

Special Reports

Barn Owls – Our Silent Guardians

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Various stories and superstitious beliefs surround owls in different parts of the world. Owls are both feared and venerated, hated and admired, seen as wise and foolish, associated with witchcraft and medicine, and linked to birth and deaths. In Malaysia, the popular collective name for owls is 'burung hantu' – ghost bird – and among our various species one in particular stands out as the possible reason behind this moniker. It is easy to imagine why the Eastern Barn Owl (Burung Pungguk Jelapang/Serak Biasa) *Tyto javanica* (Plate 1), with its white chest and underwings, could have been assumed to be a 'ghostly figure' when seen gliding silently overhead in the night sky as it soars silently. Couple that with its occasional long screech, it is not hard to imagine why people called owls 'burung hantu'.



Plate 1: Eastern Barn Owl roosting in an Oil Palm tree, FGV Sahabat, Lahad Datu, Sabah, Sept 2023.

But Eastern Barn Owls play a more important role than just a scary story. The silence that accompanies the species in flight is not due to its ghostly powers, rather an adaptation of its wing feathers that aid in hunting its prey. This is among the many reasons why barn owls, which have a global distribution, are widely utilized as a biological control agent in various agricultural landscapes. In Malaysia, the subspecies *T. j. javanica* (previously named *T. alba*

javanica) has been utilized to control rat pests since the 1960s. Today it is relatively common to see barn owl nest boxes in the oil palm plantations and rice fields particularly of Peninsular Malaysia.

There are various factors contributing to the success of barn owls as biological control agents. Their nocturnal nature means they are active and hunt during the same time of the day that rats are actively scurrying around. Studies on the diet of Eastern Barn Owls in Malaysia have shown that at least 90% of their diet is composed of small mammals (including House Shrews but primarily the rat species that are agricultural pests).

Evolutionary adaptation and diet aside, what makes barn owls stand out from other carnivores that could be used as biological control agents, are that barn owls readily accept artificial nest boxes that are put up by humans (Plate 2), enabling it to be relatively easy to establish a local barn owl population that would hunt and breed in selected sites.



Plate 2: Eastern Barn Owl using artificial nest boxes in padi fields, Ulu Dedap, Perak, Malaysia, November 2024 (left) and 2023.

This fascinating species, coupled with its extremely beneficial role in the ecosystem, are among the factors that have led to the establishment of the Barn Owl and Rodent Research Group (BORG). Formed in 2014, BORG is currently working under the banner of School of Biological Sciences, Universiti Sains Malaysia, and was born out of a shared fascination with barn owls and supporting their protection. BORG is made up of graduate students, early-career scientists, and senior researchers, from various backgrounds in pest management, animal science, veterinary, genetics and pesticides resistance, all committed to understanding and protecting barn owls through science, education, and collaboration. The main goal of the group is to conserve Eastern Barn Owls in Malaysia and raise awareness on the role of barn owls as effective biological control agents of rat pest populations; hence promoting sustainable practices to control pest species in agriculture and urban settings.

To achieve these goals, BORG actively conducts research related to Eastern Barn Owls and rats. BORG conducts various studies to tackle rat pest problems; especially those focused on

creating effective control of rats with minimal environmental damage. With regards to barn owls, past and current research projects of the group involve barn owl translocation, introduction and establishment of barn owls, including introduction of the species to Borneo, and research on various aspects of barn owl ecology, such as behaviour, reproduction, growth, movement, and diet, in wild and captive settings. BORG is also in active collaboration with key players from the oil palm and rice industry, government authorities, NGOs and private sectors at both national and international levels to promote and conduct research on barn owls as an important component in developing sustainable pest management.

People play a vital role in conservation, and as such, BORG conducts community programs to create awareness about the importance of barn owls to our ecosystem. Education programs, such as exhibitions and visits, are conducted at various levels, and we especially conduct education campaigns aimed at the younger generation, ranging from kindergarten children to university students, to foster positive attitudes towards barn owls.

BORG also works to increase awareness on the use of barn owls as biological control agents among key players in the agricultural sector to promote sustainable rat pest management. BORG spearheaded the Barn Owl for Oil Palm Smallholders Initiative (BOSI) with the Malaysian Palm Oil Green Conservation Foundation (MPOGCF) to promote sustainable rat management among smallholder oil palm operators by providing barn owl nest boxes and providing our expertise to establish local barn owl populations. The first grant focused on a single site in Perak, and BORG has recently obtained a grant to expand this project to other states in Peninsular Malaysia (BOSI 2.0). Additionally, BORG is working on a similar project in rice fields with our recently awarded Global Giving grant to foster more sustainable practices among B40 rice farmers.

Barn owls are not just apex predators - they're also powerful environmental indicators. Their presence (or absence) can reveal a lot about the health of a forest or a region. Utilising this additional role, BORG also studies the role of barn owls as bio-monitor of anticoagulant rodenticides in the environment. In recent years, we have worked towards spreading awareness of the threat of uncontrolled use of anticoagulant rodenticides, especially second-generation anticoagulant rodenticides. Thus, BORG aims to not only protect barn owls, but also hopes to play a role in protecting other non-target wildlife species from the threat of anticoagulant rodenticides by reducing, and even eliminating, the reliance on harmful second-generation anticoagulant rodenticides and promoting sustainable rat pest management using barn owls.

More details on BORG and the work they do can be found at their website at: <https://borg.usm.my/>.

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