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Escaping the cage: Range expansion of the grosbeak starling in Borneo

The grosbeak starling (*Scissirostrum dubium*), also known as the finch-billed Myna, is an endemic bird species of Sulawesi and several surrounding satellite islands (Coates & Bishop 1997, BLI 2021, Eaton *et al.* 2021). It is distinctive among starlings in having a thick yellow bill and stiff, waxy red feathers on the rump. According to the IUCN Red List, this species is currently classified as Least Concern (LC), but its global population is declining due to habitat destruction, fragmentation, and illegal hunting (BLI 2021). One of the major threats is the loss of suitable nesting sites, as trees are essential for providing shelter and breeding grounds. A study conducted in Central Sulawesi even found a population collapse, with 92% of nests disappearing due to the loss of remnant trees (Maas *et al.* 2015).

The grosbeak starling naturally inhabits lowlands up to 1,300 m asl, adapting well to forest edges and secondary forests that still have large dead trees for nesting (Maas *et al.* 2015, Eaton *et al.* 2021). Uniquely, they excavate nest holes in large dead trees, where they breed in colonies of 20–150 individuals, though they often disperse into smaller groups while foraging (Coates & Bishop 1997). It can also form super colonies, with estimates of more than 1,000 individuals occupying several adjacent trees (Maas *et al.* 2015). These sizable gatherings could boost foraging effectiveness and offer protection from predators.

In 2012, grosbeak starlings were reported from the city of Balikpapan, East Kalimantan, with a total of six individuals (Wihardandi 2012). The observer suggested that this population resulted from natural dispersal from Sulawesi to

Borneo. The shortest straight-line distance between Balikpapan and Sulawesi is estimated to be 250–300 km, with several small intervening islands (Google Earth 2024). Subsequently, Prawira *et al.* (2018) reported ten records in 2016–2017 from Balikpapan, with the largest colony estimated at 40 individuals, found in a botanical garden area on the edge of the city. The report suggests that the population increase over the years is due to high fecundity and adaptability.

On 26 July 2024, during a bird survey in a post-coal mining reclamation area in Kutai Kartanegara (1°00'34"S, 116°55'38"E) District, East Kalimantan, we recorded four grosbeak starlings perched on an *Acacia mangium* tree (Fabaceae). Furthermore, on 27 July 2024, we again found four individuals perched on a *Parasariesthes falcataria* tree at a location not far from the previous point, approximately 200 m away (Fig. 1).



Figure 1. A grosbeak starling in Kutai Kartanegara, East Kalimantan

These sightings were outside Balikpapan, approximately 18 km north of the closest previously reported location in 2016–2017 (Fig. 2), indicating that the species has expanded its range northward from Balikpapan. The

observation area consists of secondary forest undergoing recovery, dominated by Fabaceae species such as *Acacia mangium*, *Paraserianthes falcataria*, and *Enterolobium cyclocarpum*. Their presence in the reclamation area may be linked to an abundant food supply, as the species mainly feeds on fruit and seeds, particularly from revegetation plants dominated by species of the Fabaceae family, as well as insects that inhabit the area. Additionally, many reclamation plants are fast-growing and begin to die at around five years of age (Mulyadi *et al.* 2022), creating ideal conditions for grosbeak starling colonies to excavate nest holes.

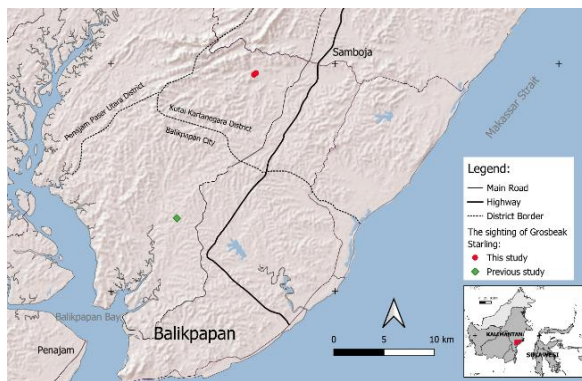


Figure 2. Map of range expansion of the grosbeak starling

On 23 October 2024, we discovered three grosbeak starlings being sold at a pet shop in Balikpapan (Fig. 3). This constitutes the first documented record of trade in grosbeak starlings in Borneo and suggests that the presence of the species on Borneo since 2012 is most likely a result of inter-island wildlife trade rather than natural dispersal. Over time, some individuals that escaped or were intentionally released appear to have successfully established breeding populations in the wild. Based on distribution records from 2012 to 2024, it is suspected that Balikpapan was the initial release point, and the population has since expanded northward.

Illegal bird trade is one of the major challenges in wildlife management in Indonesia, particularly of songbirds (Indraswari *et al.* 2020, Fink *et al.* 2021, Nijman *et al.* 2021). Cage bird enthusiasts prefer the grosbeak starling as a pet due to its loud and shrill calls, especially in colonies, its attractive appearance (MEF 2021), and its adaptability to various environmental conditions and habitats (Coates & Bishop 1997, Maas *et al.* 2015, BLI 2021, Eaton *et al.* 2021), making it easy to maintain. Currently, this bird is traded both online and offline across islands in

Indonesia (Prawira *et al.* 2018, MEF 2021, pers. obs. 2025). Our brief observations of two online trading platforms in Indonesia identified 66 seller accounts, all based on the island of Java, offering this species at prices ranging from IDR 140,000 to IDR 1,031,000, with an average price of IDR 286,000 (pers. obs. 2025).



Figure 3. Three grosbeak starlings on sale in a pet shop in Balikpapan

The expansion of the grosbeak starling population beyond its natural habitat has also been recorded at 27 locations on Java Island (Prawira *et al.* 2018). Additionally, this species has been documented in the bird trade on other islands, such as Sumatra and Lombok (Prawira *et al.* 2018; MEF 2021), although there have been no reports of established wild populations in these areas. As an endemic species of Sulawesi, the grosbeak starling has likely established itself as an exotic species in the wild on Borneo. This situation presents an unusual and concerning paradox: While its population in Sulawesi continues to decline due to habitat loss and illegal hunting (Maas *et al.* 2015, BLI 2021), its numbers and distribution beyond its natural range continue to grow. The grosbeak starling has now joined the list of introduced bird species that have successfully established on Borneo, including Sooty-headed Bulbul (*Pycnonotus aurigaster*) (MacKinnon *et al.* 2000), Javan Munia (*Lonchura leucogastroides*) (Prawira & Iqbal 2016), Streaked Weaver (*Ploceus manyar*) (Iqbal *et al.* 2016), and Javan Myna (*Acridotheres javanicus*) (Razak *et al.* 2019). Exotic species can have negative impacts on natural bird communities through competition with native bird species for food or nest trees. Finally, this finding underscores the importance of controlling exotic bird introductions to protect native ecosystems from potential unforeseen impacts.

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