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A case for better international protection of the Sumatran Laughingthrush (*Garrulax bicolor*)

Sarah Heinrich [a, b, *], Boyd T.C. Leupen [a], Simon Bruslund [c], Andrew Owen [d], Chris R. Shepherd [a]

[a] *Monitor Conservation Research Society (Monitor), Box 200, Big Lake Ranch, B.C., V0L 1G0, Canada*
[b] *School of Biological Sciences, The University of Adelaide, 5005, Australia*
[c] *Vogelpark Marlow, Kölzower Chaussee 1, 18337, Marlow, Germany*
[d] *Chester Zoo – North of England Zoological Society, Upton, Chester, Cheshire, CH21LH, UK*

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ABSTRACT

The Sumatran Laughingthrush (*Garrulax bicolor*) is an island endemic bird species from Indonesia. Its populations have rapidly decreased over the last decades and where the species was once widespread, only fragmented populations now remain. The species is protected on a national level and any capture or trade of wild individuals is strictly prohibited. Yet, illegal domestic trade continues to threaten the survival of this species. Less is known about the international trade in this species. Here, we investigate Sumatran Laughingthrush trade in the European Union (EU). We opportunistically observed 19 different websites from 2018 to 2020 and visited the Zwolle Bird Market in the Netherlands on four occasions in the same period. We found a minimum of 45 Sumatran Laughingthrushes for sale or in the possession of at least 20 dealers and/or hobbyists in Europe. At least some of these birds in private collections are likely to be, or have originated from, illegally imported wild individuals. In addition to the conservation implications of the trade in wild individuals, a potential increase in captive bred individuals on the international market in the future could hinder effective law enforcement, due to the difficulties of distinguishing between wild-caught and captive bred individuals. It is therefore essential to counter commercial captive breeding and trade while it is still in its infancy. We recommend that the EU lists this species in Annex A of the EU wildlife trade regulations and urge the Government of Indonesia to list the Sumatran Laughingthrush in CITES Appendix III, to assist in preventing international trade in illegally-sourced Sumatran Laughingthrushes globally.

1. Introduction

Illegal and unsustainable wildlife trade threatens many species around the world (Rosser and Mainka 2002). Charismatic animals inevitably receive most attention from researchers, conservation practitioners, governing bodies, and the public. However, most species threatened by trade are lesser known and not perceived as charismatic or endearing (Ducarme et al.,

* Corresponding author. Monitor Conservation Research Society (Monitor), Box 200, Big Lake Ranch, B.C., V0L 1G0, Canada.
E-mail address: sarah.heinrich@adelaide.edu.au (S. Heinrich).

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2013; Macdonald et al., 2015). They are often understudied and underrepresented in domestic legislation, as well as in international regulations (Frank and Wilcove 2019; Marshall et al., 2020).

The most important international wildlife trade regulation is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Plant and animal species are listed in three Appendices, according to the degree of protection they need (https://cites.org/eng). However, much of the global wildlife trade concerns species currently not listed in these Appendices (Altherr 2014; Auliya et al., 2016; Janssen and Shepherd 2018; Janssen and Leupen 2019; Marshall et al., 2020). Data on non-CITES species are sparse and represent only a small proportion of actual international trade volumes (Janssen and Shepherd 2018). This lack of information on trade in non-CITES-listed species should be considered a major threat to species that are negatively affected by international trade (Janssen and Shepherd 2018). More research into trade volumes and the effects of international trade on non-CITES species populations is urgently needed, as CITES can only regulate trade in species that are traded internationally.

One of these non-CITES species negatively affected by trade is the Sumatran Laughingthrush (*Garrulax bicolor*). While the domestic trade of Sumatran Laughingthrushes within Indonesia has been recognised to be unsustainable and the principal driver behind the species' decline (Eaton et al., 2015; Birdlife International 2016; Shepherd et al., 2016; Bušina et al., 2018), very little is known about international trade patterns and related effects on wild populations. Here we provide evidence of international trade in Sumatran Laughingthrushes and discuss the implications of this trade. We aim to provide a basis for an informed discussion on how CITES can help in protecting these endangered birds.

The Sumatran Laughingthrush is currently classified as Endangered on the IUCN Red List of Threatened Species (Birdlife International 2016). Until 2006, this Sumatran endemic bird (Fig. 1) was considered a subspecies of the more widespread White-crested Laughingthrush (*Garrulax leucolophus*) (Collar 2006; Birdlife International 2016).

Sumatran Laughingthrush populations have been decreasing at worrying rates; where they were once widespread, only fragmented populations now remain, and local extinctions have occurred (Eaton et al., 2015; Birdlife International 2016). Populations throughout their naturally restricted range are nowadays believed to be small, scattered and severely declining (Birdlife International 2016). Habitat destruction is also a threat to this species, with coinciding accessibility for poachers to reach previously inaccessible populations (Birdlife International 2016; Harris et al., 2016). Climate change may be further threatening this species given its dependency on higher altitude forests and the fact that it is endemic to a single, albeit large island (Foden et al., 2008).

The principal threat to the Sumatran Laughingthrush, however, is the largely unregulated domestic bird trade in Indonesia (Eaton et al., 2015; Birdlife International 2016; Shepherd et al., 2016; Bušina et al., 2018). As of 2018, the species is classified as 'protected' under Indonesia's wildlife laws; the *Act of the Republic of Indonesia No. 5 of 1990 concerning conservation of living resources and their ecosystems* (*Conservation Act (No. 5) 1990*) and the *Regulation of the Minister of Environment and Forestry no. P.106/MENLHK/SETJEN/KUM.1/12/2018*. Protected species are not allowed to be caught, injured, killed, kept, possessed, cared for, transported, or traded whether alive or dead. Exceptions in this regard are permitted by the Government for the purposes of research and/or safeguarding a species, or concerning captive bred animals (see *Government Regulation No. 8, 1999 concerning the utilization of wild plants and animals*, and the *Decree of the Ministry of Forestry, No.P.19/Ministry of Forestry-II/2005*

Fig. 1. Native range of the Sumatran Laughingthrush (*Garrulax bicolor*). (Image credit: BirdLife International and Handbook of the Birds of the World (2019). Bird species distribution maps of the world. Version 2019.1.).

concerning captive management of wild plant and animal species and Article 10 in *Government Regulation No. 8, 1999*). Dealers in the bird markets in Indonesia have stated that the Sumatran Laughingthrushes they stock and sell are all from the wild and there is no evidence of commercial captive breeding, especially meeting the definitions set out by the Indonesian Government (Shepherd et al., 2016; Bušina et al., 2018). In November 2019, this was further corroborated during conversations with dealers in Bali, who stated that the Sumatran Laughingthrushes in the markets are all wild caught in Sumatra (SB, personal observation).

Once it became apparent that Sumatran Laughingthrushes were severely threatened, a European Endangered Species Breeding Programme (EEP) for the species was established in 2011 under the auspices of the European Association of Zoos and Aquaria (EAZA). The basis of this managed conservation-breeding population originated from a small number of wild-caught founder birds, which were sourced from private aviculturists by a few EAZA institutions between 2004 and 2006. It is thought that these founder birds had been imported into the EU prior to the 2005 Avian Influenza import ban (Commission Decision (EC) 2005/760; Owen 2017).

The breeding programme population has steadily grown to a current population of 136 individuals in 30 institutions (Fig. 2). In 2015, seven captive-bred birds were imported from Cikananga Conservation Breeding Centre in Indonesia to strengthen the genetic diversity of the European population. In 2017, two participating institutions in Indonesia (Cikananga Conservation Breeding Centre and Prigen Conservation Breeding Ark) formally joined the conservation-breeding programme.

An action plan was developed at the first Asian Songbird Trade Crisis Summit in 2015 that identified the Sumatran Laughingthrush as one of the highest priority species (Lee et al., 2016). In 2017, the IUCN SSC Asian Songbird Trade Specialist Group (ASTSG) was officially launched as a response to the continuing and worsening Asian songbird trade crisis (Shepherd and Cassey 2017). The Sumatran Laughingthrush was also selected as one of the six flagship species of the European EAZA 'Silent Forest' Campaign (https://www.silentforest.eu). The immediate actions required for the Sumatran Laughingthrush identified at the 2015 Songbird Trade Crisis Summit were: i) to perform field surveys to determine remaining wild populations in northern Sumatra; ii) determine ecological requirements of the species to inform in-situ conservation management and reintroduction schemes; iii) recommend legal protection in Indonesia; iv) recommend IUCN up-listing to 'Endangered'; v) continue and expand ex-situ conservation breeding programmes; and lastly vi) to identify if international trade is a threat to the species (Lee et al., 2016). Encouragingly, some of these goals have been met already, such as increased protection in Indonesia and an updated recognition of the precarious status of the species in the Red List. In this study, we provide evidence of international trade in Sumatran Laughingthrushes occurring in the European Union (EU) and discuss the implications of this trade.

2. Methods

A total of 19 different avicultural websites and trade advert portals known to host groups interested in laughingthrushes or advertisements of these birds were observed opportunistically since 2018. These forums were in Dutch, German, Czech, or

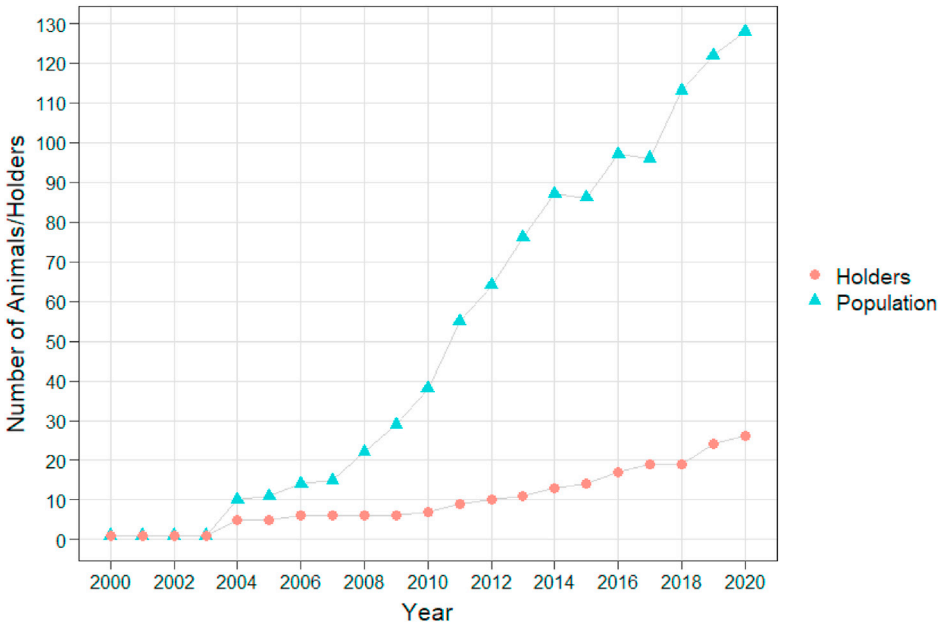

Fig. 2. Endangered Species Breeding Programme Population and holders of Sumatran Laughingthrushes, as of August 2020. (Data from Species 360 ZIMS – Zoological Information Management System (https://www.species360.org)). Note that four of the participating institutions in the breeding programme do not use ZIMS, therefore not all 136 animals in the 30 institutions are captured in this figure.

English language. Due to ethical considerations the identity of the traders and websites remain anonymous (see e.g., Stringham et al. (2020) for a discussion on the ethical implications of gathering online wildlife trade data). Sensitive personal information was also shared with some of the co-authors and regional government enforcement officers either in private conversations or messages. The Zwolle Bird Market in the Netherlands (https://avimarkt-europe.com), known to be one of the biggest bird markets in Europe, was visited on four occasions by co-authors on February 24, 2018, February 23 and September 21, 2019 and February 29, 2020, during which presence/absence and trade volumes of the species were recorded. The Stafford Bird sale in the United Kingdom (UK) was also visited on four occasions between 2018 and 2020, but no Sumatran Laughingthrushes were recorded.

3. Results

From 2018 to 2020, 45 Sumatran Laughingthrushes from 20 different sellers were encountered for sale, or in the possession of hobbyists, in the EU (Table 1). Online advertisements for Sumatran Laughingthrushes were first observed in February 2018 from a Dutch website. Two different traders were advertising a total of three birds, allegedly captive bred (Fig. 3). In the UK, a bird trader posted a video of his group of Sumatran Laughingthrushes, which included at least seven birds in his possession as of September 2018 (Figure S1). In February 2018, eight Sumatran Laughingthrushes were recorded at the Zwolle Bird Market in the Netherlands, priced at ~1500 Euro per individual (Figure S2). Around the time of the event, four more Sumatran Laughingthrushes were posted for sale online, but with unknown location information (Figure S3).

At the beginning of 2019, a post appeared on a website asking to exchange information on the breeding of Sumatran Laughingthrushes, as the person had allegedly acquired 'some young birds' of *G. bicolor* (Figure S4). In September 2019, two more Sumatran Laughingthrushes were observed for sale at the Zwolle Bird Market in the Netherlands (Fig. 4). The birds were offered for sale for 2100 Euro for the pair and both were ringed. Co-authors were contacted in private messages by three German hobbyists expressing frustration about difficulties in keeping Sumatran Laughingthrushes alive and reporting mortalities. In two separate instances, people seeking assistance described the well-known obesity issues frequently encountered in this species (Owen, 2017). Another UK bird dealer and breeder was observed online to be in the possession of at least one pair of Sumatran Laughingthrushes.

In February 2020, no Sumatran Laughingthrushes were observed at the Zwolle Bird Market. However, observations of another website suggest that as of April 2020, at least five more people in Europe were in possession of an unknown number of individuals. A breeder in France is in possession of at least three additional pairs, which were acquired in recent years. The French breeder seeking advice on breeding the species reported dozens of mortalities in nestlings and was unable to rear the young. Additionally, a post of a German breeder looking for a male Sumatran Laughingthrush was observed on a Dutch bird keeping and trade forum in March 2020. The listing text indicated that he already had a female Sumatran Laughingthrush in his possession.

4. Discussion

Although most of the Sumatran Laughingthrush trade continues to be conducted domestically and illegally in Indonesia, our data indicates that there is commercial trade in the species in the EU. Due to the unsystematic way in which the data were collected, it is likely that our findings are an underrepresentation of true trade volumes in the European market. Although the number of recorded individuals may seem relatively small, the open availability of these highly endangered birds online and in physical bird markets is worrying and requires immediate attention.

Indonesia is known to be the origin of illegally-sourced wildlife entering the EU (Nijman and Shepherd 2009; van Uhm et al., 2019; Indraswari et al., 2020), and at least some of the Sumatran Laughingthrushes in the possession of private commercial breeders have likely originated from relatively recent undocumented and illegal imports of wild individuals of the species. The European studbook for Sumatran Laughingthrushes confirmed that all original founders of the international breeding programme were derived from a small group of birds that were imported before 2006, when the species was elevated to full species status (Owen et al., 2014). Owen (2008) noted that by 2006, Sumatran Laughingthrushes were only known from two zoological institutions and one private collector (noting that it is possible that Sumatran Laughingthrushes that were traded before 2006, could have potentially been traded as White-crested Laughingthrushes). No new founders were added to the European studbook until 2015, when seven birds were legally imported to Chester Zoo in the UK from the Cikananga Conservation Breeding Centre in Indonesia with approval from the Indonesian government. This is the only known legal importation into the European Union between 2006 and 2020 and is not related to the number of birds observed for sale

Table 1
Sumatran Laughingthrushes for sale or in the possession of European hobbyist through time.

Year	Minimum number of birds	Minimum number of sellers
2018	22	5
2019	11	8
2020	12	7
Total	**45**	**20**

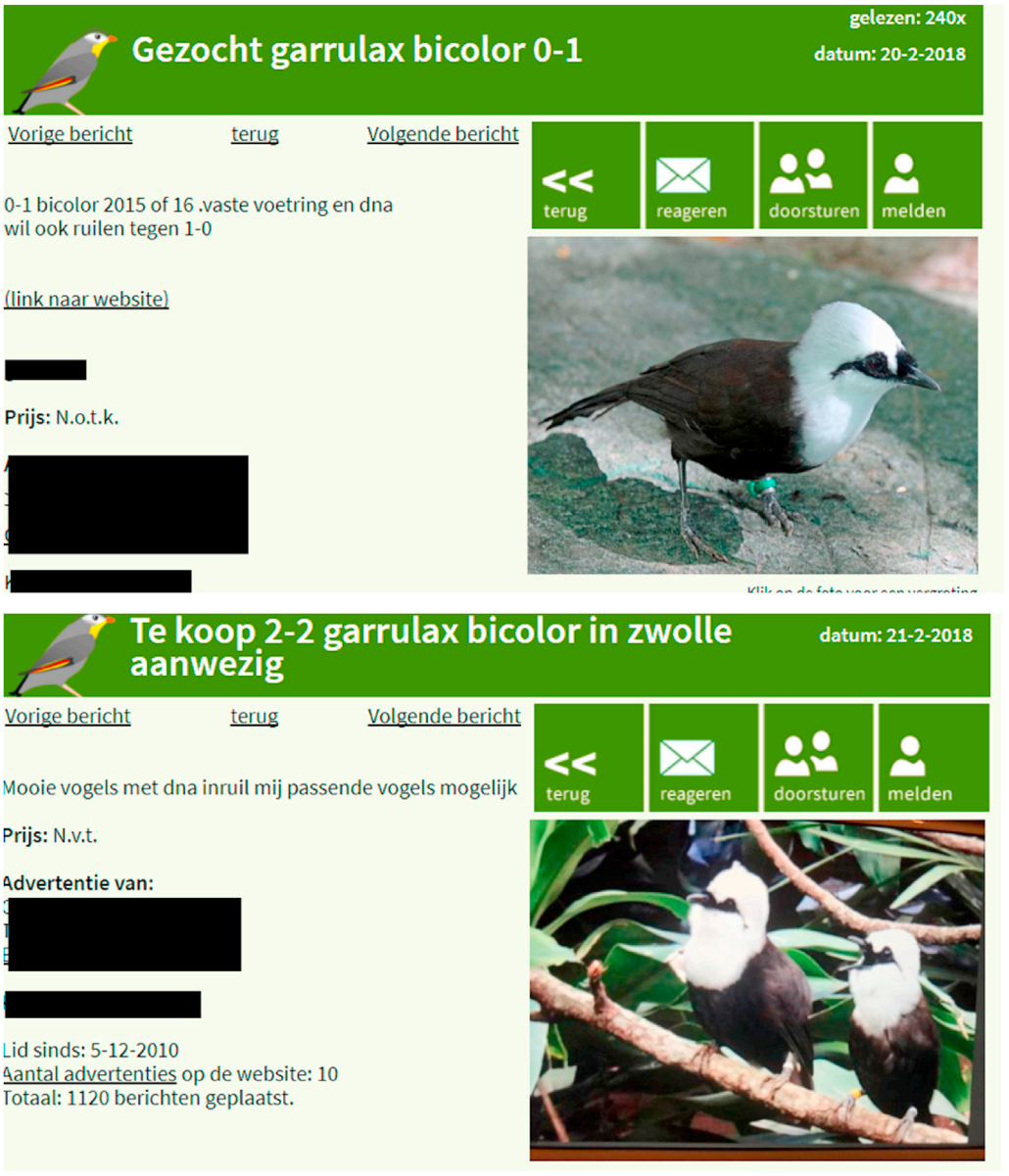

Fig. 3. Sumatran Laughingthrushes for sale on a Dutch website in 2018.

in recent years. The Sumatran Laughingthrushes and their offspring that were legally imported as part of the EEP programme are accounted for in the studbook (Owen 2020). These animals are not permitted to be traded, exchanged or sold, nor can they be removed from the breeding programme without official approval from EAZA and the species coordinator. EAZA members can be sanctioned for violating these rules (EAZA 2019).

Breeding Sumatran Laughingthrushes is extremely difficult (Owen 2008), and even though knowledge of methods and husbandry have improved in recent years in this regard (Owen 2017), the species can still not be produced in great numbers. Breeding of wild animals is a controversial issue and it is important to distinguish between breeding for conservation and breeding for recreational and/or commercial purposes (Collar et al., 2012). Especially for threatened species, it is essential to maintain genetic diversity, and breeding should ideally be an informed and planned activity aimed at preventing species extinction, or at least reducing harvesting pressure on wild populations (McGowan et al., 2017). As shown in this study, the observed trade in Sumatran Laughingthrushes in Europe is clearly for commercial gain and/or hobbyists, and not for conservation purposes. An increase in captive bred individuals for commercial purposes would likely hinder monitoring efforts by complicating the distinction between illegally caught wild birds and captive bred individuals in the market (see also Hogg

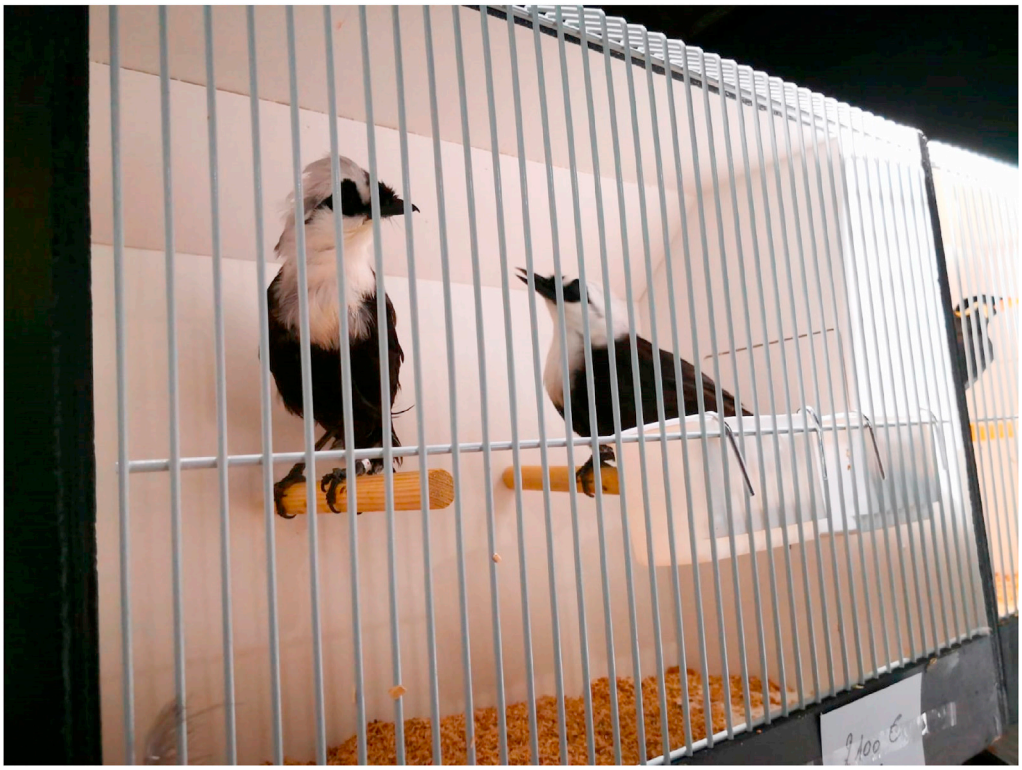

Fig. 4. Two Sumatran Laughingthrushes (*G. bicolor*) offered for sale at the Zwolle Bird Market, the Netherlands, in 2019 (image credit: Boyd Leupen/Monitor).

et al., 2019). The commercial breeding of Sumatran Laughingthrushes outside of Indonesia should therefore be discouraged, especially while the birds are still a relatively rare occurrence on the international market.

During private conversations with hobbyists it became clear that the majority seems to be oblivious to the notion that their activities could harm the species' populations in the wild or even to the illegal origin of the birds they are purchasing. There was also a repeated expression of disinterest amongst private breeders to support non-commercial and coordinated conservation breeding, due to the loss of commercial opportunity this would represent. Raising the profile of Sumatran Laughingthrushes in Europe may spark more interest in the plight of the species and generate much needed funding for its conservation. However, it may also lead to an unintended increase in demand. This, together with the high prices that can be attained for the birds, may further incentivise poaching and lead to increased illegal exports from Indonesia.

From a legal standpoint, one of the main challenges regarding international trade in the species is that while the export of Sumatran Laughingthrushes from Indonesia is illegal, its trade within the EU and its import into many of the consumer countries outside the EU, is not. As the Sumatran Laughingthrush is not listed in CITES, and not protected under the EU wildlife trade regulations, it is not well protected once it has illegally left Indonesia. In the EU, the import of wild birds has been prohibited since 2005 due to biosecurity risks (first under Commission Decision, 2005/760/EC, and currently under Commission Implementing Regulation No. 139/2013), providing the EU with a legal mechanism to restrict the commercial import of wild Sumatran Laughingthrushes. However, once a wild-caught bird has illegally entered the EU, it can freely and legally be traded within the Union. Further, international trade in Sumatran Laughingthrushes of likely illegal origin occurs beyond the EU, with documented destinations including Malaysia (Shepherd and Gomez 2018), the United Arab Emirates, the United States of America, and the Russian Federation (ZIMS database, August 2020). It is currently unclear which other destination countries may exist.

Therefore, a listing of the species in CITES, as suggested by the IUCN Red List (BirdLife International, 2016) is warranted. Shepherd and Gomez (2018) recommended a listing in Appendix III, which would obligate CITES Parties to assist Indonesia in preventing illegal international trade in this nationally protected bird (see also CITES Article II.3; https://cites.org/eng/disc/text.php#II). An Appendix III listing could have multiple benefits. While decisions to list species in Appendix I or II are taken multilaterally by the CITES Parties, inclusion in Appendix III of a native, protected species that is found, or suspected to be, in international trade can be done unilaterally by a CITES Party at any time. Appendix III measures are less restrictive than those under Appendix I and II; export permits are only needed if individuals are exported from a state that has included the species in Appendix III(CITES Article V; https://cites.org/eng/disc/text.php#V), but Non-Detriment Findings are not required (see Res. Conf. 16.7 (Rev. CoP17); https://cites.org/eng/res/16/16-07.php). A certificate of origin is needed if an Appendix III species is traded from any other than the listing Party, and a re-export permit is needed in the case of re-export (CITES

Article V; https://cites.org/eng/disc/text.php#V). Further, an Appendix III listing provides a means of gathering trade data and other important information on international trade dynamics of the species. Most importantly, however, it would ensure that internationally, law enforcement authorities have the legal basis to confiscate the species, which may currently not be the case in many of the consumer countries. A risk for Sumatran Laughingthrushes under CITES Appendix III would be that they might be misidentified for the similar looking White-crested Laughingthrush. However, this could be addressed by providing relevant identification materials based on morphological features or extending the use of forensic identification tools (Linacre and Tobe 2011; Ewart et al., 2018; Ueland et al., 2020).

Appendix III is arguably not an ideal long-term solution for every species, even if they fulfil the necessary criteria for an Appendix III listing (see Res. Conf. 9.25 (Rev.CoP18); https://cites.org/eng/res/09/09-25R16.php). Countries would ideally adopt legislation similar to the US Lacey Act, which would allow them to legally challenge importations of individuals of species that are imported in contravention to the national laws of their origin country (see also Altherr (2014) and Auliya et al. (2016)). Additionally, it has been suggested that the United Nations Convention Against Transnational Organized Crime (UNTOC) should adopt a fourth Protocol on wildlife crime. Such a protocol would criminalize wildlife trafficking, and Parties to the Protocol would have to make wildlife trafficking in violation of the applicable international agreement or any domestic or foreign law a criminal offense (https://endwildlifecrime.org). However, until such changes in domestic legislation do take place, be it through adherence to an international convention such as UNTOC or through a country's own initiative, Appendix III provides a readily available tool to protect species threatened by international trade. Species should fulfil certain criteria for an Appendix III listing to be effective (see Res. Conf. 9.25 (Rev.CoP18); https://cites.org/eng/res/09/09-25R16.php). In the case of the Sumatran Laughingthrush, the species fulfils all criteria for a listing in Appendix III and does not face the same challenges that are often associated with an Appendix III listing (see e.g., Willoek, et al., 2004; UNEP-WCMC 2010). As an endemic species it is further particularly well suited for an Appendix III listing. Should Indonesia not list the Sumatran Laughingthrush in Appendix III, inclusion in one of the other Appendices in CITES should be considered.

In the EU, a CITES Appendix III listing would automatically lead to the inclusion of the species in Annex C of the EU wildlife trade regulations. Such an inclusion would heighten alertness regarding the species amongst importing member states and provide an additional regulatory tool to European customs authorities. However, the EU has the opportunity to take stricter domestic measures by listing a species in a more restrictive Annex. In the case of the Sumatran Laughingthrush, a listing in Annex A, which contains species that are "in demand for utilization in the Community or for international trade and which is either threatened with extinction or so rare that any level of trade would imperil the survival of the species" (Council Regulation (EC) No 338/97) may be warranted. Annex A species require import permits and certificates for internal trade within the Union. In the case of the EU, the White-crested Laughingthrush could additionally be listed in a less restrictive Annex to avoid Sumatran Laughingthrushes to be laundered as this similar looking species.

5. Conclusion

Indonesia's protected wildlife is often found in international trade, having been illegally sourced and trafficked abroad. Here, we provide evidence of international trade of the Sumatran Laughingthrush in the EU, notably through private dealers and aviculturists for commercial gain. At least part of these birds in private collections are likely to be, or have originated from, illegally imported wild individuals. Seeing how an increase in captive bred individuals in the market would hinder effective law enforcement, it is essential to counter commercial captive breeding and trade while it is still in its infancy. We urge the EU to list this species in Annex A of the EU wildlife trade regulations, as it is increasingly threatened by demand within the EU. We also recommend that the Government of Indonesia list the Sumatran Laughingthrush in CITES Appendix III to assist in preventing international trade in illegally sourced birds. Such a listing would enable better monitoring of the international trade and importantly, it would give countries beyond the EU the legal means to confiscate illegal shipments of these endangered birds. Listing this species in Appendix III will ultimately benefit the conservation of the species and ensure that Indonesia's legislation is not undermined by inadequate legislation elsewhere.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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