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PROJECT REPORT

Conservation of Java Sparrow *Lonchura oryzivora* in Gn Sewu Geopark, Yogyakarta province, Java, Indonesia

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Introduction

The Java Sparrow *Lonchura oryzivora* is endemic to Bali, Java and possibly Madura island off east Java, Indonesia. In its natural range, the species is classified as Endangered, with many populations extirpated as a result of hunting and trapping (BirdLife International 2001, 2019). The population in its natural range was estimated to be less than 1,000 individuals by Yuda (2008). Muchtar & Nurwatha (2001) surveyed 64 former sites and found a total of only 109 individuals at 17 of them. These residual populations were found only at Cikepuh Wildlife Reserve, West Java, Baluran and Meru Betiri National Parks, East Java, and the Bali Barat National Park, Bali. The species has been widely introduced outside its natural range, including Sumatra, Kalimantan and Sulawesi in Indonesia, and to many other countries, including Kenya and Tanzania in Africa, India, Sri Lanka, and widely in South-East Asia (BirdLife International 2001, 2019). However, it is reported that introduced populations are declining in many of these places, probably due to trapping for local sale as culinary items and temple offerings (Payne & Sharpe 2019).

In 2017 and 2018 we carried out further surveys at some former known sites and engaged with the local communities in areas where birds were found.

[Editors' note: With the declaration of the Asian Songbird conservation initiative (Lee *et al.* 2016, Sykes 2017, Chng *et al.* 2019), the Java Sparrow was on the first list of species proposed for risk assessment.]

Study area and activities

The Gn Kidul regency, near Yogyakarta, Central Java, had been reported to support a small population of Java Sparrow, at sites including Jothak Cave, Maria Tritis Cave, Mandung cliff, Gupak Warak (Wardhani 2005, Yuda 2008), Song Banyu, Kanigoro (Laudisensius 2000), Gelatik Island (Yuda 2008), Watu Talang cliff (Mas Untung pers. comm.) and near Temuireng village (Matalabiogama 2005).

This area is part of the Gn Sewu karst landscape, which is characterised by mountainous coral reef limestone holding many caves. The Gn Kidul regency, some 500 km² in area, lies between 7.767°S 110.35°E and 8.15°S 110.833°E. It is designated as state-owned forest and smallholder forest areas, although almost no natural forest remains and it is now dominated by plantations, mostly of teak *Tectona grandis* but also mahogany *Swietenia mahagoni*, acacia *Acacia auriculiformis*, rosewood *Dalbergia latifolia*, kapok *Ceiba pentandra* and *Alstonia scholaris*, with some areas dominated by scrub, including *Chromolaena odorata* and *Lantana*

Plate 1. Carrying out an interview with a local resident, Gn Kidul regency, Central Java, Java, Indonesia, 24 August 2017.



WIDODO SETYO PAMUJI

Plate 2. Conservation-awareness meeting with school children, Pejaten Elementary School, Gn Kidul regency, 26 January 2018.



RAHMAN

camara. It receives a relatively high annual rainfall (about 2,000 mm), although it is still considered to be a dry area due to the rapid absorption of water into the soil and rock (Whitten *et al.* 1996). In 2015 the Gn Sewu karst landscape was recognised as a Global Geopark on account of its unique geography, and its protection and sustainable development was advocated (UNESCO 2015).

Between August 2017 and March 2018, 14 locations in four districts of Gn Kidul—Panggang, Paliyan, Rongkop and Girisubo—were visited. Ten locations were visited once, Jothak cave was visited three times and Song Gobar, Gua Macan and Song Kadut twice. Details of these locations and the timing of visits are as follows:

Jothak Cave: August 2017, 29 March 2018, 12 May 2018. Located in Pejenan sub-village, Girikarto village, Panggang district, Jothak is a vertical cave around 35 m deep and 20 m wide at its entrance. This location was known to be a Java Sparrow roost site (Wardhani 2005, Yuda 2008), with the population in 2013 reported as 20 individuals.

Temu Ireng: August 2017. In 2005 at least two Java Sparrows were observed perched on a rock cliff by the roadside near this sub-village in Panggang district (Matalabogama 2005).

Song Gobar, Gua Macan and Song Kadut: August 2017, 12 May 2018. Three locations near Giriwungu village, Panggang district, were identified as potential Java Sparrow nesting areas. All are limestone cliffs at least 10 m high, adjacent to farming areas, and were identified in interviews with local residents during the survey.

Maria Tritis Cave and Mandung cliff: 19, 21 September 2017. Maria Tritis Cave is a holy place located in Kemadang village, Saptosari district. Mandung cliff is only 1.7 km from the cave. The cliff is no more than 100 m from a small road and in a farming area. In 2005 it was estimated that 3–4 Java Sparrows used these two sites. Due to their close proximity to each other, the Java Sparrows

Plate 3. Java Sparrow *Lonchura oryzivora* at Song Gobar, Gn Kidul regency, 12 May 2018.



ABDURRAHMAN

at these two sites were considered by Yuda (2008) to be a single population.

Gelatik island: 18, 19 October 2017. This small island (1.1 ha) is about 30 m from the mainland near Greweng beach, and about 1 km from **Wedi Ombo beach**. This area is now being managed for tourism, with a bridge to access the island.

Paliyan Nature Reserve: 20, 21 October 2017. This is officially a protected area, although it is now dominated by modified habitats, including plantations of *Tectona grandis*, *Swietenia mahagoni* and *Acacia mangium*. In 2015, Java Sparrow was reported to be present in the reserve at 'Block 269' (KSDA forest ranger pers. comm.).

Watu Talang cliff: 17 October 2017. A limestone cliff, about 2 km from Indra Yanti beach. In 2012 a Java Sparrow was perched in a cavity in the cliff (Untung 2012).

Seruni cliff: 17–19 October 2017. Two cliffs about 1.5 km from Watu Talang; a local farmer suggested it could be a suitable site for the species.

Gupak Warak: 29 March 2018. The top of a conical hill surrounded by dry farmland in Tepus district, about 4 km south of Mandung cave. Wardhani (2005) recorded about 13 individuals in the area in 2005.

Song Banyu: 30 March 2018. This area in Girisubo was reported to support Java Sparrow by Laudisensius (2000); however, no subsequent surveys have been carried out. Habitat here is generally open farmland including crops such as peanut, Sengon *Paraserianthes falcataria*, banana, papaya, casava and *Gliricidia sepium*.

As a follow-up to the field surveys, we held awareness-raising meetings in Pejaten village and the Pejaten Elementary School, near Song Gobar, Giriwungu village. We also printed and distributed 500 poster calendars to stakeholders in Gn Kidul regency and organised village presentations and discussions, attended by staff from the local Forestry and Environment Office (BKSDA), and students and lecturers from Gadjah Mada and Atmajaya Universities.

Survey results

Java Sparrow were only present at five locations: Jothak Cave, Song Banyu, Song Gobar, Gua Macan and Paliyan Nature Reserve. No birds were recorded at nine other locations that had previously held the species.

Java Sparrow records

Jothak Cave: During the first visit on 22–23 August 2017 no Java Sparrow were observed in the cave, although eight birds flew quickly overhead, passing about 20 m above the cave entrance. We returned

on 29 March 2018 and found three birds perched on a tree near the cave. Subsequently, on 12 May 2018, at least 12 were seen in and around the cave, some clearly in pairs and one bird was carrying nest material.

Song Gobar: On 24 August 2017, 25–30 Java Sparrow were seen and we made a follow-up visit on 11 May 2018, when 21 individuals were seen; on the following day 35–50 Java Sparrow were seen, including at least 10 newly-fledged juveniles and four pairs of adult birds perched at nest-holes.

Gua Macan: On 25 August 2017 no Java Sparrow were observed, although local residents had suggested it was a good location to find them. We therefore made a return visit on 12 May 2018, when at least three were perched on a teak tree *Tectona grandis*. Due to the proximity of this location to Song Gobar, it is possible that the populations are interconnected.

Paliyan Nature Reserve: On 20 and 21 October 2017 only one observation of Java Sparrow was recorded—in 'Block 269'—when two birds flew from the cliff to the east. It is not known if the birds were nesting or simply roosting.

Song Banyu: On 30 March 2018 several Java Sparrow were feeding and perched in a peanut plantation, and two flocks flew overhead. We estimated the total number to be between 30 and 40 individuals.

Sites where Java Sparrow was not found

Maria Tritis Cave and Mandung cliff: According to local farmers, the Java Sparrow was last seen in this area about seven years ago; it was reported that a poacher from Kemadang village exploited the area (also reported by Wardhani 2005).

Song Kadut: Although we did not find Java Sparrow here in August 2017 or May 2018, a local villager claimed that he had poached about 10–20 individuals using a mist-net in July 2017, and sold the birds in Bantul for Rps 30,000 each.

Song Watu Talang: Villagers we met during the survey said that they had never seen the species here, although another informant who lived within 500 m of the site claimed to have seen a small flock of Java Sparrow there around January 2017.

Seruni cliffs: A farmer we met near the site said that he had not seen the species here for about 40 years.

Gelatik Island: A farmer living nearby claimed he had not seen Java Sparrow there since 1997.

Gupak Warak cliff: According to local people, Java Sparrow was last seen here five days before our visit and a poacher who believed the area still held the bird had visited a few days earlier.

Temu Ireng, Seruni and Wedi Ombo: These sites are similar to Mandung and Song Gobar cliffs,

but villagers living closest to the locations all said they had never seen Java Sparrow there.

Current population

From our observations at the five sites, we estimate that the Java Sparrow population in these areas is between 80 and 123 individuals: Song Gobar 35–50, Jothak cave 12–20, Song Banyu 30–40, Paliyan Nature Reserve 3–10 and Gua Macan 3.

Community work

On 18 December 2017 we held an awareness-raising meeting at Giriwungu village, near the active Song Gobar site; it was combined with an event organised by the local Agriculture, Fishery and Forestry Counselling Service of the Agricultural ministry (*Balai Penyuluhan Pertanian, Perikanan dan Kehutanan*). Most attendees—eight women and 17 men—were local farmers, including the head of Pejaten village. We presented the issue of Java Sparrow conservation, including information about its status and increasing rarity; the talk concluded with examples of how birds had been conserved around the world, especially focusing on birdwatching-based ecotourism.

On 20 January 2018, we made an awareness-raising visit to the Pejaten Elementary School, also near the Song Gobar Java Sparrow nesting site. The various activities included presentations, drawing birds and other wildlife, games and discussions. A total of 35 grade 5 and 6 students attended and the event concluded with the students writing messages of hope for nature and Java Sparrow conservation and hanging them from a tree of hope, displayed on the classroom wall. We also distributed poster calendars for the students to take home.

Java Sparrow conservation

We consider that the major threat to Java Sparrow in the region continues to be poaching—either using mist-nets or by direct collection of chicks during the breeding season. Some poachers are local villagers, but others come to the area from the neighbouring Bantul and Wonogiri regencies. During the survey we found Java Sparrow for sale at the bird markets in Yogyakarta and Prambanan; sellers informed us that some of the birds were originally caught in the Gn Kidul area. An investigation carried out by Yayasan Kanopi Indonesia and the Wildlife Conservation Society between June and October 2016 reported 289 individuals for sale in three bird markets around Gn Kidul—Yogyakarta, Surakarta and Purbalingga (Yayasan Kanopi Indonesia 2017).

In addition, in the Gn Kidul area, farmers and villagers still perceive the Java Sparrow as a crop

pest, since they used to raid ricefields during the rainy season; in our survey almost all Java Sparrow nest-sites were located close to ricefields.

Over the last few years there has been intensive development of the tourism sector by the local government in the Gñ Kidul regency, with tourist numbers increasing from 2.6 million in 2015 to 2.9 million in 2016 (Badan Pusat Statistik Kabupaten Gunung Kidul 2017). This growth could have a positive impact on Java Sparrow conservation if managed through sustainable ecotourism, although it could have a negative impact if managed unsustainably as mass tourism.

Priorities for future work include monitoring the remaining known populations of Java Sparrow in the region to better understand their habitat use and population dynamics in order to develop a strategy to conserve these populations. The other urgent important action is the involvement of local communities in the areas where populations of the sparrow still remain to raise awareness of the species; successful conservation action will only succeed with the involvement of local communities.

Acknowledgements

We thank the Oriental Bird Club and March Conservation Fund for financial support for this project, and Kanopi Indonesia, Roesma Narulita, Arif Nurmawan and Fajrin Fahmi who helped in the preparations, and Rahman for his participation in school visits. Thanks also go to the BKSDA Yogyakarta who gave us a SIMAKSI permit letter and important information about Java Sparrow in Paliyan Nature Reserve. We would like to thank Kades Giriwungu and Kepala Dukuh Pejaten for their kind help during our fieldwork. We thank Pramana Yuda and Bambang Agus Suripto for discussions about methodology and conservation strategy. Finally, we thank all the village people who helped our activities in the field.

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