

Appendix 1

No	Author, year	Year	Title	DOI	Journal	Publisher	Language	Scopus	ISI
1	Akbar et al, 2007	2007	Status and conservation of <i>Babirusa babirusa</i> in the Togeian Islands, based on direct observation and questionnaire surveys (intermittently, 1990-2001)		Suiform Soundings	IUCN/ SSC Pigs and Peccaries Specialist Group; Hippos Specialist Group	English		
2	Allen et al, 2020	2020	Terrestrial mammal community richness and temporal overlap between tigers and other carnivores in Bukit Barisan Selatan National Park, Sumatra	10.32800/abc.2020.43.0097	Animal Biodiversity and Conservation	Museu de Ciencies Naturals de Barcelona	English		1
3	Ariefiandy et al, 2016	2016	Temporal and spatial dynamics of insular rusa deer and wild pig populations in Komodo National Park	10.1093/jmammal/gyw131	Journal of Mammalogy	Oxford University Press	English	1	1
4	Ariefiandy et al, 2021	2021	Invasive water buffalo population trends and competition-related consequences for native rusa deer in Eastern Indonesian protected areas	10.1007/s42991-021-00161-y	Mammalian Biology	Urban und Fischer Verlag Jena	English	1	1
5	Arini & Nugroho, 2016	2016	Preferensi habitat anoa (<i>bubalus spp.</i>) Di Taman Nasional Bogani Nani Wartabone	10.13057/psnmbi/m020120	PROS SEM NAS MASY BIODIV INDON	Society for Indonesian Biodiversity/ UNS	Indonesia		
6	Ario et al, 2020	2020	Assessing the species diversity in non-conservation areas: the first systematic camera trapping survey in the Batang Angkola Landscape, North Sumatra, Indonesia	10.33751/injast.v1i2.2385	Journal of Applied Environmental Studies	Postgraduate School of Environmental Management, Pakuan University	English		
7	Bernard et al, 2013	2013	Camera-trapping survey of mammals in and around Imbak Canyon Conservation area in Sabah, Malaysian Borneo		Raffles bulletin of zoology	National University of Singapore	English	1	1
8	Bernard et al, 2021	2021	Inventoring terrestrial mammal species in mixed-mangrove forest of the lower Kinabatangan, Sabah, Borneo, Malaysia, with special reference to a new locality record of otter civet, <i>Cynogale bennettii</i>	10.1007/s13364-021-00611-5	Mammal Research	Springer	English	1	1
9	Bersacola et al, 2019	2019	Occupancy patterns of ungulates and pig-tailed macaques across regenerating and anthropogenic forests on Borneo	10.4404/hystrix-00177-2019	Hystrix Biological Conservation	Associazione Teriologica Italiana onlus	English	1	1
10	Blouch, 1988	1988	Ecology and conservation of the Javan warty pig <i>Sus verrucosus muller</i> , 1840	10.1016/0006-3207(88)90122-X	Biological Conservation	Elsevier	English	1	1
11	Brodie & Giordano, 2013	2013	Lack of trophic release with large mammal predators and prey in Borneo	10.1016/j.biocon.2013.01.003	Biological Conservation	Elsevier	English	1	1

12	Brodie et al, 2013	2013	Evaluating multispecies landscape connectivity in a threatened tropical mammal community	10.1111/cobi.12337	Conservation Biology	Wiley	English	1	1
13	Brodie et al, 2015	2015	Correlation and persistence of hunting and logging impacts on tropical rainforest mammals	10.1111/cobi.12389	Conservation Biology	Wiley	English	1	1
14	Brodie et al, 2015b	2015	Differential responses of large mammals to logging and edge effects	10.1016/j.mambio.2014.06.001	Mammalian Biology	Elsevier	English	1	1
15	Cheyne et al, 2016	2016	Mammalian communities as indicators of disturbance across Indonesian Borneo	10.1016/j.gecco.2016.06.002	Global Ecology and Conservation	Elsevier	English	1	1
16	Chiaverini et al, 2022	2022	Multi-scale, multivariate community models improve designation of biodiversity hotspots in the Sunda Islands	10.1111/acv.12771	Animal Conservation	Wiley	English	1	1
17	Cita et al, 2022	2022	Wildlife camera trapping: estimating the abundance of Sumatran tiger's prey in Way Kambas National Park	10.1088/1755-1315/959/1/012020	IOP Conf. Series: Earth and Environmental Science	IOP Publishing Ltd.	English	1	
18	Clayton & MacDonald, 1999	1999	Social organization of the babirusa (<i>Babyrousa babyrussa</i>) and their use of salt licks in Sulawesi, Indonesia	10.2307/1383165	Journal of Mammalogy	Oxford University Press	English	1	1
19	Davison et al, 2019	2019	Shifts in the demographics and behavior of bearded pigs (<i>Sus barbatus</i>) across a land-use gradient	10.1111/btp.12724	Biotropica	Wiley	English	1	1
20	Derajat et al, 2022	2022	Keanekaragaman mamalia kecil di Taman Nasional Ujung Kulon		Jurnal Inovasi Pendidikan dan Sains	LPPM UNW Mataram	Indonesia		
21	Fandy et al, 2020	2020	Kelimpahan jenis satwa liar dengan menggunakan kamera jebakan di Cagar Alam Gunung Ambang	10.35791/cocos.v4i4.29922	Cocos	Ratulangi	Indonesia		
22	Farida et al, 2006	2006	Habitat distribution and diversity of plants as feed resources for mousedeer (<i>Tragulus javanicus</i>) and barking deer (<i>Muntiacus muntjak</i>) in Gunung Halimun National Park	10.3759/tropics.15.371	Tropics	Japan Society of Tropical Ecology	English		1
23	Fikri et al, 2016	2016	Inventarisasi spesies mamalia di Hutan Konservasi Prof. Dr. Sumitro Djojohadikusumo, Solok Selatan, Sumatera Barat	10.13057/psnmbi/m020104	PROS SEM NAS MASY BIODIV INDON	Society for Indonesian Biodiversity/ UNS	Indonesia		
24	Fitria et al, 2018	2018	Mammals biodiversity in Balik Bukit and Balai Kencana Resort, Bukit Barisan Selatan National Park	10.1088/1742-6596/1338/1/012022	Journal of Physics: Conference Series	IOP Publishing Ltd.	English		1
25	Foulton et al, 2022	2022	Identifikasi kelimpahan jenis satwa mangsa harimau sumatra (<i>Panthera tigris sumatrae</i>) menggunakan kamera jebak di Resort Talang Lakat Taman Nasional Bukit Tiga Puluh	10.31849/forestra.v17i1.7402	Wahana Forestra: Jurnal Kehutanan	Fakultas Kehutanan, Universitas Lancang Kuning	Indonesia		
26	Froese et al, 2015	2015	Disturbance impacts on large rain-forest vertebrates differ with edge type and regional context in Sulawesi, Indonesia	10.1017/S0266467415000450	Journal of Tropical Ecology	Cambridge University Press	English	1	1
27	Gardner et al, 2018	2018	Spatial and temporal behavioural responses of wild cattle to tropical forest degradation	10.1371/journal.pone.0195444	Plos one	Public Library of Science	English	1	1

28	Giman et al, 2007	2007	A camera trapping inventory for mammals in a mixed use planted forest in Sarawak		Raffles bulletin of zoology	National University of Singapore	English	1	1
29	Granados et al, 2016	2016	Persistence of mammals in a selectively logged forest in Malaysian Borneo	10.1016/j.mambio.2016.02.011	Mammalian Biology	Urban und Fischer Verlag Jena	English	1	1
30	Granados et al, 2018	2018	The influence of logging on vertebrate responses to mast fruiting	10.1111/1365-2656.12983	Journal of Animal Ecology	Wiley	English	1	1
31	Gunawan & Bismark, 2007	2007	Status populasi dan konservasi satwaliar mamalia di Taman Nasional Gunung Ciremai, Jawa Barat		Jurnal Penelitian Hutan dan Konservasi Alam	Badan Penelitian dan Pengembangan Kehutanan	Indonesia		
32	Hariadi et al, 2012	2012	Inventarisasi mamalia di Hutan Harapan Sumatera Selatan		Jurnal Biologi Universitas Andalas	University of Andalas	Indonesia		
33	Heydon & Bulloh, 1997	1997	Mousedeer densities in a tropical rainforest: the impact of selective logging	10.2307/2404892	Journal of Applied Ecology	Wiley	English	1	1
34	Huda et al, 2020	2020	Differences of terrestrial mammal species diversity between natural forest and edge forest areas in Batutegei Protected Forest, Lampung, Indonesia	10.33751/injast.v1i1.1973	Journal of Applied Environmental Studies	Postgraduate School of Environmental Management, Pakuan University	English		
35	Husson et al, 2018	2018	Biodiversity of Sebangau tropical peat swamp forest, Indonesian Borneo	10.19189/Map.2018.OMB.352	Mires and Peat	The International Mire Conservation Group (IMCG)	English	1	1
36	Imai et al, 2009	2009	Co-Benefits of Sustainable Forest Management in Biodiversity Conservation and Carbon Sequestration	10.1371/journal.pone.0008267	Plos one	Public Library of Science	English	1	1
37	Imron & Sinaga, 2007	2007	Aktivitas manusia dan distribusi banteng (<i>Bos javanicus</i> d'alton 1832) di Taman Nasional Alas Purwo	10.22146/jik.1553	Jurnal Ilmu Kehutanan	Faculty of Forestry, Universitas Gadjah Mada	Indonesia		
38	Insani et al, 2017	2017	Jenis-jenis mamalia yang mengunjungi kubangan babi hutan di kawasan hutan konservasi PT Tidar Kerinci Agung dan PT Kencana Sawit Indonesia, Solok Selatan, Indonesia	10.24843/METAMORFOSA.2017.v04.i01.p03	Jurnal Metamorfosa	Universitas Udayana	Indonesia		
39	Jamaludin et al, 2008	2008	Demographic parameters and behaviours of Sulawesi warty pig (<i>Sus celebensis</i> Muller and Schlegel 1843) in Tanjung Peropa Wildlife Reserve, Southeast Sulawesi	10.29244/medkon.13.2.%25p	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	English		
40	Jati et al, 2018	2018	Effects of logging on wildlife communities in certified tropical rainforest in East Kalimantan, Indonesia	10.1016/j.foreco.2018.05.054	Forest Ecology & Management	Elsevier	English	1	1
41	Journeaux et al, 2018	2018	Herd demography, sexual segregation and the effects of forest management on Bornean banteng <i>Bos javanicus lowi</i> in Sabah, Malaysian Borneo	10.3354/esr00882	Endangered Species Research	Inter-Research	English	1	1
42	Junaidi et al, 2012	2012	Inventarisasi jenis-jenis mamalia di Hutan Pendidikan dan Penelitian Biologi (HPPB)		Jurnal Biologi Universitas Andalas	University of Andalas	Indonesia		

		Universitas Andalas dengan menggunakan camera trap							
43	Kaicheen & Mohd-Azlan, 2018	2018	Camera trapping wildlife on Mount Penrissen area in Western Sarawak		Malaysian Applied Biology	Malaysian Society of Applied Biology	English	1	
44	Kaicheen & Mohd-Azlan, 2022	2022	Community structures of mid-sized to large-bodied mammals in tropical lowland and lower montane forests in Gunung Pueh National Park, Western Sarawak, Borneo	10.24189/ncr.2022.009	Nature Conservation Research	Saransk Fond Podderzki & Razvitia Zapovednyh	English	1	1
45	Kartono et al, 2009	2009	Hubungan mamalia dengan jenis vegetasi di Taman Nasional Gunung Ciremai		Jurnal Biologi Indonesia	Perhimpunan Biologi Indonesia	Indonesia		
46	Kartono, 2015	2015	Keragaman dan kelimpahan mamalia di perkebunan sawit PT Sukses Tani Nusasubur Kalimantan Timur	10.29243/medkon.20.2	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	Indonesia		
47	Ke & Luskin, 2019	2019	Integrating disparate occurrence reports to map data-poor species ranges and occupancy: a case study of the vulnerable bearded pig <i>Sus barbatus</i>	10.1017/S0030605317000382	Oryx	Cambridge University Press	English	1	1
48	Kee et al, 2018	2018	Nocturnal mammals of Segaliud-Lokan Forest Reserve, Sabah		Transactions on Science and Technology	UniSE Press	English		
49	Ketol et al, 2009	2009	Checklist of mammals from Gunung Silam, Sabah, Malaysia		Journal of Tropical Biology and Conservation	Universiti Malaysia Sabah	English		
50	Khalil et al, 2019	2019	Keragaman dan kelimpahan artiodactyla menggunakan kamera jebak di Kesatuan Pengelolaan Hutan I Pesisir Barat		Jurnal Sylva Lestari	Department of Forestry, Faculty of Agriculture, University of Lampung	Indonesia		
51	Kurs et al, 2020	2020	Transformation and endurance of indigenous hunting: Kadazandusun-Murut bearded pig hunting practices amidst oil palm expansion and urbanization in Sabah, Malaysia	10.1002/pan3.10250	People and Nature	Wiley	English	1	1
52	Laneng et al, 2021	2021	Camera-trapping assessment of terrestrial mammals and birds in rehabilitated forest in INIKEA project area, Sabah, Malaysian Borneo	10.1007/s11355-020-00442-7	Landscape and Ecological Engineering	Springer	English	1	1
53	Lim & Mojiol, 2022	2022	Variability in the patterns of terrestrial mammals in visiting the natural salt-licks at a tropical forest		Jurnal Hutan Tropika	Jurusan Kehutanan, Fakultas Pertanian, Universitas Palangka Raya	English		
54	Lim et al, 2018	2018	Identifying habitat and understanding movement resistance for the endangered Bornean banteng <i>Bos javanicus lowi</i> in Sabah, Malaysia	10.1017/S0030605318001126	Oryx	Cambridge University Press	English	1	1
55	Linkie & Ridout, 2011	2011	Assessing tiger-prey interactions in Sumatran rainforests	10.1111/j.1469-7998.2011.00801.x	Journal of Zoology	Wiley	English	1	1

56	Linkie et al, 2007	2007	Patterns and perceptions of wildlife crop raiding in and around Kerinci Seblat National Park, Sumatra	10.1111/j.1469-1795.2006.00083.x	Animal Conservation	Wiley	English	1	1
57	Love et al, 2017	2017	Bearded pig (<i>Sus barbatus</i>) utilisation of a fragmented forest-oil palm landscape in Sabah, Malaysian Borneo	10.1071/WR16189	Wildlife Research	CSIRO	English	1	1
58	Luskin et al, 2014	2014	Modern hunting practices and wild meat trade in the oil palm plantation-dominated landscape of Sumatra, Indonesia	10.1007/s10745-013-9606-8	Human Ecology	Springer	English	1	1
59	Maiwald et al, 2020	2020	Resilience of terrestrial mammals to logging in an active concession in Sarawak, Borneo	10.1515/mammalia-2020-0011	Mammalia	Walter de Gruyter GmbH	English	1	1
60	Masy'ud et al, 2007	2007	Pola distribusi, populasi dan aktivitas harian rusa timor (<i>Cervus timorensis</i> , de Blainville 1822) di Taman Nasional Bali Barat	10.29244/medkon.12.3.%p	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	Indonesia		
61	Matsubayashi & Sukor, 2005	2005	Activity and habitat use of two sympatric mouse-deer species, <i>Tragulus javanicus</i> and <i>Tragulus napu</i> , in Sabah, Malaysia, Borneo	10.1644/1545-	Malayan Nature Journal	Malaysian Nature Society	English		
62	Matsubayashi et al, 2003	2003	Activity and habitat use of Lesser mouse-deer (<i>Tragulus javanicus</i>)	1542(2003)084<0234:AAHUOL>2.0.CO;2	Journal of Mammalogy	Oxford University Press	English		1
63	McConkey & Chivers, 2004	2004	Low mammal and hornbill abundance in the forests of Barito Ulu, Central Kalimantan, Indonesia	10.1017/S0030605304000821	Oryx	Cambridge University Press	English	1	1
64	McShea et al, 2009	2009	The importance of secondary forest blocks for terrestrial mammals within an acacia/secondary forest matrix in Sarawak, Malaysia	10.1016/j.biocon.2009.08.009	Biological Conservation	Elsevier	English	1	1
65	Megantara et al, 2019	2019	Habitat of mammals in West Java, Indonesia	10.13057/biodiv/d201135	Biodiversitas	Society for Indonesian Biodiversity/ UNS	English		
66	Mohd-Azlan & Landing, 2006	2006	Camera trapping and conservation in Lambir Hills National Park, Sarawak		Raffles bulletin of zoology	National University of Singapore	English	1	1
67	Mohd-Azlan & Landing, 2013	2013	Camera trapping and conservation in Lanjak Entimau Wildlife Sanctuary, Sarawak, Borneo		Raffles bulletin of zoology	National University of Singapore	English	1	1
68	Mohd-Azlan et al, 2018	2018	Distribution, relative abundance and occupancy of selected mammals along paved road in Kubah National Park, Sarawak, Borneo	10.24189/ncr.2018.028	Nature Conservation Research	Fund for Support and Development of Protected Areas	English	1	1
69	Mohd-Azlan et al, 2018b	2018	Camera trapping of terrestrial animals in Tanjung Datu National Park, Sarawak, Borneo		Raffles bulletin of zoology	National University of Singapore	English	1	1
70	Mohd-Azlan et al, 2019	2019	Camera trapping of wildlife in the newly established Baleh National Park, Sarawak		Journal of sustainability science and management	Universiti Malaysia Terengganu	English	1	
71	Mohd-Azlan et al, 2020	2020	The distribution of medium to large mammals in Samunsam Wildlife Sanctuary, Sarawak in relation to the newly constructed pan-Borneo highway	10.24189/ncr.2020.055	Nature Conservation Research	Fund for Support and Development of Protected Areas	English	1	1

72	Mustari et al, 2011	2011	Keanekaragaman jenis mamalia di Taman Nasional Bantimurung Bulusaraung, Sulawesi Selatan	10.29244/medkon.17.3.	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	Indonesia		
73	Mustari et al, 2015	2015	Kelimpahan jenis mamalia menggunakan kamera jebakan di Resort Gunung Botol Taman Nasional Gunung Halimun Salak	10.29243/medkon.20.2.%p	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	Indonesia		
74	Mustari, 1996	1996	Population of lowland anoa (<i>Bubalus depressicornis smith</i>) in Tanjung Amolengu Wildlife Reserve Southeast Sulawesi, Indonesia	10.29244/medkon.5.1.	Media Konservasi	Departement of Forest Resource Conservation and Ecotourism, Faculty of Forestry, IPB University	English		
75	Ng et al, 2021	2021	Mammal species composition and habitat associations in a commercial forest and mixed-plantation landscape	10.1016/j.foreco.2021.119163	Forest Ecology & Management	Elsevier	English	1	1
76	O'Brien & kinnaird, 1996	1996	Birds and mammals of the Bukit Barisan Selatan National Park, Sumatra, Indonesia	10.1017/S0030605300021657	Oryx	Cambridge University Press	English	1	
77	O'Brien & kinnaird, 1996b	1996	Changing population of birds and mammals in North Sulawesi	10.1017/S0030605300021530	Oryx	Cambridge University Press	English	1	
78	O'Brien et al, 2003	2003	Crouching tigers, hidden prey: Sumatran tiger and prey populations in a tropical forest landscape	10.1017/S1367943003003172	Animal Conservation	Wiley	English	1	1
79	Pahlevi et al, 2022	2022	The study of wildlife species richness using camera traps in the Sipurak Hook area Kerinci Seblat National Park	10.33751/jsi.v5i2.6350	Journal of Science Innovare	Universitas Pakuan	English		
80	Pangau-Adam et al, 2022	2022	The role of the introduced rusa deer <i>Cervus timorensis</i> for wildlife hunting in West Papua, Indonesia	10.1002/2688-8319.12118	Ecological Solutions and Evidence	Wiley	English	1	1
81	Patry et al, 1995	1995	Group structure and behaviour of babirusa (<i>Babyrusa babyrussa</i>) in Northern Sulawesi	10.1071/ZO9950643	Australian Journal of Zoology	CSIRO	English	1	1
82	Prawiradilaga et al, 2014	2014	Rapid assessment on biodiversity in logged forest of Tesso Nilo, Riau Province, Sumatra	10.14203/jbi.v10i2.2106	Jurnal Biologi Indonesia	Perhimpunan Biologi Indonesia	English		
83	Prayoga & Imron, 2022	2022	The use of forest refugia by ungulate after the 2015'fire in Tesso Nilo National Park, Riau-Indonesia	10.7226/jtfm.28.1.40	Jurnal Manajemen Hutan Tropika	Department of Forest Management, IPB	English	1	1
84	Prosser et al, 2016	2016	Body condition scoring of Bornean banteng in logged forests	10.1186/s40850-016-0007-5	BMC Zoology	BioMed Central Ltd.	English	1	1
85	Pudyatmoko, 2017	2017	Free-ranging livestock influence species richness, occupancy, and daily behavior of wild mammalian species in Baluran National Park, Indonesia	10.1016/j.mambio.2017.04.001	Mammalian Biology	Urban und Fischer Verlag Jena	English	1	1
86	Pudyatmoko, 2019	2019	Spatiotemporal inter-predator and predator-prey interactions of mammalian species in a tropical savanna and deciduous forest in Indonesia	10.1007/s13364-018-0391-z	Mammal Research	Springer	English	1	1

87	Purnomo & Pudyatmoko, 2011	2011	Karakteristik habitat banteng (<i>Bos javanicus d'alton</i> , 1823) di Resort Rowobendo Taman Nasional Alas Purwo	10.24002/biota.v16i1.55	Biota Nusantara Bioscience	DPPVN Society for Indonesian Biodiversity/ UNS Public Library of Science	Indonesia		
88	Purnomo, Rademaker et al, 2016	2010	A habitat selection model for Javan deer (<i>Rusa timorensis</i>) in Wanagama I forest, Yogyakarta	10.13057/nusbiosci/n020206			English	1	
89		2016	First ecological study of the Bawean warty pig (<i>Sus blouchi</i>), one of the rarest pigs on earth	10.1371/journal.pone.0151732	Plos one		English	1	1
90	Radinal et al, 2019	2019	Monitoring species diversity using camera traps in Ulu Masen Ecosystem, Aceh Province	10.1088/1755-1315/365/1/012064	IOP Conf. Series: Earth and Environmental Science	IOP Publishing Ltd.	English	1	1
91	Rahman et al, 2017	2017	Factors affecting seasonal habitat use, and predicted range of two tropical deer in Indonesian rainforest	10.1016/j.actao.2017.05.008	Acta Oecologica	Elsevier	English	1	1
92	Rahman, 2020	2020	Ecological niche and potential distribution of the endangered <i>Bos javanicus</i> in South-Western Java, Indonesia	10.12933/therya-20-840	Therya	Asociacion Mexicana de Mastozoologia	English	1	
93	Ranuntu & Mallombasang, 2015	2015	Studi populasi dan habitat anoa (<i>Bubalus sp.</i>) di kawasan Hutan Lindung Desa Sangginora Kabupaten Poso		Mitra Sains	Universitas Tadulako	Indonesia		
94	Rode-Margono et al, 2020	2020	Ecology and conservation of the endemic Bawean warty pig <i>Sus verrucosus blouchi</i> and Bawean deer <i>Axis kuhlii</i>	10.1017/S0030605318000996	Oryx	Cambridge University Press	English	1	1
95	Rustam et al, 2012	2012	Comparison of mammalian communities in a human-disturbed tropical landscape in East Kalimantan, Indonesia	10.3106/041.037.0404	Mammal Study	Mammalogical Society of Japan	English	1	1
96	Samejima et al, 2012	2012	Camera-trapping rates of mammals and birds in a Bornean tropical rainforest under sustainable forest management	10.1016/j.foreco.2012.01.013	Forest Ecology & Management	Elsevier	English	1	1
97	Semiadi & Meijaard, 2006	2006	Declining population of the Javan warty pig <i>Sus verrucosus</i>	10.1017/S003060530600007X	Oryx	Cambridge University Press	English	1	1
98	Subrata & Mossbrucker, 2022	2022	Inventory of mammals using camera traps: a baseline study for an ecosystem restoration concession in the Bukit Tigapuluh Landscape, Sumatra		Tropical Natural History	Chulalongkorn University	English	1	
99	Sukistyawati et al, 2016	2016	Wild animals inventarisasi in Sempu Island Nature Reserve	10.20473/jipk.v8i1.11188	Jurnal Ilmu Perikanan dan Kelautan	Fakultas Perikanan dan Kelautan, Universitas Airlangga	Indonesia		
100	Sulaksono et al, 2022	2022	Response of terrestrial mammals to various types of disturbance in the Gunung Merapi National Park, Indonesia	10.13057/biodiv/d230355	Biodiversitas	Society for Indonesian Biodiversity/ UNS	English	1	
101	Tallei et al, 2015	2015	Biodiversity assessment of Mt. Tumpa Forest Park, North Sulawesi, Indonesia	10.7828/ajob.v7i1.832	Asian Journal of Biodiversity	Liceo de Cagayan University	English		
102	Tuen et al, 2002	2002	Preliminary survey of mammals at Crocker Ranger Park (Park Headquarters) Sabah, Malaysia		ASEAN Review of Biodiversity and Environmental	Institute of Biodiversity and Environmental Conservation (IBEC)	English		

103	Wahyudi & Stuebing, 2013	2013	Camera trapping as a conservation tool in a mixed-use landscape in East Kalimantan		Conservation (ARBEC) Journal of Indonesian Natural History	University of Andalas / Copenhagen Zoo	English		
104	Wall et al,	2021	Reconciling resource extraction and species conservation in a multi-use landscape: immediate and long-term impacts of logging on rainforest mammal diversity	10.1016/j.gecco.2021.e01642	Global Ecology and Conservation	Elsevier	English	1	1
105	Weiskopf et al,	2019	The conservation value of forest fragments in the increasingly agrarian landscape of Sumatra	10.1017/S0376892919000195	Environmental Conservation	Cambridge University Press	English	1	1
106	Widodo et al,	2022	Carnivores and their prey in Sumatra: occupancy and activity in human-dominated forests	10.1371/journal.pone.0265440	Plos one	Public Library of Science	English	1	1
107	Wong et al,	2005	Impacts of fruit production cycles on Malayan sun bears and bearded pigs in lowland tropical forest of Sabah, Malaysia, Borneo	10.1017/S0266467405002622	Journal of Tropical Ecology	Cambridge University Press	English	1	1
108	Yaap et al,	2016	Large mammal use of linear remnant forests in an industrial pulpwood plantation in Sumatra, Indonesia	10.1177/1940082916683523	Tropical Conservation Science	SAGE	English	1	1
109	Yudha et al,	2021	Impact of logging on the biodiversity and composition of flora and fauna in the mangrove forests of Bintuni Bay, West Papua, Indonesia	10.1016/j.foreco.2021.119038	Forest Ecology & Management	Elsevier	English	1	1
110	Zulkarnain et al,	2018	Studi keberadaan mamalia di hutan pendidikan, Taman Hutan Raya Wan Abdul Rachman	10.32662/gjfr.v1i2.362	Journal of Forestry Research	Fakultas Kehutanan, Universitas Gorontalo	Indonesia		

Appendix S2. Summary of Artiodactyla species-habitat relationships in Indonesia

This summary was developed from 110 field-based research papers covering Artiodactyla in Indonesia and Malaysian Borneo territories (Appendix S1). Each of the 20 species covered in this summary is presented in alphabetical order based on its scientific name. The title for each species includes ***Scientific name/ English name – IUCN Red List status***. The distribution range of each species provided here is the local distribution within Indonesia and Malaysian Borneo, not the global distribution of the species. Superscript numbers refer to the articles reviewed; list of the articles is presented in the reference at the end of this document.

***Axis kuhlii* / Bawean deer – Critically Endangered**

Distribution: Endemic to Bawean Island (~197 km²), Java

Number of papers: 2^{1,2}

Geographical coverage: Bawean Island

Methodology: All studies used camera traps. Despite the statistical analysis performed, habitat use was assessed descriptively.

Summary: The deer appeared to utilize forest edge or secondary forest more than primary but avoided areas close to human settlement.

Group: Forest edge species

Potential bias: Considering its very small distribution range, these two studies seem adequate to assess the species-habitat relationships. Strengthening the statistical approaches for future studies would greatly improve previous research.

***Babyrousa celebensis* / Sulawesi babirusa - Vulnerable**

Distribution: Sulawesi Mainland

Number of papers: 2^{3,4}

Geographical coverage: North Sulawesi

Methodology: Direct observation

Summary: The presence of saltlicks in natural lowland forest was important for the babirusa, indicated by regular visits to saltlick. The babirusa was the most observed species visiting the saltlicks.

Group: Forest species, but it is unclear which group

Potential bias: Despite the common assumption that Sulawesi babirusa is a forest-dependent species⁵, there are only two field-based studies. Those studies only cover two sites, all in North Sulawesi, while the babirusa's distribution is almost the entirety of Sulawesi. The studies were also designed for behavioural observation and did not explicitly assess habitat selection. Therefore, our knowledge of this species' habitat use is still limited, so more studies are warranted.

***Babyrousa togeanensis* / Toge Islands babirusa - Endangered**

Distribution: Endemic Togeian Islands, specifically Batudaka, Togeian, Talatako, Malenge Islands (less than 600 km²; Sulawesi)

Number of papers: 1⁶

Geographical coverage: Togeian Islands

Methodology: Mostly based on interview survey.

Summary: This babirusa was more often seen in agriculture and coastal regions.

Group: Generalist

Potential bias: There was only one published study of the species, based on an interview survey. The suggestion that this babirusa was more often seen in agriculture was likely an observation bias because locals spent more time in agriculture than in the forests, resulting in more sightings of babirusa in agriculture. A recent study, not part of the literature list⁷, shows that this babirusa only occupied agricultural areas when a large proportion of forests was available nearby.

***Babyrousa babyrussa* / Moluccan babirusa - Vulnerable**

Distribution: Buru and Sula Islands (Maluku)

Number of papers: 0

Geographical coverage:

Methodology:

Summary:

Group:

Potential bias: None of the papers met our criteria for inclusion in the review. Available literature suggests that this babirusa is forest species⁸, but given that there was no field-based assessment of the species, that assumption needs field testing.

***Bos javanicus* / Banteng - Endangered**

Distribution: Java and Borneo

Number of papers: 16 (5 from Java⁹⁻¹³, 11 Malaysia¹⁴⁻²⁴, 2 Kalimantan^{22,25})

Geographical coverage: In Java, most research was conducted in East Java (Baluran and Alas Purwo National Park); there was only one study from western Java (Ujung Kulon National Park). There was no study conducted in other parts of Java. In Borneo, most research was from Malaysia.

Methodology: Fourteen studies used camera traps, distributed systematically, stratified, or selectively justified. Two studies used indirect surveys and two direct surveys. Most studies employed statistical analysis to infer habitat selection, e.g., occupancy modelling, multivariate, correlation, ANOVA, GLM, and chi-squared test.

Summary: In Java, feeding ground (grassland) was an important habitat component for banteng. Banteng tended to avoid disturbance and humans, including cattle. In Baluran National Park, occupancy was higher in higher elevations.

In Borneo, forests were important for banteng, but degraded forests seem preferred, i.e., forest edge, regenerated logged forests, and ex-logging roads. Banteng spent more time in younger secondary forests than old-growth forests. Their association with lowland habitat was suggested to explain their persistence to high anthropogenic pressure, i.e., lowlands experience higher human pressure. This was contrary to banteng in Baluran National Park, where the occupancy is higher in higher elevations. However, the

persistence of banteng in logged forests depended on the degree of disturbance caused by logging, i.e., areas logged with reduced impact logging were better than conventional logging, and regenerated forest was better than recently logged forest.

Group: Forest edge species, particularly in Borneo. In Java it was likely generalist (utilize forest and grassland)

Potential bias: One of the most well studied species. Most studies were well designed to assess habitat selection and published within the last decade. Populations in Java, particularly outside the East Java region, might need more exploration.

***Bubalus depressicornis* / low-land anoa - Endangered**

Distribution: Sulawesi Mainland

Number of papers: 3^{3,26,27}

Geographical coverage: two papers from North Sulawesi, one from Southeast Sulawesi

Methodology: Direct survey (line transect, concentration count). Two studies were demographic studies. One study performed direct observation at a saltlick.

Summary: Forest loss was suggested to cause species' population decline, but the studies did not investigate habitat selection. The anoa frequently visited saltlicks at night.

Group: probably forest core species

Potential bias: This is among the least studied species. All studies used direct or indirect surveys and were not designed to assess habitat selection or habitat quality. Expanding studies throughout the species distribution range to evaluate habitat selection or habitat quality is encouraged.

***Bubalus quarlesi* / mountain anoa - Endangered**

Distribution: Sulawesi Mainland

Number of papers: 0

Geographical coverage:

Methodology:

Summary:

Group:

Potential bias: None of the papers met our criteria for inclusion in the review. The taxonomic status of this species is still debated ²⁸.

Bubalus spp. (B. depressicornis and B. quarlesi)/ anoas

Distribution: Sulawesi Mainland

Number of papers: 3 ²⁹⁻³¹

Geographical coverage: North, Southeast, and Central Sulawesi

Methodology: *B. depressicornis* and *B. quarlesi* were analysed at genus level due to difficulties in identifying them. One paper used camera traps and employed N-mixture models, two papers used indirect surveys, one used chi squared test, the other one descriptive.

Summary: All papers recorded anoas in the forest. Anoas were more associated with highland forests to avoid human activities in the lowlands. They were more abundant in large forest reserves, and density was higher near forest edges in large reserves.

Group: either forest core or forest-no preference

Potential bias: Currently, it is unclear whether these two species share the same traits and habitats. Therefore, describing species' traits accurately can be challenging when combining two species with potentially distinct traits, but see taxonomic status for *B. quarlesi* above.

***Capricornis sumatraensis* / Sumatran serow - Vulnerable**

Distribution: Sumatra

Number of papers: 9^{22,32-39}

Geographical coverage: Four provinces in Sumatra

Methodology: All studies were conducted in forests using camera traps; five were inventory studies.

Summary: Sumatran serow was associated with forests at high altitudes and required unfragmented forests.

Group: Forest core species

Potential bias: There were more inventory studies than habitat selection studies.

***Muntiacus atherodes* / Bornean yellow muntjac – Near Threatened**

Distribution: Borneo

Number of papers: 13 (10 from Malaysia ^{24,40–48}, 3 Kalimantan ^{49–51})

Geographical coverage: Two studies from East Kalimantan, one from Central Kalimantan, and the rest from Malaysia.

Methodology: All studies used camera traps, distributed systematically, randomly, or along specific gradients. Habitat selections were analysed using occupancy modelling, GLM/ GLMM, correlation, and multivariate.

Summary: This species was found in tropical forests, peat-swamp forests, and acacia plantations. Also found in intact and secondary forests but more associated with intact forests and tended to occupy higher altitudes.

Group: Forest core species

Potential bias: This is one of the well-studied species. Most papers were published within the last decade and designed to assess habitat selection.

***Muntiacus muntjac* / Red muntjac – Least Concern**

Distribution: Java, Sumatra, Borneo

Number of papers: 43 (10 from Java ^{2,10,11,52–58}, 4 Kalimantan ^{50,51,59,60}, 7 Malaysia ^{43–45,47,61–63}, 22 Sumatra ^{32–35,37–39,64–78})

Geographical coverage: All studies in Kalimantan are from East Kalimantan. In Sumatra, research covers seven provinces.

Methodology: Thirty-five studies used camera traps, the remaining ones used direct and indirect surveys (transect or exploratory) or a combination of inventory methods. Four studies also relied on interview

surveys to gather information. Sixteen studies investigate species habitat selection, and the rest provide information about its occurrence in some habitat types.

Summary: In Java, this species was found in both lowland and montane forests, tea plantations, mangroves, and pine forests. According to one article it was only found in lowland forests, but this was based on an interview survey. Muntjac was more abundant in undisturbed habitats, but in Ujung Kulon, abundance was highest in secondary forests near cropland.

In Borneo, most studies recorded this muntjac in the forests, but one study also recorded it in oil palm plantations. Many studies documented this species to have a high tolerance with disturbed forest, i.e., more abundant in degraded logged forests, equal among different forest conditions, or found near roads.

In Sumatra, muntjac was also documented to have a high tolerance to disturbance; abundance was either higher in more disturbed than intact habitats or similar, even reported raiding crops.

Group: Forest-no preference

Potential bias: This is one of the well-studied species, although there were some different inferences about species responses to degradation. About half of the studies were not designed to assess habitat selection or quality, but the other half may compensate to infer species-habitat relationships. More studies might be needed to spatially cover its distribution range in Kalimantan.

***Muntiacus montanus* / Sumatran muntjac – Data Deficient**

Distribution: Sumatra

Number of papers: 0

Geographical coverage:

Methodology:

Summary:

Group:

Potential bias: None of the papers met our criteria for inclusion in the review. This species could be the same species as *M. muntjac*. IUCN Red List considers this a distinct species, but the Mammal Diversity Database does not.

Muntiacus spp. (M. atherodes & M. muntjac)

Distribution: Borneo

Number of papers: 15 (4 from Kalimantan^{25,79-81}, 11 Malaysia^{14,18,23,82-89})

Geographical coverage: Central and East Kalimantan, but mostly from Malaysia

Methodology: In Borneo, numerous studies combined *M. muntjac* and *M. atherodes* because these sympatric species are often difficult to distinguish. Twelve studies used camera traps, one used transects, and one identified the species by vocalization. Seven studies could only inform its occurrence in some habitat types.

Summary: Some studies suggest that *Muntiacus spp.* were associated with intact forests; others suggest they could persist in degraded habitats. They were one of the most common artiodactyla in dipterocarp forest.

Group: between forest core and forest-no preference.

Potential bias: Describing species' traits accurately can be challenging when combining two species with potentially distinct characteristics. These two species are morphologically different, but some experience

is required to distinguish them. Therefore, when possible, identification should be made at the species level.

***Rusa timorensis* / Javan deer - Vulnerable**

Distribution: Java and Bali (native); Komodo Islands, Sulawesi, Papua (introduced)

Number of papers: 10 (3 from Java ^{10,11,90}, 3 Lesser Sunda ⁹¹⁻⁹³, 2 Papua ^{94,95}, 2 Sulawesi ^{96,97})

Geographical coverage: In Java from Baluran National Park, Yogyakarta (Introduced), and Bali. In Lesser Sunda from Komodo National Park. In Sulawesi only from Bantimurung National Park, South Sulawesi. In Papua from the western tip of the island.

Methodology: three studies used camera traps, three used transect, two indirect, and one based on interview survey. Four papers can only provide information about the species' occurrence.

Summary: In areas where Javan deer are abundant, whether in native or introduced regions, it appears as if they could persist in various forest types, including primary, secondary, plantation, and mangroves. In areas where they were hunted (Papua), the abundance was higher in areas farther from villages. In Baluran, deer tended to avoid free-ranging cattle by becoming more nocturnal. In response to competition with buffalo in Komodo Islands, they used savannah and grassland less often and used a broader elevation range.

Group: generalist, but tend to avoid disturbance or competition

Potential bias: Publications covering its native distribution were only from Baluran (East Java) and Bali Barat National Park.

***Rusa unicolor* / Sambar - Vulnerable**

Distribution: Sumatra, Borneo

Number of papers: 48 (9 from Kalimantan ^{25,49–51,59,60,79–81}, 23 Malaysia ^{14,17–19,23,24,40,42,44–48,62,63,82,83,85,86,88,89,98,99}, 16 Sumatra ^{32–35,37,39,64,66,68,70,72–75,77,78})

Geographical coverage: Seven provinces in Sumatra, East and Central Kalimantan, and Malaysian Borneo

Methodology: Thirty-six studies used camera traps, seven used direct survey, and seven indirect survey. Several studies used a combination of data collection methods.

Summary: Typically, sambar was less abundant than other artiodactyla in the area. Most studies indicated that this deer was restricted to extensive forest environments but could take advantage of disturbance, such as logged over areas and forest edges. One study suggested that sambar was more sensitive to forest edge in logged forests.

Group: forest-no preference

Potential bias: This was one of the most studied species and there were not many discrepancies among papers.

***Sus barbatus* / Bearded pig - Vulnerable**

Distribution: Sumatra & Borneo

Number of papers: 47 (10 from Kalimantan ^{25,49–51,59,60,79–81,100}, 30 Malaysia ^{14,17–19,23,24,40,41,43–48,61–63,82–89,99,101–104}, 8 Sumatra ^{36,38,66,68,75,76,100})

Geographical coverage: East and Central Kalimantan, Malaysian Borneo, four provinces in Sumatra

Methodology: Forty-one studies used camera traps, eight direct surveys, four indirect.

Summary: Bearded pigs were reported to use various types of landcover, including old growth forest, logged forest, oil palm plantation, and acacia plantation. However, several studies indicated the importance of forest to the species, and that their range contracted following deforestation. One study reported they were more abundant in plantations, but probably because sampling sites were mostly in plantations. The bearded pig was among the most common artiodactyla in some studies but was also reported to be among the rarest.

Group: generalist, but highly associated with forest

Potential bias: This is one of the most studied species, and most studies were also designed to assess habitat selection.

***Sus celebensis* / Sulawesi warty pig – Near Threatened**

Distribution: Sulawesi (native); Nias Islands-Sumatra, Lesser Sunda, Maluku (introduced)

Number of papers: 7 from Sulawesi^{3,27,30,96,97,105,106}

Geographical coverage: North, Southeast, and South Sulawesi. No study from its introduced range.

Methodology: Two studies used camera traps, three direct surveys, one indirect survey, and one interview survey. Three studies can only give information about the occurrence of the species. Habitat use was evaluated by comparing abundance among habitats.

Summary: This species was detected in natural, karst, secondary, riparian, and bamboo forests. It was suggested that it could tolerate some degree of disturbance but was more abundant in a large reserve. It tended to avoid babirusa when visiting saltlick.

Group: Forest-no preference or generalist

Potential bias: There was only one study assessing habitat selection.

***Sus scrofa* / Wild boar – Least Concern**

Distribution: Java and Sumatra (native); Papua, Komodo Islands (introduced)

Number of papers: 31 (6 from Java ^{10,53,54,57,58}, 1 Lesser Sunda ⁹¹, 1 Papua ⁹⁵, 23 Sumatra ^{32–35,37–39,64,66–78,107,108})

Geographical coverage: Lesser Sunda only from Komodo National Park. In Papua at a mangrove concession area. In Java, four from West Java, one from East Java (Baluran National Park), and one from Merapi National Park

Methodology: Twenty-two studies used camera traps, the rest were direct, indirect, interview, or a combination of methods. Twenty papers were inventory studies.

Summary: Wild boar was found in various types of landcover, including closed and open canopy forests, forest plantations, riparian, montane forests, and mangroves. Documented as one of the most common crop raiders. Some studies suggested that wild boars were more common in degraded areas, but it was reported they were less abundant near human settlements. Other studies suggested they were equally abundant in intact and degraded (or edge) habitats. In some places, it was documented as among the most abundant artiodactyla.

Group: Generalist, but many studies associate it with forests

Potential bias: Two-thirds of the studies were not designed to assess habitat selection or quality.

***Sus verucosus* / Javan warty pig - Endangered**

Distribution: Java mainland and Bawean Island

Number of papers: 4 ^{1,109-111}

Geographical coverage: Two studies from Bawean Island-Java, the other two studies cover the entire area of Java

Methodology: Two studies in Bawean used camera traps and occupancy modeling, two other studies throughout Java were interview surveys.

Summary: This pig was documented to be more abundant in ecotone and areas with wallowing site availability. An interview study suggested that declining teak plantations caused the species' population decline throughout Java.

Group: Forest edge species (in Bawean)

Potential bias: Studies on Bawean Island were probably adequate to assess the pig-habitat relationships on that island. Populations in Java mainland require more habitat selection or quality research to support the previous interview studies.

***Tragulus javanicus* / Javan mousedeer – Data Deficient**

Distribution: Java

Number of papers: 3 ^{52,56,112}

Geographical coverage: Ujung Kulon National Park, Halimun Salak National Park, and Sempu Island

Methodology: One study used a combination of camera traps and direct survey. Two studies used direct surveys (nonsystematic), and one study relied on information from locals. All articles were inventory studies.

Summary: The species was recorded in forest areas and tea plantations up to 1100 m asl. One paper recorded this mousedeer in Sempu Island.

Group: probably forest species or generalist

Potential bias: Known to be distributed throughout Java, this species needs more study throughout the island to cover its distribution range spatially.

***Tragulus kanchil* / Lesser mousedeer – Least Concern**

Distribution: Sumatra, Borneo

Number of papers: 22 (3 from Kalimantan^{49,51,60}, 8 Malaysia^{17,45,46,61,62,85,113,114}, 11 Sumatra^{32–35,66,68,69,72,75–77})

Geographical coverage: East and Central Kalimantan, Malaysian Borneo, five provinces in Sumatra

Methodology: Seventeen studies used camera traps, five used direct survey. Sixteen studies were inventory.

Summary: Lesser mousedeer was recorded in primary, secondary, and peat swamp forests. Some studies suggested they were more associated with intact forests, but others suggested they can tolerate or even prefer degraded forests. At site level, it was recorded that they prefer gaps dominated by bamboo for foraging and dense areas for resting in the forests.

Group: Either forest core or forest-no preference

Potential bias: There were discrepancies among papers regarding habitat preferences.

***Tragulus napu* / Greater mousedeer – Least Concern**

Distribution: Sumatra, Borneo

Number of papers: 19 (5 from Kalimantan ^{49,51,59,60,81}, 9 Malaysia ^{17,40,43,45–47,61,62,113}, 5 Sumatra ^{32,35,66,75,76})

Geographical coverage: In Kalimantan, mostly from East Kalimantan (one from Central Kalimantan). In Sumatra from four provinces

Methodology: Sixteen studies used camera traps and four used direct surveys. Thirteen papers were inventory studies.

Summary: Greater mousedeer was recorded in primary, secondary, peat swamp, karst, and beach forests. It was recorded in areas up to 600 m asl. Some studies indicated they were more associated with intact forests, while others suggested they could tolerate or preferred degraded areas. It has been documented that this mousedeer was more crepuscular and active both day and night.

Group: Either forest core or forest-no preference

Potential bias: There were discrepancies among papers regarding habitat preferences.

***Tragulus spp. (T. kanchil & T. napu)*/ Mousedeer**

Distribution: Sumatra, Borneo

Number of papers: 27 (4 from Kalimantan ^{25,50,79,80}, Malaysia ^{14,18,19,23,24,41,42,48,63,82,84,86–89}, 8 Sumatra ^{37–39,71,73,74,78,107})

Geographical coverage: East and Central Kalimantan, four provinces in Sumatra

Methodology: Many papers analyzed these two mousedeer at the genus level because of difficulties in distinguishing them, although they are two distinct species. Eighteen studies used camera traps, three direct surveys, one indirect.

Summary: Mousedeer were among the most common artiodactyla recorded. Some studies indicated that they were more associated with intact forests, while others suggested they could tolerate or even prefer degraded areas. Occupancy was higher at lower altitudes.

Group: Either forest core or forest no preference

Potential bias: There were discrepancies among papers regarding habitat preferences. Describing species traits accurately can be challenging when combining two species with potentially distinct characteristics.

References

1. Rode-Margono, E. J., Khwaja, H., Rademaker, M. & Semiadi, G. Ecology and conservation of the endemic Bawean warty pig *Sus verrucosus blouchi* and Bawean deer *Axis kuhlii*. *Oryx* **54**, 892–900 (2020).
2. Rahman, D. A. *et al.* Factors affecting seasonal habitat use, and predicted range of two tropical deer in Indonesian rainforest. *Acta Oecologica* **82**, 41–51 (2017).

3. Clayton, L. & MacDonald, D. W. Social Organization of the Babirusa (*Babyrousa babyrussa*) and Their Use of Salt Licks in Sulawesi, Indonesia. *J Mammal* **80**, 1147–1157 (1999).
4. Patry, M., Leus, K. & Macdonald, A. A. Group structure and behaviour of babirusa (*Babyrousa babyrussa*) in Northern Sulawesi. *Aust J Zool* **43**, 643–655 (1995).
5. Macdonald, A. Sulawesi Babirusa *Babyrousa celebensis* (Deninger, 1909). in *Ecology, Conservation and Management of Wild Pigs and Peccaries* (eds. Melletti, M. & Meijaard, E.) 59–69 (Cambridge University Press, Cambridge, 2017).
6. Akbar, S., Indrawan, M., Yasin, M. P., Burton, J. & Ivan, J. Status and conservation of *Babyrousa babyrussa* in the Togean Islands, based on direct observations and questionnaire surveys (intermittently, 1990 – 2001). *Suiform Soundings* **7**, 16–25 (2007).
7. Jati, A. S. *et al.* Conserving large mammals on small islands: A case study on one of the world's most understudied pigs, the Togean islands babirusa. *Biodivers Conserv* (2024)
doi:10.1007/s10531-024-02800-5.
8. Sheherazade, Hesdianti, E. & Indrawan, M. Moluccan Babirusa *Babyrousa babyrussa* (Linnaeus, 1758). in *Ecology, Conservation and Management of Wild Pigs and Peccaries* (eds. Melletti, M. & Meijaard, E.) 7075 (Cambridge University Press, Cambridge, 2017).
9. Imron, M. A. & Sinaga, J. O. Aktivitas Manusia dan Distribusi Banteng (*Bos Javanicus* D'alton 1832) di Taman Nasional Alas Purwo. *Jurnal Ilmu Kehutanan* **1**, 30 (2013).
10. Pudyatmoko, S. Free-ranging livestock influence species richness, occupancy, and daily behaviour of wild mammalian species in Baluran National Park, Indonesia. *Mammalian Biology* **86**, 33–41 (2017).
11. Pudyatmoko, S. Spatiotemporal inter-predator and predator–prey interactions of mammalian species in a tropical savanna and deciduous forest in Indonesia. *Mamm Res* **64**, 191–202 (2019).

12. Purnomo, D. W. & Pudyatmoko, S. Karakteristik Habitat Banteng (*Bos javanicus* d'Alton, 1823) di Resort Rowobendo Taman Nasional Alas Purwo. *Journal of Biota* **16**, 16–25 (2011).
13. Rahman, D. A. Ecological niche and potential distribution of the endangered *Bos javanicus* in south-western Java, Indonesia. *Therya* **11**, 57–68 (2020).
14. Brodie, J. F. *et al.* Correlation and persistence of hunting and logging impacts on tropical rainforest mammals. *Conservation Biology* **29**, 110–121 (2015).
15. Gardner, P. C. *et al.* Spatial and temporal behavioural responses of wild cattle to tropical forest degradation. *PLoS One* **13**, 1–19 (2018).
16. Journeaux, K. L., Gardner, P. C., Lim, H. Y., Ee Wern, J. G. & Goossens, B. Herd demography, sexual segregation and the effects of forest management on Bornean banteng *Bos javanicus lowi* in Sabah, Malaysian Borneo. *Endanger Species Res* **35**, 141–157 (2018).
17. Kee, S. L. *et al.* Nocturnal Mammals of Segaliud-Lokan Forest Reserve, Sabah. *Transactions on Science and Technology* **5**, 131–136 (2018).
18. Laneng, L. A., Nakamura, F., Tachiki, Y. & Vairappan, C. S. Camera-trapping assessment of terrestrial mammals and birds in rehabilitated forest in INIKEA Project Area, Sabah, Malaysian Borneo. *Landscape and Ecological Engineering* **17**, 135–146 (2021).
19. Lim, W.-S. & Mojiol, A. R. Variability in the patterns of terrestrial mammals in visiting the natural salt-licks at a tropical forest. *Jurnal Hutan Tropika* **17**, 1–20 (2022).
20. Lim, H. Y., Gardner, P. C., Abram, N. K., Yusah, K. M. & Goossens, B. Identifying habitat and understanding movement resistance for the Endangered Bornean banteng *Bos javanicus lowi* in Sabah, Malaysia. *Oryx* **55**, 122–130 (2018).
21. Prosser, N. S. *et al.* Body condition scoring of Bornean banteng in logged forests. *BMC Zool* **1**, 1–8 (2016).

22. Chiaverini, L. *et al.* Multi-scale, multivariate community models improve designation of biodiversity hotspots in the Sunda Islands. *Anim Conserv* **25**, 660–679 (2022).
23. Brodie, J. F., Giordano, A. J. & Ambu, L. Differential responses of large mammals to logging and edge effects. *Mammalian Biology* **80**, 7–13 (2015).
24. Imai, N. *et al.* Co-benefits of sustainable forest management in biodiversity conservation and carbon sequestration. *PLoS One* **4**, (2009).
25. Cheyne, S. M., Sastramidjaja, W. J., Muhahir, Rayadin, Y. & Macdonald, D. W. Mammalian communities as indicators of disturbance across Indonesian Borneo. *Glob Ecol Conserv* **7**, 157–173 (2016).
26. Mustari, A. H. Population of Lowland Anoa (*Bubalus Depressicornis* Smith) in Tanjung Amolengu Wildlife Reserve Southeast Sulawesi, Indon. *Media Konservasi* **5**, (1996).
27. O’Brien, T. G. & Kinnaird, M. F. Changing populations of birds and mammals in North Sulawesi. *Oryx* **30**, 150–156 (1996).
28. Burton, J. A., Hedges, S. & Mustari, A. H. The taxonomic status, distribution and conservation of the lowland anoa *Bubalus depressicornis* and mountain anoa *Bubalus quarlesi*. *Mamm Rev* **35**, 25–50 (2005).
29. Arini, D. I. D. & Nugroho, A. Preferensi habitat Anoa (*Bubalus* spp.) di Taman Nasional Bogani Nani Wartabone. *PROS SEM NAS MASY BIODIV INDON* **2**, 103–108 (2016).
30. Froese, G. Z. L., Contasti, A. L., Mustari, A. H. & Brodie, J. F. Disturbance impacts on large rain-forest vertebrates differ with edge type and regional context in Sulawesi, Indonesia. *J Trop Ecol* **31**, 509–517 (2015).
31. Ranuntu, R. A. & Mallombasang, N. Studi populasi dan habitat anoa (*Bubalus* sp) di kawasan hutan lindung Desa Sangginora Kabupaten Poso. *e-Jurnal Mitra Sains* **3**, 81–94 (2015).

32. Allen, M. L., Sibarani, M. C., Utoyo, L. & Krofel, M. Terrestrial mammal community richness and temporal overlap between tigers and other carnivores in Bukit Barisan Selatan National Park, Sumatra. *Anim Biodivers Conserv* **1**, 97–107 (2020).
33. Ario, A. *et al.* Assessing the species diversity in non-conservation areas: A first systematically camera trapping survey in Batang Angkola Landscape, North Sumatra, Indonesia. *Indonesian Journal of Applied Environmental Studies* **1**, 14–24 (2020).
34. Fitria, E. *et al.* Mammals Biodiversity in Balik Bukit and Balai Kencana Resort, Bukit Barisan Selatan National Park. *J Phys Conf Ser* **1338**, 012022 (2019).
35. Khalil, A. R. A., Setiawan, A., Rustiati, E. L., Haryanto, S. P. & Nurarifin, I. Keragaman dan Kelimpahan Artiodactyla Menggunakan Kamera Jebak di Kesatuan Pengelolaan Hutan I Pesisir Barat. *Jurnal Sylva Lestari* **7**, 350–358 (2019).
36. Pahlevi, F. R., Susatya, A. & Suhartoyo, H. Study of wildlife species wealth using camera trap in Sipurak Hook area Kerinci Seblat National Park area. *Journal of Science Innovare* **5**, 45–48 (2022).
37. Weiskopf, S. R. *et al.* The conservation value of forest fragments in the increasingly agrarian landscape of Sumatra. *Environ Conserv* (2019) doi:10.1017/S0376892919000195.
38. Widodo, F. A., Imron, M. A., Sunarto, S. & Giordano, A. J. Carnivores and their prey in Sumatra: Occupancy and activity in human-dominated forests. *PLoS One* **17**, e0265440 (2022).
39. Radinal, Kiswayadi, D., Akbar, M., Boyhaqi, T. & Gumay, D. W. Monitoring species diversity using camera traps in ulu masen ecosystem, aceh province, indonesia. *IOP Conf Ser Earth Environ Sci* **365**, (2019).
40. Gimán, B., Stuebing, R., Megum, N., Mcshea, W. J. & Stewart, C. M. A camera trapping inventory for mammals in a mixed use planted forest in Sarawak. *Raffles Bulletin of Zoology* **55**, 209–215 (2007).

41. Granados, A., Bernard, H. & Brodie, J. F. The influence of logging on vertebrate responses to mast fruiting. *Journal of Animal Ecology* **88**, 892–902 (2019).
42. Granados, A., Crowther, K., Brodie, J. F. & Bernard, H. Persistence of mammals in a selectively logged forest in Malaysian Borneo. *Mammalian Biology* **81**, 268–273 (2016).
43. Kaicheen, S. S. & Mohd-Azlan, J. Camera trapping wildlife on mount penrissen area in western Sarawak. *Malaysian Applied Biology* **47**, 7–14 (2018).
44. Kaicheen, S. S. & Mohd-Azlan, J. Community Structures of Mid-Sized To Large-Bodied Mammals in Tropical Lowland and Lower Montane Forests in Gunung Pueh National Park, Western Sarawak, Borneo. *Nature Conservation Research* **7**, 70–79 (2022).
45. Maiwald, M. J., Mohd-Azlan, J. & Brodie, J. F. Resilience of terrestrial mammals to logging in an active concession in Sarawak, Borneo. *Mammalia* **85**, 115–122 (2021).
46. Matsubayashi, H. & Sukor, J. R. Abd. Activity and Habitat Use of two Sympatric Mouse-deer Species, *Tragulus javanicus* and *Tragulus napu*, in Sabah, Malaysia, Borneo. *Malayan Nature Journal* **57**, 235–241 (2005).
47. Mohd-Azlan, J., Yi, M. C. K., Lip, B. & Hon, J. Camera trapping of wildlife in the newly established Baleh National Park, Sarawak. *J Sustain Sci Manag* **14**, 51–64 (2019).
48. Samejima, H., Ong, R., Lagan, P. & Kitayama, K. Camera-trapping rates of mammals and birds in a Bornean tropical rainforest under sustainable forest management. *For Ecol Manage* **270**, 248–256 (2012).
49. Husson, S. J. *et al.* Biodiversity of the sebangau tropical peat swamp forest, Indonesian Borneo. *Mires and Peat* **22**, 1–50 (2018).
50. Jati, A. S. *et al.* Effects of logging on wildlife communities in certified tropical rainforests in East Kalimantan, Indonesia. *For Ecol Manage* **427**, 124–134 (2018).

51. Rustam, Yasuda, M. & Tsuyuki, S. Comparison of mammalian communities in a human-disturbed tropical landscape in East Kalimantan, Indonesia. *Mammal Study* **37**, 299–311 (2012).
52. Farida, W. R., Semiadi, G., Handayani, T. H. & Harun. Habitat distribution and diversity of plants as feed resources for mouse deer (*Tragulus javanicus*) and barking deer (*Muntiacus muntjak*) in Gunung Halimun National Park. *Tropics* **15**, 371–376 (2006).
53. Gunawan, H. & Bismark, M. Status Populasi Dan Konservasi Satwaliar Mamalia Di Taman Nasional Gunung Ciremai, Jawa Barat. *Jurnal Penelitian Hutan dan Konservasi Alam* **4**, 117–128 (2007).
54. Kartono, A. P., Gunawan, Maryanto, I. & Suharjo. Hubungan mamalia dengan jenis vegetasi di Taman Nasional Gunung Ciremai. *J Biologi Indones* **5**, 279–294 (2009).
55. Megantara, E. N. *et al.* Habitat of mammals in West Java, Indonesia. *Biodiversitas* **20**, 3380–3390 (2019).
56. Andriyono, S., Suseno, B., Cahyono, H., Sukistyanawati, A. & Pramono, H. Wild Animals Inventarisasi In Sempu Island Nature Reserve. *Jurnal Ilmiah Perikanan dan Kelautan* **8**, 26–35 (2016).
57. Sulaksono, N. *et al.* Response of terrestrial mammals to various types of disturbance in the Gunung Merapi National Park, Indonesia. *Biodiversitas* **23**, 1635–1647 (2022).
58. Mustari, A. H., Setiawan, A. & Rinaldi, D. Kelimpahan Jenis Mamalia Menggunakan Kamera Jebakan Di Resort Gunung Botol Taman Nasional Gunung Halimun Salak. *Media Konservasi* **20**, 93–101 (2016).
59. Kartono, A. P. Keragaman Dan Kelimpahan Mamalia Di Perkebunan Sawit PT Sukses Tani Nusasubur Kalimantan Timur. *Media Konservasi* **20**, 85–92 (2016).
60. Wall, J. L., Loken, B. & Brodie, J. F. Reconciling resource extraction and species conservation in a multi-use landscape: Immediate and long-term impacts of logging on rainforest mammal diversity. *Glob Ecol Conserv* **28**, e01642 (2021).

61. Mohd-Azlan, J., Kaicheen, S. S. & Yoong, W. C. Distribution, relative abundance and occupancy of selected mammals along paved road in Kubah National Park, Sarawak, Borneo. *Nature Conservation Research* **3**, 36–46 (2018).
62. Mohd-Azlan, J. *et al.* Camera trapping of terrestrial animals in Tanjung Datu National Park, Sarawak, Borneo. *Raffles Bulletin of Zoology* **66**, 587–594 (2018).
63. Mohd-Azlan, J. *et al.* The distribution of medium to large mammals in Samunsam Wildlife Sanctuary, Sarawak in relation to the newly constructed pan-borneo highway. *Nature Conservation Research* **5**, 43–54 (2020).
64. Cita, K. D., Adila, R. A., Hardianto, R. I., Adib, M. F. & Setyaningsih, L. Wildlife Camera Trapping: Estimating the Abundance of Sumatran Tiger's Prey in Way Kambas National Park. *IOP Conf Ser Earth Environ Sci* **959**, (2022).
65. Foulton, A., Yoza, D. & Oktorini, Y. Identifikasi kelimpahan jenis satwa mangsa harimau sumatra (*Panthera tigris sumatrae*) menggunakan kamera jebak di Resort Talang Lakat Taman Nasional Bukit Tiga Puluh. *Wahana Forestra: Jurnal Kehutanan* **17**, 55–68 (2022).
66. Hariadi, B., Novarino, W. & Rizaldi. Inventarisasi Mamalia di Hutan Harapan Sumatera Selatan. *Jurnal Biologi Universitas Andalas* **1**, 132–138 (2012).
67. Huda, R., Istiadi, Y. & Priatna, D. Differences of terrestrial mammal species diversity between natural forest and edge forest areas in Batutegi Protected Forest, Lampung, Indonesia. *Indonesian Journal of Applied Environmental Studies* **1**, 33–39 (2020).
68. Insani, N., Novarino, W. & Rizaldi, . Jenis-jenis mamalia yang mengunjungi kubangan babi hutan di kawasan hutan konservasi PT Tidar Kerinci Agung dan PT Kencana Sawit Indonesia, Solok Selatan, Indonesia. *Metamorfosa: Journal of Biological Sciences* **4**, 13 (2017).

69. Junaidi, Rizaldi & Novarino, W. Inventarisasi Jenis-jenis Mamalia di Hutan Pendidikan dan Penelitian Biologi (HPPB) Universitas Andalas dengan Menggunakan Camera Trap. *Jurnal Biologi Universitas Andalas (J. Bio. UA.)* **1**, 27–34 (2012).
70. Linkie, M. & Ridout, M. S. Assessing tiger-prey interactions in Sumatran rainforests. *J Zool* **284**, 224–229 (2011).
71. Linkie, M., Dinata, Y., Nofrianto, A. & Leader-Williams, N. Patterns and perceptions of wildlife crop raiding in and around Kerinci Seblat National Park, Sumatra. *Anim Conserv* **10**, 127–135 (2007).
72. O’Brien, T. G. & Kinnaird, M. F. Birds and mammals of the Bukit Barisan Selatan National Park, Sumatra, Indonesia. *Oryx* **30**, 207–217 (1996).
73. O’Brien, T. G., Kinnaird, M. F. & Wibisono, H. T. Crouching tigers, hidden prey: Sumatran tiger and prey populations in a tropical forest landscape. *Anim Conserv* **6**, 131–139 (2003).
74. Prayoga, W. & Imron, M. A. The Use of Forest Refugia by Ungulate after the 2015’Fire in Tesso Nilo National Park, Riau-Indonesia. *Jurnal Manajemen Hutan Tropika* **28**, 40–48 (2022).
75. Subrata, S. A. & Mossbrucker, A. M. Inventory of Mammals using Camera Traps: A Baseline Study for an Ecosystem Restoration Concession in the Bukit Tigapuluh Landscape, Sumatra. *Trop Nat Hist* **22**, 43–50 (2022).
76. Fikri, H., Novarino, W. & Rizaldi. Inventarisasi spesies mamalia di Hutan Konservasi Prof. Dr. Sumitro Djojohadikusumo, Solok Selatan, Sumatera Barat. in vol. 2 16–21 (2016).
77. Prawiradilaga, D. M. *et al.* Rapid assessment on biodiversity in logged forest of Tesso Nilo, Riau Province, Sumatra. *J Biologi Indones* **10**, 271–283 (2014).
78. Yaap, B. *et al.* Large Mammal Use of Linear Remnant Forests in an Industrial Pulpwood Plantation in Sumatra, Indonesia. (2016) doi:10.1177/1940082916683523.

79. Bersacola, E., Sastramidjaja, W. J., Rayadin, Y., Macdonald, D. W. & Cheyne, S. M. Occupancy patterns of ungulates and pig-tailed macaques across regenerating and anthropogenic forests on Borneo. *Hystrix the Italian Journal of Mammalogy* **30**, 126–133 (2019).
80. McConkey, K. R. & Chivers, D. J. Low mammal and hornbill abundance in the forests of Barito Ulu, Central Kalimantan, Indonesia. *Oryx* **38**, 439–447 (2004).
81. Wahyudi, D. & Stuebing, R. Camera trapping as a conservation tool in a mixed-use landscape in East Kalimantan. *J Indones Nat Hist* **1**, 37–46 (2013).
82. Bernard, H. *et al.* Camera trapping survey of mammals in and around Imbak Canyon Conservation Area in Sabah, Malaysian Borneo. *Raffles Bull Zool* **61**, 409–418 (2013).
83. Bernard, H. *et al.* Inventorying terrestrial mammal species in mixed-mangrove forest of the Lower Kinabatangan, Sabah, Borneo, Malaysia, with special reference to a new locality record of otter civet, *Cynogale bennettii*. *Mamm Res* **67**, 31–38 (2022).
84. Brodie, J. F. & Giordano, A. Lack of trophic release with large mammal predators and prey in Borneo. *Biol Conserv* **163**, 58–67 (2013).
85. Ketol, B. *et al.* Checklist of mammals from Gunung Silam, Sabah, Malaysia. *J Trop Biol Conserv* **5**, 61–65 (2009).
86. McShea, W. J. *et al.* The importance of secondary forest blocks for terrestrial mammals within an Acacia/secondary forest matrix in Sarawak, Malaysia. *Biol Conserv* **142**, 3108–3119 (2009).
87. Mohd-Azlan, J. & Engkamat, L. Camera Trapping and Conservation in Lambir Hills National Park, Sarawak. *Raffles Bull Zool* **54**, 469–475 (2006).
88. Mohd-Azlan, J. & Engkamat, L. Camera trapping and conservation in Lanjak Entimau wildlife sanctuary, Sarawak, Borneo. *Raffles Bulletin of Zoology* **61**, 397–405 (2013).

89. Ng, W. P., van Manen, F. T., Sharp, S. P., Wong, S. Te & Ratnayeke, S. Mammal species composition and habitat associations in a commercial forest and mixed-plantation landscape. *For Ecol Manage* **491**, 119163 (2021).
90. Purnomo, D. W. A habitat selection model for Javan deer (*Rusa timorensis*) in Wanagama I Forest, Yogyakarta. *Nusantara Bioscience* **2**, 84–89 (2010).
91. Ariefiandy, A. *et al.* Temporal and spatial dynamics of insular Rusa deer and wild pig populations in Komodo National Park. *J Mammal* **97**, 1652–1662 (2016).
92. Ariefiandy, A. *et al.* Invasive water buffalo population trends and competition-related consequences for native rusa deer in eastern Indonesian protected areas. *Mammalian Biology* **101**, 917–931 (2021).
93. Masy'ud, B., Wijaya, R. & Santoso, I. B. Pola distribusi, populasi dan aktivitas harian rusa timor (*Cervus timorensis*, de Blainville 1822) di Taman Nasional Bali Barat. *Media Konservasi* **12**, (2007).
94. Pangau-Adam, M., Flassy, M., Trei, J., Waltert, M. & Soofi, M. The role of the introduced rusa deer *Cervus timorensis* for wildlife hunting in West Papua, Indonesia. *Ecological Solutions and Evidence* **3**, (2022).
95. Yudha, R. P., Sugito, Y. S., Sillanpää, M. & Nurvianto, S. Impact of logging on the biodiversity and composition of flora and fauna in the mangrove forests of Bintuni Bay, West Papua, Indonesia. *For Ecol Manage* **488**, (2021).
96. Mustari, A. H., Surono, H. & Mansyur, F. I. Keanekaragaman Jenis Mamalia di Taman Nasional Bantimurung Bulusaraung, Sulawesi Selatan. *Media Konservasi* **16**, 156–161 (2011).
97. Tallei, T. E., Nangoy, M. J., Koneri, R. & -, S. Biodiversity Assessment of Mt. Tumpa Forest Park, North Sulawesi, Indonesia. *Asian Journal of Biodiversity* **6**, 1–21 (2016).
98. Brodie, J. F. *et al.* Evaluating multispecies landscape connectivity in a threatened tropical mammal community. *Conservation Biology* **29**, 122–132 (2015).

99. Tuen, A. A., Hall, L. S., Rahman, M. A. & Salleh, M. A. Preliminary Survey of Mammals at Crocker Range Park. 1–7 (2002).
100. Ke, A. & Luskin, M. S. Integrating disparate occurrence reports to map data-poor species ranges and occupancy: A case study of the Vulnerable bearded pig *Sus barbatus*. *Oryx* **53**, 377–387 (2019).
101. Davison, C. W., Chapman, P. M., Wearn, O. R., Bernard, H. & Ewers, R. M. Shifts in the demographics and behavior of bearded pigs (*Sus barbatus*) across a land-use gradient. *Biotropica* **51**, 938–948 (2019).
102. Kurz, D. J. *et al.* Transformation and endurance of Indigenous hunting: Kadazandusun-Murut bearded pig hunting practices amidst oil palm expansion and urbanization in Sabah, Malaysia. *People and Nature* **3**, 1078–1092 (2021).
103. Love, K. *et al.* Bearded pig (*Sus barbatus*) utilisation of a fragmented forest-oil palm landscape in Sabah, Malaysian Borneo. *Wildlife Research* **44**, 603–612 (2017).
104. Te Wong, S., Servheen, C., Ambu, L. & Norhayati, A. Impacts of fruit production cycles on Malayan sun bears and bearded pigs in lowland tropical forest of Sabah, Malaysian Borneo. *J Trop Ecol* **21**, 627 (2005).
105. Fandy, P., Tasirin, J. S. & Pollo, H. N. Kelimpahan Jenis Satwa Liar Dengan Menggunakan Kamera Jebakan Di Cagar Alam Gunung Ambang. *Cocos* **11**, 1–10 (2019).
106. Jamaludin, M., Mustari, A. H., Burton, J. A. & Hernowo, J. B. Demographic parameters and behaviours of Sulawesi warty pig (*Sus Celebensis* Muller and Schlegel 1843) in Tanjung Peropa wildlife reserve, Southeast Sulawesi. *Media Konservasi* **13**, 90–93 (2008).
107. Luskin, M. S., Christina, E. D., Kelley, L. C. & Potts, M. D. Modern Hunting Practices and Wild Meat Trade in the Oil Palm Plantation-Dominated Landscapes of Sumatra, Indonesia. *Hum Ecol* **42**, 35–45 (2014).

108. Zulkarnain, G., Winarno, G. D., Setiawan, A. & Harianto, S. D. Studi keberadaan mamalia di hutan pendidikan, Taman Hutan Raya Wan Abdul Rachman. *Gorontalo Journal of Forestry Research* **1**, 11 (2018).
109. Blouch, R. A. Ecology and conservation of the Javan warty pig *Sus verrucosus* Müller, 1840. *Biol Conserv* **43**, 295–307 (1988).
110. Rademaker, M. *et al.* First ecological study of the Bawean warty pig (*Sus blouchi*), one of the rarest pigs on earth. *PLoS One* **11**, 1–15 (2016).
111. Semiadi, G. & Meijaard, E. Declining populations of the Javan warty pig *Sus verrucosus*. *Oryx* **40**, 50–56 (2006).
112. Derajat, N. F., Mahrawi & Usman. Keanekaragaman Mamalia Kecil Di Taman Nasional Ujung Kulon. *Jurnal Inovasi Pendidikan dan Sains* **3**, 18–23 (2022).
113. Heydon, M. J. & Bulloh, P. Mousedeer Densities in a Tropical Rainforest: The Impact of Selective Logging. *J Appl Ecol* **34**, 484 (1997).
114. Matsubayashi, H., Bosi, E. & Kohshima, S. Activity and habitat use of Lesser mouse-deer (*Tragulus javanicus*). *J Mammal* **84**, 234–242 (2003).