Annex I

Summary of the Five Criteria (A–E) Used to Evaluate if a Taxon Belongs in an IUCN Red List Threatened Category (Critically Endangered, Endangered or Vulnerable)*

A. POPULATION SIZE REDUCTION. POPULATION REDUCTION (MEASURED OVER THE LONGER OF 10 YEARS OR 3 GENERATIONS) BASED ON ANY OF A1 TO A4				
		Critically Endangered	Endangered	Vulnerable
A1		**≥90%**	**≥70%**	**≥50%**
A2, A3 & A4		**≥80%**	**≥50%**	**≥30%**
A1	Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased.	based on any of the following:	(a) direct observation [*except A3*] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality (d) actual or potential levels of exploitation (e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites	
A2	Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.			
A3	Population reduction projected, inferred or suspected to be met in the future (up to a maximum of 100 years). [*(a) cannot be used for A3*]			
A4	An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.			

B. GEOGRAPHIC RANGE IN THE FORM OF EITHER B1 (EXTENT OF OCCURRENCE) AND/OR B2 (AREA OF OCCUPANCY)				
		Critically Endangered	Endangered	Vulnerable
B1	Extent of occurrence (EOO)	≥90%	≥70%	≥50%
B2	Area of occupancy (AOO)	≥80%	≥50%	≥30%
AND at least 2 of the following 3 conditions:				
(a)	Severely fragmented **OR** Number of locations	=1	≤5	≤10
(b)	Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c)	Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

C. SMALL POPULATION SIZE AND DECLINE		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		**<250**	**<2,500**	**<10,000**
AND at least one of C1 or C2:				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND at least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation: (ii) % of mature individuals in one subpopulation =	≤50 90–100%	≤250 95–100%	≤1,000 100%
(b)	Extreme fluctuations in the number of mature individuals			

D. VERY SMALL OR RESTRICTED POPULATION		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		**<50**	**<250**	**<1,000**
D1	*Only applies to the VU category* Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.	–	–	D2. typically: AOO <20 km^2 or number of locations ≤5

E. QUANTITATIVE ANALYSIS	Critically Endangered	Endangered	Vulnerable
Indicating the probability of extinction in the wild to be:	**≥50% in 10 years or 3 generations, whichever is longer (100 years max.)**	**≥20% in 20 years or 5 generations, whichever is longer (100 years max.)**	**≥10% in 100 years**

Note: * Use of this summary sheet requires full understanding of the IUCN Red List Categories and Criteria and Guidelines for Using the IUCN Red List Categories and Criteria. Please refer to both documents for explanations of terms and concepts used here.

Source: IUCN (2012, pp. 28–9)

Annex II

Reducing Demand for Wildlife Products: WildAid Campaigns in Asia

Reducing demand for wildlife products can help diminish the scale of the poaching problem while also providing a longer-term prospect of ending trade in a specific wildlife species altogether. Demand reduction can be accomplished by educating consumers and changing their behavior, introducing or enhancing policies and regulations to limit or prohibit trade, and strengthening enforcement of those measures.

Since 2000, the environmental organization WildAid has focused on bringing an end to the illegal wildlife trade by working to reduce consumption of wildlife products. Demand reduction efforts include campaigns to raise awareness and change attitudes and behavior, government outreach to change policies and regulations, and assistance designed to strengthen enforcement.

WildAid campaigns primarily focus on elephant ivory, pangolin, rhino horn, shark fin and tiger, with activities mostly under way in mainland China, Hong Kong, Taiwan, Thailand and Viet Nam. In collaboration with celebrity ambassadors and using the same techniques as high-end advertisers, WildAid creates aspirational conservation campaigns that are seen by hundreds of millions of people each year.

In recent years, WildAid campaigns have helped to:

- reduce shark fin consumption in mainland China by 50–70%, while decreasing shark fin imports and prices by 80% between 2011 and 2016. A survey conducted in 2016 shows that 93% of respondents in four major Chinese cities had not consumed shark fin in the previous six years;
- increase awareness of and affect attitudes to ivory among more than 50% of respondents in mainland China and influence both public opinion and policymakers on the need for a domestic ivory ban;
- increase awareness of and affect attitudes to rhino horn among more than 70% of respondents in Viet Nam; and
- significantly reduce the consumption of and trade in manta and mobula ray gill rakers in Guangdong province in southern coastal China, coming close to putting an end to a rapidly growing local trade (WildAid, 2017, n.d.).

Reducing Demand for Shark Fin in China

Recent economic growth in China has permitted a large group of people to buy luxury goods. China's urban population grew from 20% in 1980 to nearly 60% in 2018, and is predicted to continue rising to 80% by 2050. China has an urban population of approximately 837 million, the majority of whom are classed as upper middle class or affluent (Barton, Chen and Jin, 2013; UN DESA, 2019). The consumption of wildlife products has also grown considerably. It is estimated that the fins from 73 million sharks are used in shark fin soup each year (WildAid, 2016).

Photo: © WildAid

When WildAid began its shark fin awareness campaign in 2006, its surveys showed that public knowledge of the problem was negligible:

- 75% of Chinese survey participants were unaware that shark fin soup came from sharks (in fact, the Chinese term for shark fin soup is "fish wing soup"); and
- 19% of Chinese survey participants believed the fins grew back (WildAid, 2018a).

Very few respondents knew about the cruelty of finning and the devastating ecological impact of this trade. WildAid's premise was that increasing their awareness of the realities of the trade would help change attitudes and behavior.

Instead of playing a direct role in trying to persuade Chinese consumers to reject shark fin, WildAid enlisted dozens of popular, respected celebrities—including actor Jackie Chan and basketball star Yao Ming—to convey the message. With a limited campaign budget of a few hundred thousand dollars per year, the organization could not buy enough airtime to make a difference, so it focused on creating compelling messages that China's largely government-controlled media would agree to broadcast (WildAid, 2011, 2012, 2013, 2016, 2017).

One of WildAid's biggest campaigns centered around the Beijing Olympics in 2008, where Yao Ming led the Chinese Olympic delegation. The organization also targeted outreach activities at chief executive officers, hotels, restaurants and chefs (WildAid, 2012).

From 2008 to 2012, WildAid organized successful campaign activities with an annual budget of about US$1 million per year, while leveraging nearly US$200 million in pro bono media placements and airtime; in 2013 alone, media organizations in China donated approximately US$164 million in media activities to WildAid. The campaign's high point was a hard-hitting and widely influential segment on shark fin on Central China Television's news magazine program (similar to the US show *60 Minutes*). In 2013, as part of an anti-corruption drive, the government banned shark fin from any official banquet functions, sending a strong message to both government officials and the public (WildAid, 2013).

Campaign messages addressed multiple issues related to shark fin, including:

- the massive scale of overfishing and exploitation of sharks (up to 73 million per year);
- cruelty in how sharks are killed;
- various environmental impacts of removing large numbers of sharks from the ocean, including putting many species at risk of extinction and impacts of resulting ecosystem imbalances;
- negative health effects of eating shark fins due to their high levels of heavy metals and toxins;
- the risk of getting fake shark fin but being charged the full price; and
- the risk of ordering shark fin soup made from illegal shark fins.

In a WildAid survey in four major cities in 2013, 85% of respondents said they had stopped eating shark fin soup within the past three years and 65% cited awareness campaigns as a reason for ending their consumption (WildAid, 2014a).

After WildAid launched its shark fin campaign in China in 2006, trader interviews in 2014 and independent survey findings indicated that shark fin consumption in China had fallen by between 50% and 70%. At the September 2016 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Conference of Parties, the China CITES Management Authority corroborated these findings, stating that shark fin consumption in China had declined by 80%, based on information reported in a recent publication from the China Seafood Logistic and Processing Association. Moreover, shark fin imports into China had decreased by 82% between 2011 to 2014, and estimated wholesale shark fin sales in Beijing, Guangzhou and Shanghai declined by 81% between 2010 and 2014.

> Yao Ming's commercial [PSA] impact single-handedly smashed my business.
>
> —Shark fin trader, Guangzhou (WildAid, 2014a, p. 18)

A 2016 attitudinal survey of residents in Beijing, Chengdu, Guangzhou and Shanghai found that 80% of respondents had seen WildAid's public service announcements (PSAs) and 98.8% agreed that the messages had raised their awareness of shark conservation and the need to stop consuming shark fin (WildAid, 2018a). Many restaurateurs have stopped serving shark fin soup, saying that Yao Ming changed their minds.

> Business is down by more than half, some restaurants have closed and some chefs have been laid off. Of course I know shark fin is controversial—I learned it from Yao Ming's PSAs. I feel guilty in my heart, but what else can I do?
>
> —Chen Jun, chef, Lanzhou city (Denyer, 2013)

Revulsion at the practice of finning has been steadily growing since China's best-known sports star, the basketball player Yao Ming, said on film in 2009 that he would no longer eat the soup. Yao used the slogan "*Mei yu mai mai, jiu mei yu sha hai*," meaning "when the buying stops, the killing can too."

Yao's campaign is said to have helped to reduce consumption of shark fin soup and contributed to the Chinese government's decision formally to ban the soup from all state banquets (Vidal, 2014).

Demand Reduction for Other Wildlife Products

Building on the success of the shark fin campaign, in 2012 WildAid launched a massive campaign to reduce ivory demand in China, the world's largest market, in partnership with Save the Elephants and the African Wildlife Foundation. In the first two years, public awareness of the poaching crisis increased by 50%, and 95% of those polled in 2014 supported banning the ivory trade (WildAid, 2014b). In addition, wholesale ivory prices in mainland China and Hong Kong dropped by as much as 78% between 2014 and 2016, and ivory seized coming into mainland China fell by 80% in 2016. In the greatest single step towards protecting African elephants, in late 2016 China announced that it would shut down its domestic ivory market within the year (WildAid, 2016). The ivory ban was fully implemented by December 31, 2017 (WildAid, 2017).

WildAid's rhino campaign has helped to raise awareness and reduce demand for rhino horn in China and Viet Nam. Since its peak in 2014, the price of rhino horn has fallen from US$65,000 to around US$18,000 per kilogram (WildAid, 2018b). A 2016 campaign survey in Viet Nam showed that just 23% of respondents attributed medicinal effects to rhino horn, compared with 69% in 2014—a 67% decline. Only 9.4% of respondents in 2016 said that rhino horn could cure cancer, down from 34.5% in 2014—a 73% decline. Knowledge that horn is composed of substances found in hair and fingernails increased by 258% in two years, a period during which WildAid ran the high-profile "Nail Biters" campaign featuring billionaire entrepreneur Richard Branson, actress Li Bingbing and more than 30 other prominent celebrities (WildAid, 2015, 2018b).

Separately, WildAid launched campaigns in China and Viet Nam to reduce the demand for pangolins. Over the course of two years, the organization recruited a number of Asian megastars, including martial artist Jackie Chan, singer Jay Chou and actress Angelababy, to raise awareness of the plight of pangolins and encourage the public to shun consumption of their scales and meat. Surveys of Chinese residents found that 97% of respondents stated that the Jackie Chan "Kung Fu Pangolin" PSA made them less likely to buy products made from pangolins (WildAid, 2017).

On a regional scale in Guangdong province in China, another WildAid campaign persuaded residents to cease consumption of manta and mobula ray gill rakers (*peng yu sai*). Roughly two years after launching a localized campaign in 2014, a market investigation found gill plate stocks in Guangzhou had fallen 63% in just under three years. Meanwhile, 79% of participants surveyed in 2016 had seen WildAid's PSAs and billboards. Sixty-seven percent of respondents who had first been surveyed in 2014 had stopped or reduced their consumption of *peng yu sai* by 2016, many (43%) doing so as a result of WildAid messaging (WildAid, 2016).

Making Demand Reduction Effective

The objective of demand reduction campaigns is to change behavior by raising awareness—using a variety of approaches and appeals such as "don't buy" or "stop buying." In WildAid's experience, most people change their attitudes and behavior when they learn key facts of which they were not previously aware, such as that animals are killed cruelly or illegally, that the illegal wildlife trade has devastating impacts on species and wild populations, that products are potentially unhealthy or toxic, or that they lack medicinal benefits. Not all individuals who buy or use wildlife products change their attitudes or behavior after direct exposure to campaign messages, however. WildAid anticipates that as awareness raising contributes to the creation of new social norms for the majority in society, users who do not immediately respond to campaign messages will eventually be influenced by those around them.

To be effective, demand reduction campaigns must be flexible enough to adapt to changing circumstances. It is generally not possible to plan out a campaign or reliably earmark resources for a three- or five-year period, and large funding programs that intend to support demand reduction projects can usefully recognize the need for adaptability. While a campaign needs goals and objectives, the specific series and mix of activities needs to unfold in response to short-term impacts, emerging opportunities and developing information that cannot be foreseen from the outset.

Lessons learned include the following:

- It is impossible to plan an entire campaign at the outset.
- When first phases are executed with vigor, they can serve to build momentum and create opportunities for expanded reach and new phases.
- It is important to find ways to gain attention amidst the busy marketplace.
- Definitive consumer profiles may be misleading. Consumers change as economies evolve. The uses to which wildlife products are put also change over time, often in response to traders' activities.
- Successful campaigns tend to be sustained over time; a one-year plan is not enough.
- The use of a variety of angles to address issues keeps messaging fresh and interesting.
- Perseverance is key to an effective campaign.
- While campaigns benefit from a maximum of empirical information, they also need to continue to adapt.
- By being nimble, flexible and fast to take advantage of opportunities, organizers can intensify and expand campaign momentum and impact.
- Donors and funders can support campaigns by recognizing that they will not necessarily follow linear trajectories and by allowing for step-function progress, with flexibility for adaptation and resourcefulness.

Acknowledgment

Contributor: John Baker, WildAid (http://wildaid.org/)

Annex III

Main Threats to African Great Apes, by Range Country

Country	Threats		Source
Angola (Cabinda)	Habitat loss from artisanal logging		Ron and Refisch (2013)
	Poaching		
Burundi	Disease		Hakizimana and Huynen (2013); Plumptre *et al*. (2010)
	Habitat loss and fragmentation from conversion into agricultural land		
	Habitat loss	illegal logging activities for timber and firewood	Plumptre *et al*. (2010)
		infrastructure development (such as roads and dams)	Hakizimana and Huynen (2013); Plumptre *et al*. (2010, 2016a)
	Poaching		
Cameroon	Disease		Bergl *et al*. (2016); Maisels *et al*. (2016, 2018); Oates *et al*. (2016)
	Habitat loss	conversion into agricultural land	IUCN (2014); Morgan *et al*. (2011); Walsh *et al*. (2003)
		logging activities for timber and firewood	IUCN (2014)
		resource extraction, such as mining activities	Bergl *et al*. (2016); Maisels *et al*. (2016, 2018); Oates *et al*. (2016)
		infrastructure development (such as roads and dams)	Kormos *et al*. (2014)
	Illegal wildlife trade		EAGLE (2017)
	Poaching		
Central African Republic	Disease		Maisels *et al*. (2016, 2018); Plumptre *et al*. (2016a)
	Habitat loss	conversion into agricultural land	
		infrastructure construction (such as roads and dams)	
	Poaching		
Democratic Republic of Congo	Disease		Fruth *et al*. (2016); Kirkby *et al*. (2015); Plumptre *et al*. (2015)
	Habitat loss	conversion into agricultural land	
		natural resource extraction (artisanal and industrial mining extraction, logging for timber)	
	Poaching		Plumptre, Robbins and Williamson (2019); Plumptre *et al*. (2015)

Country	Threats		Source
Equatorial Guinea	Disease		IUCN (2014)
	Poaching		Murai *et al*. (2013)
	Habitat loss	conversion into agricultural land	
		infrastructure construction (such as roads and dams)	
Gabon	Disease (Ebola)		Bermejo *et al*. (2006); IUCN (2014); Walsh *et al*. (2003)
	Habitat loss	resource extraction (such as mining extraction and logging concessions)	Maisels *et al*. (2016)
		infrastructure construction (such as roads and dams)	
	Illegal wildlife trade		EAGLE (2017)
	Poaching		Foerster *et al*. (2012); IUCN (2014)
Ghana	Disease		Humle *et al*. (2016)
	Habitat loss	conversion into agricultural land	Danquah *et al*. (2012); Kühl *et al*. (2017)
		infrastructure construction (such as roads and dams)	Humle *et al*. (2016)
	Poaching		
Guinea	Disease		Humle *et al*. (2016); Matsuzawa, Humle and Sugiyama (2011)
	Habitat loss	conversion into agricultural land	Kühl *et al*. (2017)
		resource extraction (such as mining concessions)	Kormos *et al*. (2014); Kühl *et al*. (2017)
	Illegal wildlife trade		EAGLE (2017)
	Poaching		Kühl *et al*. (2017)
Guinea-Bissau	Disease		Sá and van Schijndel (2010)
	Habitat loss	infrastructure construction (such as roads and dams)	Dias *et al*. (2019); van der Meer (2014); Wenceslau (2014)
		conversion into agricultural land	Dias *et al*. (2019); Wenceslau (2014)
		resource extraction (a mining site overlaps with chimpanzee territory)	Dias *et al*. (2019); Humle *et al*. (2016); Wenceslau (2014)
	Poaching		van der Meer (2016); Wenceslau (2014)
Ivory Coast	Disease		Campbell *et al*. (2008); Köndgen *et al*. (2008)
	Habitat loss	conversion into agricultural land	Campbell *et al*. (2008); Kühl *et al*. (2017)
		infrastructure construction (such as roads and dams)	Kühl *et al*. (2017)
	Poaching		Campbell *et al*. (2008); Kühl *et al*. (2017)

Country	Threats		Source
Liberia	Habitat loss	infrastructure construction (such as roads and dams)	Greengrass (2015); Kühl *et al*. (2017)
		conversion into agricultural land and forest concessions	Junker *et al*. (2015)
		resource extraction (logging and mining activities)	
	Poaching		Tweh *et al*. (2015)
Mali	Habitat loss and fragmentation from agriculture, fires and resource extraction (open-pit mining)		Duvall (2008); Duvall and Smith (2005)
	Poaching		
Nigeria	Habitat loss	resource extraction (such as forest logging for timber)	Bergl *et al*. (2016); Oates *et al*. (2016)
		conversion into agricultural land	Imong *et al*. (2014a, 2014b)
		infrastructure construction (such as roads and dams)	Dunn *et al*. (2014); Morgan *et al*. (2011)
	Poaching		
	Habitat loss and fragmentation from conversion into agricultural land		Bergl *et al*. (2016); Oates *et al*. (2016)
	Disease		
Republic of Congo	Disease		IUCN (2014)
	Habitat loss	infrastructure construction (such as roads and dams)	
		resource extraction (such as artisanal and industrial mining activities and logging)	
	Poaching		
Rwanda	Disease		Plumptre *et al*. (2010)
	Habitat loss and degradation	infrastructure construction (such as roads)	Gray *et al*. (2013); Plumptre, Robbins and Williamson (2019); Plumptre *et al*. (2010); Robbins *et al*. (2011)
		resource extraction	
	Poaching		
Senegal	Disease		Boyer (2011); Ndiaye (2011)
	Habitat loss, fragmentation and degradation from agriculture, bush fires, fodder extraction and drought		Ndiaye (2011); Wessling *et al*. (2018)
	Habitat loss	resource extraction (such as open-pit, small-scale and large-scale mining)	Lindshield *et al*. (2019); Ndiaye (2011)
		infrastructure construction (such as roads and dams)	Boyer (2011)
	Poaching (human–wildlife conflict)		Ndiaye (2011)

Country	Threats		Source
Sierra Leone	Disease		Brncic, Amarasekaran and McKenna (2010)
	Habitat loss	infrastructure construction (such as roads and dams)	Kühl *et al*. (2017); Kormos *et al*. (2014)
		resource extraction (such as mining)	Brncic, Amarasekaran and McKenna (2010)
	Habitat loss and fragmentation from conversion into agricultural land		Garriga *et al*. (2018); Humle *et al*. (2016)
	Poaching for meat and in retaliation for crop raiding		Garriga *et al*. (2018); Kühl *et al*. (2017)
Tanzania	Disease		Plumptre *et al*. (2016a)
	Habitat loss	bush fires	JGI *et al*. (2011)
		logging for timber and firewood	
		infrastructure development (such as roads and dams)	
	Poaching		
	Habitat loss and fragmentation from conversion into agricultural land		
Uganda	Disease		Hickey *et al*. (2018); Plumptre *et al*. (2016a); Robbins *et al*. (2009)
	Habitat loss	infrastructure construction (such as roads and dams)	Hickey *et al*. (2018); Plumptre, Robbins and Williamson (2019); Plumptre *et al*. (2016a)
		resource extraction	Plumptre, Robbins and Williamson (2019); Plumptre *et al*. (2010)
	Poaching in retaliation for crop raiding (using guns, snares, traps)		

Notes: Threats were derived from the IUCN SSC A.P.E.S. database (IUCN SSC, n.d.-b) and references. This table does not quantify or compare the impact levels of listed threats. "Poaching" includes illegal killing carried out to obtain wild meat or body parts, in human–wildlife conflict, in retaliation for crop raiding and based on fears for personal or community safety, as well as incidental trapping. In addition to the cited threats, climate breakdown affects all great ape taxa (IUCN, 2020).

Source: GRASP and IUCN, unpublished data, 2018

Annex IV

African Great Ape Populations, by Range Country, 2000 and Most Recent Estimates

Country	Taxon	2000 abundance estimates	2018 or most recent estimates		
			Abundance	Survey period	Source
Angola	**Central chimpanzee** *Pan troglodytes troglodytes*	200–500	1,705 (1,027–4,801)	2005–13	Strindberg *et al.* (2018)
	Western lowland gorilla *Gorilla gorilla gorilla*	Present	1,652 (1,174–13,311)	2013	Strindberg *et al.* (2018)
Burundi	**Eastern chimpanzee** *Pan t. schweinfurthii*	200–500	204 (122–339)	2011–13	Hakizimana and Huynen (2013)
Cameroon	**Central chimpanzee**	8,500–11,500	21,489 (18,575–40,408)	2005–13	IUCN SSC (n.d.-c); Strindberg *et al.* (2018)
	Cross River gorilla *Gorilla g. diehli*	100	132–194	2007–12	Dunn *et al.* (2014)
	Nigeria–Cameroon chimpanzee *Pan t. ellioti*	1,500–3,500	3,000–7,060	2004–06	Mitchell *et al.* (2015); Morgan *et al.* (2011); Oates *et al.* (2016); J.F. Oates *et al.*, personal communication, 2018
	Western lowland gorilla	15,000	38,654 (34,331–112,881)	2013	Strindberg *et al.* (2018)
Central African Republic	**Central chimpanzee**	800–1,000	2,843 (1,194–4,855)	2005–13	Strindberg *et al.* (2018)
	Eastern chimpanzee	n/a	907 (538–1,534)	2012–16	Aebischer *et al.* (2017)
	Western lowland gorilla	9,000	5,529 (3,635–8,581)	2015	N'Goran, Ndomba and Beukou (2016)
Democratic Republic of Congo (DRC)	**Bonobo** *Pan paniscus*	20,000–50,000	15,000–20,000 minimum	2010	IUCN and ICCN (2012)
	Central chimpanzee	n/a	Present	n/a	Inogwabini *et al.* (2007)
	Eastern chimpanzee	70,000–110,000	173,000–248,000	2000–10	Plumptre *et al.* (2010)
	Grauer's gorilla *Gorilla beringei graueri*	16,900	3,800	2011–15	Plumptre *et al.* (2016c)
	Mountain gorilla *Gorilla b. beringei*	183	n/a (604, including Rwanda individuals)	2015–16	Hickey *et al.* (2019)
Equatorial Guinea	**Central chimpanzee**	1,000–2,000	4,290 (2,894–7,985)	2005–13	Strindberg *et al.* (2018)
	Western lowland gorilla	1,500	1,872 (1,082–3,165)	2013	Strindberg *et al.* (2018)

►

Country	Taxon	2000 abundance estimates	2018 or most recent estimates		
			Abundance	Survey period	Source
Gabon	**Central chimpanzee**	27,000–53,000	43,037 (36,869–60,476)	2005–13	Strindberg *et al.* (2018)*
	Western lowland gorilla	35,000	99,245 (67,117–178,390)	2013	Strindberg *et al.* (2018)
Ghana	**Western chimpanzee** *Pan t. verus*	300–500	264	2009	Danquah *et al.* (2012)
Guinea	**Western chimpanzee**	8,100–29,000	21,210 (10,007–43,534)	2009–14	Kühl *et al.* (2017); WCF (2012, 2014)
Guinea-Bissau	**Western chimpanzee**	100–200	1,000–1,500	2016	Chimbo Foundation, unpublished data, 2017
Ivory Coast	**Western chimpanzee**	10,500–12,800	410 (198–743)	2007–18	IUCN SSC (n.d.-c); Kühl *et al.* (2017); Tiédoué *et al.* (2019)
Liberia	**Western chimpanzee**	3,000–4,000	7,008 (4,260–11,590)	2010–12	Tweh *et al.* (2015)
Mali	**Western chimpanzee**	1,800–3,500	Present	2014	Pan African Programme, unpublished data, 2014
Nigeria	**Cross River gorilla**	100	85–115	2007–12	Dunn *et al.* (2014)
	Nigeria–Cameroon chimpanzee	>2,500	730–2,095	2005–18	Morgan *et al.* (2011); Oates *et al.* (2016); J.F. Oates *et al.*, personal communication, 2018
Republic of Congo	**Central chimpanzee**	10,000	55,397 (42,433–64,824)	2005–13	Strindberg *et al.* (2018)
	Western lowland gorilla	34,000	215,799 (180,814–263,913)	2013	Strindberg *et al.* (2018)
Rwanda	**Eastern chimpanzee**	500	430	2009–14	IUCN SSC (n.d.-c)
	Mountain gorilla	129	n/a (604, including DRC individuals)	2015–16	Hickey *et al.* (2019)
Senegal	**Western chimpanzee**	200–400	500–600	2016–17	J. Pruetz and E. Wessling, unpublished data
Sierra Leone	**Western chimpanzee**	1,500–2,500	5,580 (3,052–10,446)	2009	Brncic, Amarasekaran and McKenna (2010)
South Sudan	**Eastern chimpanzee**	200–400	Present	2011	Plumptre *et al.* (2016a)
Tanzania	**Eastern chimpanzee**	1,500–2,500	2,500	2010–12	Plumptre *et al.* (2016a); A. Piel and L. Pintea, unpublished data, 2018
Uganda	**Eastern chimpanzee**	2,800–3,800	5,000	2003	Plumptre *et al.* (2016a)
	Mountain gorilla	12	400–430	2011	Roy *et al.* (2014)

Notes: Abundance estimates for mountain gorillas include infants; all other estimates represent the number of weaned individuals capable of building nests. Figures were obtained from field surveys and predictive models. The 95% confidence intervals appear in parentheses. The western lowland gorilla population estimates presented by Strindberg *et al*. (2018) for the year 2013 are likely to have declined by another 13% by the end of 2018. The mountain gorilla population in Uganda is for Bwindi only (GRASP and IUCN, 2018, table 2).

Sources: 2000 estimates: Butynski (2001); recent estimates: GRASP and IUCN (2018, table 2)

Annex V

Past and Current Asian Great Ape Population Estimates, by Range Country

Country	Taxon	1996 and 2002 population estimates		Most recent population estimate		
		Abundance	Survey period	Abundance	Survey period	Source
Indonesia	**Northeast Bornean orangutan** *Pongo pygmaeus morio*	4,825	2002	24,800 (18,100–35,600)	1999–2015	Voigt *et al.* (2018)
	Northwest Bornean orangutan *Pongo p. pygmaeus*	2,000–2,500	2002	5,200 (3,800–7,200)	1999–2015	Voigt *et al.* (2018)
	Southwest Bornean orangutan *Pongo p. wurmbii*	>34,975	2002	97,000 (73,800–135,000)	1999–2015	Voigt *et al.* (2018)
	Sumatran orangutan *Pongo abelii*	12,770	1996	13,900 (5,400–26,100)	2016	Wich *et al.* (2016)
	Tapanuli orangutan *Pongo tapanuliensis*			767 (231–1,597)	2000–12	Nowak *et al.* (2017); Wich *et al.* (2019)
Malaysia	**Northeast Bornean orangutan**	11,017 (8,317–18,376)	2002	11,017 (8,317–18,376)	2002	Ancrenaz *et al.* (2005)
	Northwest Bornean orangutan	1,143–1,761	2002	1,100 (800–1,600)	1999–2015	Voigt *et al.* (2018)

Notes: All orangutans were classified as endangered at the time of the 1996 and 2002 surveys, except for the critically endangered Sumatran and Tapanuli orangutan species, which comprised one taxon. All orangutans are now critically endangered. The 95% confidence intervals appear in parentheses.

Sources: past estimates for Sumatran and Tapanuli orangutans: Rijksen and Meijaard (1999); past estimates for all other orangutans: Wich *et al*. (2008); 2018 or most recent estimates: GRASP and IUCN (2018, table 7)

Annex VI

Gibbon Population Estimates, by Range Country

Country	Taxon	Abundance	Survey period	Source
Bangladesh	**Western hoolock** *Hoolock hoolock*	c. 200	2004	Ray *et al.* (2015)
Brunei	**Bornean gray gibbon** *Hylobates funereus*	Present	2017	U.U. Temborong, personal communication, 2017
Cambodia	**Pileated gibbon** *Hylobates pileatus*	>35,000	2003	Traeholt *et al.* (2005)
	Northern yellow-cheeked crested gibbon *Nomascus annamensis*	c. 3,000	2004	Traeholt *et al.* (2005)
	Southern yellow-cheeked crested gibbon *Nomascus gabriellae*	c. 20,000	2003	Traeholt *et al.* (2005)
China	**Cao Vit gibbon** *Nomascus nasutus*	c. 110	2015	Wei *et al.* (2017)
	Gaoligong hoolock *Hoolock tianxing*	c. 200	2015–16	Fan *et al.* (2017)
	Hainan gibbon *Nomascus hainanus*	34	2020	Chan, Lo and Mo (2020)
	Western black-crested gibbon *Nomascus concolor*	c. 5,000	2010	Sun *et al.* (2012)
India	**Western hoolock**	c. 5,000	2014	Ray *et al.* (2015)
Indonesia	**Abbott's gray gibbon** *Hylobates abottii*	Present	2019	S. Cheyne, unpublished data
	Agile gibbon *Hylobates agilis*	c. 5,000	2001	O'Brien *et al.* (2004)
	Bornean gray gibbon	c. 120,000	2012–14	Cheyne *et al.* (2016a)
	Bornean white-bearded gibbon *Hylobates albibarbis*	c. 120,000	2005–15	Cheyne *et al.* (2016a)
	Kloss's gibbon *Hylobates klossii*	20,000–25,000	2005	Whittaker (2005)
	Lar gibbon *Hylobates lar*	n/a	n/a	n/a
	Moloch gibbon *Hylobates moloch*	c. 4,500	2004–11	Nijman (2004); Setiawan *et al.* (2012)
	Müller's gibbon *Hylobates muelleri*	c. 70,000	2012–14	Cheyne *et al.* (2016a)
	Siamang *Symphalangus syndactylus*	c. 22,000	2003	O'Brien *et al.* (2004)

Country	Taxon	Abundance	Survey period	Source
Lao People's Democratic Republic	**Lar gibbon**	Present	2011	Boonratana *et al.* (2011)
	Northern white-cheeked crested gibbon *Nomascus leucogenys*	c. 800	2006	Duckworth (2008)
	Northern yellow-cheeked crested gibbon *Nomascus annamensis*	c. 3,000	1994	Duckworth *et al.* (1995)
	Southern white-cheeked crested gibbon *Nomascus siki*	c. 2,000	2013	Coudrat and Nanthavong (2014)
	Southern yellow-cheeked crested gibbon	Present	2018	Rawson *et al.* (2020a)
	Western black crested gibbon	Present	2005–06	Brown (2009)
Malaysia	**Abbott's gray gibbon**	Present	2020	S. Cheyne, personal communication, 2020
	Agile gibbon	Present	1970	Khan (1970)
	Bornean gray gibbon	c. 100,000	2012–14	Cheyne *et al.* (2016a)
	Lar gibbon	n/a	n/a	n/a
	Siamang	n/a	n/a	n/a
Myanmar	**Eastern hoolock** *Hoolock leuconedys*	>10,000	2005	Geissmann *et al.* (2013); S. Htun, personal communication, 2006
	Gaoligong hoolock	c. 45,000*	2013	Geissmann *et al.* (2013)
	Lar gibbon	n/a	n/a	n/a
Thailand	**Lar gibbon**	c. 25,000	1997–2014	W. Brockelman, personal communication, 2016
	Pileated gibbon	c. 20,000	1991	R. Phoonjampa and W. Brockelman, unpublished data
Viet Nam	**Cao Vit gibbon**	c. 110	2007	Rawson *et al.* (2011)
	Northern white-cheeked crested gibbon	c. 1,200	2009	Rawson *et al.* (2011)
	Northern yellow-cheeked crested gibbon	c. 3,500	2009	Rawson *et al.* (2011)
	Southern white-cheeked crested gibbon	c. 4,000	2009	Rawson *et al.* (2011)
	Southern yellow-cheeked crested gibbon	c. 3,000	2008	Rawson *et al.* (2011)
	Western black crested gibbon	c. 300	2009	Rawson *et al.* (2011)

Notes: Estimates are based on the number of duetting or singing adults and thus exclude subadults, juveniles and infants. Estimates are derived from surveys and modelling approaches.

* The Gaoligong hoolock (*Hoolock tianxing*) was previously recognised as the eastern hoolock (*Hoolock leuconedys*) but was recently identified as a separate species. As the gibbon's area is experiencing civil conflict, research cannot be carried out safely and no recent data are available; consequently, the population estimate is based on extrapolation.

Annex VII

African Great Ape Population Trends by Taxon, in Descending Order of Abundance

Taxon	Abundance	Trend	Annual rate of change	Total estimated change	Period assessed	Source
Western lowland gorilla *Gorilla gorilla gorilla*	361,919 (302,973–460,093)	Declining	–2.7%	–19.4%	2005–13	Strindberg *et al.* (2018)
Eastern chimpanzee *Pan troglodytes schweinfurthii*	181,000–256,000	Declining	–5.1%	–22% to –45% in eastern DRC only	1994–2015	Plumptre *et al.* (2015, 2016a)
Central chimpanzee *Pan t. troglodytes*	128,760 (114,208–317,039)	Declining[a]	n/a	n/a	2005–13	Maisels *et al.* (2016)
Western chimpanzee *Pan t. verus*	52,800 (17,577–96,564)	Declining	–6.53%	–80.2%	1990–2014	Heinicke *et al.* (2019)
Bonobo *Pan paniscus*	15,000–20,000 minimum	Declining	–5.95%[b]	–54.9%	2003–15	Fruth *et al.* (2016)
			–1%[c]	>–50%	2003–78	
Nigeria–Cameroon chimpanzee *Pan t. ellioti*	4,400–9,345	Declining	–0.92% to –2.14%	–50% to –80%	1985–2060	R. Bergl, A. Dunn, L. Gadsby, R.A. Ikemeh, I. Imong, J.F. Oates, F. Maisels, B. Morgan, S. Nixon and E.A. Williamson, personal communication, 2018
Grauer's gorilla *Gorilla beringei graueri*	3,800 (1,280–9,050)	Declining	–7.34%	–77%	1994–2015	Plumptre *et al.* (2015, 2016c)
Mountain gorilla *Gorilla b. beringei*	>1,000	Increasing	+3.7%	+26%	2003–10	Gray *et al.* (2013); Hickey *et al.* (2018); Roy *et al.* (2014)
Cross River gorilla *Gorilla g. diehli*	<300	Declining	n/a	n/a	n/a	Dunn *et al.* (2014); R. Bergl and J. Oates, personal communica-tion, 2000

Notes: Abundance estimates for mountain gorillas include infants; all other estimates represent the number of weaned individuals capable of building nests. Estimates are based on both surveys and spatial predictions. The 95% confidence intervals appear in parentheses.

Due to variations in modeling approaches, the taxon-specific estimates per country are not necessarily equivalent to the sums of regional estimates per country. All estimates at taxon level were derived from modeling approaches in the source publications, except for the Cross River gorilla, mountain gorilla and the Nigeria–Cameroon chimpanzee.

a While Strindberg *et al*. (2018) do not detect any statistically significant change in central chimpanzee numbers, they note that it is unlikely that the population remained stable between 2005 and 2013. Moreover, Maisels *et al*. (2016) observe: "Given the scale of the poaching problem across Central Africa, this taxon is likely to be experiencing declines significant in terms of the population status, which we do not have the statistical power to detect."

b The confidence interval for this analysis is very large, suggesting uncertainty in the data.

c A 1% decline per year would yield more than a 50% reduction of the bonobo population for the period 2003–78.

Source: GRASP and IUCN (2018, table 4)

Annex VIII

Asian Great Ape Population Decline by Taxon, in Descending Order of Abundance

Taxon	Abundance	Annual rate of change	Total estimated change	Survey period	Source
Southwest Bornean orangutan *Pongo pygmaeus wurmbii*	97,000 (73,800–135,000)	−4.71%	−53%	1999–2015	Voigt *et al.* (2018)
Northeast Bornean orangutan *Pongo p. morio*	30,900 (22,800–44,200)	−4.45%	−52%	1999–2015	Voigt *et al.* (2018)
Sumatran orangutan *Pongo abelii**	13,900 (5,400–26,100)	−2.37%	−30%*	2015–2030	Wich *et al.* (2016)
Northwest Bornean orangutan *Pongo p. pygmaeus*	6,300 (4,700–8,600)	−4.71%	−53%	1999–2015	Voigt *et al.* (2018)
Tapanuli orangutan *Pongo tapanuliensis*	800 (300–1,400)	−2.36%	−83%	1985–2060	Nowak *et al.* (2017)

Notes: * Temporal trends for the Sumatran orangutan are based on various forest loss scenarios (Wich *et al*., 2016). Under the current land use scenario, as many as 4,500 individuals could disappear by 2030.

The 95% confidence intervals, which appear in parentheses, are rounded to the nearest 100.

Due to variations in modeling approaches, the taxon-specific estimates per country are not necessarily equivalent to the sums of regional estimates per country. All orangutan estimates at taxon level were derived from modeling approaches in the source publications.

Source: GRASP and IUCN (2018, table 8)

Annex IX

Small Ape Population Decline by Taxon, in Descending Order of Abundance

Taxon	Abundance	Annual rate of change	Total estimated change, 1973–2018
Bornean white-bearded gibbon *Hylobates albibarbis*	120,000	–1.54	–50%
Bornean gray gibbon *Hylobates funereus*	100,000	–1.54	–50%
Müller's gibbon *Hylobates muelleri*	100,000	–1.54	–50%
Pileated gibbon *Hylobates pileatus*	60,000	> –1.54	> –50%
Siamang *Symphalangus syndactylus*	60,000	–1.73	–50%
Moloch gibbon *Hylobates moloch*	48,500	–1.54	–50%
Gaoligong hoolock *Hoolock tianxing*	40,000	–3.57	–80%
Agile gibbon *Hylobates agilis*	25,000	> –1.54	> –50%
Kloss's gibbon *Hylobates klossii*	25,000	–1.54	–50%
Lar gibbon *Hylobates lar*	25,000	–1.54	–50%
Western hoolock *Hoolock hoolock*	15,000	–1.54	–50%
Eastern hoolock *Hoolock leuconedys*	10,000	–0.79	–30%
Southern yellow-cheeked crested gibbon *Nomascus gabriellae*	8,000	–1.54	–50%
Northern yellow-cheeked crested gibbon *Nomascus annamensis*	6,500	–1.54	–50%
Southern white-cheeked crested gibbon *Nomascus siki*	6,000	–3.57	–80%
Western black crested gibbon *Nomascus concolor*	5,350	–3.57	–80%
Northern white-cheeked crested gibbon *Nomascus leucogenys*	2,000	–3.57	–80%
Cao Vit gibbon *Nomascus nasutus*	229	–3.57	–80%

► **Hainan gibbon** *Nomascus hainanus*	34	–3.57	–80%
Abbott's gray gibbon *Hylobates abbottii*	n/a	–1.54	–50%

Note: A number of taxa experienced similar levels of decline over the 45 year survey period, resulting in the same annual rate of change.

Sources: unpublished IUCN Red List updates, seen by the authors, 2019 (now published in: Brockelman and Geissmann, 2019, 2020; Brockelman *et al*., 2020; Brockelman, Molur and Geissmann, 2019; Cheyne and Nijman, 2020; Fan, Turvey and Bryant, 2020; Geissmann and Bleisch, 2020; Geissmann *et al*., 2020; Liswanto *et al*., 2020; Marshall, Nijman and Cheyne, 2020a, 2020b; Nguyen *et al*., 2020; Nijman, 2020; Nijman, Cheyne and Traeholt, 2020; Nijman *et al*., 2020; Pengfei *et al*., 2020; Rawson *et al*., 2020a, 2020b, 2020c; Thinh *et al*., 2020)