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Original contributions and short notes about wild cats are welcome

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Uncover the unrevealed data: the magnitude of Javan leopard removal from the wild

The Javan leopard *Panthera pardus melas* is one of three critically endangered leopard subspecies. Despite threats from severe habitat fragmentation and isolation, the magnitude of Javan leopard removal from its natural habitats might have been overlooked by the Indonesian authorities and conservation practitioners. Here we describe the magnitude of Javan leopard removals using unofficial data collated between 2007 and 2019. Over the past 13 years, an average of 4.6 leopards were removed from their natural habitats due to illegal trade and conflict incidents annually. With an estimate of some 500 wild Javan leopards remaining range-wide, this number is alarming as it may represent a minimum number of leopard removals. We, therefore, urge the management authorities to take immediate actions to strengthen the protection of Javan leopard from further loss due to both official and unofficial removals.

Wildlife poaching and trafficking have been identified as two of the highest threats to wildlife communities, bringing many wildlife species to the brink of extinction (Bennett & Robinson 2000, Missios 2004, TRAFFIC 2008). In south-east Asia, this is especially true for critically endangered megafauna, including tiger (Ng & Nemora 2007, Verheij et al. 2010), rhinoceros (Kumar et al. 2012, WWF 2002), and elephant (Soehartono et al. 2007, WWF 2002). This has been compounded by the removal of wildlife from their natural habitats due to conflict with humans (Struebig et al. 2018, Treves & Karanth, 2003, Treves et al. 2004).

The Javan leopard, one of three critically endangered leopard subspecies (Jacobson et al., 2016), is currently under high pressure from habitat isolation as a result of severe forest fragmentation over the past two decades (Wibisono et al. 2018). Despite the severity, however, the magnitude of Javan leopard removal from its natural habitats, both due to poaching and conflict with humans, might have been overlooked by the Indonesian authorities and conservation practitioners. Here we describe the magnitude of Javan leopard removals using unofficial data collated between 2007 and 2019.

Over the past 13 years, 19 leopards were confiscated from a total of 19 sting operations involving 25 traffickers. Thus, an average of 1.3 leopards (minimum) were trafficked annually. Traded leopards were sold in domestic markets mostly for stuffed animals and traditional rituals (Fig. 1; D. Adhianto, pers. comm.). Due to conflict between

leopards and humans, a total of 87 incidents were recorded, 29 leopards were officially captured of which four were released back directly, 17 others killed at the locations of conflict, and the rest did not show up again after mitigation activities (E. Wilianto, pers. comm.). All killed animals were confiscated by the management authorities. Thus, an average of 3.2 leopards were captured due to conflict annually. All together, this averaged to 4.6 leopards removed from their natural habitats annually (Fig. 2). With an estimate of some 500 wild Javan leopards remaining range-wide (KLHK, 2016), these numbers are alarming as they may represent a minimum number of leopard removals. As efforts dedicated to protect the Javan leopard, such as law enforcement patrols and anti-trafficking efforts, have not yet been put

in place in a systematic manner in most of leopard habitat in Java, the true magnitude of Javan leopard removals is believed to be much higher than reported in this paper.

Of 19 confiscated leopards, seven were trafficked using social media and two major national e-commerce platforms, six in black markets, five smuggled, and one confiscated from the owner. The legal processes of the 25 suspects resulted in 13 sentenced in jail time (three months to two years) and fines (mean = USD 1,300, min = USD 36, max = USD 3,500), four confiscation letters, five in progress, and one suspect was turned to a witness, thus set free. We had no access to the other two suspects. While these records reveal the minimum number of trafficked Javan leopard, the source of targeted Javan leopard populations remains unclear. This is mainly due to the lack of coordination between the law enforcement agencies and the protected area/forest management units, as well as due to inconsistency in detecting and monitoring human-leopard conflicts and wildlife trafficking.

Of 29 leopards captured due to conflict, one was translocated to a new location, three were released back to their original habitats, five died in captivity, and 20 others are still kept by several zoos and rescue centers. Conflict mitigation measures have not yet targeted the root cause of the problems. Most mitigation efforts have been temporary, while capturing and rescuing leopards to zoos for mitigating conflicts is obviously still the main solution. Especially in recurring conflicts, this increases the number of Javan leopards being captured over time. Dedicated mitigation infrastructure, including holding facilities and rehabilitation centers, are still few and inadequate. Once a Javan



Fig. 1. The Indonesian Ministry of Environment and Forestry arrested a trafficker along with Sumatran tiger and Javan leopard pelts (Tempo 2012).

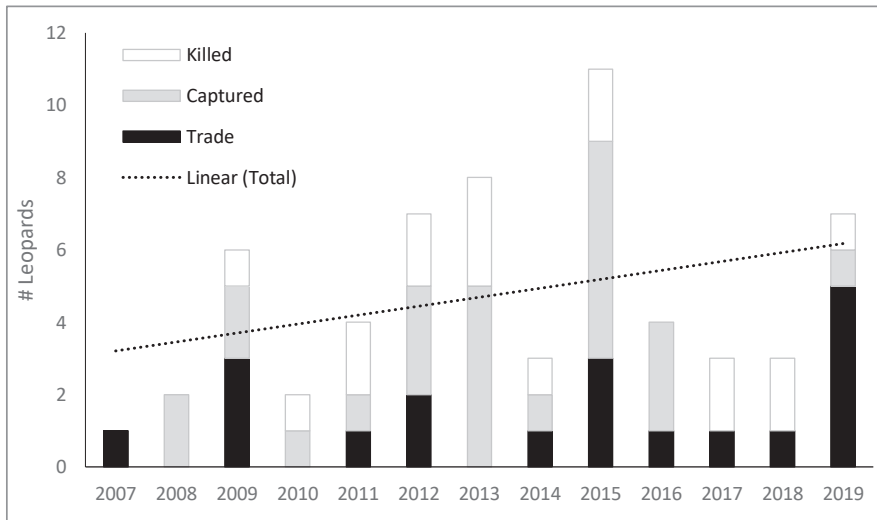


Fig. 2. Javan leopards removed from their natural habitats due to trade and conflict with humans. Four captured leopards released back to their habitats were excluded. The trend-line is indicative only as the increased trend could be a result of improved monitoring efforts.

leopard enters a zoo, most likely it will remain in captivity.

We, therefore, recommend that management authorities:

- mainstream Javan leopard conservation strategies using habitat protection and law enforcement as two main pillars, by implementing an integrated program of Javan leopard population monitoring, wildlife crime prevention, and improvement of poaching and trafficking detection;
- map leopard poaching and trafficking networks, human – leopard conflict hotspots, and identify underlying factors contributing to poaching and trafficking;
- improve perceptions of Javan leopards through an effective awareness program involving decision makers, law apparatus, and general public; and
- evaluate the roles and factual contributions of zoos and ex-situ conservation institutions in Javan leopard in-situ conservation program, especially in human – leopard conflict mitigations.

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