South Development and Sustainable Lantau Office has been conducting ecological studies on ecologically valuable sites on Lantau in phases, which suggested implementing recommended measures through multi-pronged approaches. These approaches include utilising the Lantau Conservation Fund to implement recommended conservation measures and encouraging community participation in promoting and implementing conservation work. Executive summaries of completed survey studies have been uploaded to the Civil Engineering and Development Department's website for public access.

Previous successful conservation management agreement, education and research examples supported by the Fund :

- Implementing recommended wetland conservation and management measures at Shui Hau (MA-2020-01 & MA-2023-01)
- Implementing recommended ecologically friendly paddy expansion plans in Yi O (MA-2022-05)
- Conduct conservation education at intertidal mudflat/sandflat (EE-2022-14)
- Ecological research for seagrass beds (RE-2024-30)

Other recommended conservation measure examples :

- Conducting topographic survey and hydrological study in Pui O wetlands to investigate the reasons of drying up, estimate water budget and recommend restoration details
- Feasibility studies on protection of the river valley in Sham Wat
- Removal of invasive species from mangroves in Tai O

Others

(I) Encouraging Public Dissemination of Research Findings to Enhance Conservation Awareness

General scientific research primarily focuses on ecological surveys and data analysis, often involving specialised and complex academic content that is difficult for the general public to understand. Therefore, organising seminars, exhibitions, or publishing booklets to report, in layman terms, research findings to the public can effectively communicate these complex academic discoveries to the general audience. These activities not only help deepen citizens' understanding of research projects but also enhance public awareness of nature conservation. However, it is essential to note that the budget for related activities must be reasonable within the overall budget of the research project.

(II) Key points to note when submitting an application

Nature conservation projects:

- Must reference existing research findings to avoid redundancy in research objectives.
- For interdisciplinary research, scholars and experts in relevant fields must participate or provide support.
- If private or government-managed land is to be used for installation of research equipment, consent from the relevant landowners must be obtained.
- If innovative technologies or proposed measures are involved, preliminary trial results must be provided to demonstrate their effective application.

Education and engagement projects :

- Relevant scholars and experts, such as specialists in animals or plants, should participate or provide support during the drafting, formulation and execution of plans.
- Specificity regarding the project's relevance to Lantau is required, such as identifying specific conservation sites or species on Lantau.

(III) References

Previously approved projects :

https://www.lcf.gov.hk/en/approved-projects/conservation-related-projects.html

Executive summaries of ecological studies completed by the South Development and Sustainable Lantau Office :

https://sslo.cedd.gov.hk/en/exploring-more/nature-conservation/our-initiatives/ecological-studies/index.html

Hong Kong Nature-Based Solutions Design Guidelines (English version only) :

https://nm-santintech.hk/en/flipbook/hong-kong-nature-based-solutions-design-guidelines-leaflet/