

SHORT COMMUNICATION

A revised global conservation assessment of the Javan Ferret Badger *Melogale orientalis*

Erwin WILIANTO^{1*} & Hariyo T WIBISONO^{1,2}

¹. Sumatran Tiger Conservation Forum (HarimauKita), Jl. Samiaji III No. 10, Bantarjati, Bogor, 16153, West Java, Indonesia.

². Fauna & Flora International – Indonesia Programme, Komplek Margasatwa Baru No 7A, Jl. Margasatwa Raya, Jakarta, 12450, Indonesia

Correspondence:

Erwin Wilianto
 e.wilianto@gmail.com

Associate editor:

Daniel Willcox

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Abstract.

In 2008, Javan Ferret Badger *Melogale orientalis* was categorised as Data Deficient by The IUCN Red List of Threatened Species, indicating that there was too little relevant information to assess its conservation status. According to the 2008 assessment, its known distribution was restricted to parts of the islands of Java and Bali with no records from Central Java and few, if any, explicitly from the lowlands or far from natural forest. During 2004–2014, 17 opportunistic Javan Ferret Badger records were obtained from various habitats, from 100 to nearly 2000 m altitude. These included four records in Central Java and the adjacent Yogyakarta Special Region, filling in a gap in the species' known range. West Java records included three locations below 500 m altitude. Several records were from around villages, up to 5–8 km from the closest natural forest, indicating that this species uses heavily human-altered areas. This evidence of a wider altitudinal and spatial distribution, and use of highly human-modified habitats, allowed re-categorisation in 2016 on the IUCN Red List as Least Concern.

Ringkasan.

Pada tahun 2008, biul selentek *Melogale orientalis* dikategorikan kedalam kelompok Data Defecient (Kekurangan Data) dalam The IUCN Red List of Threatened Species yang mengindikasikan bahwa saat itu sangat sedikit informasi yang digunakan untuk menilai status konservasi jenis ini. Berdasarkan kajian pada 2008, diketahui distribusi spesies ini terbatas di beberapa lokasi di Pulau Jawa dan Bali, namun tidak ada temuan di Jawa Tengah dan sedikit informasi yang secara eksplisit menyebutkan temuan di dataran rendah atau lokasi yang jauh dari hutan alam. Selama 2004–2017, temuan biul selentek secara oportunistik didapatkan dari berbagai tipe habitat dari ketinggian 100 hingga 2000 m. Termasuk empat temuan di Jawa Tengah dan Yogyakarta yang mengisi kekosongan informasi sebaran sebelumnya. Tiga lokasi temuan di Jawa Barat berada di bawah ketinggian 500 m. Beberapa temuan ditemukan di sekitar pemukiman yang berjarak 5–8 km dari hutan alami, yang menunjukkan bahwa jenis ini juga menggunakan habitat yang sudah termodifikasi. Bukti luasnya sebaran spasial dan elevasi serta penggunaan habitat yang termodifikasi, mendukung pengkategorisasian ulang Daftar Merah IUCN di tahun 2016 sebagai Least Concern (Beresiko Rendah).

Keywords: biul selentek, distribution, Indonesia, IUCN, Java, Javan Ferret Badger

Javan Ferret Badger *Melogale orientalis* is endemic to the islands of Java and Bali (Riffel 1991). Until 1991, records came from across most of Java but none was traced from Central Java, while in Bali it was recorded only near Lake Buyan (Figure 1). There were records from three protected areas in Java: Gunung Gede – Pangrango National Park (GGPNP) and Halimun Salak National Park in West Java and Meru Betiri National Park in East Java. Occurrence in GGPNP was confirmed by Brickle (2007), Duckworth *et al.* (2008) and Ario (2010). As of the 2008 assessment on *The IUCN Red List of Threatened Species*, the species was categorized as Data Deficient, out of concern that the few recent records then traced might reflect either a poor conservation status or that the species was greatly under-recorded.

Surveys of nocturnal small- and medium-sized carnivores in 14 locations across Java during 2012–2014 provided 37 Javan Ferret Badger records (three direct sightings and

34 camera-trap photographs), but all from one location: Cipaganti village, Garut reGENCY, West Java (Rode-Margono *et al.* 2014). The other 13 survey areas received much lower efforts (no camera trapping, only nocturnal transect surveys; see Rode-Margono *et al.* 2014), and the absence of Javan Ferret Badger at them should not be treated as confirmed; but, equally, the lack of records could indicate a genuine rarity. At least five Javan Ferret Badgers were observed for sale in Javan animal markets (Kim 2012, Shepherd *et al.* 2012) further highlighting the uncertainty of the species' true conservation status.

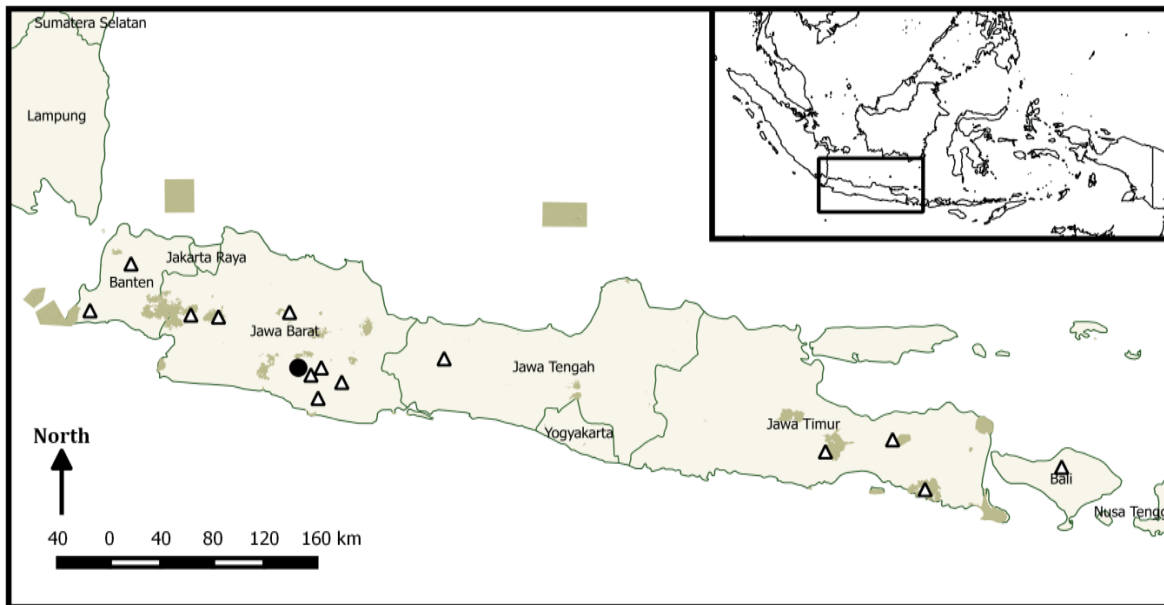


Figure 1. Previous records of Javan Ferret Badger on Java and Bali. Open triangles show records in Riffel (1991) and closed circle the new locality of Rode-Margono *et al.* (2014) near Cipaganti village, Garut reGENCY, West Java. Shaded blocks represent protected areas.

In the last decade, while there has still been no targeted survey of Javan Ferret Badger distribution and status, the rise in leisure natural history observation on Java coupled with the explosion of internet-based means for sharing observations, offers the opportunity for distinctive species readily identified without museum examination, of far more precise status assessments. To provide baseline data for Javan Ferret Badger conservation, including review of its *IUCN Red List* category, a trawl was made for recent (2004–2014) Javan Ferret Badger records and reports. This collation of information drove the 2016 *IUCN Red List* reassessment as Least Concern (IUCN 2016). It is presented here in more primary detail than was practicable in the *IUCN Red List* species account.

All information presented here does not include published records (such as Duckworth *et al.* 2008, Rode-Margono *et al.* 2014), but only previously unpublished records from 2004–2014. Scientific journals, reports, news articles, images, and social media postings were searched for on the internet using available search engines such as Yahoo, Google and social media platforms such as Facebook with specific keywords

related to the species. Keywords and phrases used are *Melogale orientalis*, Javan Ferret Badger, and the local names for the species which comprises *teledu* (Javanese/Sundanese), *biul selentek* and *sigung* (Indonesian). To verify reports collected from the internet and social media, the source person’s knowledge about this species was checked using a questionnaire (Table 1), coupled with an enquiry as to whether they had verifiable evidence such as a photograph. Information with unclear or no contact information were not included. Javan Ferret Badger is relatively distinct among the native mammals of Java. The only serious potential confusion species is Sunda Stink-badger *Mydaus javanensis*, which has a very different pattern of black and white markings, a much shorter tail, and which is infamous for its foul stench.

Of the 19 reports traced for 2004–2014, two could not be verified. The 17 acceptable records comprised seven camera-trap photographs, four direct sightings of which one was photo-validated, one individual rescued from a village, and five carcasses of which three were road-kills, one was trapped in a bird trap and one was killed by a predator (Table 2). These records came from across Java, including four in Central Java, where the species had not previously been recorded. The records include some from lowlands and near human populated areas (Figure 2). None of these records came from Bali.

Table 1. Questionnaire used to collect information on Javan Ferret Badger.

| | | |
|----------------------------------|---|---|
| Name _____ : | | |
| Address _____ : | | |
| Phone/mobile: _____ | E-mail: _____ | |
| Occupation _____ : | | |
| Organisation/Institution _____ : | | |
| <hr/> | | |
| No. | Question | Answer |
| 1. | Date & Time | |
| 2. | Where you found this species? (please add GPS Coordinate if available) | Address: _____ |
| 3. | Habitat description | |
| | a. Forest b. near plantation c. near villages d. on the road | |
| 4. | Finding Type: | |
| | a. Direct Observation (visual) | b. Indirect encounter (Sound, faeces, tracks, etc.) |
| | c. Carcase | d. Other finding: _____ |
| 5. | Number of Animal _____ | indv: _____ Male: _____ Female: _____ Unknown: _____ |
| 6. | Description: (Size, coloration, etc.) | |
| | Size: _____ | Colour: _____ |
| | Tail: _____ | White Stripe pattern: _____ |
| | Other: _____ | |
| 7. | Local Name | |
| 8. | How many times you found this species | |
| | All years: _____ time(s) | This year: _____ time(s) |
| 9. | Have you ever heard or known about people killing this badger? | |
| 10. | Do you know what badger eat? | |
| 11. | Do you that this species protected by law? | |
| 12. | Do you know that you can arrested if killing protected animal? | |
| 13. | Do you know someone who kept this animal as pet? | |
| | Signature: _____ | |
| | Date: _____ | |

West Java

Seven of the nine records in West Java came from protected areas, comprising: Gunung Ciremai National Park (Records #1–3; Figure 3A), Kareumbi-Masigit Game

Reserve (Record #4) and two nature reserves, Gunung Tilu (Figure 3B) and Gunung Papandayan (Records #5–7). The remaining two records were obtained outside of protected areas. One was obtained near a plantation, with small patches of natural forest, and in an area with high human population density (Record #8). The other was found dead, road killed, inside a university complex (Record #9) (Y. Ishaq pers. comm. 2015) at 200 m asl.

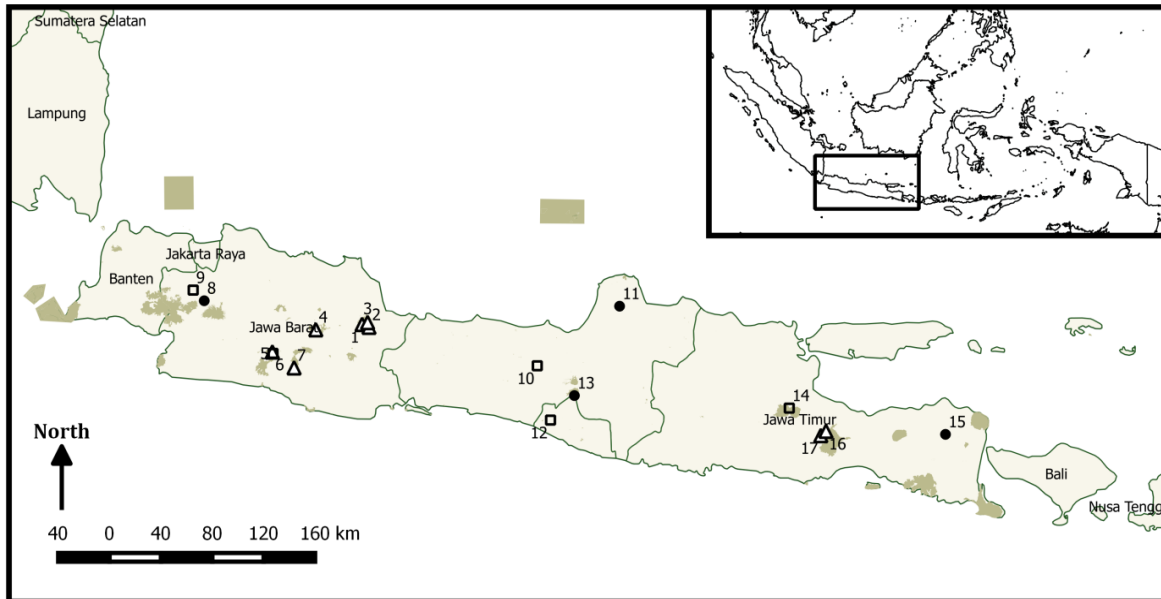


Figure 2. Previously unpublished locality records of Javan Ferret Badger on Java, 2004–2014. Closed circle represent direct sightings, open rectangle carcasses, and open triangle camera-trap records. Shaded blocks represent protected areas.



Figure 3. (A) Javan Ferret Badger *Melogale orientalis* camera-trap record in Gunung Ciremai National Park (Photo: Gunung Ciremai National Park 2013) and (B) Javan Ferret Badger found dead in a bird snare trap in Gunung Tilu Nature Reserve, 2013.

Central Java and Yogyakarta Special Region

Two records came from Central Java and two from the adjacent Yogyakarta Special Region. The two records from Central Java were located outside of protected areas; a road killed ferret badger (Record #10) was found between Temanggung city and Wonosobo in

2012 (Figure 4A), and a couple of ferret badgers (Record #11) were observed crossing a highway in a teak plantation near Tanjung Mojo village, Kudus (A.C. Adi pers. comm. 2015). In 2012, one ferret badger was rescued by a villager after being hit by a vehicle in Sendang Sari VILLAGE, Kulon Progo district, Yogyakarta (Record #13). The location is near a village, with mixed agriculture and small forest patches at 50–150 m asl (Gunawan pers. comm. 2014). Another record in Yogyakarta was in Gunung Merapi National Park by a birdwatcher in 2010 (Record #14; Figure 4B).



Figure 4. (A) Carcass of a Javan Ferret Badger found on a street between Temanggung and Wonosobo, Central Java (Photo: Didik Raharyono) and (B) Javan Ferret Badger from Gunung Merapi 2010, Central Java taken by a bird-watcher (taken from www.pedulikarnivorjawa.org).

East Java

In October 2014, a dead ferret badger was found near Lemahabang village, Batu–Malang district, apparently hit by a vehicle (Record #14; Figure 5). Previously, in 2013, a ferret badger was seen around secondary forest in Sempol village area close to Pancur–Bondowoso cities (Record #15) (H. Cahyono pers. comm. 2015). In Bromo Tengger Semeru National Park this species was captured in a camera-trap in December 2014 (Record #16). A dead ferret badger (Record #17) was found by a park ranger in August 2013 (Toni pers. comm. 2015).

Unverified indications

There were two further ferret badger records in animal trade articles or web posts, but the identity and/or origins of these animals could not be verified. Additionally, at least four web-posts were traced that advertised this animal for sale as a pet (e.g., www.kaskus.co.id).

Table 2. Previously unpublished Javan Ferret Badger *Melogale orientalis* records from Java during 2004 to 2014.

The table does not include published records in Duckworth et al. (2008) and Rode-Margono et al. (2014). Gunung (= mountain), as in Gunung

| # | Locality | Province | Lat/long | Altitude (m asl) | Forest status and locality description | Year | Type of evidence | Observer |
|----|---|-----------------------------------|------------------------------|------------------|---|------|--------------------------------|--------------------------|
| 1 | | | 6°53'44.6"S 108°22'20.0"E | 1270 | National Park; natural forest | 2013 | Camera-trap | M. Ginanjar (Fig. 3A) |
| 2 | Gunung Ciremai NP | | 6°55'24.5"S 108°26'22.5"E | 1415 | National Park; natural forest | 2013 | Camera-trap | M. Ginanjar |
| 3 | | | 6°52'38.8"S 108°25'33.1"E | 1738 | National Park; natural forest | 2013 | Camera-trap | M. Ginanjar |
| 4 | Kareumbi–Masigit GR | | 6°56'51.5"S 107°55'18.5"E | 1500 | Game Reserve; natural forest | 2013 | Camera-trap | E. Wilianto |
| 5 | Gunung Tilu NR | | 7°09'50.1"S 107°29'55.8"E | 1797 | Nature Reserve; natural forest | 2013 | Carcass, snared | E. Wilianto (Fig. 3B) |
| 6 | Gunung Tilu NR | | 7°10'40.5"S 107°30'19.1"E | 1854 | Nature Reserve; natural forest | 2013 | Camera-trap | E. Wilianto |
| 7 | Gunung Papandayan NR | West Java | 7°19'06.8"S 107°42'36.7"E | 1980 | Natural forest | 2014 | Camera-trap | A. Kusumanto |
| | | | | 500 | Small patches of natural forest. Plantation and villages; around 8–9 km from natural forest (Halimun Salak NP) | 2009 | Alive, rescued | E. Wilianto |
| 8 | Rancamaya | | 6°39'56.5"S 106°50'08.9"E | | | | | |
| 9 | Bogor Agriculture Institute Campus | | 6°33'43.5"S 106°43'41.7"E | 200 | Small forest, surrounding by villages | 2014 | Carcass, road-kill | Y. Ishaq |
| 10 | Temanggung | | unknown | unknown | Unknown | 2008 | Carcass, road-kill | D. Rahayono (Fig. 4A) |
| 11 | Tanjung Mojo, Kudus | Central Java | 6°43'06.8"S, 0°52'41.8"E | Over 600 | Natural forest, next to teak plantation and village | - | Visual, not documented | A.C. Adi |
| | | | | 50–150 | Small patches of natural forest. Plantation and villages. About 6–7 km from natural forest (Menoreh Mountains) | 2004 | Road-kill | Gunawan |
| 12 | Kulon Progo | Yogyakarta a Special Region | 7°49'38.8"S, 0°12'21.8"E | | | | | |
| 13 | Gunung Merapi NP | | 7°35'19.7"S, 0°26'18.5"E | 1100 | Natural forest | 2010 | Photograph | Lim Wen Sin (Fig. 4B) |
| 14 | Cangar, Malang | | 7°42'39.2"S, 2°31'47.8"E | 1300 | Natural forest | 2014 | Carcass, road-kill | H. Cahyono (Fig. 5) |
| 15 | Pancur– Bondowoso | | 7°57'58.8"S, 4°03'00.8"E | 853 | Natural forest | 2005 | Visual | H. Cahyono |
| 16 | Ranu Pane, Bromo–Tengger– Semeru NP | East java | 8°01'53.5"S, 2°57'58.1"E | 1822 | Bromo–Tengger National Park; natural forest | 2014 | Camera-trap | Toni |
| 17 | Bendo lawing Bromo–Tengger– Semeru | | 7°58'40.1"S, 2°50'12.1"E | 1830 | Bromo–Tengger National Park; natural forest | 2013 | Carcass, killed by predator | Toni |

The table does not include published records in Duckworth et al. (2008) and Rode-Margono et al. (2014). Gunung (= mountain), as in Gunung Ciremai National Park = Mount Ciremai National Park. NP = National Park, NR = Nature Reserve, GR = Game Reserve.

Based on the 17 verified records, Javan Ferret Badger has a wide distribution on Java in various habitat types. Riffel (1991) noted that Javan Ferret Badger occurs throughout Java and Bali, but he did not present any records for Central Java. The records presented above for Central Java seem to be the first specific localities for the region, although earlier, Schreiber *et al.* (1989) had included an imprecise record for Central Java for which Riffel (1991) could not trace any details. While the present collation traced no reports from Bali, given the haphazard nature of collating information from the internet and the overall low number of records, nothing should be concluded about the species' current status on Bali.



Figure 5. A road-kill Javan Ferret Badger *Melogale orientalis* in Cangar, Malang, East Java, 2014 (Photo: Heru Cahyono).

Schreiber *et al.* (1989) implied, perhaps inadvertently, that Javan Ferret Badger is associated with areas above 750 m asl. The records assembled here have a wider altitudinal range, from the lowlands at 100 up to 1,900 m asl. The lowland locations such as in Kulon Progo were surrounded by cultivation and dense human populations. There is no primary forest near several Javan Ferret Badger localities, and only small patches of secondary forest. This suggests that the species is not dependent on natural or primary forest, although as yet it would not be safe to assume it can live independently of such forest: populations in non-forest areas could potentially rely for their long-term viability upon animals dispersing from natural forest.

Threats

Javan Ferret Badger could potentially be threatened by habitat degradation and hunting. Past forest conversion, fragmentation and degradation in Java have been very heavy, given the island's high human population density. Javan Ferret badger has retained a wide range despite this and is certainly not restricted to the remaining large tracts of natural forest. The real level of threat from wildlife hunting (where the species might be caught as by-catch in snares set for other quarry animals) and capture for the pet trade is difficult to assess. Presently, there is a widespread habit amongst local people on Java to shot any kinds of animal with air rifles for 'fun', such as wild pig *Sus scrofa*, small carnivores and even primates. This activity may impact wild populations of Javan Ferret Badgers more

than pet trade, within which trade volumes are lower than for various other small carnivores (Kim 2012, Shepherd, 2012). However, the trade situation can change fast, with ‘fashion’; an example of this would be the emergence of the ‘civet lovers’ community in 2012 in Indonesia, where it suddenly became very fashionable to trade and keep various kinds of small carnivores as pets.

Conservation status

On *The IUCN Red List of Threatened Species* the Javan Ferret Badger was categorized as Data Deficient in 2008. The new occurrence and habitat information presented here fed into the 2016 assessment as Least Concern (IUCN 2016). Nonetheless, considering that these records were not based on dedicated studies, which have never occurred, long-term and range-wide surveys would be likely to reveal much more information about the distribution and population of Javan Ferret Badger, and to allow a clearer threat analysis for this species.

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