

## Environmental Research, Technology Demonstration and Conference Project

<b>ECF Project:</b>	ECF 2019-38
<b>Project Title:</b>	Uncover the underground: distribution and population status of endemic blind snakes and Bogadek's burrowing lizards
<b>Principal Investigator:</b>	Dr Sung Yik Hei, Science Unit, Lingnan University
<b>Total Approved Grant:</b>	\$482,400
<b>Duration:</b>	1/8/2020 to 31/12/2022
<b>Project Status/Remarks:</b>	Completed
<b>Project Scope:</b>	<p>Fossorial fauna, animals that live underground, are poorly studied around the world due to their secretive lifestyle. In Hong Kong, there are three fossorial reptile species – the Hong Kong blind snake (<i>Indotyphlops lazelli</i>), Bogadek's burrowing lizard (<i>Dibamus bogadeki</i>), and White White-headed blind snake (<i>Indotyphlops albiceps</i>). The Hong Kong blind snake and Bogadek's burrowing lizard are endemic to Hong Kong, while the taxonomy status of the white-headed blind snake needs to be examined. A study is urgently needed targeting these three species because little is known about their ecology and population status, they have restricted distributions, and they may be threatened by future development (i.e. e., Lantau Tomorrow Vision Project). The project team will conduct intensive surveys in study sites where these species were recorded and potentially occur. Two survey methods targeting fossorial reptiles will be used and evaluated, which will provide guidance for future ecological surveys, such as environmental impact assessment. The information yielded from this study will inform the conservation management of the three target species.</p>
<b>Summary of the Findings/Outcomes:</b>	<p>Fossorial fauna, animals that live underground, are poorly studied around the world due to their secretive lifestyle. In Hong Kong, there are three fossorial reptile species—the Bogadek's Burrowing Lizard (<i>Dibamus bogadeki</i>), the Hong Kong Blind Snake (<i>Indotyphlops lazelli</i>), and the White-headed Blind Snake (<i>Indotyphlops albiceps</i>) — that are of conservation concern. <i>Indotyphlops lazelli</i> and <i>D. bogadeki</i> are rare and endemic to Hong Kong, while <i>I. albiceps</i> may represent a new species. In this study, we conducted intensive field surveys to investigate their population status and distribution. Despite our dedicated field efforts, we could not detect any <i>D. bogadeki</i> and <i>I. lazelli</i> from field surveys, highlighting their extremely small and rare populations. Further, we used genetic analysis to show that <i>I. albiceps</i> in Hong Kong represents a potential new species, which will be confirmed by further morphological analysis. We also used the field data to evaluate the effectiveness of survey methods (active searching and artificial refuges) for fossorial reptiles, which will provide advice for future studies and surveys. Overall, the results of this study highlight the critical conservation status of <i>D. bogadeki</i>, <i>I. albiceps</i>, and <i>I. lazelli</i>—and urgent actions are essential to conserve these enigmatic species.</p>