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Status and trade assessment of parrots listed in CITES Appendix I

Scientific Opinion of the Panel on Alien Organisms and trade in endangered species (CITES)

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Scientific Opinion of the Panel on alien organisms and trade in endangered species (CITES) of the Norwegian Scientific Committee for Food and Environment
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Title

Status and trade assessment of parrots listed in CITES Appendix I

Preparation of the opinion

The Norwegian Scientific Committee for Food and Environment (Vitenskapskomiteen for mat og miljø, VKM) appointed a project group to draft the opinion. The project group consisted of three VKM members, one VKM staff. Two referees commented on and reviewed the draft opinion. The Committee, by the Panel on alien organisms and trade in endangered species (CITES) assessed and approved the final opinion.

Authors of the opinion

The authors have contributed to the opinion in a way that fulfils the authorship principles of VKM (VKM, 2019). The principles reflect the collaborative nature of the work, and the authors have contributed as members of the project group and/or the VKM Panel on alien organisms and trade in endangered species (CITES).

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VKM would like to thank the referees Dr. Rowan Martin (World Parrot Trust) and Prof. Jose L.Tella (Estación Biológica de Doñana, Sevilla, Spain) for their valuable comments through critical review of the draft opinion. VKM emphasises that the referees are not responsible for the content of the final opinion. In accordance with VKM's routines for approval of a risk assessment (VKM, 2018), VKM received their comments before evaluation and approval by VKM Panel on Alien organisms and trade in endangered species (CITES). VKM would also like to thank Aurora Bischof for translation of supplementary information in Berkunsky et al. (2017).

Competence of VKM experts

Persons working for VKM, either as appointed members of the Committee or as external experts, do this by virtue of their scientific expertise, not as representatives for their employers or third party interests. The Civil Services Act instructions on legal competence apply for all work prepared by VKM.

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Summary

Key words: Psittaciformes, CITES, Appendix I parrots, Status and trade assessment, Norwegian Scientific Committee for Food and Environment, Norwegian Environment Agency, VKM

Background:

Parrots are one of the most species-rich groups of birds of which the majority inhabits tropical and subtropical forests. Nearly one-third of parrots are threatened with extinction (IUCN categories CR, EN or VU) and more than half of the world's parrot species are assumed to be decreasing in numbers. Parrots are popular pets on all continents, mainly due to their colourful feathers, their capacity to mimic the human voice, and their tolerance to life in captivity. More than 250 species have been traded internationally. Since the inception of CITES in 1975, trade of about 12 million live wild-sourced parrots has been registered. Currently, 55 parrot species are listed on CITES Appendix I (Norwegian CITES regulation list A) that includes the most endangered among CITES-listed animals and plants. In compliance with CITES, Norway only permits import for commercial purposes of Appendix I listed parrots bred in captivity in operations included in the Secretariat's Register (Resolution Conf. 12.10 (Rev. CoP15). Presently, 9 of the Appendix I parrot species are bred in such facilities. Import of Appendix I species to Norway requires permits both from the exporter's CITES authority and the Norwegian Environment Agency (Norwegian CITES Management Authority).

All legal transactions of CITES Appendix I listed species should be recorded in the UNEP World Conservation Monitoring Centre (UNEP-WCMC) Trade Database. However, discrepancies are common, demonstrating that the trade monitoring is not accurate. Moreover, several studies suggest that regardless of efforts to regulate trade, the global conservation situation for parrots may be worse than estimated by the IUCN species statuses. Even though habitat loss is the main threat to most parrot species, it has been suggested that priority should be given to conservation actions aimed at reducing the illegal capture of wild parrots for the pet trade.

As Norway's CITES Scientific Authority, the Norwegian Scientific Committee for Food and Environment (VKM) was assigned by the Norwegian Environment Agency to assess the status of populations and trade for Appendix I parrot species.

Methods: As different trade patterns are typical for different geographic regions, the species were initially divided into three groups: Africa, Australasia and Central and South America.

For species with commercial trade registered in the UNEP-WCMC trade database after year 2010 a full assessment was made. In addition, two species for which negative impact from illegal trade is suspected were also fully assessed. The assessments are based on the

Norwegian Cites Regulation and Article III of the Convention and Resolution 16.7(Rev.CoP17).

Information on the parrot species assessed in this report were gathered from the text accounts published by BirdLife International and Birds of the World as well as literature cited in the text.

Results: VKM undertook full assessments of the population status and trade for 26 of the 55 CITES Appendix I species. The species assessments are presented as fact sheets. They each contain a brief summary of the species' biology (name, taxonomy, distribution, life history, habitat and role in ecosystem), populations and trends, threats and conservation status, population surveillance and regulations, evaluation of legal/illegal trapping and trade, overall assessment of data quality and references.

We found that the quantity, as well as quality, of the information available for the Appendix I parrot species varied much. This was the case for data on general biology, population size and trends and levels of illegal trade.

For all of the 23 of species for which commercial trade was registered since 2010 in the UNEP-WCMC trade database discrepancies between the numbers reported by the importing and exporting countries occurred.

The available population size estimates for 12 species were based on data more than 10 years old. For 6 species no published source could be found for the population estimate. VKM found documentation (on seizures) of international illegal trade within the last 10 years for 14 species. Additional 8 species were mentioned in reports on illegal trade.

Conclusion:

Habitat loss caused by deforestation and other processes is an increasing threat to many parrot species. It is expected that the IUCN conservation status for some species will change with results from newer surveys pending. Therefore, VKM considers population size estimates based on data collected more than 10 year ago as insecure. The monitoring of legal trade with Appendix I parrots is inaccurate.

The illegal pet trade, mainly domestic, but also international, is still a significant threat to many Appendix I parrot species.

VKM recommends that the assessment of populations and trade in Appendix I parrot species should be updated in 2025.

Sammendrag på norsk

Bakgrunn:

Papegøyer er en av de meste artsrike gruppene av fugler. De fleste av dem lever i områder med tropisk og subtropisk skog. Omtrent en tredel av artene er truet av utryddelse (dvs er regnet som Sterk truet, Truet eller Sårbar på den internasjonale naturvernunionen, IUCN, sin rødliste). Halvparten av alle papegøyearter antas å ha synkende bestandsstørrelse. Papegøyer er populære kjæledyr i alle verdensdeler. Dette skyldes at de ofte har fargerike fjær, er flinke til å prate og tolererer å leve i fangenskap. Mer enn 250 papegøyearter har så langt blitt omsatt internasjonalt. Etter at den internasjonale konvensjonen for handel med truede arter (CITES) trådde i kraft i 1975 har det blitt registrert omsetning av 12 millioner levende viltfangede papegøyer. Per 2020 er 55 papegøyearter listet i CITES Appendix I (tilsvarende A i norsk Cites-forskrift) som omfatter de mest truede av dyr og planter i handel. I tråd med CITES-reguleringen (Resolution Conf. 12.10 (Rev. CoP15) tillater Norge derfor bare import av individer fra CITES-godkjente papegøyeoppdrettere til kommersielle formål. I dag blir 9 av papegøyeartene i Appendix I avlet frem i CITES-godkjente anlegg. Import av Appendix I arter til Norge krever tillatelse både fra eksportlandets CITES-myndighet og Miljødirektoratet (Norges administrative myndighet for CITES).

All lovlig omsetning av CITES Appendix I arter skal registreres i handelsdatabasen til UNEP World Conservation Monitoring Centre (UNEP-WCMC). Det er imidlertid ofte uoverensstemmelser mellom tallene som oppgis av importør og eksportør. Dette tyder på at overvåkingen av handel ikke er presis. Flere studier har også avdekker at til tross for tiltakene for å regulere handel så er situasjonen for mange papegøyearter verre en deres rødlistestatus skulle tilsi. Tap av leveområder er den største trusselen for de fleste av artene. Allikevel er det å hindre ulovlig handel utpekt som et viktig bevaringstiltak.

Som norsk vitenskapelig CITES-myndighet har VKM fått i oppdrag av Miljødirektoratet å vurdere status for bestander og handel for Appendix I papegøyearter.

Metoder:

Handelsmønstrene for handel med papegøyer er ulikt i forskjellige deler av verden. Derfor ble papegøyeartene delt i tre grupper etter geografisk utbredelse: Afrika, Australasia og Mellom- og Sør-Amerika.

De artene som var registrert for kommersiell omsetning i handelsdatabasen etter år 2010 ble valgt ut til full vurdering. I tillegg ble to arter valgt ut på grunn av mistanke om pågående ulovlig handel. Vurderingene ble utført på grunnlag av den norske Cites-forskriften, CITES Artikkel III og Resolution 16.7(Rev.CoP17).

Informasjonen som ligger til grunn for vurderingene ble hentet fra BirdLife International og Birds of the World samt litteratur som siteres i teksten.

Resultater:

VKM utførte full vurdering av status for bestander og handel for 26 av de 55 papegøyeartene i CITES Appendix I. Vurderingen for hver art er presentert som et fakta-ark. Hvert fakta-ark inneholder et kort sammendrag av artens biologi (navn, taksonomi, utbredelse livshistorie, leveområde og rolle i økosystemet), bestand og bestandsutvikling, trusler og bevaringsstatus, bestandsforvaltning, vurdering av lovlig og ulovlig handel, en vurdering av den totale datakvaliteten og referanser.

Den tilgjengelige informasjonen om de ulike Appendix I papagøyeartene varierte mye i både mengde og kvalitet. Dette gjaldt data om generell biologi, bestandstørrelser og –trender samt om nvået av ulovlig handel.

Det var avvik mellom rapporter import og eksport for 23 av artene med registrert kommersiell omsetning i handelsdatabasen siden 2010.

De tilgjengelige bestandsestimatene for 12 av artene var basert på data som er eldre enn 10 år. For 6 arter fantes ikke en publisert kilde for bestandsestimatet. VKM fant dokumentasjon på ulovlig internasjonal handel (i form av beslag) for 14 arter. Ytterligere 8 arter var nevnt i rapporter om ulovlig handel.

Konklusjon:

Habitatsreduksjon som skyldes avskoging og andre prosesser er en økende trussel for mange papegøyearter. Det forventet derfor forventet endringer i bevaringsstatus for flere arter når ny informasjon innhentes. Bestandsestimater som er basert på mer enn 10 år gamle betraktes derfor som usikre av VKM.

Overvåkingen av lovlig handel med Appendix I papegøyer er upresis.

Ulovlig handel, hovedsaklig nasjonal, men også internasjonal, er fortsatt en trussel mot overlevelsen av flere Appendix I papegøyearter.

VKM anbefaler at vurderingen av status for bestander og handel av Appendix I papegøyearter bør oppdateres innen utgangen av 2025.

Background as provided by the Norwegian Environment Agency

CITES regulates international trade in endangered species. This includes many species of parrots. 55 species of parrots are listed in Appendix I of CITES, and imports to Norway therefore require both export permits from foreign Cites authorities and import permits from the Norwegian Environment Agency. In Norway, possession of living specimens of vertebrates listed in CITES Appendix I also requires a CITES owner certificate and marking.

The Norwegian Environment Agency receives applications regarding permits for parrots listed in Appendix I. Consequently, an updated scientific risk assessment (Non-Detriment Finding - NDF) is needed.

The risk assessment shall be used by the Norwegian Environment Agency in the evaluation of applications in accordance with the Norwegian Regulation on importation, exportation, possession, etc. of endangered species of wild fauna and flora (CITES-regulation).

Terms of reference as provided by the Norwegian Environment Agency

1. The Norwegian Environment Agency asks VKM for a scientific risk assessment of trade in parrots (*Psittaciformes* spp.) listed in CITES Appendix I and specimens thereof, based on the criteria given under the Convention on International Trade in Endangered Species (CITES). The Norwegian Environment Agency also asks VKM to give an estimate as to when the risk assessment should be updated.

2. The assessment shall be based on the Norwegian Cites Regulation and Article III of the Convention and resolution 16.7 (Rev. CoP17) [1]
    a. Name, distribution, life history, habitat, role in ecosystem
    b. populations and trends
    c. Summary of existing information on threats and conservation status
    d. population monitoring programs in the range area
    e. National regulations / legislation and in the range countries
    f. Current management in the range countries, including harvest quotas
    g. Assessment of legal / illegal harvesting and trade
    h. Overall assessment of data quality

3. Limitation: The risk assessment primarily concerns the species imported/exported to/from Norway since 2010 *

[1] https://www.cites.org/sites/default/files/document/E-Res-16-07-R17.pdf

*note that after initial research and discussions with various experts on parrot trade the project group decided to include more species that those listed in 3. See chapter 2.2 for further information about how species were selected for further assessment in this report.

1 Introduction

1.1 Introduction to Psittaciformes

The parrots and cockatoos (Order Psittaciformes, hereafter 'parrots') are distributed across six continents. They are one of the most species-rich groups of birds, with the greatest diversity in Australasia, Central America, and South America (Billerman, 2020; Winkler et al., 2020a;b;c). Most parrots are forest-dependent in tropical and subtropical regions (Toft and Wright, 2015; Vergara-Tabares et al., 2020; Figure 1.1-1). The order has undergone various taxonomic revisions over the past 20 years. According to Billerman et al. (2020), the order Psittaciformes can be divided into four families (Strigopidae - New Zealand Parrots; Cacatuidae - Cockatoos; Sittaculidae - Old World Parrots; Psittacidae - New World and African Parrots). Depending on source, 387-402 extant species of parrots are recognised (Billerman et al., 2020; IUCN, 2020).

Nearly one-third of parrots are threatened by extinction (IUCN categories CR, EN or VU), placing them among the most threatened groups of birds (IUCN, 2018; Olah et al., 2016, Vergara-Tabares et al., 2020). The populations of more than half of the world's parrot species are assumed to be decreasing in numbers (Olah et al., 2016), but reliable information on population sizes and trends is lacking for the large majority (Dénes et al., 2018). Information on spatial variation in abundances is even scarcer (Marsden and Royle, 2015). Parrots have a suite of traits that makes estimation of abundances and populations sizes exceedingly difficult (Dénes et al., 2018). In particular, parrots are highly mobile and generally do not have all-purpose territories (Dénes et al., 2018). Home ranges are often large, and individuals often perform long-distance daily movements between nesting, roosting, and foraging areas (Dénes et al., 2018). Many species also move seasonally, tracking the temporal availability of different food resources causing substantial variation in time and space in population and abundance estimates (Dénes et al., 2018). Despite knowledge gaps about abundance and trends, it appears that generally larger-bodied species are rarer in the wild than smaller species (Marsden and Royle, 2015).

Habitat destruction of tropical and subtropical forests represents the main threat to parrots globally (e.g., Olah et al., 2016). Based on species richness, conservation status and forest dependence, Vergara-Tabares et al. (2020) detected four conservation hotspots for parrots; two in the Neotropics (eastern Amazon Basin and the north-eastern Andes) and two in Australasia (New Guinea and south-eastern Australia) (Figure 1).

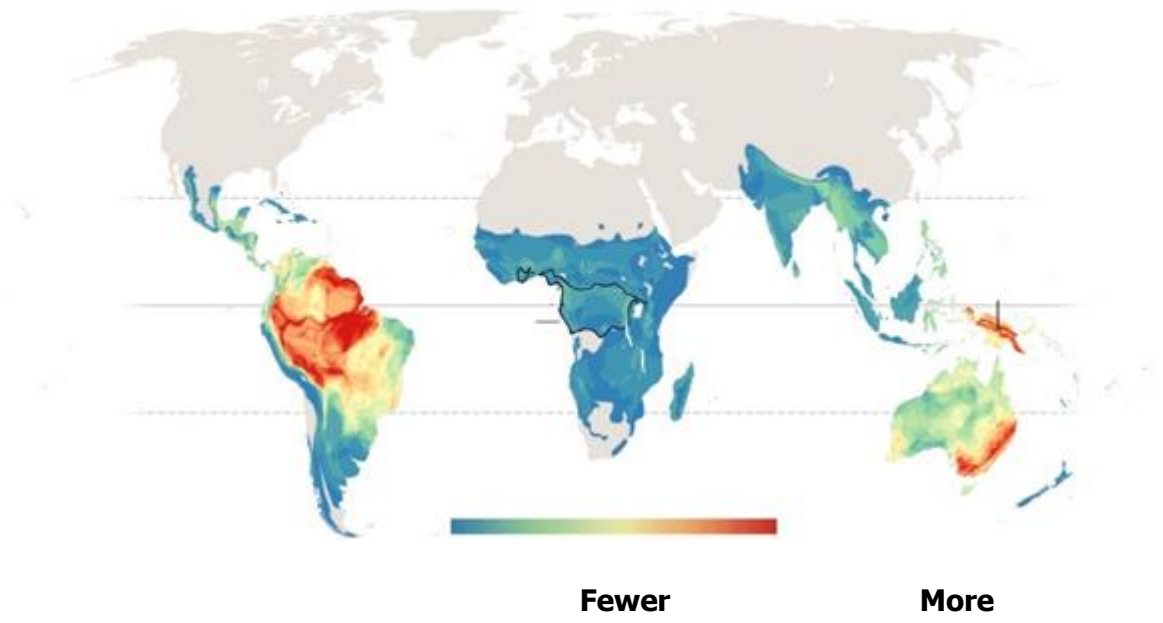

Figure 1.1-1 Global distribution of parrot diversity (number of species). Graphics sourced from: https://www.nationalgeographic.com/magazine/2018/06/photo-ark-parrots/ Credit: Matthew W. Chwastyk, National Geographic Magazine Staff. Delineation of the range of the grey arrot *Psittacus erithacus*) is shown as a solid black line on the African continent.

Land use change causing loss of natural habitats affects parrot populations throughout their global range (Barbuse et al., 2020; Vergara-Tabares et al., 2020). Habitat loss acts in concert with other important threats, such as poaching and logging (Vergara-Tabares et al., 2020). Logging and poaching often coexist but poaching is also widespread in areas less affected by forestry (Brodie et al., 2014; Berkunsky et al., 2017). With few exceptions, parrots nest in tree cavities, and whereas some species breed colonially, others space themselves more evenly throughout the nesting habitat (Toft and Wright, 2015). Logging (both legal and illegal) thus has indirect, long-lasting negative effect on parrot populations by reducing their nesting sites (Toft et al. 2015, Vergara-Tabares et al. 2020 with references). Removal of wild-sourced individuals for the illegal domestic and international pet trade, in addition to reducing parrot populations, often cause damage to the nest tree and/or nests (Donald et al., 2010; Pires, 2012; Berkunsky et al., 2017).

There is great morphological diversity among parrot species in arrangement of the colourful plumage patches, colour and shape of the bill, size and shape of the wings and tail, and overall size (Forshaw, 2010). Their total length varies from a little over 8 cm for Pygmy parrots (genus *Micropsitta)* to 100 cm in long-tailed species, such the Hyacinth macaw (*Anodorhynchus hyacinthinus*) (Forshaw, 2010). In many species, the central tail feathers are longer than the total body length. Parrots have broad and often pointed wings, and appear somewhat bulky due to their short necks and sturdy bodies, along with stout feet, thick, curved beaks and powerful jaws. All parrots have four toes on each foot, two pointing forward and two projecting backward. The feet are used for food handling and climbing.

The shape of the beak and agility of the feet reflect the diet; most parrots are herbivorous and feed on the reproductive parts of plants, such as seeds, fruits, flowers, and buds (Toft and Wright, 2015), which makes it possible provide a varied diet for pet birds.

Most parrot species are monomorphic, meaning that there are no outward morphological differences between males and females (Toft and Wright, 2015). Social monogamy is the norm and the majority of the species form life-long pairs bonds (Toft and Wright, 2015). Mated pairs are the fundamental social unit and pairs spend time grooming each other with seeming affection (Toft and Wright, 2015). Parrots can also display (apparent) affection to humans (Anderson, 2013), which makes them appealing pets. Parrots have generally long lifespans and low annual rates of reproduction (Young et al., 2012; Toft and Wright, 2015). Most species have a so-called complex fission-fusion social organisation in which long-term pair bonds are maintained within feeding flocks that gather at communal night roosts (Toft and Wright, 2015; Bradbury and Balsby, 2016).

Parrots are popular pets on all continents, mainly due to their colourful feathers, their capacity to mimic the human voice, and their tolerance to captivity (Forshaw, 2010; Tella and Hiraldo, 2014; Romero-Vidal et al., 2020). International parrot trade dates centuries back; for example, a drawing of an Australasian cockatoo on the margins of a 13th-century manuscript written by Holy Roman Emperor Frederick II indicates trading routes that existed more than 700 years ago (Lyons, 2018). Capture and removal of individuals from wild parrot populations have contributed to the decline of many species at least since the beginning of the 19th century (Forshaw, 2010; Forshaw and Wright, 2017). Most species of parrots (>250 species) and millions of individuals have been traded internationally (Tella and Hiraldo, 2014; Cardador et al. 2017). The trade has been a pathway for introduction of invasive species and feral parrot populations have established in, for instance, many cities in Europe and the USA (e.g., Ancilotto et al., 2016; Carrete and Tella, 2008; Reino et al., 2017; Cardador et al. 2019).

1.2 International trade in parrots

Since the inception of CITES in 1975, trade of about 12 million live wild-sourced parrots has been registered (Martin et al., 2018). Currently, 55 parrot species (see Table 3.1-1) are listed on CITES Appendix I (Norwegian CITES regulation list A) that includes the most endangered among CITES-listed animals and plants. Commercial international trade is prohibited for these species (Article III). An exemption from the general trade ban exists for Appendix I species bred in captivity (Article VII, § 4) by breeders included in the CITES Secretariat's Register of captive-breeding operations (Resolution Conf. 12.10 (Rev. CoP15). Accordingly, Norway only permits import of Appendix I listed parrots with source code D (Appendix-I animals bred in captivity for commercial purposes in operations included in the Secretariat's Register) (https://trade.cites.org/cites_trade_guidelines/en-CITES_Trade_Database_Guide.pdf).

The European Union (EU) has banned all trade in wild-caught birds since 2007 (following a ban to hinder spread of the bird flu was introduced in 2005). The EU permits commercial trade of Appendix I parrot species bred in captivity in breeding facilities not registered in the CITES system (source code C = Animals bred in captivity in accordance with Resolution Conf.10.16 (Rev.) exported under the provisions of Article VII, paragraph 5, of the Convention) for commercial export (CITES purpose code T = Commercial). These birds are not permitted for import by Norway's CITES Managing Authority.

The United States of America (USA), once the number one importer of exotic birds, prohibited import of wild caught birds by enforcing the Wild Bird Conservation Act (WBCA) in 1992. Since then, import has required a CITES document issued by the foreign Management Authority indicating a source code of C, D, or F (Animals born in captivity, F1 or subsequent generations).

Regardless of efforts to regulate trade, several studies suggest that the global conservation situation for parrots may be worse than previously estimated by the IUCN species statuses (Olah et al., 2016; Martin et al., 2014; Berkunsky et al., 2017). Priority should be given to conservation actions aimed at reducing the illegal capture of wild parrots for the pet trade. Noteworthy, domestic trade is a greater threat than international trade for many parrot species (e.g., Berkunsky et al., 2017).

All legal transactions of CITES Appendix I listed species should be recorded in the UNEP World Conservation Monitoring Centre (UNEP-WCMC) Trade Database (https://trade.cites.org/) by both the importing and exporting party, however, discrepancies are common demonstrating that the trade monitoring is far from accurate (Table 3.1-2).

The illegal parrot trade is complex and networks for poaching, distributing, and selling of parrots follow different routes in different parts of the world (Ribeiro et al. 2019). Most poaching is committed by local villagers rather than professionals (Pires et al., 2012; Pires et al., 2016). The majority of poached birds are traded domestically, but international trade is also a threat to many species, as shown by a recent study of 192 Neotropical parrot

populations across 21 countries (Berkunsky et al., 2017). The study concluded that 130 (68%) of these populations were threatened by capture for pet trade and nest destruction by poachers, and that 74 of the populations were threatened by international pet trade (Berkunsky et al., 2017). The attractiveness (colour, size, and ability to mimic speech) of the bird species seems to be the main driver on the consumer's end of the marked (Romero-Vidal, 2020, Tella and Hiraldo, 2014). The ease with which parrot species can be captured in large numbers is another important factor determining their popularity in trade (Pires and Clarke, 2011).

The Internet (social media and the dark web) plays an increasingly important role in global illegal wildlife trade that is on an upward trend (Budiani and Raharningrum, 2018; Martin et al., 2018). According to Buidani and Raharningrum (2018), much of the trade in parrots is conducted on specialist forums rather than dedicated marketplaces. For instance, poached parrots from the Indonesian Archipelago are shipped through the Philippines to international destinations. Seizures of 462 Indonesian endemic parrots were made in the Philippines between 2013 and 2017. In a major operation in 2018, 312 birds were seized, including CITES Appendix I listed species, such as sulphur-crested, Moluccan and palm cockatoos (TRAFFIC, 2018).

1.2.1 Captive breeding of parrots

Captive breeding of endangered wildlife for commercial purposes, or for subsequent re-introduction into the wild, is a used as a measure to conserve wild populations while continuing trade. It may, however, have negative implications for conservation if poached and illegally caught wild animals are allowed to enter the legal supply chain (TRAFFIC, 2020). Examples are found in Brazil where trade in captive-bred parrots from wild origin stocks is allowed. Here, control is lacking and it is suspected that some commercial breeders are involved in laundering of wild birds (Ortiz-von Halle, 2018). Moreover, a significant number of CITES-listed birds (e.g. *Cacatua sulphurea)*, falsely declared as captive-bred, have been moved out of the Solomon Islands and Australia through Singapore (Aloysius et al., 2019).

The marked for captive bred parrots in the USA and the EU skyrocketed after the bans for trade in wild-sourced birds. In the EU, the 2005 ban gave a rapid shift in trade from wild-caught birds to captive-bred birds (Cardador et al. 2019). For Appendix I species there are now numerous breeding facilities worldwide, of which some are CITES registered (see table 3.1-1). The breeding success varies among these species and some are known to have very low reproduction rates and high age of maturity. Species like sulphur-crested cockatoo (*Cacatua sulphurea)* and palm cockatoo *(Probosciger aterrimus)* are reportedly difficult to breed in captivity (TRAFFIC, 2019), while red-crowned parakeet (*Cyanoramphus novaezelandiae)* is an example of a species easily bred (pers. Comm. J.Tella).

Presently, nine of the Appendix I listed parrot species are bred in CITES-registered captive-breeding operations (see Table 3-1.1). Captive bred birds can make better pets, but wild

caught birds are commonly used as breeding stock (Martin et al., 2018a). It is still largely unknown to what extent the pet industry affects the supply and demand of wild parrots, the scale and nature of illicit trade or the connections between captive-bred and wild-sourced markets (Martin et al., 2018b). For instance, the African grey parrots are now extensively bred in CITES registered facilities. Although illegal trade of wild-caught birds persists the level has been reduced significantly since the 2017 Appendix I listing (Atoussi et al., 2020; Martin et al., 2018a; Martin et al., 2019, Poole and Shepherd 2016).

1.3 Regional patterns of parrot diversity and trade

1.3.1 Africa

Africa is home to two parrot species listed on CITES Appendix I, the Mauritius Parakeet (*Psittacula eches*), an endemic to Mauritius, and the African grey parrot (*Psittacus erithacus*) found throughout West and Central Africa. The Timneh parrot (*Psittacus timneh*) is recognized as a separate species by the IUCN (BirdLife, 2019), but all African grey parrots (*erithacus* and *timneh*) are treated as one species by CITES.

West and Central Africa is one of the poorest areas of the world, and exploitation and export of natural resources, including wildlife products (primarily to Asia) is key to local economy. An assessment of the Wildlife Crime Threat in West and Central Africa prepared by the United Nations Office on Drugs and Crime (UNDOC- CoP18 Doc.34 Annex 4) demonstrated that of the ten of the world's countries where bribes are most commonly paid to governmental officials (e.g., police) six are in West- and Central Africa. These countries are thus particularly vulnerable to wildlife crime and West- and Central Africa has been subject to more CITES trade suspensions than any other region in the world. *P. erithacus* was included in Appendix II in 1981 and was first selected for CITES Review of Significant Trade in the early 1990's (and repeatedly in later years). Discrepancies in reporting, trade exceeding quotas, trade despite moratoria on export, false permits, and false use of source codes (e.g., reporting as captive-bred, despite the absence of breeding facilities) were revealed. During the years prior to the up-listing of African grey parrots to Appendix I, the reported trade in wild sourced birds for commercial purposes from importer and exporter was 104,382 vs. 49,100 individuals (UNEP-WCMC CITES Trade Database). Moreover, after the Appendix I listing, in 2017 and 2018 several hundred wild-sourced live birds have been reported in the CITES trade database for commercial purposes (these were re-exports, with the exception of 750 birds of exported from the Democratic Republic of Congo to Kuwait). The majority originating from the Democratic Republic of the Congo and destined for Middle-Eastern countries.

According to data from the World Wildlife Seizure database (World Wise), more African grey parrots have been seized since late 2016 than in any other period in the previous decade. While 5,000 birds were seized from 2007 to late 2016, 3,000 birds were seized from late 2016 to mid-2018. Accounting for the mortality rates at all steps of the trade chain, the

international trade could account for almost 328,000 wild African grey parrots taken from the wild for commercial purposes in the period 2007-2018 (CoP18 Doc. 34 Annex 4).

Although grey parrots are bred in captivity (mainly) in South Africa, the use of wild-sourced parrots as breeding stock for this industry still poses a significant threat to the species (Martin et al., 2018b). For the years 2017-2018, the source code D (Appendix-I animals bred in captivity for commercial purposes (purpose code T) in operations included in the Secretariat's Register, in accordance with Resolution Conf. 12.10 (Rev. CoP15)) was used by South Africa for the export of 11,710 live birds. The number of imported birds with source code D in the same period was 3,569 (numbers from the UNEP-WCMC Trade Database).

1.3.2 Asia-Pacific region

Australia, New Zealand, New Guinea, Wallacea, and the Pacific Ocean islands host 42% of the world's parrot species. Of these, 37 out of 167 species are threatened with extinction (Olah et al., 2018). There is large variation among the countries of Australasia with regard to conservation and management of parrot species. Olah et al. (2018) found that the main threats to the parrots of Oceania are logging, agriculture, hunting and trapping, invasive species, fire and fire suppression outside of natural range and frequency, residential and commercial development, energy production and mining, and climate change including increased frequency of severe weather events.

The hunting and trapping category also included persecution of parrots as pests, which is considered a more common issue than poaching in countries like Australia (Olah et al., 2018). A recent study by Barbosa et al. (2020) suggests that persecution may be an underestimated threat affecting parrots of all age classes, contributing to population decline and range contraction of several species.

New Zealand has the highest percentage of threatened parrot species, followed by the Pacific, Wallacea, Australia, and New Guinea. Historical range size and single-country endemism are important predictors of extinction risk for the parrots of the Asia-Pacific region. There is little published information on the extent of trapping in the region, but parrot trade is generally more active in less developed countries (Olah et al., 2018)

The Australian Environmental Protection and Biodiversity and Conservation Act (1999) bans the export of native wildlife. Australia hosts 6 CITES Appendix I parrots, however one of these species, the paradise parakeet (*Psephotus pulcherrimus*) is extinct. The extant species are hooded parrot (*P. dissimilis*), golden-shouldered parrot (*P. chrysopterygius*), ground parrot (*Pezoporus wallicus*), night parrot (*Pezoporus occidentalis*), Coxen's fig parrot (*Cyclopsitta diophthalma coxeni*), and the palm cokcatoo (*Probosciger aterrimus*). The palm cockatoo is the only species that commonly occurs in the international pet trade, both legally and illegally. The majority of illegally sourced birds are, however, probably captured in New Guinea (TRAFFIC, 2018).

Australia does not play a major role in the trade of its endemic parrots and native populations are effectively protected by genuine national trade bans. Moreover, the international trade in Australian endemic parrots appears to be sustainably supplied by overseas captive breeding (Vall-llosera and Cassey, 2017). It is still worth mentioning that for the Appendix II listed genus of black cockatoos (*Calyptorhyncus* spp.), there are some concerns as these can attain a very high price in the overseas black market as indicated by seizures of eggs (Vall-llosera and Cassey, 2017). Live birds and eggs are the second most common wildlife seizures by the Australian customs, and constitute 26% of all cases (Alacs and Georges, 2008). One of the largest seizures was done in conjunction with an attempt to smuggle 31 native bird eggs from Australia in 1995 (Alacs and Georges, 2008).

Appendix I species inhabiting New Zealand and associated islands including Norfolk Island are the Kakapo (*Strigops habroptilus*) and the Cyanorhampus spp. parakeets. These are threatened with extinction, and are heavily affected by invasive species. Some are also affected by logging, however, no poaching issues are reported for these species (Olah et al., 2018).

Nearly half of the 31 extant parrot species on the Pacific Islands are threatened with extinction (Olah et al., 2018). CITES Appendix I parrots inhabiting these islands are the ultra marine lorikeet (*Vini ultramarine*), the horned parakeet (*Eunymphicus cornutus*), as well as some of the Cyanorhampus parakeets. The clearing of land for agricultural purposes used to have a major impact and still does affect 16 % of the parrot species. The main threat to the Pacific islands species is invasive species (cats and rats) (Olah et al., 2018). Moreover, trapping threatens 23% of the parrot species native to the pacific islands, with the extent of the parrot trade on most islands largely unknown (Olah et al., 2018). Many birds, including CITES listed species, where exported from the Solomon Islands in the 2000s and were falsely registered as captive bred. There were no proper commercial captive breeding facilities at the Solomon Islands at that time, and wild individuals were captured and stored before later being sold as captive bred (Sheperd et al., 2012).

New Guinea has 46 native species of parrots, and only about 7% are considered threatened. Most of the threatened species inhabit the satellite islands of New Guinea, including the heavily traded palm cockatoo. It should be noted that New Guinean parrot species are very poorly known (Marsden et al., 2001; Marsden and Pilgrim, 2003; Marsden and Symes, 2006), and further information may lead to revisions of their Red List statuses.

The islands of Wallacea are inhabited by 34 extant parrot species, of which 29% are threatened, most of which occur in the Moluccas and the Lesser Sundas. Four Appendix I species inhabits this region: salmon-crested cockatoo (*Cacatua moluccensis*), Tanimbar corella (*Cacatua goffiniana*), red-and-blue lori (*Eos histrio*), and the yellow-crested cockatoo (*Cacatua sulphurea*). Lowland forests provide the most important habitat for parrots on these islands that face continued threat from deforestation (Marsden and Fielding, 1999). Hunting and trapping are also considered a major threat (Olah et al., 2018). Whereas parrot trapping in many areas is an opportunistic activity undertaken by the inhabitants of poor

villages, it can be a profession in Indonesia, where certain villagers specialize in trapping for the pet trade. The yellow-crested cockatoo (*Cacatua sulphurea*) is now Critically Endangered as a result of unsustainable trapping for the pet trade (Birdlife International, 2020)

The South-East Asian region is a significant trading hub for many parrot species (Alosyius et al., 2019). The 2005 EU ban on wild-caught bird imports redirected trade from the Europe to South-East Asia, and inadequate regulations for biodiversity protection in some countries in the region contribute to unsustainable exploitation of parrots (Aloysius et al., 2019).

Singapore has been a major transhipment hub for the avian trade of birds from Africa and Europe, which are re-exported to East-Asia and the Middle East (Aloysisus et al., 2019). Singapore contributes to 18% of the imports of CITES-listed birds to the region, followed by Thailand (7%) and Malaysia (7%) (Aloysius et al., 2019). While there has been a decline in Singapore's CITES-listed bird trade since 2005, wild-caught birds from Indonesia and the Philippines are still re-exported globally from Singapore (Aloysisus et al., 2019). There is also a growing domestic demand for parrots in Singapore (Aloysisus et al., 2019).

Japan plays an important role in the legal international bird trade, with parrots being most frequently imported (Wall-Llosera and Su, 2019). The majority of CITES-listed parrots imported to Japan originated from Neotropical and Afrotropical realms and were mostly reported as originating from a captive bred population (Wall-Llosera and Su, 2019). However, recent studies have revealed false reporting of birds as captive bred (e.g., Sheperd et al., 2012; Poole and Sheperd, 2016). This may suggest that a larger proportion of wild-caught birds are imported into Japan than what is reported, particularly when importing from countries such as Singapore which is one of the main exporters of birds to Japan (Wall-Llosera and Su, 2019).

1.3.3 Central and South America

The Neotropical parrots comprise about 150 species in 32 genera found throughout South and Central America, Mexico, the Caribbean islands, and a few Pacific islands, such as the Galápagos. 31% of Neotropical parrot species are threatened, i.e., Critically Endangered, Endangered, and Vulnerable (Berkunsky et al., 2017). Illegal trade continues to lead to parrot population decline, despite laws against parrot poaching throughout the Neotropics (Pires, 2012). Berkunsky et al. (2017) compiled information on the timing, severity and scope of threats affecting 96 species across 21 countries in the Neotropics and found that 38% of the parrot populations have decreased since 2001. The threat most closely associated with decreasing population trends was capture for the local pet trade, but capture for the international trade was also contributing to the decline (Berkunsky et al. 2017). Capture of individuals for the pet trade impacted 68% of the populations (Berkunsky et al. 2017), in contrast to 32% of the species in a similar species level analysis (Olah et al., 2016).

An important incentive in the continuation of the illegal parrot trade is the high price of captive-bred parrots, which can be six times more expensive than wild parrots (Pires, 2012). Prices vary greatly among species of Neotropical parrots and the price – and risk of poaching – increases with attractiveness (Tella and Hiraldo, 2014; Romero-Vidal et al., 2020). The largest parrot in the world, the hyacinth Macaw (*Anodorhynchus hyacinthinus)*, commanded the highest price in the Bolivian illegal parrot trade market (Herrera and Hennessay, 2007). The documented long-term preference for the most attractive and valuable species (amazons and macaws) is an important reason why these species are threatened today (Tella and Hiraldo, 2014; Romero-Vidal et al., 2020).

Capture for international trade has historically been one of the main threats to Neotropic parrots, with millions of wild caught birds exported to the United States, Europe, and Japan in the 1980s and 1990s (Beissinger and Snyder, 1992). This has probably diminished greatly as a direct outcome of the bans on wildlife trade. National enforcement authorities benefit most from the completely illegal status when controlling any type of wild bird trade. When authorities find a wild bird in a market or in someone's possession in Bolivia, Colombia, Ecuador, Peru, and Venezuela, they can be certain that it is illegal as there are no legal sources. However, legal domestic trade in parrots from the Amazon region occurs in Brazil, where trade in captive-bred individuals of wild origin stocks is permitted (Ortiz-von Halle, 2018). As a consequence, law enforcement in Brazil requires enormous efforts from the authorities to prevent laundering of wild-captured birds through the legal system (Ortiz-von Halle, 2018).

Poaching for the illegal pet trade is still a threat to many populations, but international illegal trade in live South American birds is likely lower than in decades, mainly because the most attractive species already exist in main consumer countries (Ortiz-von Halle, 2018). Wild birds have become a rare sight at markets in cities and towns in most of South America (Ortiz-von Halle, 2018). Nevertheless, local poaching for pets remains very high in rural areas across all Neotropiocal countries (e.g., Luna et al., 2018; Romero-Vidal et al 2020; J. Tella in prep. and pers. comm.). Pires et al. (2016) found that a majority of participants in the illegal parrot trade in Bolivia and Peru are freelance operators that were not part of organized crime networks. Population genetic studies have enabled identification of the probable origin of live-caught parrot chicks confiscated within Brazil strengthening the suspicion of a trafficking route that begins in northeastern Brazil crossing the border into Bolivia (Presti el al., 2015). Although trade is still an issue, and parrots are available on the illegal market, the supply-demand dynamics have eliminated impulse-buying prompted by seeing birds on display (Ortiz-von Halle, 2018). However, the Internet (e.g., social media) offers new channels for promoting illegal wildlife trade, potentially offsetting authorities' successful interventions in streets and markets (Ortiz-von Halle, 2018).

Habitat loss caused by agro-industry farming and grazing, selective large-scale logging, as well as droughts/desertification and storms and flooding are also severe threats to a majority of the Neotropic parrot populations (Berkunsky et al. 2017; Vergara-Tabares et al., 2020). Nest destruction by poachers is common, but usually involves a small proportion of each

population (Berkunsky et al. 2017). The main threats identified by Berkunsky et al. (2017) corresponded in order of importance with the main threats reported at the species level using IUCN Red List data by Olah et al. (2016). However, there are still substantial knowledge gaps. Despite extensive survey, Berkunsky et al. (2017) were unable to find data on population trends and threats for over a third of the parrot populations from a number of countries, including Panama, Guyana, Surinam, French Guiana, Uruguay, and many islands of the Lesser and Greater Antilles.

2 Methodology and Data

2.1 Literature search and selection

We gathered information on the parrot species assessed in this report from the text accounts published by BirdLife International and Birds of the World. These text accounts were also used to obtain an overview of other scientific literature available for the species. We conducted literature searches using species names in google scholar and Web of Science. To access grey literature, particularly in relation to illegal trade, we searched on scientific and common species names combined with terms such as "illegal trade" "poaching" "seizures" using google. We also searched for the species in the annual overviews of seizures in the EU compiled by TRAFFIC. The web portal Species+ was used to find CITES related information and documents, for example significant trade reviews, suspensions, and information about trade quotas. For each of the species assessed, data on commercial trade (purpose code T) of live birds for the years 2010-2020 was collected searching the UNEP-WCMC Trade Database.

We used the species records published by BirdLife International and IUCN as sources for information about population estimates and trends for each species. A common challenge with these records was that a substantial part of the information and the references presented were old, often dating from more than a decade ago. This made it challenging to assess the current situation for some species, for example when the most recent data on population size were from early 2000s. The challenge with outdated data sources was also highlighted by Berkunsky et al. (2017), and they conclude that as a consequence, conservation status, and thus IUCN RedList, status, may change drastically as more data become available.

2.2 Selection of parrot species for further assessment

VKM was assigned to perform risk assessments for parrots listed in CITES Appendix I (see Background and Terms of Reference for more info). There are currently 55 parrot species included in Appendix I, but all are not in international trade. As different trade patterns are typical for different geographic regions, the species were initially divided into three groups: Africa, Australasia and Central and South America. We excluded species not in trade (i.e., not present in the CITES trade database for the last decade) as the task was to assess whether trade (including illegal trade) can be detrimental to the survival of Appendix I parrot species in the wild. The exception was two species (*Amazona arausiaca* and *Andorhynchus leari*) with zero registered trade, but for which negative impact from illegal trade is suspected. For species in trade, the IUCN Red List status assessment was used to gather information about the main threats to their survival, population size and trend, and if they

seemingly are involved in the illegal parrot trade (for example by investigating seizure data and TRAFFIC analyses). It is important to note that some species, although extinct in the wild (like *Cyanopsitta spixii*) or critically endangered (e.g., *Amazona imperialis, Amazona vittata, Anodorhynchus glaucus, and Ara glaucogularis*), seem to be protected by elaborate conservation programs and are therefore not at risk when it comes to illegal capture and trade. In contrast, some species assessed to be of Least Concern, are still frequently encountered in seizures (e.g., *Prosbosciger atterimus and Ara macao*) and were thus granted a full assessment. The hooded parrot (*Psephotellus dissimilis*) is bred in CITES registered breeding operations and was not fully assessed. It has a restricted distribution range in the Northern Territory of Australia and is easy to breed in captivity. Trade is presumably not a significant threat to the wild population (that has conservation status Least Concern). One CITES registered breeding facility exists in the UK.

3 Assessment

3.1

Here follows the assessments of status and trade per species answering the Terms of Reference as provided by the Norwegian Environment Agency. Each species assessed is presented as a fact sheet based on the Norwegian Cites Regulation and Article III of the Convention and resolution 16.7(Rev.CoP17), as given by the list of points a)-h) of the assignment. Each assessment contains a brief summary of the species biology (name, taxonomy, distribution, life history, habitat and role in ecosystem), populations and trends, threats and conservation status, population surveillance and regulations, evaluation of legal/illegal trapping and trade and overall assessment of data quality. The amount of relevant information varies between species and thus also the length of the fact sheets. When not cited in the text the information about the species' biology is taken from BirdLife International/ IUCN and Birds of the World. Whenever additional literature was used, the source of information has been cited in the text and the full reference given in the list at the end of the fact sheet. For h), overall assessment of data quality VKM has emphasized: the confidence of the current estimate of population size and trend as well as the level of international trade and any documentation of on-going illegal trade. Habitat destruction and fragmentation are the main threats to most parrot species, and that these processes are advancing rapidly, we thus consider population size estimates from more than 10 years ago as unreliable in the data quality assessment. The extent of illegal wildlife trade is not well known for any species, and thus we consider presence in seizures within the last ten years as documentation of on-going illegal trade. Mentioning of species in illegal trade analyses indicates that illegal trade could be a problem for the species in question. The list of all of the 55 Appendix I parrot species, listed alphabetically within the three geographic regions: Africa, Australasia and Central America can be found in Table 3.1-1. The 26 species that were fully assessed are marked in bold.

We found that the quantity, as well as quality, of the information available for the Appendix I parrot species varied much. This was the case for data on general biology, population size and trends and levels of illegal trade.

For all of the 23 of species for which commercial trade was registered since 2010 in the UNEP-WCMC trade database discrepancies between the numbers of live birds traded for commercial purposes (source code T) reported by the importing and exporting countries occurred. The numbers of imported and exported birds for each of the 26 fully assessed species are listed in Table 3.1-2.

The available population size estimates for 12 species were based on data that were more than 10 years old. For 6 species no published source could be found for the population estimate. VKM found documentation (on seizures) of international illegal trade within the last 10 years for 14 species. Additional 8 species were mentioned in reports on illegal trade.

For some species, such as the African grey parrot, its presence in trade, both legal and illegal, is well documented. For other species, such as the Tamnibar corella, the population estimate is nearly 20 years old and very wide. Thus, the current situation for the species must be considered highly uncertain. The Palm cockatoos' current presence in the international illegal wildlife trade is well documented, but there is no available published population size estimate. With the exception of a few species, including the Kakapo and the Maurittius parakeet, the overall population trend is decreasing for most species (see table 3.1-1).

Table 3.1-1 CITES Appendix I listed parrot species. Species assessed in this report are marked in bold. The population trend is abbreviated using I=increasing, D=decreasing, S=stable. The IUCN red list status is abbreviated using LC=Least Concern, NT=Near Threatened, V=Vulnerable, E=Endangered, CR=Critically Endangered, EX= Extinct. By Captive breeding (CITES) we refer to CITES registered Captive breeding facilities' for Appendix I species. References are listed under each species assessment.

Species name	Common name	Norwegian name	distribution	Geographic Region	Pop. trend	IUCN status	Captive breeding (CITES registered)
Psittacula eches	Mauritius parakeet	Mauritius-parakitt	Mauritius	Africa	I	V	
Psittacus erithacus	**Gray parrot**	**Jako**	Angola; Burundi; Cameroon; Central African Republic; Congo; Congo, Côte d'Ivoire; Equatorial Guinea; Gabon; Ghana; Kenya; Nigeria; Rwanda; Sao Tome and Principe; Tanzania, Uganda	Africa	D	E	X
Cacatua goffiniana	**Goffins cockatoo**	**Tamnibar-kakadu**	Indonesia	Asia-Pacific	D	NT	
Cacatua haematuropygia	**Red vented cockatoo**	**Filipiner-kakadu**	Phillipines	Asia-Pacific	D	CR	X
Cacatua moluccensis	**Salmon-crested cockatoo**	**Moluk-kakadu**	Indonesia	Asia-Pacific	D	V	X
Cacatua sulphurea	**Yellow-crested cockatoo**	**Gyllentopp-kakadu**	Timor-Leste; Indoensia	Asia-Pacific	D	E	X
Cyanoramphus cookkii	Tasman parakeet	Norfolk-parakitt	Norfolk Island	Asia-Pacific	?	-	
Cyclopsitta diophthalma coxeni	Coxens fig parrot	Blåøyet fikenpapegøye	Australia	Asia-Pacific	S	E	
Cyanoramphus forbesi	Forbes parakeet	Chatham-parakitt	New Zealand	Asia-Pacific	S	V	

Cyanoramphus novaezelandiae	Red-fronted parakeet	Rødkrone-parakitt	New Zealand	Asia-Pacific	D	LC	
Cyanoramphus saisseti	New Caledonian parakeet	Skarlagenkrone-parakitt	New Caledonia	Asia-Pacific	?	-	
Eos histrio	**Red-and-blue lori**	**Nykaledonia-lori**	Indonesia	Asia-Pacific	D	E	X
Eunymphicus cornutus	Horned parakeet	Topp-parakitt	New Caledonia	Asia-Pacific	D	V	
Neophema chrysogaster	Orange-bellied parakeet	Oransjebuk-parakitt	Australia	Asia-Pacific	D	CR	
Psephotus chrysopterygius	Golden-shouldered parrot	Gulbånd-parakitt	Australia	Asia-Pacific	D	E	
Psephotus dissimilis	Hooded parrot	Svarthette-parakitt	Australia	Asia-Pacific	S	LC	X
Psephotus pulcherrimus	Paradise parakeet	Paradis-parakitt	Australia	Asia-Pacific	NA	EX	
Pezoporus wallicus	Ground parrot	Jord-parakitt	Australia	Asia-Pacific	D	LC	
Pezoporus occidentalis	Night parrot	Natt-papegøye	Australia	Asia-Pacific	D	E	
Probosciger aterrimus	**Palm cockatoo**	**Palme-kakadu**	Australia; New Guinea	Asia-Pacific		LC	
Strigops habroptila	Kakapo	Kakapo	New Zealand	Asia-Pacific	I	CR	
Vini ultramarina	Blue/ultra marine lorikeet	Smaragd-lori	French Polynesia	Asia-Pacific	S	CR	
Amazona arausiaca	**Red-necked Amazon**	**Dominica-amazon**	Dominica	CS-America	I	V	
Amazona auropalliata	**Yellow-naped Amazon**	**Gulnakke-amazon**	Mexico, Central America	CS-America	D	E	
Amazona barbadensis	**Yellow shouldered amazon**	**Gulmaske-amazon**	Venezuela	CS-America	?	V	
Amazona brasiliensis	**Red-tailed Amazon**	**Ildhale-amazon**	Brazil	CS-America	I	NT	
Amazona finschi	**Lilac crowned-Amazon**	**Lillakrone-amazon**	Mexico	CS-America	D	E	
Amazona guildingii	St. Vincents Amazon	Konge-amazon	St.Vincents and the Grenadines	CS-America	I	V	
Amazona imperialis	Imperial Amazon	Keiser-amazon	Dominica	CS-America	D	CR	
Amazona leucocephala	Cuban Parrot	Kuba-amazon	Cuba; Bahamas; Cayman	CS-America	D	NT	
Amazona oratrix	**Yellow-headed Amazon**	**Gullhode-amazon**	Mexico	CS-America	D	E	X

Amazona pretrei	**Red-spectacled amazon**	**Skjellgran-amazon**	Brazil	CS-America	D	V	
Amazona rhodocorytha	**Red-browed Amazon**	**Flammemaske-amazon**	Brazil	CS-America	D	V	
Amazona tucumana	Tucuman Amazon	Ore-amazon	Argentina, Bolivia	CS-America	D	V	
Amazona versicolor	St. Lucia Amazon	Sanktlucia-amazon	St. Lucia	CS-America	Possibly I	V	
Amazona vinacea	**Vinaceous Amazon**	**Vin-amazon**	Brazil; Paraguay; Argentina	CS-America	D	E	
Amazona viridigenalis	**Green cheeked amazon**	**Grønnkinn-amazon**	Mexcio	CS-America	D	E	
Amazona vittata	Puerto Rican Amazon	Puertorico-amazon	Puerto Rico	CS-America	Probably S (tiny)	CR	
Anodorhynchus glaucus	Glaucous macaw	Asur-ara	Uruguay; Paraguay; Brazil; Argentina (possibly extinct)	CS-America	Unknown	CR/EX	
Anodorhynchus hyacinthinus	**Hyacinth macaw**	**Hyasint-ara**	Brazil; Bolivia and possibly Paraguay	CS-America	D	V	
Anodorhynchus leari	**Lears macaw**	**Indigo-ara**	Brazil	CS-America	I	E	
Ara ambiguus	**Great green macaw**	**Gladiator-ara**	Nicaragua; Costa Rica; Panama; Colombia; Honduras; Ecuador	CS-America	D	E	
Ara glaucogularis	Blue-throated macaw	Blåstrupe-ara	Bolivia	CS-America	S	CR	
Ara macao	**Scarlet macaw**	**Rød-ara**	Belize; Brazil; Colombia; Costa Rica; Ecuador; French Guinea; Guatemala; Guyana; Honduras; Mexico; Nicaragua; Panama; Peru; Suriname; Trinidad; Tobago; Venezuela	CS-America	D	LC	
Ara militaris	**Military macaw**	**Soldat-ara**	Argentina; Bolivia; Colombia, Ecuador; Mexico; Peru; Venezuela	CS-America	D	V	
Ara rubrogenys	**Red-fronted macaw**	**Rødøre-ara**	**Bolivia**	**CS-America**	**D**	**CR**	
Cyanopsitta spixii	Spixs macaw	Brille-ara	Previously found in Brazil	S.America	NA	EX	

Guarouba guarouba	**Golden parakeet**	**Gull-parakitt**	Brazil	CS-America	D	V	X
Ognorhynchus icterotis	Yellow-ear parrot	Guløre-parakitt	Colombia	S.America	I	E	
Pionopsitta pileata	Red-capped parrot	Marri-parakitt	Paraguay	CS-America	D	LC	
Primolius couloni	**Blue-headed macaw**	**Blåhode-ara**	Peru; Brazil; Bolivia; Benin	CS-America	D	V	X
Primolius maracana	**Blue-winged macaw**	**Rødbuk-ara**	Brazil; Paraguay	CS-America	D	NT	
Pyrrhura cruentata	Ochre-marked Parakeet	Blåstrupe-parakitt	Brazil	CS-America	D	V	
Rhynchopsitta pachyrhyncha	Thick billed parrot	Tykknebb-parakitt	Mexico	CS-America	D	E	
Rhynchopsitta terrisi	Maroon-fronted parakeet	Furu-parakitt	Mexico	CS-America	D	E	

Table 3.1-2 Legal commercial trade recorded for Appendix I species subject to full assessment. There were discrepancies between the numbers reported by importing and exporting countries for all of the 23 species for which trade was recorded in the UNEP-WCMC Trade Database.

Species	Import	Export
Psittacus erithacus	5862	12814
Cacatua goffiniana	48	58
Cacatua haematuropygia	25	21
Cacatua moluccensis	353	395
Cacatua sulphurea	187	373
Eos histrio	1	161
Probosciger aterrimus	179	113
Amazona arausiaca	0	0
Amazona auropalliata	900	1705
Amazona barbadensis	53	52
Amazona brasiliensis	23	45
Amazona finschi	139	40
Amazona oratrix	786	2103
Amazona rhodocorytha	6	42
Amazona pretrei	11	39
Amazona vinacea	31	100
Anodorhynchus hyacinthinus	109	220
Andorhynchus leari	0	0
Ara ambiguus	41	104
Ara macao	206	1415
Ara militaris	36	266
Ara rubrogenys	28	114
Guaruba guarouba	200	998
Primolius couloni	29	127
Primolius maracana	32	157

Species assessments are listed in the same sequence as in table 3.1.-1.

3.1.1 *Psittacus erithacus*

a)

Name: *Psittacus erithacus* , Linnaeus, 1758
Common name: Grey parrot, African grey parrot
Norwegian name: Jako, grå jako.

Subspecies:
Psittacus erithacus timneh
Psittacus erithacus princeps
Psittacus erithacus erithacus
P. e. erithacus and *P. e. timneh* (Timneh parrot) are treated as conspecifics by CITES, but as two different species by BirdLife International.

Distribution:
Grey parrots occur in moist forests of West and Central Africa. *P. e. timneh* is found from southern Guinea to western parts of the Ivory Coast with Isolated populations occurring in Guinea-Bissau. *P. e. eritchacus* inhabits eastern Ivory Coast to western Kenya and northwestern Tanzania and south to south-central Democratic Republic of the Congo and northern Angola. *P. e. princeps* occurs on Principe Island in the Gulf of Guinea. Feral populations are found in many African cities.
Range States: Angola, Benin, Burundi, Cameroon, Central African Republic, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea Bissau, Kenya, Liberia, Mali, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, Togo, Uganda, United Republic of Tanzania.

Life history:
Similar to other parrots of its size, the African grey is long-lived with a low reproductive rate. The species has mostly been observed foraging in flocks in treetops, but large groups have also been reported descending to drink water and feed on aquatic plants and possibly ingest soil in forest clearings. The species is probably monogamous, but no information exists on pairing rituals. Breeding season varies across its range. Both sexes seem to inspect nesting sites. The species is mainly sedentary, but some populations seem to make seasonal movements. Daily movements between roosting and feeding areas are made in many parts of range.

Habitat:
P. erithacus occurs in lowland primary and secondary forest, including edges, clearings, gallery forest, savanna woodlands, farms, plantations and mangroves. It is strongly associated with oil-palms (*Elaeis guineensis*) for feeding and raffia palms (*Raphia sp.*) for roosting, but feeds and roosts in a wide diversity of species. It can persist in small forest

fragments. The species nests in tall living trees in cavities naturally occurring or excavated by woodpeckers.

Role in the ecosystem:
Grey parrots feed on plant material including fruits, seeds, flowers and buds and thus likely plays a significant role in seed dispersal. A study from Cameroon showed suspected nest predation by birds of prey, squirrels as well as humans (Piebeng et al., 2017).

b)

Population and trends:
The number of mature individuals for *P. e timneh* and *P. e erithacus* is unknown. Both population sizes are decreasing. Declines in excess of 50% over three generations (46.5 years) are suspected in multiple Range States like Benin, Burundi, Guinea, Guinea-Bissau, Kenya, Rwanda, Tanzania and Togo (CITES, 2016). In Ghana a population decline of 90-99% has been calculated since 1992 (Annorbah et al., 2016). Based on forest cover and country-level population estimates, the West African population of *P. e. erithacus* is estimated at 40,000 – 100,000 individuals and the Central African population at between 560,000 and 12.7 million birds (but these estimates were made in the 1990s based on a number of assumptions).

c)

Threats and conservation status:
Conservation status: Endangered, assessed in 2018.
The conservation status was revised from Vulnerable in 2016 due to severe, range-wide population declines caused by heavy trapping pressure and habitat loss.
Threats:
African grey parrots are among the world's most popular avian pets in Europe, USA, the Middle East and China and southern Asia. The species (including *P. e.erithacus* and *P.e. timneh*) was formerly the second most traded bird in the world. In some areas, *P. erithacus* forms large aggregations in regularly used roost trees and salt licks, enabling trappers to efficiently capture large numbers. International pet trade is a more significant threat than domestic trade, probably owing to the high value of these birds. Habitat loss is also a significant threat as logging and farming are causing forest loss and degradation. The loss of large trees with nesting cavities may be particularly detrimental as their natural regeneration can be an extremely slow process. Grey parrots are also in some parts hunted for bushmeat while feathers, heads and legs are used for belief-based use/traditional medicine.

d), e), f)

Population surveillance and regulations:
P. erithacus was included in CITES Appendix I in 2016 (CITES, 2017), and in the EU Wildlife Trade Regulations, Annex A in 2017.

The Democratic Republic of the Congo, Saudi Arabia and the United Arab Emirates reserved themselves from the Appendix I listing of the species in 2017, and hence according to CITES Resolution 4.25 treats it as an Appendix II species. There are no current quotas in place for *P. erithacus*.

Guinea is suspended from all commercial trade (CITES Notif. No. 2019/075), DRC from all commercial and non-commercial trade in wild grey parrots (CITES Notif. No. 2018/081) and Liberia from all commercial trade in specimens of CITES-listed species (CITES Notif. No. 2018/012). An EU-CITES Capacity Building Project 'Strengthening Capacity for Monitoring and Regulation of International Trade of African Grey Parrots' was undertaken in 2013, involving participants from Liberia, Sierra Leone, Côte d'Ivoire, the Democratic Republic of Congo and Cameroon. This involved trials of monitoring parrot populations and trade, while it also developed a framework for the establishment of national management plans of this species, but has resulted in no national management plans. The species occurs in a number of protected areas. All trapping is prohibited in Angola, Kenya, Nigeria and Uganda. Some of the species largest breeding areas in the Democratic Republic of Congo are managed by provincial government (CITES, 2013).

g)

Evaluation of legal/illegal trapping and trade:
Legal:
CITES registered captive-breeding operations are established in the Philippines (2), Singapore (1), South Africa (189) and Zambia (1).
According to CITES CoP17 proposal 19 (CITES, 2016) gross exports of more than 1.3 million wild birds from 18 range States have been reported since 1975, making *P. erithacus* one of the most traded of all CITES-listed birds. The majority of wild-sourced parrots reported were exported to North America prior to 1992 and Europe prior to 2005 (Martin, 2017). More recently the primary destinations are Bahrain (CITES party since 2012), Kuwait, Nigeria, Singapore and the United Arab Emirates (CITES, 2019). The Democratic Republic of the Congo, Cameroon and the Republic of Congo are the main source countries (CITES, 2019). The number of live birds reported traded for commercial purposes (T) from CITES-registered breeding operations in 2017 and 2018 was 5,862 by importers and 12,814 by exports. The majority of captive-bred originated from South Africa and were imported into the Arabian Peninsula, and considerable numbers were traded among countries in the Arabian Peninsula and Southeast Asia.

Illegal:
After the inclusion of *P. erithacus* in CITES Appendix II in 1981 Reviews of Significant Trade (1988, 1992, 2006, 2014) exposed e.g., discrepancies in reporting from importers and exporters in the traded number of birds, trade higher than quotas, trade despite moratoria on export, reporting as captive-bred, despite the absence of breeding facilities, false permits in numerous Range States. Western and Central Africa has been subject to more CITES

trade suspensions than any other region in the world (CITES, 2019). Birds are captured at all life stages and in all seasons, both inside and outside protected areas. Chicks are taken directly from nests, or birds are trapped in nets or with glue traps. In countries where domestic trade is allowed these activities can be undertaken openly, providing that the necessary permits have been obtained. Since it is difficult to transport parrots at sea, they are usually shipped by air in large crates to international destinations. High mortality at every stage of the capture and shipment process suggests that the number of birds removed from the wild are significantly higher than those exposed through trade data.

Also after the Appendix I listing, in 2017 and 2018 several hundred wild-sourced (source code W) live birds have been reported in the CITES trade database for commercial purposes (T). For the years 2017-2018 the number of wild-sourced (source code W), live birds registered in the CITES trade database for commercial trade (purpose code T) was 162 by exporters and 1424 by importers. These were re-exports with the exception of 750 birds of exported from the Democratic Republic of Congo to Kuwait.

Martin (2018) showed that 13,264 birds exported in the period 2007-2014 as 'captive-bred' (Source code C) were reported from Range States that have no known commercial breeding facilities. During 2005-2014, a minimum of 85,649 birds were unaccounted for (i.e., not re-exported) after arrival in Singapore. Birds that are not reexported are presumed to have entered the domestic market but the scale of the discrepancy deems this to be unlikely (Poole and Shepherd, 2017).

More African grey parrots have been seized the last few years than the previous decade (CITES, 2019). 3,000 birds were seized from late 2016 to mid-2018 compared to 5,000 birds seized in almost 10 years from 2007 to late 2016. If one were to apply the highest mortality rate (66%) to the number of parrots legally traded during 2007 and 2016 (i.e., 104,000 parrots) and parrots seized (7,900 parrots) to account for parrots that died along the trade chain, the international trade could account for almost 328,000 wild African grey parrots taken from the wild for commercial purposes since 2007 (CITES, 2019).
Investigations of illegal trade on the Internet have revealed sales of substantial numbers of wild-sourced grey parrots in the period 2014-2017 (Martin et al., 2018a). Furthermore, hundreds of illegally imported grey parrots were offered for sale online, in street markets and in pet shops in Algeria (Atoussi et al., 2020) and Nigeria (Ezenwa et al. 2018).
Although grey parrots are bred in captivity (mainly) in South Africa, the use of wild-sourced parrots as breeding stock for this industry still pose a significant threat to the species (Martin, 2018b). Prior to the transfer of the species to Appendix I of CITES, more than 5,000 wild-caught birds from the Democratic Republic of the Congo were imported into South Africa each year as breeding stock (Hart et al., 2012). Grey parrots are concealed within legal shipments of other parrot species, and for instance the export of red-fronted parrots from the Democratic Republic of the Congo have risen five-fold since grey parrots were transferred to Appendix I, indicating fraudulent use of permits to traffic grey parrots (Martin et al. 2019). *P. Erithacus* is also still among the species smuggled into Europe, as documented by seizures in 2016, 2017 and 2018 (TRAFFIC 2017, 2019, 2020).

h)

Overall assessment of data quality

Much of the information pertaining to the wild populations, i.e., estimates of population sizes and trends (i.e., rate of decline), is highly uncertain. For example, some of the population size estimates are outdated (from the 1990s) and/or solely based on extrapolations from available habitat. The species is heavily traded internationally and extensive ongoing illegal trade (although probably reduced after the 2017 Appendix I listing) is well documented despite the existence of CITES registered breeding operations.

References:

Basic information (not cited in the text):
Collar, N., del Hoyo, J., Kirwan, G.M., Sharpe, C.J., Moura, N., Boesman, P.F.D. (2020). Grey Parrot (*Psittacus erithacus*), version 1.1. In Birds of the World (P. G. Rodewald, B.K. Keeney, Billerman, S.M.Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.grepar.01.1)

BirdLife International (2018) *Psittacus erithacus*. *The IUCN Red List of Threatened Species* 2018: e.T22724813A129879439. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724813A129879439.en.

Additional literature (cited in the text):

Annorbah, N.N.D., Collar, N.J., Marsden, S.J. (2016) Trade and habitat change virtually eliminate the Grey Parrot *Psittacus erithacus* from Ghana. *Ibis* 158: 82-91.

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CITES (2013) Strengthening Capacity for Monitoring and Regulation of International Trade of African Grey Parrot. Report prepared by BirdLife Africa Partnership Secretariat. Geneva, Switzerland.

CITES (2016) CoP17 Prop.19: Consideration of proposals for amendment of Appendices I and II. https://cites.org/sites/default/files/eng/cop/17/prop/060216/E-CoP17-Prop-19.pdf

CITES (2017). Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendices I, II and III. 2017. https://www.cites.org/eng/app/appendices.php.

CITES (2019) CoP18 Doc. 34 Annex 4. Wildlife crime enforcement support in West and Central Africa. https://cites.org/sites/default/files/eng/cop/18/doc/E-CoP18-034.pdf.
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and geographical dynamics of international trade of Grey and Timneh Parrots (*Psittacus erithacus* and *P. timneh*) under CITES., Emu - Austral Ornithology, 118:113-125.

Hart, J., Hart, T., Salumu, L., Bernard, A., Abani, R., Martin, R. (2016). Increasing exploitation of grey parrots in eastern DRC drives population declines. Oryx, 50(1):16-16. doi:10.1017/S0030605315001234

Martin, R.O., Senni, C., D'Cruze, N.C. (2018a). Trade in wild-sourced African grey parrots: Insights via social media. *Global Ecology and Conservation* 15: e00429. https://doi.org/10.1016/j.gecco.2018.e00429.

Martin, R.O. (2018b) The wild bird trade and African parrots: past, present and future challenges. *Ostrich* 89: 139–143. https://doi. org/10.2989/00306525.2017.1397787.

Martin, R.O., Senni, C., D'Cruze, N., Bruschi, N. (2019) Tricks of the trade—legal trade used to conceal Endangered African Grey Parrots on commercial flights. *Oryx* 53: 213. https://doi.org/ 10.1017/S0030605319000097.

Poole, C.M., Shepherd, C.R. (2017) Shades of grey: the legal trade in CITES-listed birds in Singapore, notably the globally threatened African Grey Parrot *Psittacus erithacus*. *Oryx* 51: 411–417. https:// doi.org/10.1017/S0030605314000234.

TRAFFIC (2017) Overview of important seizures in the European Union January to December 2016.

TRAFFIC (2019) An overview of seizures of CITES-listed wildlife in the European Union. January to December 2017.

TRAFFIC (2020) An overview of seizures of CITES-listed wildlife in the European Union. January to December 2018.

3.1.2 *Cacatua goffiniana*

a)

Name: *Cacatua goffiniana* (Finsch, 1863)

Common name: Tanimbar corella

Norwegian name: Tanimbarkakadu

Look-alike: The species is similar in appearance to the Appendix II species, sulphur-crested cockatoo (*Cacatua galerita*).

Distribution:
Indonesia and Solomon Islands on larger islands (Yamdena, Larat, Selaru) of the Tanimbar Group. Introduced to Singapore, Taiwan and Puerto Rico.

Life history:
There is no information on breeding in the wild. No long-distance movements are reported. Foraging flocks may number up to 300 birds.

Habitat:
Goffin's cockatoos feed in maize fields and roost in both primary and secondary forest.

Role in the ecosystem:
The Goffin's cockatoo is likely a feeding generalist in its natural habitat.

b)

Populations and trends:
The population size was estimated at 100,000-499,999 individuals in 2001 (BirdLife International, 2001) and is decreasing.

c)

Threats and conservation status:
Conservation status:
Near Threatened, assessed in 2018.

Threats:
The main threat is habitat loss due to agriculture, and logging and wood harvesting. The species are persecuted as a crop pest or hunted for food in some areas. Trapping occurs, but the extent is unknown.

d) e) f)

Population surveillance and regulations in the distribution area:
C. goffiniana was included in CITES Appendix I in 1992. This species has not been subject to CITES quotas or trade suspensions. The species has been included in Annex A of the EU wildlife Trade Regulations since 1997. The species has been protected in Indonesia since 1970.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 through to 2019 the number of registered live birds traded for commercial purposes (purpose code T) in the CITES trade database was 48 exports and 58 imports. Most transactions were reported to be captive bred individuals (source code C). There are currently no CITES registered captive breeding facilities for this species. Available information indicates that this species is difficult to breed in captivity (TRAFFIC, 2019).

Illegal:
There is no significant data on illegal trade, but it should be noted that TRAFFIC has assessed the species for potential concerns over mis-use of source code "C" for export (TRAFFIC, 2019). It is also mentioned as one of the Indonesian species being smuggled in and through the Philippines to meet demand for caged birds as pets (https://www.adb.org/sites/default/files/publication/490006/addressing-illegal-wildlife-trade-philippines.pdf)

h)

Overall assessment of data quality
Population estimates are highly uncertain, nearly 20 years old and with a wide range. There is not much information available on the level of illegal trade, but it has been documented.

References:
Basic information (not cited in the text):

BirdLife International (2018) *Cacatua goffiniana*. *The IUCN Red List of Threatened Species* 2018: e.T22684800A131915554. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684800A131915554.en. Downloaded on 31 October 2020.

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Additional literature (cited in the text):
BirdLife International (2001) "Threatened Birds of Asia." In the BirdLife International Red Data Book, 1458–77. Cambridge, UK: BirdLife International.

TRAFFIC(2019) Strengthening CITES Processes for Reviewing Trade in Captive-Bred Specimens and Preventing Mis-Declaration and Laundering: A Review of Trade in Southeast Asian Parrot Species. TRAFFIC.

3.1.3 *Cacatua haematuropygia*

a)

Name: *Cacatua haematuropygia* (Müller, 1776)

Common name: Red-vented cockatoo, Philippine cockatoo

Norwegian name: Filippinerkakadu

Distribution:
The species is endemic to the Phillippines. *C. haematuropygia* used to be widespread but is currently restricted to the Pakawan and Sulu Islands. It may occur in scarce numbers on nearby islands, with fewer than 20 individuals recorded in the Polillo group of islands, Bohol and Samar.

Habitat:
Restricted to lowland and primary and/secondary forest. Outside the breeding season, *C. haematuropygia* can be found in both corn and rice fields.

Life history:
Breeding occurs between January and June, with a clutch size of 2-3 eggs.

Role in the ecosystem:
C. haematuropygia probably contribute as an active seed disperser similarly to other parrot species (Tella et al., 2015).

b)

Populations and trends:
The population is estimated to 650-1,120 individuals. The population size has declined due to habitat loss and capture for the pet trade, but this decline may have halted or is significantly reduced. The species is extinct in much of its historic range, while populations in some protected areas are increasing.

c)

Threats and conservation status:
Conservation status:
Critically endangered, assessed in 2017.

Threats:
Habitat loss seems to be the main threat for this species. It used to be threatened by poaching and capture for the pet trade but these activities seem to have ceased due to very low numbers of birds and conservation efforts. *C. haematuropygia* is also persecuted as a crop-pest and hunted for meat. Typhons are an additional threat to small and declining populations, as well as dry breeding seasons affecting reproductive output.

d) e) f)

Population surveillance and regulations in the distribution area:
C. haematuropygia has been included in CITES Appendix I since 1992 and in Annex A of the EU Wildlife Trade Regulations since 1997.

C. haematuropygia protected by the Wildlife Conservation and Protection Act of the Philippines or Republic Act 9147

The species occurs within some protected areas. Poaching has ceased on Pandanan Island due to implementation of intensive wildlife warden and nest protection scheme. Since 1992 there has been a captive breeding program. During extreme droughts, nestlings have been rescued and supplemental feeding has been given to adult birds in order to mitigate the effects of the drought. Rescued birds have been released on Dumaran to supplement the population, and more translocations will be carried out. Several conservation programs have been initiated, including nest protection schemes and local community involvement.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
There is one CITES registered breeding facility in the Philippines. Between 2010 and 2019 there were 21 exporter reported transactions and 25 importer reported transactions for commercial trade (purpose code T) in the CITES trade database. The majority of the exports were from the Philippines. Before its uplisting to Appendix I, *C. haematuropygia* was subject to CITES significant trade review in 1992.

Illegal:
The species used to be heavily traded in the past but the majority of the trade seems to have ceased with low numbers and conservation measures in place. C. haematuropygia is, however, still mentioned in regard to illegal wildlife trade in the Philippines (see for example (http://pubdocs.worldbank.org/en/997621542735912298/Illegal-Wildlife-trade-brochure-ADBDENR18NovforWEB.pdf, https://dai-global-digital.com/designing-a-wildlife-identification-tool-in-philippines.html, https://www.philippinecockatoo.org/philippine%20cockatoo.htm) .

h)

Overall assessment of data quality
Population size data were recent, but from an unpublished source (in.litt source) listed at the BirdLife International species information sheet, and thus it was not possible to evaluate the methods used for making this estimate. The species is mentioned as still being poached for the pet trade, but data on the extent of this trade was not readily available.

References:

Basic information (not cited in the text):

BirdLife International (2020) Species factsheet: *Cacatua haematuropygia*. Downloaded from http://www.birdlife.org on 29/10/2020

Rowley, I., Kirwan G.M. (2020). Philippine Cockatoo (*Cacatua haematuropygia*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.phicoc1.01

Additional literature (cited in the text):

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

3.1.4 *Cacatua moluccensis*

a)

Name: *Cacatua moluccensis* (Gmelin, 1788)

Common name: Salmon-crested cockatoo, Moluccan cockatoo

Norwegian name: Molukkakadu

Distribution:
C. moluccensis inhabits the Maluku islands Seram and in one locality on Ambon in Indonesia. It is locally common in Manusela National Park and in east Seram. The species was previously found on the islands Saparua and Haruku but there are no recent records from these islands, and it is suspected to be extinct in these areas.

Life history:
Little is known about the species ecology, with seasonality and breeding biology in the wild being virtually unknown. Breeding has been reported to occur during the months of July and August and they nest in trees (Kinnaird et al., 2003). The species' diet comprises seeds, berries, insects and their larvae, and in some areas they are considered pests because they eat domestic coconuts.

Habitat:
C. moluccensis inhabits lowland rainforest up to 1,000 m.a.s.l.

Role in the ecosystem:
C. moluccensis serves as an important distributor of seeds from the trees it is feeding on. According to Rumanta et al. (2019), the decline of *C. moluccensis* may affect the sustainability of the spermatophyta community in the region.

b)

Population and trends:
The population size of *C. moluccensis* is decreasing, due to capture for the cage bird industry and logging. Population size estimates for this species are highly uncertain. The species population size was estimated to 110,385 in 1998 (Kinnaird et al., 2003), whereas in 2007, it was estimated to have decreased to 9,640 birds. It is therefore placed in the range between 10,000 and 99,999 individuals.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2016.

Threats:
C. moluccensis is threatened by trapping and illegal trade for the cage bird industry domestically but also internationally (see section g) on trade). In addition, commercial logging, settlements and hydroelectric projects are resulting in habitat loss and fragmentation. Kinnaird et al. (2003) predicted that half of the population on Seram may be lost to conversion of forest over the next 25 years. Moreover, *C. moluccensis* has been considered a harmful pest to coconut palms, and was persecuted for this reason in the past.

d) e) f)

Population surveillance and regulations in the distribution area:
C. moluccensis has been listed on CITES Appendix I since 1990, a measure that effectively reduced reported international trade in this species. It is listed on Annex A of the EU Wildlife Trade Regulations since 1997.

The species occurs in the Manusela National Park on Seram, however it is unclear what level of protection this contributes to.

g)

Evaluation of legal/illegal trapping and trade:
The species was part of the CITES Significant trade process (i.e., a review of species that are heavily traded and are endangered) in 1986, however this was prior to its uplisting to Appendix I. There are two CITES registered captive breeding facilities for this species, both located in Singapore. Between 2010 and 2019, legal commercial transactions (purpose code T) reported to CITES Trade database were 395 (exporter reported quantity) and 353 (importer reported quantity). The birds were registered as originating from captive breeding, source codes C and D (from CITES registered breeding facilities for CITES Appendix I species).

The species is frequently mentioned as being part of seizures of illegally sourced birds (e.g., TRAFFIC, 2018; Setiyani and Ahmadi, 2020; Budiani and Raharningrum, 2018).

Indonesian parrots often inhabit the remote and forested areas of the Indonesian highlands. A large number of remote ports supports illegal activity and poses challenges for intervention of such activities (Budiani and Raharningrum, 2018). Numerous attempts of smuggling wild-caught parrots from the Indonesian islands located closest to the Philippines (including the

area of distribution for *C. moluccensis*, the Maluku islands) have been prevented, including at least four seizures 462 Indonesian parrots between 2013 and 2017 (TRAFFIC, 2018).

The mis-use of CITES source codes, when wild-caught specimens are being exported as captive-bred, is referred to as laundering. In a report submitted to CITES CoP18 (Geneva, 2019) it was identified that laundering and mis-use of the CITES source code C (captive breeding) is a concern for *C. moluccensis* (TRAFFIC, 2019). Further supporting this concern, is that Budiani and Rharningrum (2020) also note that the experience of breeders of *C. moluccensis* suggest that captive breeding of this species is very difficult.

h)

Overall assessment of data quality
Data on population size are from 1998 and 2007 and are thus considered uncertain. Nevertheless, the significant difference in the two estimates suggests that there has been a population decline. The level of illegal trade is uncertain but the species' presence is documented.

References:
Basic information (not cited in the text):
(BirdLife International (2020) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 17/02/2020)

Additional literature (cited in the text):
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Rumanta, M., Lelloltery, H., Kunda, R.M., Kakisina, P. (2019). Selection of plants species as feed sources and nesting places salmon-crested cockatoo (*Cacatua moluccensis*) maluku endemic in manusela national park (mnp). Advances in Animal and Veterinary Sciences 7(6): 474-479.)

TRAFFIC (2018) Philippine bird trade targets Indonesian species (http://www.traffic.org/home/2018/3/16/philippine-bird-trade- targets-indonesian-species.html)

TRAFFIC (2019) Strengthening CITES processes for reviewing trade in captive-bred Southeast Asian Parrots (https://www.traffic.org/site/assets/files/12341/a_review_of_trade_in_southeast_asian_parrot_species.pdf)

3.1.5 *Cacatua sulphurea*

a)

Name: *Cacatua sulphurea* (Gmelin, 1788)

Common name: Yellow-crested cockatoo, lesser sulphur-crested cockatoo

Norwegian name: Gyllentoppkakadu

Subspecies:

Cacatua sulphurea sulphurea

Cacatua sulphurea citrinocristata

Cacatua sulphurea parvula

Cacatua sulphurea abbotti

Look-alikes: the species is similar in appearance to the Appendix II-listed species greater sulphur-crested Cockatoo (*Cacatua galerita*).

Distribution:
The species is native to Indonesia and Timor-Leste (not a Party to CITES) and has been introduced to Hong Kong and Singapore. The island Sumba is supporting the largest population (subspecies citronocristata). The subspecies abbotti can be found on the Masalembu Besar Island in the Java Sea. The nominate subspecies inhabits the islands Sulawesi, Muna, Butung (although the population in this region is almost extirpated) and Tanahjampea with its adjacent islands. The subspecies parvula inhabits the Lesser Sundas, from Sumbawa to Timor-Leste.

Life history:

C. sulphurea nests in holes in trees, where it also tends to both roost and feed in groups. It lays about 2-3 eggs per clutch. Both parents take care of the incubation and feeding of the chicks.

Habitat:
C. sulphurea inhabits forests, woodland and cultivated landscapes.

Role in the ecosystem:
C. sulphurea role in the ecosystem is not fully known, but it probably distributes plants as it feeds on nuts, seeds, berries and fruits. It can be a prey for birds of prey and its eggs are

targets for the Komodo dragon. It competes with Komodo dragons, other parrots and owls for nesting sites.

b)

Populations and trends:
The global population is estimated at 1000-2499 mature individuals. The population size is decreasing. It has declined extremely rapidly owing to international trade and deforestation within its range, and is now extinct or close to extinction on many islands. Recent surveys (2016) within various parts of the species' range measured 536 individuals on Sumba, 500 on Komodo, 200-300 on Timor Leste, 200-300 on Sulawesi, 20-50 on West Timor, 40-60 on Flores, 50-100 on Sumbawa, 100 on Rinca, and around 700 others in total.

c)

Threats and conservation status:
Conservation status: Endangered, assessed in 2018.

Threats:
The decline of the species is almost entirely due to unsustainable exploitation for internal and international trade. Illegal trapping has been reported to continue in Rawa Aopa Watumohai National Park, Buton and Kadatua islands, while the trapping has been substantially reduced on Sumba. Logging and conversion of the forest to agricultural land have made the decline even worse. The species has been regarded as a crop pest and hunted for that reason. The shift in crops from corn, papaya and other foods to rice have reduced the availability of food for the species. In years with high rainfall, the recruitment seems to be significantly reduced. On the other hand, rainfall has been low in Komodo resulting in fewer water sources.

d) e) f)

Population surveillance and regulations in the distribution area:
C. sulphurea has been on CITES Appendix-I since 2005. It was included in Annex A of EU Wildlife Trade Regulations in 2005. Indonesia imposed zero quota for export of all sub-species of the yellow-crested cockatoo in 1994, following a primary recommendation in the 1992 report of the CITES Animal Committee. No capture, possession or trade is allowed in Indonesia and a species recovery plan is in place and has been partially implemented. Abundance estimates for the citron-crested cockatoo *C. s. citrinocristata*, endemic to Sumba showed a positive effect of the moratorium on parrot abundance (Cahill et al., 2006). The increase is likely to partly owe to habitat protection, awareness-raising and improved law enforcement.

In 2008 *C. sulphurea* was used as a case study for a CITES NDF workshop (CITES, 2008).

The yellow-crested cockatoo is found within national parks in Indonesia (Rawa Aopa Watumohai, Caraente National Parks, Suaka Margastawa Nature reserve, Komodo national park and two national parks on Sumba: Manupeu-Tanadaru and Laiwangi-Wanggameti) and Timor-Leste (Nini Konis Santana National park).

Despite the moratorium on international trade, domestic trade occurs and is attempted prevented by local regulations is some communities. For instance, a project to protect the extremely rare subspecies Abbotti cockatoos (*C. s. abbotti*) on its last resort on the Masakambing Island was launched in 2007 (http://indonesian-parrot-project.org/project-abbotti).

g)

Evaluation of legal/illegal trapping and trade:
There is one CITES registered breeding facility for *C. sulphurea* in Singapore.
For the years 2010-2019 the number of registered live birds traded for commercial purposes (source code T) in the CITES trade database was 373 exports and 187 imports. This included 11 other exporting Parties than Singapore.
Data collected by TRAFFIC reported seizures of 295 *C. sulphurea* since 2010 in Indonesia (275), the Philippines and the United Arab Emirates. It further suggests that wild caught birds have been exported as captive-bred from the Philippines and Singapore. A survey of trade on Facebook in 2018, revealed 119, individual yellow-crested cockatoos, the largest number of any species and a significant increase on previous years (TRAFFIC, 2019). Illegal online trade in Indonesian parrots is an increasing threat (Budanadi and Raharningrum, 2018).

It has also been documented that wild-caught birds are smuggled from Indonesia to the Philippines (TRAFFIC, 2018).

h)

Overall assessment of data quality:
There are recent population estimates available for this species, but the reference to the estimates given in the BirdLife International species fact sheet is an in.litt source (i.e an unpublished record), thus it is not possible to evaluate the methods used for making these estimates. The species' presence in the illegal trade (including poaching, false claims of captive breeding and increasing online trade) is well documented.

References:
Basic information (not cited in the text):
BirdLife International (2018) *Cacatua sulphurea*. *The IUCN Red List of Threatened Species* 2018: e.T22684777A131874695. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684777A131874695.en.

Rowley, I., Sharpe, C.J., Boesman, P.F.D (2020). Yellow-crested Cockatoo (Cacatua sulphurea), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, Christie, D.A. and de Juana, E. Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.yeccoc1.01

Additional literature (cited in the text):

Budiani, I., Raharningrum, F. (2018). *Illegal online trade in Indonesian parrots.* Geneva, Switzerland.

Cahill, A.J., Walker, J.S., Marsden, S.J. (2006) Recovery within a population of the critically-endangered Citron-crested Cockatoo *Cacatua sulphurea citrinocristata* in Indonesia after 10 years of international trade control. *Oryx* 40: 161-167.

CITES (2008) https://www.cites.org/sites/default/files/ndf_material/WG6-CS4.pdf

TRAFFIC (2018) Philippine bird trade targets Indonesian species (http://www.traffic.org/home/2018/3/16/philippine-bird-trade- targets-indonesian-species.html).

TRAFFIC (2019) Strengthening CITES processes for reviewing trade in captive-bred Southeast Asian Parrots (https://www.traffic.org/site/assets/files/12341/a_review_of_trade_in_southeast_asian_parrot_species.pdf).

3.1.6 *Eos histrio*

a)

Name: *Eos histrio* (Müller, 1776)

Common name: Red and blue lorikeet

Norwegian name: Nykaledonialori

Suspecies:
Eos histrio challengeri
Eos histrio talautensis
Eos histrio histrio

Distribution:
The species is confined to the Talaud Island off northern Sulawesi, Indonesia.
E.h. histrio: Sangihe Islands, Indonesia, but probably extinct. *E.h. talautensis:* Talaud Islands, Indonesia. *E.h. challengeri:* Nanusa Islands, Indonesia. Possibly extinct.

Life history:
The species nest in holes in large trees in both forest and cultivated areas. It usually lays two eggs. Breeding period at Talaud is April to May, and on Sangihe November to December.

Habitat:
The species inhabits forests and visits agricultural areas to feed on coconut nectar and various cultivated fruits. The highest densities have been recorded in primary forest, but the species also tolerate secondary forest (Riley, 2003).

Role in the ecosystem:
E. histrio has been observed feeding in coconut (*Cocos nucifera*), *Ficus*, *Canarium*, *Lansium domesticum* and *Syzygium* trees. Diet is reported to include pollen, nectar, fruit and insects. While the role in the ecosystem is unclear, it is likely to assume that the species function as an active seed disperser similarly to other parrot species (Tella et al., 2015).

b)

Populations and trends:
The species was previously thought to be abundant but has declined and is now confined to the Talaud Islands. The population size in 1999 was estimated to between 8,230 and 21,400 birds.

c)

Threats and conservation status:
Conservation status: Endangered, assessed in 2016.

Threats
E. histrio has a very small range which is declining because of ongoing habitat loss. Trade is a significant threat to the species. In addition, loss of forest is a major threat and is perhaps the main reason for its extinction on the Sangihe.

d) e) f)

Population surveillance and regulations in the distribution area:
E. histrio has been listed on CITES Appendix I since 1995, and under the EU Wildlife Trade Regulations Annex A since 1997. The species is a protected species in Indonesia. It is also part of the European Association of Zoos and Aquaria's European Endangered species Programme and Parrot Taxon Advisory Group (Wilkinson, 2000 in BirdLife International) and is bred in captivity (Sweeney, 1998 in BirdLife International, 2020). There are no CITES registered captive breeding facilities for this species.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
Between 2010 and 2019, 161 individuals were reported as exported for commercial purposes in the CITES trade database. The origin of these specimens was captive bred (purpose code C). There is only one registered import reported transaction (in 2015). Most of the transactions occurred in 2013 and there are no registered transactions after 2015.

Illegal:
There are frequent seizures of Indonesian species trafficked to the Philippines, including *E. histrio* TRAFFIC, 2018). For example, in April, 2019, 24 individuals of *E. histrio* were part of a large seizure in Mati City, Philippines (TRAFFIC, 2019). An increasing online marked in the Philippines is also of concern (Budiani and Raharningrum, 2018).

h)

Overall assessment of data quality
The population size estimate is from 1999, which makes it highly uncertain. There is recent documentation for the species' presence in illegal trade (seizures of wild-caught birds).

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Eos histrio*. Downloaded from http://www.birdlife.org on 06/07/2020.

BirdLife International (2016) *Eos histrio*. *The IUCN Red List of Threatened Species* 2016: e.T22684502A93032979. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684502A93032979.en. Downloaded on 13 October 2020.
Additional literature (cited in the text):

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

Budiani, I. and Raharningrum, F. (2018). *Illegal online trade in Indonesian parrots.* Geneva, Switzerland.

Riley, J. (2003) Population sizes and the conservation status of endemic and restricted-range bird species on Karakelang, Talaud Islands, Indonesia. *Bird Conservation International* 13: 59-74.

TRAFFIC (2019) Critically Endangered Echidna among wildlife menagerie seized in Philippines https://www.traffic.org/news/echidna-among-wildlife-menagerie-seized-in-philippines/

TRAFFIC (2018) Philippine bird trade targets
Indonesian species (http://www.traffic.org/home/2018/3/16/philippine-bird-trade- targets-indonesian-species.html).

3.1.7 *Probosciger aterrimus*

a)

Name: *Probosciger aterrimus*

Common name: Palm cockatoo

Norwegian name: Palmekakadu

Subspecies: *Probosciger aterrimus stenolophus*

Probosciger aterrimus goliath

Probosciger aterrimus aterrimus

Distribution:
P. atterimus inhabits Australia and New Guinea (Indonesia and Papua New Guinea). *Probosciger aterrimus stenolophus*: North and East of New Guinea. *Probosciger aterrimus* goliath: West Papuan Islands (except Misool) and *Probosciger aterrimus aterrimus*: Aru Islands, Misool Island, South New Guinea and North East Australia (Cape York)

Life history:
The species breeds between July and March and nests in tree cavities. Pairs are territorial and resident, and pairs may gather in flocks of up to 30 birds when they forage outside their territory. There is usually one egg per nest. Evidence from studies of wild breeding of *P. aterrimus* also suggest that they have one of the slowest life histories of all parrot species, with 81% of nests (N=28) failing to produce a fledgling (Murphy et al., 2003).

Habitat:
In New Guinea, the species inhabits a range of habitats, including rainforest, gallery forest, forest edges and monsoon woodland. The species is most commonly found at altitudes below 750 m.a.s.l. On the Cape York Peninsula, P. atterimus inhabits the fringe zones between lowland monsoon forest and adjacent Eucalyptus woodland. In Australia, the main habitat for the species is woodland.

Role in the ecosystem:

The species feeds on seeds, fruits, nuts, berries and buds. As is the case for many other parrot species, *P.atterimus* is probably an important disperser of seeds (Tella et al., 2015).

b)

Populations and trends:
The population size is unknown. The population is considered to be declining due to habitat loss and unsustainable levels of exploitation for international trade (BirdLife International, 2016).

c)

Threats and conservation status:
Conservation status: Least Concern, assessed in 2016.

Threats:
In New Guinea, logging activities have significantly reduced the lowland rainforest habitat for the species. In Australia, more frequent and also unmanaged fires have been found to destroy nesting trees. In Papua New Guinea, and possibly the Cape York Peninsula, the species is hunted for food, nestlings in particular. Low reproductive rate has been documented in Australia and combined with the high nestling predation rate in Papua New Guinea, the species may be at risk in the long term. The main predators include varanid lizards (Varanus spp.), giant white-tailed rats (*Uromys caudimaculatus*), Black Butcherbirds (*Melloria quoyi*) and amethyst pythons (*Morelia amethistina*).

d) e) f)

Population surveillance and regulations in the distribution area:
P. atterimus was listed in CITES Appendix II in 1975 and transferred to Appendix I in 1987. This species has not been subject to CITES quotas or trade suspensions. Trade is illegal in Australia. There are captive breeding programs in Europe and North America (although none registered CITES Appendix I breeding facilities). The species has been included in Annex A of the EU wildlife Trade Regulations since 1997. The species has been protected in Indonesia since 1970, and no commercial export is permitted in Papua New Guinea and Australia.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 through to 2019, the number of registered live birds traded for commercial purposes (source code T) in the CITES trade database was 113 exports and 179 imports. All transactions were reported to be captive bred individuals (source code C). There are currently no CITES registered captive breeding facilities for this species. Therefore, as pointed out by TRAFFIC (2019), there should not be any international trade for commercial purposes. Available information indicates that this species is difficult to breed in captivity (TRAFFIC, 2019).
Illegal:

The species is much sought after for aviary trade. The Philippines is massively involved in the illegal trade of Indonesian species. Most of the species in demand for the illegal pet trade are thought to be from New Guinea, including *P. atterimus* (TRAFFIC, 2018). Data collected by TRAFFIC show that 105 *P. aterrimus* have been reported seized since 2010 with seizures occurring in Indonesia (52 birds) and the Philippines (53 birds). Data relating to seizures of *P. aterrimus* in the Philippines show that all of the birds seized came from either Indonesia or Papua New Guinea. Moreover, there are strong indications that wild-caught individuals are being sold online in both Pakistan and the Philippines. For example, in Pakistan *P. atterimus* has been offered for sale as untamed adults, often accompanied with photos showing birds in a poor condition, suggesting that they are wild-caught rather than captive bred (TRAFFIC, 2019).

h)

Overall assessment of data quality:
No population estimates are available. Occurrence in illegal trade is well-documented.

References:
Basic information (not cited in the text):
Rowley, I. and G. M. Kirwan (2020). Palm Cockatoo (*Probosciger aterrimus*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.palcoc1.01

Additional literature (cited in the text):
BirdLife International (2016) *Probosciger aterrimus*. *The IUCN Red List of Threatened Species* 2016: e.T22684723A93043662. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684723A93043662.en. Downloaded on 09 October 2020.

Murphy, S., Legge, S., and Heinsohn, R. (2003). The breeding biology of palm cockatoos (*Probosciger aterrimus*): A case of a slow life history. Journal of Zoology. https://doi.org/10.1017/S0952836903004175

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

TRAFFIC (2018) Philippine bird trade targets Indonesian species (http://www.traffic.org/home/2018/3/16/philippine-bird-trade- targets-indonesian-species.html)

TRAFFIC (2019) Strengthening CITES processes for reviewing trade in captive-bred Southeast Asian Parrots (https://www.traffic.org/site/assets/files/12341/a_review_of_trade_in_southeast_asian_parrot_species.pdf).

3.1.8 *Amazona arausiaca*

a)

Name: *Amazona arausiaca* (Müller, 1776)

Common name: Jacquot, red-necked Amazon, red-necked parrot

Norwegian name: Dominicaamazon

Distribution: Dominica, Lesser Antilles.

Habitat:
A. arausiaca mainly inhabits the rainforest canopy at altitudes up to 800 m.a.s.l. (occasionally also to 1,200 m.a.s.l.). The species does also visit coastal areas and there is an increasing number of records from agricultural land.

Life history:
A. arausiaca breeds between February and June. Nesting happens in the cavities of large forest trees, at 11-25 meters above the ground. Clutch size is three, and the species exhibit strong parental care throughout the nestling and post-fledging period, which contribute to an overall high recruitment rate (Reillo and Durand, 2008).

Role in the ecosystem:
A. arausiaca is a pre-dispersal seed predator, and probably contributes as an active seed disperser, similar to other parrot species (Tella et al., 2015).

b)
Populations and trends:
The population size for this species is increasing (Berkunsky et al., 2017). The population was likely down to 150 birds in 1980, between 650 and 800 individuals in 2008 (Reillo and Durand, 2008), and possibly as many 1,200 birds based on more recent population surveys.

c)
Threats and conservation status:
Conservation status: Vulnerable, assessed in 2016.

Threats:
The main threat to this species is habitat loss, with clearance for agriculture being widespread. Commercial small-scale citrus farming is common on Dominica, and parrot frugivory is a problem for some of these farmers, causing conflict situations where parrots have been shot and personal threats have been directed towards the Forestry and Wildlife Park staff (Douglas, 2011).

Hurricanes are also a major threat, with hurricane David in 1979 nearly causing the extinction of the other Dominican parrot *A. imperialis* and significantly reducing the population size of *A. arausiaca*.

Hunting birds for meat and the cage bird trade were important threats to the species in the past but conservation and education programs as well as enforcement of legislation prohibiting such activities have greatly reduced this pressure (Evans, 1991). Nest destruction by poachers and capture for international trade may still be ongoing, although it is only believed to affect a minority of the population and have negligible impact on the population trend (Berkunsky et al., 2017). Nevertheless, illegal trade is a constant concern in the Caribbean (BirdLife International, 2020).

d) e) f)

Population surveillance and regulations in the distribution area:
A. arausiaca has been listed in CITES Appendix I since 1981 and in Annex A of the EU Wildlife Trade Regulations since 1997. Dominica has a government-driven parrot conservation program for its two endemic parrot species *Amazona imperialis* and *A. arausiaca*, which have both increased in numbers. The program serves multiple functions, including monitoring of parrot populations, collection and analyses of parrot biology data, and develop and mitigate strategies for wildlife and habitat protection. The program has been running since 1997, and specialized technology has been developed and deployed to improve monitoring capacity without disturbing the parrots (Reillo and Durand, 2008).

There is a newly initiated captive breeding population in Germany, initiated after some captive parrots had to be transferred from Dominica to Germany after hurricane Maria in 2017 (https://www.act-parrots.org/world-first-captive-breeding-delivers-hope-for-dominican-amazons-supports-decision-to-initiate-ex-situ-safety-net-population/?lang=en).

g)

Evaluation of legal/illegal trapping and trade:
Legal:
There are no records of commercial international trade for *A. arausiaca* in the CITES trade database between 2010 and 2019. Only four transactions are registered. Three of those are for personal purposes and is for one bird only. The most recent one (from 2018) is a reported import of ten live and wild caught birds from Dominica to Germany for captive breeding purposes (an emergency transfer of captive birds backed by the Government of Dominica and the German CITES authority after hurricane Maria in September 2017).

Illegal:
Berkunsky et al. (2017) analyses suggest that there still is ongoing capture of *A. arausiaca* for the international pet trade, however, it is most likely affecting a minority of the populations and is likely to cause negligible declines (Berkunsky et al., 2007, supplementary table A1).

h)

Overall assessment of data quality:
Data on population size are relatively recent. Data on the potential level of illegal trade was not readily available.

References:
Basic information (not cited in the text):

BirdLife International (2020) Species factsheet: *Amazona arausiaca*. Downloaded from http://www.birdlife.org on 19/10/2020

Additional literature (cited in the text):

Berkunsky, I., Quillfeldt, P., Brightsmith, D. J., Abbud, M. C., Aguilar, J., Alemán-Zelaya, U., Masello, J. F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214: 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

Douglas, L.R. (2011) Selecting for conflict? Citrus crop loss and fruit selection by red-necked parrots (*Amazona arausiaca*) on the island of Dominica. In: Social and Ecological Underpinnings of Human Wildlife Conflict on Dominica. PhD-thesis, Colombia University.

Evans, P.G.H (1991) Status and conservation of imperial and Red-necked Parrots *Amazona imperialis* and *A. arausiaca* on Dominica. Bird Conservation International 1:11-32

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

Reillo, P.R., Durand, S. (2008) Parrot Conservation on Dominica: Successes, challenges, and technological innovations. Journal of Caribbean Ornithology 21: 52-58

3.1.9 *Amazona auropalliata*

a)

Name: *Amazona auropalliata* (Lesson, 1842)

Common name: Yellow-naped Amazon, yellow-naped parrot

Norwegian name: Gulnakkeamazon

Subspecies:

Amazona auropalliata auropalliata
Amazona auropalliata caribaea
Amazona auropalliata parvipes

Look-alikes: The species is closely related, and similar of appearance to the Appendix I species yellow-headed Amazon (*Amazona oratrix*) and the Appendix II species yellow-crowned Amazon (*Amazona ochrocephala*).

Distribution:
Native to Mesoamerica from southern Mexico to northern Costa Rica along both the Pacific and Caribbean coasts (Dupin et al., 2020). *A. a. auropalliatya* is found along the west coast from southern Mexico down to north-western Costa Rica, going through Guatemala, El Salvador, Honduras and Nicaragua. *A. a. parvipes* is found to the east on the Caribbean slope in eastern Honduras and north eastern Nicaragua. *A. a. caribea* can be found on the Bay islands Rotan, Guanaja and Barbareta of Honduras.

Life history:
Life-long monogamous species (Lezama-López, 2008). Occur in pairs to large flocks in the wild. In surveys of communal roosts carried out in 2016-2019 in Mexico, Guatemala, Honduras, Nicaragua and Costa Rica, only 17% of the 75 roosts had a size of more than 50 individuals (Dupin et al., 2020), whereas earlier studies reported roosts of up to several hundred individuals (Matzuak and Brightsmith, 2007). Diet includes nuts, berries, seeds and fruit, such as seeds of Cochlospermum, Curatella, figs (*Ficus* spp.) and ripening Terminalia fruits, while race *caribaea* is reported to show a high seasonal dependence on cones of *Pinus caribaea*.

Habitat:
The species inhabits tropical dry forest and lowland mangrove forest.

Role in the ecosystem:
A. auropalliata can act as seed disperser and pollinator (when feeding on flowers). There is some extent of interspecific competition with other large sized herbivores, such as other

parrot species and toucans for food and nesting trees (Lezama-López, 2008). Reptiles prey on the eggs, and small mammals prey on newly hatched nestlings to fully feathered individuals (Lezama-López, 2008).

b)

Population and trends:
The population size of *A. auropalliata* has experienced a dramatic decline across its range for several decades (Wright et al., 2019). BirdLife International (2017) reported a global population size of 20,000-49,999 individuals, but acknowledged great uncertainty regarding population size and suggested that it may be less than 10,000 mature individuals. Berkunsky et al. (2017) quantified current (since ca. 2001) population trends for four populations of the *A. auropalliata*; in Guatemala (Departamento Santa Rosa) and El Salvador populations were reported to have experienced a major decrease (50–80%); in Costa Rica (Provincia de Guanacaste) and Nicaragua (Rivas) minor population decrease (30–50%) was reported.

Wright et al. (2019) conducted roost count surveys during 2016. Their results from Costa Rican populations showed a 54% decline over the past 11 years.

Dupin et al. (2020) reported the first range-wide (Mexico, Guatemala and Honduras) population estimate of 679 birds between 2018 and 2019.

In total, only 2361 *A. auropalliata* were observed in these two surveys conducted from 2016 to 2019 (Dupin et al., 2020); i.e., far less than 10,000 individuals.

c)

Threats and conservation status:
Conservation status:
Endangered, assessed in 2017

Threats:
The two factors thought to be primarily responsible for the decline in *A. auropalliata* populations are conversion of habitat for intensive agriculture and capture for the pet trade (Berkunsky et al., 2017; Wright et al., 2019; Dupin et al., 2020).
They are quite tolerant to humans and this renders them especially vulnerable to the parrot trade (Wright et al., 2019). Logging of trees removes and fragments large portions of suitable habitat, which puts the birds at a higher risk of exposure to humans (Wright et al., 2019). Poaching of *A. auropalliata* removes individuals with future breeding potential; Dahlin et al. (2018) found that nest failure rate was high (89%), and that the most frequent cause of nest failure (64%) was poaching for the pet trade. In all the four populations – from four countries; Costa Rica, Nicaragua, Guatemala, and El Salvador) – included in Berkunsky et al. (2017), poaching for the local pet trade was listed as a continuing threat, affecting the whole

population (<90%) and causing or likely to cause very rapid declines (>30% over 10 years or three generations). For the Guatemalan population, poaching for the international pet trade was reported to represent the same level of threat and severity of impact as the local pet trade (Berkunsky et al., 2017). Poaching activity can destroy the nest site, as poachers often damage the nest tree and/or nest cavity when extracting the nestlings. Nest destruction by poachers was reported to be a continuing threat for the population in Costa Rica, and may cause decline in local populations, but is less severe that direct poaching (Berkunsky et al., 2017).

d) e) f)

Population surveillance and regulations:
The *A. auropalliata* is listed in CITES Appendix-I and protected by law throughout the range states, and parts of their natural habitat have been protected through establishment of national parks and reserves. Recent scientific studies have improved knowledge about population trends and threats (Berkunsky et al., 2017; Wright et al., 2019; Dupin et al., 2020), but long-term, large-scale monitoring programmes have not been established. Dupin et al. (2020) call for immediate conservation action to reverse the population decline and recommend regular monitoring of populations and increased effort to toward habitat and nest protection.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 through to 2019 the number of registered live birds traded commercially (purpose code T) in the CITES trade database was 1,705 exports and 900 imports.

Illegal:
Illegal trade of wild-sourced birds is well documented and ongoing (Berkunsky et al., 2017; Wright et al., 2019; Dupin et al., 2020). Illegal capture for local pet trade is reported to be a current threat to populations of *A. auropalliata* in Costa Rica, Guatemala, Nicaragua and El Salvador, affecting the majority (>50-90%) or the whole (>90%) population, and causing rapid (20-30%) to very rapid decline in numbers (>30% over 10 years or three generations; Berkunsky et al., 2017).

There are currently substantial numbers of *A. auropalliata* held as pets within the countries of Mesoamerica (Wright et al., 2019; Dupin et al., 2020). In some areas in Guatemala, no *A. auropalliata* were detected during roost count surveys, despite available areas of suitable habitat. (Wright et al., 2019). Conversations with local residents revealed that small population size of *A. auropalliata* may be a result of historically high levels of poaching within the region, and that there still exists a market for this species (Wright et al., 2019). Illegal capture for the international pet trade has been reported to be a current threat at least to

one population of *A. auropalliata* in Guatemala, affecting the whole (>90%) population, and causing or likely to cause very rapid declines (>30% over 10 years or three generations; Berkunsky et al., 2017).

h)

Overall assessment of data quality
There are updated data on population size and trends for this species. Evidence of illegal trade is mostly anecdotal.

References:
Basic information (not cited in the text):
BirdLife International (2017) *Amazona auropalliata*. The IUCN Red List of Threatened Species 2017: e.T22686342A118961453. DOI: 10.2305/IUCN.UK.2017-3.RLTS.T22686342A118961453.en.

BirdLife International (2020) Species factsheet: *Amazona auropalliata*. Downloaded from http://www.birdlife.org on 06/04/2020.

del Hoyo, J., Collar, N., Kirwan, G.M., Sharpe, C.J. (2020) Yellow-naped Parrot (*Amazona auropalliata*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. DOI: 10.2173/bow.yenpar1.01.

Additional literature (cited in the text):
Berkunsky, I., Quillfeldt, P., Brightsmith, D.J., Abbud, M.C., Aguilar, J., Alemán-Zelaya, U., … Masello, J.F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287. DOI: 10.1016/j.biocon.2017.08.016.

Dupin, M.K., Dahlin, C.R., Wright, T.F. (2020) Range-wide population assessment of the endangered Yellow-Naped Amazon (*Amazona auropalliata*). Diversity 12: 377. DOI:10.3390/d12100377.

Lezama-López, M. (2008) Proposal for making an NDF based on Apsittacidae recovery program for Nicaragua: the *Amazona auropalliata* case. International Expert Workshop on CITES Non-Detriment Findings Cancun, Mexico, November 17th to 22nd, 2008 NDF workshop case studies WG 6 – Birds CASE STUDY 2 *Amazona auropalliata* Country–Nicaragua.

Metzuak, G.D., Brightsmith, D.J. (2007) Roosting of Yellow-naped Parrots in Costa Rica: estimating the size and recruitment of threatened populations. Journal of Field Ornithology 78: 159-169. DOI: 10.1111/j.1557-9263.2007.00099.x.

Tryjanowski, P., Kosicki, J.Z., Hromada, M., Mikula, P. (2020) The emergence of tolerance of human disturbance in Neotropical birds. Journal of Tropical Ecology 36: 1-5. DOI: 10.1017/S0266467419000282

Wright, T.F., Lewis, T.C., Lezama-Lopez, M., Smith-Vidaurre, G., Dahlin, C.R. (2019) Yellow-naped Amazon Amazona auropalliata populations are markedly low and rapidly declining in Costa Rica and Nicaragua. Bird Conservation International 29:291-307. DOI: 10.1017/S0959270918000114.

3.1.10 *Amazona barbadensis*

a)

Name: *Amazona barbadensis* (Gmellin, 1788)

Common name: Yellow-shouldered amazon, yellow-shouldered parrot

Norwegian name: Gulmaskeamazon

Distribution:
Populations are found in Venezuela and Netherland Antilles more specifically the mainland and the islands La Margaritha, La Blanquilla, Curacao in Venezuela and on Bonaire, Netherland Antilles.

Life history:
A. barbadensis is long lived, with a single breeding attempt per season, producing few offspring and with delayed maturity. Nesting takes place in cavities in trees, cacti or cliffs. Nesting takes place when the dry season ends, with egg laying typically beginning in late March. The average clutch size is 3.38 eggs per nest, with most eggs surviving until hatching.

Habitat: *A. barbadensis* inhabits xerophytic vegetation, and is also frequently using desert shrublands dominated by cacti and low-thorn bushes or trees.

Role in the ecosystem: Probably seed dispersers as the majority of parrots (Tella et al., 2015).

b)
Populations and trends:
Overall, the population size of *A. barbadensis* is in decline, but there are differences between the sub-populations: Bonaire (Netherland Antilles): increasing, with population estimated to contain 400-450 individuals. La Blanquilla: around 100 individuals, no trend in size estimate is available. Lara y Falcón (Venezuela): Moderate decrease (Berkunsky et al., 2017).
Península de Araya (Venezuela): Moderate decrease (Berkunsky et al., 2017).
Isla de Margarita (Edo. Nueva Esparta, Venezuela): Minor decrease (Berkunsky et al., 2017) with the population estimated of about 2,000 individuals.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2017.

A. barbadensis is threatened by habitat destruction and poaching for the pet trade. The severity of these threats varies between populations. Based on Berkunsky et al. (2017, Supplementary tables A1-A5), threats to specific populations are:
Bonaire (Netherland Antilles): small-holder farming, capture for the local pet trade and nest destruction by poachers, invasive species.
Lara y Falcón (Venezuela): Small-holder farming and grazing, energy production and mining, road construction, hunting for food and for traditional ceremonies, Selective large-scale logging, recreational activities and rural population pressure, increase in fire frequency and intensity, and invasive non-native species.
Península de Araya (Venezuela): Small-holder farming, recreational activities and rural population pressure and invasive/non-native species.
Isla de Margarita (Edo. Nueva Esparta, Venezuela): Small-holder farming/small scale logging, recreational activities and invasive alien species.

d) e) f)

Population surveillance and regulations in the distribution area:
The species has been listed on CITES Appendix I since 1981 and on Annex A of the EU Wildlife Trade Regulations since 1997.
A. barbadensis is listed as endangered in Venezuela (Rojas-Suárez and Rodríguez, 2008). The species occurs in several national parks (Morrocoy, Cerro El Copey, Laguna de la Restinga and Washington-Slagbaai National Parks) in Venezuela, and there is also a community conservation area, the Chacaracual Community Conservation Area, initiated by the NGO Provita.
Captive bred birds have been reintroduced to Isla de Margarita, and there has been awareness raising campaigns on the island following the reintroduction. Artificial nests were introduced but were not used frequently and poaching was a problem for these nests. Repairing the natural nesting cavities have proven more successful and the NGO Provita carry out guarding to protect the nestlings from poachers (BirdLife International, 2020; Briceño-Linares et al., 2011).
On Bonaire, awareness campaigns have been ongoing since the late 1990s, combined with research activities. Captive bred birds were released on Bonaire in 2011 and 2012.
There is a species management plan for the Dutch Caribbean (https://www.dcbd.nl/sites/www.dcbd.nl/files/documents/YSAP%20Management%20Plan%20%28FINAL%29.pdf)

g)

Evaluation of legal/illegal trapping and trade:
Legal: There are no CITES registered captive breeding facilities for this species. Between 2010 and 2019, the number of transactions reported as being commercial to the CITES trade database were 52 (exporter reported quantity) and 53 (importer reported quantity). When searching the database for all purpose codes, the code P personal was the most commonly used for transactions. All birds were reported as being captive bred (source code C).

Illegal: Sanchesz- Mercado et al. (2017) conducted a study of the illegal parrot trade in Venezuela, including both domestic and international trade. They reported that *A. barbadensis* is among the species that are traded both internationally and domestically. An analysis of records of illegal trade showed that *A. barbadensis* was among the most frequently detected species.

From Berkunsky et al. (2017) analyses of threats to neotropical parrots, the domestic markets may currently be the most significant illegal markets for *A. barbadensis*. For all four populations, capture for the local pet trade was reported as ongoing, however the scope of the capture varied between populations, from affecting the minority of the population on Bonaire to affecting more than 90% of the population at Lara y Falcón. In regard to capture for international trade, this was not reported a threat for the Bonaire population, whereas it was considered as ongoing or likely to happen in the short –term future for the rest of the populations in Venezuela. However, this threat is most likely negligible to the Margarita population (Berkunsky et al., 2017, Supplementary tables A1-A5).

h)

Overall assessment of data quality
Relatively recent and updated information was available for this species, both in regard to population size and trend and its presence in illegal trade.

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Amazona barbadensis*. Downloaded from http://www.birdlife.org on 18/10/2020.

BirdLife International. 2017. *Amazona barbadensis* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22686325A110628721. https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22686325A110628721.en. Downloaded on 18 October 2020.

Additional literature (cited in the text):
Berkunsky et al., (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287

Briceño-Linares, J.M., Rodríguez, J. P., Rodríguez-Clark, K.M., Rojas-Suárez, F., Millán, P.A., Vittori, E.G., Carrasco-Muñoz, M. (2011) Adapting to changing poaching intensity of yellow-shouldered parrot (*Amazona barbadensis*) nestlings in Margarita Island, Venezuela. Biological Conservation, 144: 1188-1193

Rojas-Suárez, F., Rodríguez, J.P. Cotorra cabeciamarilla, *Amazona barbadensis* J.P. Rodríguez, F. Rojas-Suárez (Eds.), Libro Rojo de la Fauna Venezolana (third ed.), Provita and Shell Venezuela, S.A., Caracas, Venezuela (2008), p. 135

Sanchez-Mercado, A., Asmussen, M., Rodiguez, J.P., Moran, L., Cardozo-Urdaneta, A., Morales., L.I. (2017) Illegal trade of the Psittacidae in Venezuela. Oryx

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

3.1.11 *Amazona brasiliensis*

a)

Name: *Amazona brasiliensis* (Linnaeus, 1758)

Common name: Red-tailed Amazon

Norwegian name: Ildhaleamazon

Distribution: *A. brasiliensis* inhabits the islands of south-eastern São Paulo and eastern Paraná states, Brazil. Despite heavy trapping pressure in the past, the species range has remained more or less the same and is estimated to 10,100 km^2.

Habitat: *A. brasiliensis* uses mangrove and littoral forest areas for breeding and roosting, and migrate to Atlantic forest feeding areas on a daily basis. The majority of feeding occurs below 200 m.a.s.l., but the species has been recorded at altitudes up to 700 m.

Life history: Breeding occurs from late August to early March. *A. brasiliensis* lays up to four eggs in natural tree-cavities. The species is mainly frugivorous.

Role in the ecosystem:
A. brasiliensis is a pre-dispersal seed predator, and probably contributes as an active seed disperser similarly to other parrot species (Tella et al., 2015).

b)

Populations and trends:
The total population size is estimated to between 9,000 and 10,000 individuals. According to BirdLife International, the overall population size for this species is increasing, with both the Paraná and the São Paulo population reported to be increasing in numbers. An increasing population trend is further supported by data from Berkunsky et al. (2017).

c)

Threats and conservation status:
Conservation status:
Near threatened, assessed in 2017

Threats:
A. brasilisensis is threatened by habitat loss (caused by wood and pulp plantations, logging and road constructions; Berkunsky et al., 2017, supplementary table A1) and poaching for the national and international pet trade.

d) e) f)

Population surveillance and regulations in the distribution area:
A. brasiliensis has been included in CITES Appendix I since 1981 and in Annex A of the EU Wildlife Trade Regulations since 1997. In Brazil it is a protected species, however the species is not considered to be of conservation concern at the national level. A. brasiliensis occurs within several protected areas, although these parks are not locally enforced. There are successful captive breeding programs in the EU and in Brazil. Moreover, nesting cavities are being repaired, which has boosted reproductive success. The Red-tailed Amazon Conservation Project is monitoring the population in Paraná.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
Between 2010 and 2019, there were 45 reported exports of *A. brasiliensis* for commercial purposes registered in the CITES trade database. For the same time period there were only 23 registered imports. The majority of the transactions report source code C, captive breeding, however, some also use source code D (captive breeding of Appendix I species in a CITES registered facility) but there are currently no CITES registered breeding facilities for this species.

Illegal:
According to Berkunsky et al. (2017) the species is threatened by capture for the local pet trade and nest poaching. The current level of illegal international trade in this species is unknown (Berkunsky et al., 2017, supplementary table A1) However, in a recent report by TRAFFIC, Charity and Ferreira (2020) assessed the level of wildlife trafficking in Brazil and found that *A. brasiliensis* was among the species that were wild-caught in Brazil and attempted trafficked to Europe. Furthermore, the same study also reported that *A. brasiliensis* was seized for illegal domestic pet trade (Charity and Ferreira, 2020).

h)

Overall assessment of data quality:
There are recent data on population size and trends but the reference given by BirdLife International is an in.litt source (i.e. not published) and thus it is not possible to evaluate the methodology used for making these estimates. The species' presence in the illegal international pet trade is documented.

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Amazona brasiliensis*. Downloaded from http://www.birdlife.org on 20/10/2020

Additional literature (cited in the text):

Berkunsky et al., (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287

Charity, S., Ferreira, J.M. (2020). Wildlife Trafficking in Brazil. TRAFFIC International, Cambridge, United Kingdom.

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

3.1.12*Amazona finschi*

a)

Name: *Amazona finschi* (Sclater, 1864)

Common name: Lilac crowned Amazon

Norwegian name: Lillakroneamazon

Distribution:
The species is endemic to the pacific coast of Mexico, where it used to be widespread, but species range has contracted significantly (72.6% reduction from its original distribution).

Life history:
Renton (2001) found seeds to comprise the majority of *A. finschi* diet (82%), and adapted to seasonal variations in seed availability. Nest sites are located in natural cavities of large mature trees in semi-deciduous forest (Renton and Salinas-Melgoza, 1999). Reproductive success of *A. finschi* is affected by fluctuations in rainfall resulting from El-Niño and La-Niña (Pease et al., 2001). Clutches are usually 1 to 4 eggs, hatching asynchronously. Pease et al. (2012) found that the third-hatched chicks had significantly lower growth and lower probability of survival and there was only one example of a fourth-hacked chick, which died a few days within hatching.

Habitat:
A. finschi occurs in deciduous and semi-deciduous forest along the coast. It also occurs in pine-oak forests up to 2,000 m.a.s.l. The species has low tolerance to human disturbance, and is more often found in conserved than in degraded woodland.

Role in the ecosystem:
A. finschi is a pre-dispersal seed predator, thus making it an important seed disperser of canopy trees (Renton, 2001).

b)

Populations and trends:
There is no recent estimate of the total population size for *A. finschi,* but in 2003, the population was estimated to contain 7,000 to 10,000 individuals. The total population size is probably declining due to massive range contractions.

Based on data from one population, Berkunsky et al. (2017) suggest that the population is decreasing in numbers but that the decrease can be considered as minor (Supplementary table A4).

c)

Threats and conservation status:
Conservation status:
Endangered, assessed in 2018

Threats:
A. finschi is threatened by capture for the domestic and international pet trade, nest destruction by poachers, hunting for food, and habitat loss (Berkunsky et al., 2017, supplementary table A1).

d) e) f)

Population surveillance and regulations in the distribution area:
A. finschi was listed on CITES Appendix I and on Annex A of the EU Wildlife Trade Regulations in 2005. *A. finschi* was part of the CITES Significant trade review in 1993 and in 1986, prior to the Appendix I listing. The Mexican government established a Plan for the Conservation, Protection, Recuperation of Psittacines in Mexico in 1999, where *A. finchi* is considered a priority species- It is considered an Endangered species under Mexican law. In 2008, Mexico banned trade of all native parrots in the country.

There are ongoing studies to evaluate the potential for ecotourism involving *A. finschi* habitat (Berkunsky et al., 2017, Supplementary table A1). There is also ongoing work to strengthen cooperation with Mexican authorities in regard to management and conservation of parrots in Mexico (Berkunsky et al., 2017, Supplementary table A1).

g)

Evaluation of legal/illegal trapping and trade:
Legal:
are no CITES registered captive breeding facilities for this species. Searching the CITES trade database for legal transactions between 2010 and 2019 resulted in 40 transactions reported by the exporter and 139 transactions reported by the importer for T commercial purposes and with the animal reportedly sourced from captive breeding. In addition, 50% of the transactions were reported as P personal use, also reported as of captive origin.

Illegal:
Illegal trade has been a major threat to the native parrots in Mexico (Cantu et al., 2007). The majority of parrots captured in Mexico stay in the country for the domestic trade, however, a small number is also destined for the international market. Mortality throughout

the chain of capture, transportation, distribution and sale is very high, with an estimated 77% of all captured parrots in Mexico dying before even reaching the hands of the consumer (Cantu et al., 2007). Smuggling of *A. finschi* appeared to be increasing in 2007 (Cantu et al., 2007).

More recent data from Berkunsky et al. (2017), although only for one population, suggest that capture for the international pet trade is currently suspended but that it is likely to return in the short-term. Capture for the local pet trade is considered ongoing. When it occurs, capture for international trade is estimated to affect 50-90% of the population, and is likely to cause very rapid declines (>30% over 10 generations/ 3 years). The local trade is believed to affect more than 90% of the population, again with the potential of causing a rapid decline (Berkunsky et al., 2017, supplementary table A1).

h)

Overall assessment of data quality
Population size estimates are more than 10 years old and thus they are not considered reliable due to the ongoing changes in habitat and other threats to this species. The species presence in the illegal wildlife trade is documented until 2007 but no recent data were readily available, thus the situation is uncertain.

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Amazona finschi*. Downloaded from http://www.birdlife.org on 16/10/2020.

Additional literature (cited in the text):
Berkunsky et al., (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287

Cantu, J.C., Sanchez, M.E., Grosslet, M. and Silva, J. (2007) The illegal parrot trade in Mexico: a comprehensive assessment. Defenders of Wildlife/Teyeliz.
Pease, S.M., Salinas-Melgoza, A., Renton, K., Excalante, P., Wright, T.F. (2012) Brood sex ratio of the lilac-crowned Parrot (Amazona finschi). The Wilson Journal of Ornithology, 124: 393-396

Renton, K., Salinas-Melgoza, A. (1999) Nesting behaviour of the Lilac-crowned Parrort. Wilson Bullentin 111: 288-493

Renton, K. (2001) Lilac-crowned parrot diet and food resource availability: resource tracking by a parrot seed predator. The Condor 103: 62-69

3.1.13 *Amazona oratrix*

a)

Name: *Amazona oratrix*, Ridgway, 1887

Common name: Yellow-headed Amazon, Yellow-headed parrot

Norwegian name: Gulhodeamazon

Subspecies:

Amazona oratrix belizensis

Amazona oratrix hondurensis

Amazona oratrix oratrix

Amazona oratrix tresmariae

Look-alikes:
The species is closely related, and similar of appearance to the Appendix I species yellow-naped Amazon (*Amazona auropalliata*), and the Appendix II species yellow-crowned Amazon (*Amazona ochrocephala*).

Distribution:
The subspecies *A. o. belizensis*, is restricted to the central and north-west areas of Belize and Northeastern Guatemala. *A. o. hondurensis* occurs in the easternmost part of Guatemala and Northwestern Honduras. *A. o. oratrix* in lowland Mexico on both Pacific and Atlantic slopes. *A. o. tresmariae* is found on the Tres Marías Islands off the Mexican Pacific coast. It has been introduced to Puerto Rico.

Life history:
A. oratrix nests in cavities in large live and dead trees. *A. oratrix* is not a migratory species, but food deprivation and fire may cause wanderings. On the Tres Marías Islands movements take place between islands, possibly caused by seasonal cues. The birds roost in flocks. The nesting success is only 0.5 fledglings per nest.

Habitat:
The species occupies thorn-forest, savanna, tall deciduous forests and humid woodland in tropical lowlands, up to 500 m.a.s.l.

Role in the ecosystem:

A. oratrix feeds on fruits, both wild and cultivated, and young buds of trees and shrubs. The species serves as food for certain species of reptiles, birds of prey and mammals

b)

Population and trends:
The population has been estimated to about 4,700 mature birds and is decreasing. A decline at about 90% occurred between the 1970s and 1994. More recently, Berkunsky et al. (2017) reported major decrease in number of birds in Mexico.

c), d), e)

Threats and conservation status:
Conservation status:
Endangered, assessed 2018.

Threats:
A. oratrix has suffered extensive loss of habitat. The species is also heavily traded and thousands of individuals are illegally exported from Mexico, and some from Belize, each year. It is also popular at domestic markets in Mexico. Poachers frequently cut down trunks with nest cavities resulting in a declining number of available nest cavity sites. In addition, *A. oratrix* is hunted as a pest, damaging crops, in Belize and for food in Guatemala. Monterrubio-Rico et al., (2010) suggest that the current decreasing distribution of *A. oratrix* cannot be caused solely by habitat loss, and therefore must be due to other factors, such as trapping and poaching of wild birds and eggs for trade.

f)

Population surveillance and regulations:
Conservation actions:
A. oratrix has been included in CITES Appendix I since 2003 when it was up-listed from Appendix II due to high levels of both legal and illegal trade (CITES, 2002). The Philippines is reserved from the Appendix I listing. *A. oratrix* has been included in Annex A of the EU Wildlife Trade Regulations since 2003.
The species is considered endangered under Mexican law. It is also of considered as a species of high extinction risk due to continued illegal capture by a 'Tri-National Vision for Landbird Conservation' among USA, Canada and Mexico (Berlanga et al., 2010).

The species occurs in nine protected areas in Mexico and seven protected areas in Belize. In Guatemala, the one breeding population is found within a wildlife refuge. However, organized crime has made protection of the population difficult. Local military authorities have been reported to be complicit in illegal trade.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
One CITES registered breeding facility exists in Australia.
For the years 2010 to 2019 the number of live birds traded for commercial purposes registered in the CITES trade database was 2103 by exporters and 786 by importers. None of these involved Australia. Wild-caught birds of unknown origin were traded through Guyana in 2010 (30 reported imported by Malaysia) and 2011 (46 reported imported by the United Arab Emirates).

Illegal:
In Mexico, it was estimated that at least 1000 individuals is illegally captured per year, making the species the most frequent parrot seized at the US border ((Berlanga et al., 2010). In 2015, 28 live birds with modified species appearance, destined for Taiwan, were seized at an airport in the Netherlands (TRAFFIC, 2017).

h)

Overall assessment of data quality:
There is no recent population estimate for this species, and thus given the ongoing pressure from habitat loss and other threats, the estimate is considered unreliable. There is recent documentation confirming the species presence in illegal international trade.

References:
Basic information (not cited in the text):
BirdLife International (2018) *Amazona oratrix*. *The IUCN Red List of Threatened Species* 2018: e.T22686337A131919621. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686337A131919621.en. Downloaded on 15 October 2020.

Ruth, J.M. (2020). *Yellow-headed Parrot* (Amazona oratrix), version 1.0. In Birds of the World (T. S. Schulenberg, Editor). Cornell Lab of Ornithology, Ithaca, *NY, USA. https://doi.org/10.2173/bow.yehpar.01*

Additional literature (cited in the text):
Berkunsky, I., Quillfeldt, P., Brightsmith, D. J., Abbud, M. C., Aguilar, J., Alemán-Zelaya, U.

Masello, J. F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214, 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

Berlanga, H., Kennedy, J.A., Rich, T.D., Arizmendi, M.C., Beardmore, C.J., Blancher, P.J., Butcher, G.S., Couturier, A.R., Dayer, A.A., Demarest, D.W., Easton, W.E., Gustafson, M., Iñigo-Elias, E., Krebs, E.A., Panjabi, A.O., Rodriguez Contreras, V., Rosenberg, K.V., Ruth, J.

M., Santana Castellón, E., Vidal, R.Ma., Will, T. (2010) Saving Our Shared Birds: Partners in Flight Tri-National Vision for Landbird Conservation. Cornell Lab of Ornithology: Ithaca, NY.

TRAFFIC (2017) Overview of important international seizures in the European Union January to December 2015.
https://ec.europa.eu/environment/cites/pdf/2015_overview_important_seizures_in_EU.pdf

Monterrubio-Rico, T., Renton, K., Ortega-Rodríguez, J., Pérez-Arteaga, A., Cancino-Murillo, R. (2010). The Endangered yellow-headed parrot *Amazona oratrix* along the Pacific coast of Mexico. Oryx*,* 44:602-609.

3.1.14*Amazona pretrei*

a)

Name: *Amazona pretrei* (Temminck, 1830)

Common name: Red-spectacled Amazon, red-spectacled parrot

Norwegian name: Skjellgranamazon
Look alike: Appendix I species *Amazona tucamana*

Distribution:
A. pretrei breeds in south Brazil and winters further north. Wandering birds occur in Argentina and Paraguay.

Life history:
The species is seasonally migratory. It nests in holes in trees.

Habitat:
The major breeding area appears to be within savannah and open woodland.

Role in the ecosystem:
The diet includes seeds, fruits and flowers. *A. pretrei* plays a role in seed dispersal.

b)

Population and trends:
There exists no estimate of the number of individuals. The population probably decreasing due to ongoing habitat fragmentation and degradation and illegal trade.

c)

Threats and conservation status:
Conservation status:
Vulnerable**,** assessed in 2016.

Threats:
A. pretrei is threatened by habitat loss due to deforestation and trapping. Poachers usually cut down nesting trees also damaging nesting sites.

d),e),f)

Population surveillance and regulations:
A. pretrei was included in CITES Appendix in 1975, and in the EU Wildlife Trade Regulations Annex A in 1997.
Argentina was suspended from export of all live specimens of native species of birds in 2006 (CITES Notif. No. 2006/006).
The species is considered Vulnerable at the national level and protected under Brazilian law, but a very little part of the distribution range is protected.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010-2019, the number of live birds traded commercially (purpose code T) registered in the CITES trade database was 11 by importing and 39 by exporting parties. In the period 2000-2013, *A. pretrei* constituted 76.7% of the parrots exported from Brazil (Ortiz-von Halle, 2018).
Illegal:
According to Berkunsky et al. (2017), nest destruction by poachers is a severe problem. Domestic trade is a major threat (Marini et al., 2010).

h)

Overall assessment of data quality:
No recent population size estimate exists. The role of international trade is unknown.

References:
Basic information (not cited in the text):
BirdLife International. 2016. *Amazona pretrei*. *The IUCN Red List of Threatened Species* 2016: e.T22686251A93104759. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686251A93104759.en. Downloaded on 18 November 2020.

Collar, N., Boesman, P.F.D. (2020). Red-spectacled Parrot (*Amazona pretrei*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA.

Additional literature (cited in the text):
Berkunsky et al., (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287.

Marini, M.Â., Barbet-Massin, M., Martinez, J., Prestes, N. P., Jiguet, F. (2010). Applying ecological niche modelling to plan conservation actions for the Red-spectacled Amazon (*Amazona pretrei*). Biological Conservation, 143(1), 102-112.

Ortiz-von Halle, B. (2018). Bird's-eye view: Lessons from 50 years of bird trade regulation & conservation in Amazon countries. TRAFFIC, Cambridge, UK.

3.1.15 *Amazona rhodocorytha*

a)

Name: *Amazona rhodocorytha* (Salvadori, 1890)

Common name: Red-browed parrot, red-topped Amazon, red-browed Amazon, red-topped parrot

Norwegian name: Flammemaskeamazon

Distribution:
A. rhodocorytha is an east Brazilian endemic, and is confined to remnants of Atlantic Forest below 1,000 m.a.s.l. from Alagoas discontinuously south to São Paulo, in which state it was only discovered in the early 1990s.

Life history:
Breeding season is suggested to be Sept–Nov, as is usual in Atlantic forest birds. Some displacement to mangroves has been observed.

Habitat:
Humid lowland forest and interior highlands to 1000 m.a.s.l.

Role in the ecosystem:
It feeds on fruit, seeds, berries and buds procured in treetops, and has been recorded feeding in papaya, jackfruit, mangoes, cocoa, banana and coffee plantations (Júnior et al., 2008).

b)

Populations and trends:
The Brazilian National Red List (Ministério do Meio Ambiente (MMA) 2014) estimated the total population to consist of less than 10,000 mature individuals. The Rare Species Conservatory Foundation (RSCF), which is actively involved in the conservation of this species, estimates that there are between 600 and 1,700 individuals left in the wild (https://www.rarespecies.org/brazil).
The population is suspected to be in decline due to habitat fragmentation and capture for the national and international pet trade.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2017.

Considered Endangered in Brazil until 2014, it is now classified as nationally Vulnerable (Ministério do Meio Ambiente (MMA) 2014).
Less than 1% of this species original habitat is estimated to remain. The species occurs in small populations that are highly fragmented by chronic deforestation within its range, and gene exchange between many or all of the subpopulations may no longer be possible. Meanwhile, birds are still trapped for local trade, and this now seems to be the principal threat. (Júnior et al., 2008).

d) e) f)

Population surveillance and regulations in the distribution area:
Species placed on CITES Appendix I in 1975. This species has not been subject to CITES quotas or trade suspensions. The species has been included in Annex A of the EU wildlife Trade Regulations since 1997.
A. rhodocorytha is subject to captive breeding and *in-situ* (e.g., field surveys, protection of forests where the species occur outside reserves in Rio de Janeiro, further develop the captive breeding population) recovery efforts by Rare Species Conservatory Foundation (RSCF) (https://www.rarespecies.org/brazil). The RSFC holds a breeding group of 80+ individuals, including second and third generation offspring from parents raised in captivity.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 through to 2019 the number of registered live birds traded for commercial purposes (purpose code T) in the CITES trade database was 42 exports and 6 imports. All transactions were reported to be captive bred individuals (source code C). There are currently no CITES registered captive breeding facilities for this species.

Illegal:
The principal threat to the species is trapping for local trade, but exact data is scarce (Júnior et al., 2008). International illegal trade is continuing threat, and seizures have been made in recent years (Charity, 2020).

h)

Overall assessment of data quality:
There is no information on how the population size estimate was made and on what data underlies it. The species presence in the illegal trade is documented.

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Amazona rhodocorytha*. Downloaded from http://www.birdlife.org on 01/11/2020

Collar, N., Boesman, P.F.D.,Sharpe, C. (2020) "Red-Browed Parrot - *Amazona Rhodocorytha* - Birds of the World." Birds of the World, March.

Additional literature (cited in the text):

Charity, S. (2020) Wildlife Trafficking in Brazil. Translated by Juliana Machado Ferreira. Cambridge, UK: TRAFFIC International.

Júnior, L.K, Neto, P.S., Monteiro, T.V., Ramos (2008) "Mapeamento Da Distribuição e Conservação Do Chauá (*Amazona Rhodocorytha*) No Estado Do Espírito Santo, Brasil." Ornitologia

Ministério do Meio Ambiente (MMA). (2014) "Lista Nacional Oficial de Espécies Da Fauna Ameaçadas de Extinção." Diário Oficial Da União 1 (245)

3.1.16*Amazona vinacea*

a)

Name: *Amazona vinacea* (Kuhl, 1820)

Common name: Vinaceous Amazon, vinaceous-breasted Amazon, vinaceous parrot.

Norwegian name: Vinamazon.

Distribution:
A. vinacea is found in Atlantic forest in Argentina, Brazil, Paraguay. It formerly had a much larger range.

Life history:
A. vinacea nests in cavities in trees. It forms pairs in the breeding season. The rest of the year it gathers in flocks for feeding and roosting. Nothing is known about juvenile or adult survivorship, lifespan, or age at first breeding in the wild.

Habitat:
The species inhabits lowland and highland Atlantic forest. It is most common in parana pine forest.

Role in the ecosystem:
A. vinacea plays a role in seed dispersal. Competition with other hole nesting animals is suspected.

b)

Population and trends:
The number of mature individuals has been estimated at 1,000-2,499. The population size is decreasing. It is uncertain if any subpopulation exceeds 250 individuals.

c)

Threats and conservation status:
Conservation status:
Endangered, assessed in 2017.
A. vinacea is considered nationally Vulnerable in Brazil and Critically Endangered in Argentina and Paraguay.

Threats:
The main threats are continued habitat loss and nest poaching for domestic and international trade.

d),e),f)

Population surveillance and regulations:
A. vinacea has been included in CITES Appendix I since 1975, and in the EU Wildlife Trade Regulations Annex A since 1997.
Argentina was suspended from export of all live specimens of native species of birds in 2006 (CITES Notif. No. 2006/006).Small populations occur in numerous protected areas.
Successful release of 40 individuals seized from trade took place in Brazil in 2011- 2012 (Kanaan and Gleason, 2014).

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010-2019, the number of live birds traded commercially (purpose code T) registered in the CITES trade database was 31 by importing and 100 by exporting parties.

Illegal:
According to Berkunsky et al. (2017), capture for international pet trade is still impacting several populations in Brazil and Paraguay.

h)

Evaluation of data quality:
The population estimates are based on information from the 2000s, and the knowledge of the species ecology limited. There is limited information on the level of trade, both domestic and international.

References:
Basic information (not cited in the text):
BirdLife International. 2017. *Amazona vinacea*. *The IUCN Red List of Threatened Species* 2017: e.T22686374A118954406. https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22686374A118954406.en. Downloaded on 26 October 2020.

Cockle, K.L. and Bodrati, A. (2020). Vinaceous-breasted Parrot (Amazona vinacea), version 1.0. In Birds of the World (T. S. Schulenberg, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.vinpar1.01.

Additional literature (cited in the text):
Kanaan, V.T., Gleason, S. (2014). Monitoring and pair bond formation of rehabilitated vinaceous- breasted parrots (*Amazona vinacea*) released in Araucárias National Park, Brazil. In: Encontro Anual de Etologia e V Simpósio Latino-americano de Etologia, 32., 2014, Mossoró/RN. Anais. Mossoró/RN: Ufersa, p. 69-70

3.1.17 *Amazona viridigenalis*

a)

Name: *Amazona viridigenalis* (Cassin, 1853)

Common name: Red-crowned amazon/parrot, green-cheeked parrot/amazon

Norwegian name: Grønnkinnamazon

Distribution:
A. viridigenalis natural range is restricted to the lowlands of northeastern Mexico, however escaped or released individuals have established feral populations in California, Florida, Texas, on the island of Oahu in Hawaii and in Puerto Rico (American Bird Conservancy, «red-crowned parrot»).

Life history:
The species usually nest in tree cavities, with breeding from March to May and clutches of 2-5 eggs. Diet comprises of fruits from the dominant tree species.

Habitat:
The species is found up to 1,000 m.a.s.l. and inhabits lush areas in arid lowlands and foothills. It has also been observed in mixed landscapes, including agricultural landscapes.

Role in the ecosystem:
With a fruit diet, the species is probably an important seed disperser, like the majority of other parrot species (Tella et al., 2015).

b)

Populations and trends:
Population size estimate from 1992-1994 was at 3,000-6,500 individuals. According to The US Fish and Wildlife Service (USFW, 2010) the population numbers less than 5,000 individuals. Between 1970 and 1994, the population size was recorded as significantly declining (77.4 % over 20 years). The decline is suspected to be continuing at a rate exceeding 50% over ten years.

c)

Threats and conservation status:
Conservation status:
Endangered, assessed in 2018.

Threats:
In the past, loss of forest and habitat degradation due to grazing and farming have caused extensive habitat loss for *A. viridigenalis*. These activities are still occurring and are projected to increase in Mexico. While the species may survive in degraded habitat, the indirect effects of logging, including increased human access to forests, which increases the vulnerability of the species to poaching and often leads to conversion of newly accessible forest to agriculture, appear to be a threat to the species. Illegal trade is also a threat impacting *A. viridigenalis* (USFW, 2011).

d) e) f)

Population surveillance and regulations in the distribution area:
A. viridigenalis was listed on CITES Appendix I and on Annex A of the EU Wildlife Trade Regulations in 1997. The species was part of the CITES Significant trade review in 1992 and in 1986, prior to the Appendix I listing.
The species is listed as Endangered in Mexico. The US Fish and Wildlife Service has placed the species on a candidate list for listing under the Endangered Species Act (https://www.federalregister.gov/documents/2011/10/06/2011-25808/endangered-and-threatened-wildlife-and-plants-red-crowned-parrot)
In October 2008, Mexico passed Article 602 of the General Wildlife Law. The article bans the capture, export, import, and re-export of any species of the Psittacidae (parrot) family whose natural distribution is within Mexico (USFW, 2011).

g)
Evaluation of legal/illegal trapping and trade:
Legal:
There are no CITES listed captive breeding facilities for this species. Very few records of commercial trade are registered in the CITES trade database between 2010 and 2019: 20 exporter reported transactions and 21 importer reported transactions.
USFW (2011) concludes that "Because the majority of the specimens of this species reported in international trade are generically labeled scientific "specimens," or are captive-bred, captive-born, or pre-Convention birds, we have determined that legal international trade controlled via valid CITES permits is not a threat to the species".

Illegal:
The number of live wild birds reported as seized or refused entry into the United States due to lack of CITES certification or WBCA authorization, suggests reason for concern with respect to the illegal trade of the species (USFW, 2011).

In October 2008, Mexico passed Article 602 of the General Wildlife Law. The article bans the capture, export, import, and re-export of any species of the Psittacidae (parrot) family whose natural distribution is within Mexico (USFW, 2011). The USFW (2011) concludes that they are unable to determine whether a decrease has in trade has occurred, and if it did, to what extent. Furthermore, they do not know whether or not such a decrease also pertains to *A.*

viridigenalis. USFW (2011) further concludes that there are inadequate laws and regulations regarding parrot trade in Mexico, with the result that illegal trade (domestic) is considered a threat to *A. viridigenalis.*

h)

Overall assessment of data quality
Thereexists no updated information about population size. The species presence in the illegal domestic wildlife trade is documented, but the extent is uncertain.

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: Amazona viridigenalis. Downloaded from http://www.birdlife.org on 18/11/2020

Additional literature (cited in text):
Cantu, J.C., Sanchez, M.E., Grosslet, M. and Silva, J. 2007. The illegal parrot trade in Mexico: a comprehensive assessment. Defenders of Wildlife/Teyeliz: https://defenders.org/sites/default/files/publications/the_illegal_parrot_trade_in_mexico.pdf

USFW (2011) https://www.govinfo.gov/content/pkg/FR-2011-10-06/pdf/2011-25808.pdf
Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

3.1.18 *Anodorhynchus hyacinthinus*

a)

Name: *Anodorhynchus hyacinthinus* (Latham, 1790)

Common name: Hyacinth macaw, hyacinthine macaw

Norwegian name: Hyasintara

Look-alike: Appendix I species Lear's macaw *Anodorhynchus leari*

Distribution:
The *A. hyacinthinus*, once widely distributed in Brazil, currently occurs in three smaller regions: the north (east Amazonia) and the northeast Brazil, and in the Brazilian, Bolivian and Paraguayan Pantanal. The majority of the individuals are found in Mato Grosso do Sul in the Brazilian Pantanal. A study of the population genetic structure found moderate to high levels of genetic differentiation among the north/northeast of Brazil, the north Pantanal, and the south Pantanal (Presti et al., 2015).

Life history:
A. hyacinthinus is the largest parrot species in the world (Forshaw, 2010). The congeneric *A. leari* (Lear's macaw) is phenotypically similar, but smaller (Forshaw, 2010).

The species breeding period is between July-December and it nests in tree cavities. The most preferred nesting tree in the Pantanal is the manduvi tree (*Streculia apetala)*. The species lay 2 and sometimes 3 eggs.

Habitat:
The three main regions where *A. hyacinthinus* occur differ in vegetation and environmental conditions; in the north, the species inhabits the Amazon rainforest, dominated by dense primary forest (Presti et al., 2015). In the central/northeastern regions of the country, the species occurs in the Cerrado, which is a heterogeneous savannah habitat with scattered trees. While in Mato Grosso and Mato Grosso do Sul, *A. hyacinthinus* inhabits areas dominated by the Pantanal wetlands, a periodically flooded alluvial plain influenced by four major ecosystems: rain forest, Cerrado, Atlantic coastal tropical dry forest, and Chaco inland tropical dry forest (Presti et al., 2015).

Role in the ecosystem:
A. hyacinthinus primarily feeds on nuts of large-sized palm fruits, but is not only a seed predator: Tella et al. (2020) found that *A. hyacinthinus* and the congeneric (*A. leari*) can act as long-distance seed dispersers of six large-fruited palm species. However, due to the

large range contraction of both *A. hyacinthinus* and *A. leari*, this mutualistic interaction between the palm and the large-sized macaw species is functionally extinct over large areas at a continental scale (Tella et al., 2020).

The manduvi tree is strongly dependent on seed dispersal by the tucan species *Ramphastos toco*, and the *R. toco* is also responsible for 53% of the predation on the eggs of the *A. hyacinthinus* (Pizo et al., 2008). Thus, *A. hyacinthinus* is indirectly dependent on its main egg predator for the dispersal of its main nest tree species. *R. toco* can also take over a *A. hyacinthinus* nest and kill the nestlings (Pizo et al., 2008). *A. hyacinthinus* is only one of 17 different bird species that prefer *S. apetala* trees for nesting, in addition to some mammal species and even honeybees, and the inter and intraspecific competition for nest sites is strong.

b)

Population and trends:
In 2003 the total number of wild *A. hyacinthinus* was estimated to be around 6,500 individuals, with about 5,000 in the Pantanal, 1000 in east Amazonia and the Gerais and 200 in Bolivia. Following substantial efforts to reverse the negative population trend, the Brazilian Pantanal population has undergone a recovery since the 1990s (e.g., Scherer-Neto et al., 2017), but the overall population size is still categorized as declining, and (Berkunsky et al., 2017) reports a decrease since 2001 for the Paraguayan population.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2016.

Threats:
Historically, the *A. hyacinthinus* has been one of the most attractive species for the international parrot trade, and in the 1980s, an estimated 10,000 wild individuals were caught and illegally traded (Ortiz-von Halle, 2018). Even though the illegal trade has been substantially reduced since then, poaching for the local and international pet trade is still ongoing, and there is also some local hunting of the species for food or feathers (Berkunsky et al. 2017; Ortiz-von Halle, 2018). The natural habitats of the *A. hyacinthinus* have been – and still are – threatened by deforestation, burning, and transition of natural habitats into pasture for cattle. The cattle have a direct negative impact on the recruitment *S. apetala* (nest) trees as they trample and browse on the seedlings.

A recent study by de Almeida et al. (2019) ascribed the low genetic diversity found for *A. hyacinthinus* to the severe declines in total population size caused by destruction of its natural habitat, capture and illegal trade, and suggested populations of this species may

have suffered recent bottlenecks, from which there has been insufficient time for recovery to previous levels of genetic variability.

d) e) f)

Population surveillance and regulations:
The species has been placed on CITES appendix-I since 1987. It is protected under Brazilian and Bolivian law and banned from export in all countries of its origin.

The populations of *A. hyacinthinus* in the Brazilian Pantanal have been monitored since the 1990s by the Arara-Azul Project, which endeavours to protect and recover the species from a historical low of around 1500 individuals in the late 1980s (Ortiz-von Halle, 2018; de Almeaida et al, 2019). The Arara Azul project has strongly contributed to increased public awareness, and several landowners in the Pantanal have now forbidden trappers on their properties. The *A. hyacinthinus* has been used as an umbrella species for the conservation of the entire Pantanal ecosystem.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 to 2019 the number of live birds traded for commercial purposes (purpose code T) registered in the CITES trade database was 220 by exporters and 109 by importers. According to (Ortiz-von Halle, 2018) 283 specimens of the *A. hyacinthinus* were recorded as exported in the CITES trade database in 2000-2013, with the Philippines accounting for most of the exports with 166 birds (59%), while there were no registered exports from the species range countries: Brazil, Bolivia and Paraguay. For the years 2014-2019, a total of 197 specimens (>95% live birds) were exported

Illegal:
Illegal trade is still going on, even though the volume has been substantially reduced since the 1980s (Berkunsky et al. 2017; Ortiz-von Halle, 2018). Illegal capture for the local pet trade, nest destruction by poachers, and illegal hunting for food, still occurs in some populations (Berkunsky et al., 2017). The extent of live-capturing for the international pet trade is unknown (Berkunsky et al. 2017). Smuggled eggs of *A. hyacinthinus* have been confiscated in airports on the way to Europe (Portugal) (Ortiz-von Halle, 2018). Studies of population genetic structure of the *A. hyacinthinus* has enabled identification of the probable origin of live-caught chicks confiscated within Brazil, and these results fits with a suspected animal trafficking route that begins in northeastern Brazil and crosses the border into Bolivia (Presti el al., 2015).

h)

Overall assessment of data quality
Overall population estimate is from 2003, and thus may no longer be reliable. The species presence in the illegal trade is documented.

References:
Basic information (not cited in the text):

BirdLife International (2020) Species factsheet: *Anodorhynchus hyacinthinus*. Downloaded from http://www.birdlife.org on 01/04/2020.

Collar, N., P. F. D. Boesman, and C.J. Sharpe (2020). Hyacinth Macaw (Anodorhynchus hyacinthinus), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D.A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.hyamac1.01

Additional literature (cited in the text):

Berkunsky, I., Quillfeldt, P., Brightsmith, D.J., Abbud, M.C., Aguilar, J., Alemán-Zelaya, U., … Masello, J.F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287. DOI: 10.1016/j.biocon.2017.08.016.

de Almeida, T.R.A. Presti, F.T., Cruz, V.P., Wasko, A.P. (2019) Genetic analysis of the endangered Hyacinth Macaw (Anodorhynchus hyacinthinus) based on mitochondrial markers: different conservation efforts are required for different populations Journal of Ornithology (2019) 160: 711-720. DOI: 10.1007/s10336-019-01652-z.

Ferreira da Silva, G. Presti, F.T. Rechetelo, J., Guedes, N.M.R., Wasko, A.P., Donatelli, R.K. (2019) Hyacinth Macaw (*Anodorhynchus hyacinthinus*) nests in a mosaic of protected areas in Carajás and surrounding areas, state of Pará, Brazil. Revista Brasileira de Ornitologia 27: 187-194. DOI: 10.1007/BF03544469.

Forshaw, J.M. (20110) Parrots of the World; Christopher Helm: London, UK.

Ortiz-von Halle, B. (2018). Bird's-eye view: Lessons from 50 years of bird trade regulation & conservation in Amazon countries. TRAFFIC, Cambridge, UK.

Pizo, M.A., Donatti, C.I., Guedes, N.M.R., Galetti, M. (2008). Conservation puzzle: Endangered hyacinth macaw depends on its nest predator for reproduction. Biological Conservation 141: 792-796. DOI: 10.1016/j.biocon.2007.12.023.

Presti, F.T., Guedes, N.M.R., Antas, P.T.Z., Miyaki, C.Y. (2015) Population genetic structure in hyacinth macaws (*Anodorhynchus hyacinthinus*) and identification of the probable origin of confiscated individuals. Journal of Heredity 106: 491-502. DOI: 10.1093/jhered/esv038.

Tella, J.L., Hiraldo, F., Pacífico, E., Díaz-Luque, J.A., Dénes, F.V., Fontoura, F.M., Guedes, N., Blanco, G. (2020) Conserving the diversity of ecological interactions: the role of two threatened macaw species as legitimate dispersers of "megafaunal" fruits. Diversity 12:45. DOI:10.3390/d12020045

3.1.19 *Anodorhynchus leari*

a)

Name: *Anodorhynchus leari,* Bonaparte, 1856

Common name: Lear's macaw or indigo macaw

Norwegian name: Indigoara
Look alike: Appendix I species hyacinth macaw (*Anodorhynchus hyacinthinus*)

Distribution:
Lear's macaw occurs in the interior of northeastern Brazil in the northeastern parts of Bahia state (Toca Velha and Serra Branca, S of the Raso da Catarina plateau) (Dickinson and Remsen, 2013).

Life history:
The species is sedentary. Breeds Oct–Jan. Nests in fissures in cliffs; Incubation in captivity lasts 28 days or more. The clutch size is two eggs. Pacifico et al. (2014) report that out of 75 breeding attempts monitored in the wild in 2009–2010, 80% were successful with on average 1.33 fledglings per breeding attempt and 1.67 fledglings per successful nest.

Habitat:
Xeric shrubland and thorn forest vegetation (Caatinga) with stands of licurí palm (*Syagrus coronata*) and pastures, plus the proximity of sandstone cliffs for nesting and roosting.

Role in the ecosystem:
As is the case for many other parrot species, it probably disperses seeds (Tella et al., 2015). It forages in trees and on the ground, largely for licurí palm nuts, but also Melanoxylon, (*Atropha pohliana*) Dioclea (*Spondias tuberosa*) Zea mays (*Schinopsis brasiliensis*), Agave flowers and maize (da Silva Neto and de Sousa, 2012).

b)

Populations and trends:
In 2018, the population was estimated to be 1,694 individuals (ICMBio, 2018). However, only 20.3% of individuals are found to be reproductively active (Pacífico et al., 2014).
The species was previously thought to be extinct in the wild as a result of trapping, but was rediscovered in 1978. Following rediscovery, the wild population size estimates remained fairly stable until the mid 1990s, after which numbers began to increase rapidly. This population increase is ascribed at least in part to intensive conservation efforts (BirdLife International, 2019).

c)

Threats and conservation status:
Conservation status:
Endangered, assessed in 2019

Threats:
Historical decline has been attributed to habitat clearance for agriculture, hunting and trapping (Lima, 2014). Post rediscovery, the main limiting factors to population increase are believed to be limited food resources, especially licurí (Brandt and Machado, 1990; Lugarini et al., 2012). Licurí palm-stands formerly covered 250,000 km2 but have been vastly reduced by land clearing for subsistence cultivation of maize, beans and cassava and for large-scale livestock grazing (Lugarini et al., 2012). The threat of live-capture for trade, both domestic and international, continues, but has been significantly reduced (Lugarini et al., 2012).

d) e) f)

Population surveillance and regulations in the distribution area
A. leari was listed in CITES Appendix I in 1975. This species has not been subject to CITES quotas or trade suspensions. The species has been included in Annex A of the EU wildlife Trade Regulations since 1997.

g)

Evaluation of legal/illegal trapping and trade
Legal:
For the years 2010 through to 2019 a total of 48 exports and 82 imports of live birds were registered in the CITES trade database. Most were traded for breeding in captivity, zoo or science (purpose codes B, Z, S), including species from the wild or confiscated (source codes W and I). No live birds were traded for commercial purposes (purpose code T). Berkunsky et al. (2017) stresses that international trade could become a problem as the wild population increases.

Illegal:
Barbosa et al. in Lugarini et al. (2012) identify poaching for illegal trade as one of the main causes of removal of individuals from the wild. Berkunsky et al. (2017) reports a moderate domestic illegal pet trade.

h)

Overall assessment of data quality
The population size estimate is recent, and can thus be expected to be relatively reliable. There is no available information that documents the species presence in the international wildlife trade.

References:
Basic information (not cited in the text):
Collar, N., P. F. D. Boesman, C.J. Sharpe, G. M. Kirwan, Garcia, E.F. J. (2020). Indigo Macaw (*Anodorhynchus leari)*, version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.indmac1.01

Additional literature (cited in the text) :
Berkunsky, I., Quillfeldt, P., Brightsmith, D.J., et al. (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214, pp. 278–287.

BirdLife International (2019) *Anodorhynchus leari.* The IUCN Red List of Threatened Species 2019. [Online]. Available at: https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22685521A141364064.en [Accessed: 1 November 2020].

Brandt, A., Machado, R.B. (1990) Área de alimentação e comportamento alimentar de Anodorhynchus leari. Ararajuba, pp. 57–63.

Dickinson, E.C., Remsen, J.V. (2013) The Howard and Moore complete checklist of the birds of the world. 4th ed. Eastbourne, United Kingdom: Aves Press.

ICMBio (2018) Censo contabiliza 1.700 araras-azuis-lear. (Accessed: 08/01/2019). Chico Mendes Institute for Biodiversity Conservation.

Lima, P.C. (2014) O Status ecológico da Arara-Azul-de-Lear. Revista Brasileira de Direito Animal 2(2).

Lugarini, C., Barbosa, A.E.A., Oliveira, K.G. (2012). Plano de Ação Nacional para a Conservação da Arara-azul-de-lear. 2a Edição. Brasilia, Brazil: Instituto Chico Mendes de Conservação da Biodiversidade.

Pacífico, E.C., Barbosa, E.A., Filadelfo, T., Oliveira, K.G., Silveira, L.F., Tella, J.L. (2014) Breeding to non-breeding population ratio and breeding performance of the globally Endangered Lear's Macaw Anodorhynchus leari : conservation and monitoring implications. Bird conservation international 24(4), pp. 466–476.

da Silva Neto, G.F. and de Sousa, A. (2012) Novas informações sobre a dieta da arara-azul-de-lear, *Anodorhynchus leari* Bonaparte, 1856 (Aves, Psittacidae).

Tella, J.L., Baños-Villalba, A., Hernández-Brito, D., et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13(6), pp. 338–33

3.1.20 *Ara ambiguus*

a)

Name: *Ara ambiguus* (Bechstein, 1811)

Common name: Great green macaw

Norwegian name: Gladiatorara

Suspecies:

Ara ambiguus ambiguus
Ara ambiguus guayaquilensis

Look alike: Almost identical to the CITES Appendix I species military macay (*Ara militaris*).

Distribution:
A. ambiguous is distributed in Nicaragua, Costa Rica, Panama, Colombia, Honduras and Ecuador. The nominate subspecies occur from Honduras to north-west Colombia. Subspecies *guayaquilensis* occurs in Ecuador, Colombia, Nicaragua, Honduras and Costa Rica. The estimated extent of ocurrence is 1,100,000 km^2.

Life history:
It breeds in June-November and nests in cavities of dead *Cavanillesia plantanifolia* trees (data from south-western Ecuador).

Habitat:
A. ambiguus inhabits humid and wet lowland and dry deciduous forest (in south-western Ecuador). It also occurs in edge habitats and crosses open areas. The species is mainly found below 600 m.a.s.l. but occasionally also up to 1,500 m.a.s.l.

Role in the ecosystem:
No specific information about the role of *A. ambiguus*, however, parrots have a role as seed dispersers in their ecosystem (Tella et al., 2015).

b)

Populations and trends: The global population is estimated to less than 2,500 mature individuals. The current (as of 2012) population in Ecuador was suspected to be 30-40 individuals, whereas the southern Nicaragua-northern Costa Rica population held an estimated 1,530 individuals in 2009. The largest subpopulation, which is found in north-west Colombia, is estimated at less than 1,700 mature individuals. Berkunsky et al. (2017) lists the following population trends.
Nicaragua: Increasing

Ecuador: Moderate decrease
Costa Rica: Stable
Honduras: Moderate decrease
No information on the population trend in Colombia.

c)
Threats and conservation status:
Conservation status:
Endangered, assessed in 2016.

Threats:
Annual deforestation rates are high throughout the species range, and significant portions of *A.ambiguus* habitat has been lost (e.g., >30% of original range in Panama, 90% lost over the past 100 years in Costa Rica and Ecuador). Subspecies *guayaquilensis* has largely been extirpated by urbanization, agriculture and is also reportedly shot as a crop-pest. In addition, there is illegal capture for trade (mostly domestic, food and feathers).

d) e) f)

Population surveillance and regulations in the distribution area:
A. ambiguus has been listed in CITES Appendix I since 1985 and in Annex A of the EU Wildlife Trade Regulations since 1997. It is part of the European Association of Zoos and Aquaria's European Endangered Species Program (EAZA). There are important reserves in all Range States. The species' stronghold is in the Darién Biosphere Reserve, Panama, and adjacent Los Katíos National Park, Colombia. There are various local conservation efforts in the Ranges States, from habitat restoration to the creation of corridors between forest fragments.

g)
Evaluation of legal/illegal trapping and trade:
Legal:
Between 2010 and 2019, 104 individuals were reported to the CITES trade database as exported for commercial trade (purpose code T), whereas only 41 individuals were reported as imported for commercial purposes. All individuals but one were registered as being captive bred (Source code C, captive breeding). It is important to note that there are no CITES registered captive breeding facilities for this species.

Illegal:
Berkunsky et al. (2017) analysed current threats to *A. ambiguus* populations, and according to their results, nest poaching is ongoing in both Ecuador and Honduras, affecting the majority of the population and causing rapid declines. In Ecuador, there is also ongoing capture for the local pet trade, also affecting the majority of the population and causing rapid declines. For Nicaragua, capture for the international pet trade is considered to have halted and only affecting the minority of the population (Berkunsky et al., 2017,

Supplemetary table A1). International seizures of *A. ambiguus* has occurred. For example, the species was among the highly valuable parrots seized in the Czech Republic in 2010 (Czech Environmental Inspectorate, 2010).

h)

Overall assessment of data quality:
Some of the population size estimates given by the BirdLife International species text account were fairly recent (2012), but are in.litt sources (i.e. not published material) and thus it is not possible to evaluate the quality of these data. No recent seizure data were found but the species presence in the international illegal trade is documented (from 2010).

References:
Basic information (not cited in the text):
BirdLife International (2020) Species factsheet: *Ara ambiguus*. Downloaded from http://www.birdlife.org on 19/10/2020

Additional literature (cited in the text):
Berkunsky et al., (2017) Current threats faced by Neotropical parrot populations. Biological Conservation 214: 278-287

Czech Environmental Inspectorate, 2010. CITES news – Prague.

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

3.1.21*Ara macao*

a)

Name: *Ara macao* (Linnaeus, 1758)

Common name: Scarlet macaw

Norwegian name: Rødara

Subspecies:

Ara macao cyanopterus
Ara macao macao

Distribution:
Belize; Bolivia, Brazil; Colombia; Costa Rica; Ecuador; French Guiana; Guatemala; Guyana; Honduras; Mexico; Nicaragua; Panama; Peru; Suriname; Trinidad and Tobago; Venezuela. Introduced in Puerto Rico. Extinct in El Salvador.
Subspecies *Ara macao cyanopterus* occurs in South East Mexico and East Nicaragua.
Subspecies *Ara macao macao* occurs in Costa Rica, South Panama, and Northern and Eastern Colombia though to Venezuela and the Guinas to central Brazil, and to East Ecuador, East Peru and North East Bolivia.

Life history:
Little is known about the life history and ecology of this species, but reproduction is apparently slow and breeding season varies with the latitude, rainy seasons and availability of fruits. The species lays one to two eggs inside natural cavities. The diet consists of fruit, seeds, leaf shoots, flowers and sometimes insects.

Habitat:
Ara macao occurs in tropical evergreen and riparian forest from southern Mexico to Brazil. The species is found from sea level up to 1,000 m.a.s.l.

Role in the ecosystem:
Like most parrots, *A. macao* is probably an important seed disperser (Tella et al., 2015).

b)

Populations and trends:
There is no global population estimate available. In Central America the subspecies *cyanopterus* is estimated at c. 4000. It now mainly confined to one area in Belize and Mexico, and extinct in most of Guatemala, Honduras and Nicaragua. It is extinct in El Salvador. On the Caribbean side the population is estimated to 1,000 to 1,500 individuals, distributed in Honduras. In addition, there is a population in eastern Nicaragua. Total

number of this subspecies is estimated to approximately 4,000. The total population trend is believed to be decreasing.

c)

Threats and conservation status:
Conservation status: Least Concern, assessed in 2016.
Threats: Habitat destruction and trapping for the pet trade.

d) e) f)

Population surveillance and regulations in the distribution area:
A. macao has been included in CITES Appendix I since 1985. This species is subject to CITES national export quotas in Suriname since 1997 with annual exports of 100-133 live specimens. The species has been included in Annex A of the EU wildlife Trade Regulations since 1997.

There is a conservation initiative in Carara Biological Reserve in Costa Rica, which involves education programs for the local community, community development with ecotourism, and research. Furthermore, in Peru, nest boxes have been successful in improving reproductive output.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010 through to 2019, the number of registered live birds traded for commercial purposes (purpose code T) in the CITES trade database was 1415 exports and 206 imports. Most transactions were reported to be captive bred individuals (source code C), 1270 exports and 138 imports. However, trade for commercial purposes (purpose T) of wild individuals (source W) from Surinam was also common with 141 exports and 61 imports, although far below the annual trade quota. There are currently no CITES registered captive breeding facilities for this species, and source code D was only used for 8 transactions in the last 10 years.

Illegal:
The IUCN Red List assessment for *Ara macao* identifies the species as being used locally for handicrafts and food, and as pets mainly internationally (BirdLife International, 2016). Demand for scarlet macaws as pets has reached such unsustainable levels that the birds are suffering steep declines in some regions. Many birds destined for the pet trade die during capture and transport (US FWS, 2020). In Guatemala, wildlife traffickers are responsible for the illegal trafficking of 70 % of the scarlet macaws, according to estimates by the WCS (Soberanes, 2018). In a survey of national trade in Peru in 2007-2008, 34 specimens were found for sale in four market places (Gastañaga et al., 2011).

h)

Overall assessment of data quality
There is not much information about ecology and life history for this species, and no population size estimate for subspecies *Ara macao macao*. Information on illegal trade is scarce, but there is information available confirming its presence on the illegal market.

References:
Basic information (not cited in the text):

BirdLife International (2020) Species factsheet: *Ara macao*. Downloaded from http://www.birdlife.org on 01/11/2020

Collar, Nigel, Peter F. D. Boesman, and Chris Sharpe. 2020. "Scarlet Macaw - Ara Macao - Birds of the World." Birds of the World, March.

Additional information (cited in the text):

BirdLife International (2016) "Ara Macao. The IUCN Red List of Threatened Species." https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22685563A93079992.en.

Gastañaga, M., R Macleod, B., Hennessey, J. U., Núñez, E., Puse, A., Arrascue, J., Hoyos, W. M., Chambi, Vasquez, J., Engblom, G. (2011) "A Study of the Parrot Trade in Peru and the Potential Importance of Internal Trade for Threatened Species." Bird Conservation International 21 (1): 76–85. doi:10.1017/S0959270910000249.

Soberanes, R. (2018) "Scarlet Macaws Stalked by Wildlife Traffickers in Guatemala." Mongabay, December.

US FWS (2020) "Scarlet Macaws. US Fish & Wildlife Service International Affairs." https://www.fws.gov/international/scarlet-macaws.html.

3.1.22Ara militaris

a)

Name: *Ara militaris* (Linnaeus, 1766)

Common name: Military macaw

Norwegian name: Soldatara

Subspecies:
Ara militaris mexicanus
Ara militaris militaris
Ara militaris bolivianus

Look alike:
The species is almost identical to the great green macaw (*Ara ambiguus),* which is a CITES Appendix I species.

Distribution:
Bolivia, Columbia, Ecuador, Mexico, Venezuela.
Likely extinct: Argentina, Guatemala.
The range is extensive, but fragmented.

Life history:
The species undertakes seasonal movements for feeding. Nesting trees can contain multiple pairs.

Habitat:
A. militaris inhabits forest and gallery woodland, 600–2600 m.a.s.l. Its roost- and nest-sites are found in cliffs and trees.

Role in the ecosystem:
The species has a narrow but variable diet during the year consisting mainly of seeds, but also fruits and leaves.

b)

Population and trends:
The number of mature individuals has been estimated to 2,000-7,000 (in 2016) and is decreasing.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2016.

Threats:
Main threats are continued habitat loss and persistence of illegal domestic and international trade.

d), e), f)

Population surveillance and regulations:
A. militaris has been included in CITES Appendix I since 1987, and in the EU Wildlife Trade Regulations Annex A since 1997.
Argentina was suspended from export of all live specimens of native species of birds in 2006 (CITES Notif. No. 2006/006).

A. militaris is legally protected in Venezuela, Peru and the Salta province of Argentina. A trade ban in Mexico was decreed in October 2008. The species occurs in several reserves throughout its range, but the largest populations in Mexico are not found within protected areas.

Two genetically distinct groups, that should be considered as separate conservation units, have been described in Mexico (Rivera-Ortíz et al., 2016).

A. militaris is listed as a species of high Tri-National Concern (Canada, Mexico and USA) in a program for land bird conservation (Berlanga et al., 2010).
The species is listed as Endangered on the US Endangered Species Act (Federal Register 2015), banning sale across state borders and restricting transport across state borders.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
For the years 2010-2019, the number of live birds traded commercially (purpose code T) registered in the CITES trade database was 36 by importing and 266 by exporting parties.

Illegal:
Live birds were seized during a house search in Austria in 2016 (TRAFFIC, 2017). Eggs had been smuggled from Brazil to Portugal where they hatched. The live parrots were then transported with falsified documents and rings. In 2018, one live bird destined for Morocco was detected at a maritime port in Spain (TRAFFIC, 2019).

According to Berkunsky et al. (2017), capture for international pet trade is still impacting several populations in Mexico and Peru.

h)

Overall assessment of data quality:
Population size estimates are from 2016 but the reference given by BirdLife International is an in.litt source (i.e. unpublished) so it is not possible to evaluate the methods used to obtain the estimates. The species presence in the illegal international pet trade is documented by seizure data.

References:
Basic information (not cited in the text):

BirdLife International (2016) *Ara militaris*. *The IUCN Red List of Threatened Species* 2016: e.T22685548A93079238. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22685548A93079238.en. Downloaded on 25 October 2020.

Collar, N., Boesman, P.F.D., Sharpe, C.J. (2020). Military Macaw (*Ara militaris*), version 1.0. In Birds of the World (del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A., de Juana, E. Editors).
Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.milmac.01

Additional literature (cited in the text):
Berlanga, H., Kennedy, J.A., Rich, T.D., Arizmendi, M.C., Beardmore, C.J., Blancher, P.J., Butcher, G.S., Couturier, A.R., Dayer, A.A., Demarest, D.W., Easton, W.E., Gustafson, M., Iñigo-Elias, E., Krebs, E.A., Panjabi, A.O., Rodriguez Contreras, V., Rosenberg, K.V., Ruth, J. M., Santana Castellón, E., Vidal, R.Ma., Will, T. (2010) Saving Our Shared Birds: Partners in Flight Tri-National Vision for Landbird Conservation. Cornell Lab of Ornithology: Ithaca, NY

Berkunsky, I., Quillfeldt, P., Brightsmith, D. J., Abbud, M. C., Aguilar, J., Alemán-Zelaya, U., Masello, J. F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214, 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

Rivera-Ortíz, F.A., Solórzano, S., Arizmendi, M.D.C., Dávila-Aranda, P., Oyama, K. (2016) Genetic diversity and structure of the Military Macaw (*Ara militaris*) in México: implications for conservation. Tropical Conservation Science 10: 1940082916684346.

TRAFFIC (2017) Overview of important seizures in the European Union January to December 2016.
https://ec.europa.eu/environment/cites/pdf/reports/2016_overview_significant_seizures.pdf

TRAFFIC (2020) An overview of seizures of CITES-listed wildlife in the European Union. January to December 2018. https://www.traffic.org/site/assets/files/12745/eu-seizures-report-2020-final-web.pdf

3.1.23 *Ara rubrogenys*

a)

Name: *Ara rubrogenys*, Lafresnaye, 1847

Common name: Red-fronted macaw

Norwegian name: Rødøreara

Distribution:
A. rubrogenys is endemic to a small area of the east Andean slope of south-central Bolivia.

Life history: The species nests and roost mainly on steep cliffs, but with a small population breeding in palms (Rojas et al., 2014). Egg-laying occurs in February and March, and pairs commonly fledge one or two, and occasionally three offspring annually.

Habitat: *A. rubrogenys* inhabits subtropical, xerophytic thorny scrub habitats at 1,000-2,700 m.a.s.l. and sometimes as high as 3,000 m.a.s.l (Rojas et al., 2014).

Role in the ecosystem:
A. rubrogenys is most likely an important seed-disperser (Tella et al., 2015).

b)

Populations and trends:
The population is estimated to number at most 600 individuals, with a more precautionary estimate based on currently-breeding individuals resulting in as few as 134-272 mature individuals (A. Rojas, F. Hiraldo and J. L. Tella in litt. 2012, in Birdlife International, 2020). The population trend is decreasing.

c)

Threats and conservation status:
Conservation status: Critically Endangered, assessed in 2018.
Threats: *A. rubrogenys* habitat is considered among the most threatened ecosystems of the world (Tella et al., 2013). In addition to habitat loss, the species is also by persecution as a crop pest species and illegal capture for the pet trade.

d) e) f)

Population surveillance and regulations in the distribution area:

A. rubrogenys was listed on CITES Appendix I in 1983 and on Annex A of the EU Wildlife Trade Regulations in 1997.
The species is considered nationally Critically Endangered in Bolivia, and thus it is prohibited to capture, transport and export it under Bolivian law. The Armonia Red-fronted Macaw program is working to protect the species by empowering indigenous communities. The program has created a protected area for the largest Red-fronted Macaw breeding colony in the wild, with the help and support of indigenous communities (http://armoniabolivia.org/programs/red-fronted-macaw/)

g)

Evaluation of legal/illegal trapping and trade:
Legal:
There are no CITES registered captive breeding facilities for this species. Searching the CITES trade database for legal transactions between 2010 and 2019 resulted in 114 individuals reported as exported and 28 individuals reported as imported for T commercial purposes and with the animal reportedly sourced from captive breeding (source code C).

Illegal:
The species is present in the illegal bird trade market. Herrera and Hennessy (2007), in a study of illegal pet trade in Los Pozos pet market in Santa Cruz, Bolivia, found that both adults and chicks of *A.rubrogenys* were present and traded both locally and internationally. Overall, they found that most of the purchased birds remained within Bolivia, while the more expensive and threatened species frequently head to Peru, and some individuals may also reach Europe (e.g. *A. rubrogenys* seized from traffickers in Spain, Diaro de Leon, 2006).

Tella et al. (2013) found 45 Red-fronted macaws in private homes after sampling a small proportion of the villages within the species distribution area, and stated that this local demand for pets was previously overlooked and its impact seemed greater than the illegal trade in large cities. Berkunsky et al. (2017) suggests that the species is mainly affected by the local trade and nest poaching (Berkunsky et al., 2017, supplementary table A1).
h)

Overall assessment of data quality
There are no recent data on population size, and the available estimates are made from extrapolation of partial censuses. The current population size is thus unknown. The species presence in the local pet trade is well documented.

References:
Basic information (not cited in the text):

BirdLife International (2020) Species factsheet: *Ara rubrogenys*. Downloaded from http://www.birdlife.org on 25/11/202.

Additional literature (cited in the text):
Berkunsky, I., Quillfeldt, P., Brightsmith, D. J., Abbud, M. C., Aguilar, J., Alemán-Zelaya, U., Masello, J. F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214: 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

Diario de Leon (2006) La Guardia Civil desarticula una banda dedicada al trafico de aves protegidas, 9 de Octubre de 1999. Madrid.

Herrera, M., Hennessey, B. (2007) Quantifying the illegal parrot trade in Santa Cruz de la Sierra, Bolivia, with emphasis on threatened species. Bird conservation International 17: 295-300

Rojas, A., Yucra, E., Vera, I., Requejo, A., Tella, J. (2014). A new population of the globally Endangered Red-fronted Macaw *Ara rubrogenys* unusually breeding in palms. Bird Conservation International, 24(3), 389-392. doi:10.1017/S095927091200038X

Tella, J.L., Rojas, A., Carrete, M., Hiraldo, F. (2013) Simple assessments of age and spatial population structure can aid conservation of poorly known species. Biological Conservation 167: 425-434, https://doi.org/10.1016/j.biocon.2013.08.035.

3.1.24 *Guaruba guarouba*

a)

Name: *Guaruba guarouba* (Gmelin, 1788)

Common name: Golden parakeet, golden conure

Norwegian name: Gullparakitt

Distribution:
G. guarouba is endemic to the Brazil where it can be found south of the Amazon river north of the Brazilian shield. The total range covers 340,000km^2, but the population is fragmented and information on local abundance and distribution of populations throughout the range is limited (U.S. Fish and Wildlife Service, 2018).

Life history:
The majority of groups are non-migratory, but seasonal movements are suspected to occur in parts of the range. The species is very social and, unlike most large parrots, engages in communal brood-rearing.

Habitat:
G. guarouba occupies primary and secondary lowland rainforest. Small groups (averaging 10 individuals) roost and nest inside cavities of high and isolated trees in open areas near the continuous forest. Flocks reuse the same trees several years in a row.
Role in the ecosystem:

The species eats fruits of wild and cultivated plants and plays a role in seed dispersal. The diet appears to vary seasonally and throughout its distribution area. *Ramphastos* toucans are reported to be the main predators of the eggs and nestlings of golden parakeets, while raptors may be important predators of adults.

b)

Population and trends:
The current population estimate is 6,600 – 13,400 mature individuals, which is higher than previously believed (<2,500 individuals). The population is decreasing.

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2018.

Threats:
The main threats to the golden parakeet include habitat loss and fragmentation, due to the continuous deforestation and infrastructure development. The species is highly prized as an aviary bird and has been extensively trapped for both the domestic and international pet trade. There are mixed reports regarding the degree to which illegal capture from the wild is still occurring. The species also has suffered from hunting and persecution by indigenous people or farmers.

d), e), f)

Population surveillance and regulations:
G. guarouba has been listed in CITES Appendix I since 1975. It has been included in Annex A of the EU Wildlife Trade Regulations since 1997
The golden parakeet is considered "Vulnerable" at the national level in Brazil and is found in numerous protected areas. Captive breeding programs in Brazil have helped to limit poaching of wild birds.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
There is one CITES registered breeding operation for *G. guarouba* in the Philippines and one in the UK. For the years 2010-2019 the number of live birds traded commercially (purpose code T) registered in the CITES trade database was 200 by importing and 928 by exporting parties.

Illegal:
In 2016 live birds were seized during a house search in Austria (TRAFFIC, 2017). Eggs had been smuggled from Brazil to Portugal where they hatched. The live parrots were then transported with falsified documents and rings.
According to Berkunsky et al. (2017), the majority of the population is still negatively impacted by past, international and domestic pet trade.

h)

Overall assessment of data quality:
The population estimates are based on data from the 2000s, and thus given the continuous habitat loss and other threats affecting this species, these estimates are considered uncertain. While the current extent of illegal trade is unclear, the species presence in the international wildlife trade is documented by seizure data.

References:
Basic information (not cited in the text):

BirdLife International (2018) *Guaruba guarouba*. *The IUCN Red List of Threatened Species* 2018: e.T22724703A132029835. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724703A132029835.en. Downloaded on 18 October 2020.

Laranjeiras, T.O. (2020). Golden Parakeet (*Guaruba guarouba*), version 1.0. In Birds of the World (T. S. Schulenberg, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.golpar3.01)

Additional literature (cited in the text):
Berkunsky, I., Quillfeldt, P., Brightsmith, D. J., Abbud, M. C., Aguilar, J., Alemán-Zelaya, U., Masello, J. F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214, 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

TRAFFIC (2017) Overview of important seizures in the European Union January to December 2016.
https://ec.europa.eu/environment/cites/pdf/reports/2016_overview_significant_seizures.pdf
U.S. Fish and Wildlife Service (2018). Species status assessment report for Golden Conure (*Guaruba guarouba*), 63pp.

3.1.25 *Primolius couloni*

a)

Name: *Primolius couloni* (P.L. Sclater, 1876)
Look alike: *Primolius maracana,* that is also a CITES Appendix I species.

Common name: Blue-headed macaw

Norwegian name: Blåhodeara

Distribution:
The species is found in eastern Peru, the extreme western Brazil, and in the Northwest of Bolivia.

Life history:
Parts of the population moves seasonally in response to food availability. The species has a very low reproductive rate.

Habitat:
The species lives in the edge of humid lowland evergreen forest along rivers, and can also be found in the outskirts of towns. The habitat spans from lowlands to 1,550 m.a.s.l.

Role in the ecosystem:
Little information exists, the species is probably an important seed dispersers like most parrots (Tella et al., 2015).

b)

Population and trends:
The population has been estimated at between 9,200-46,000 mature individuals and is decreasing. The species is estimated to lose 30% of the population over the next three generations due to habitat loss and trapping (Tobias and Brightsmith, 2007).

c)

Threats and conservation status:
Conservation status:
Vulnerable, assessed in 2018.

Threats:
Habitat loss is a potential threat as the species range is threatened by expansion of the logging industry, as well as mining and drilling for gas. International trade is presumably an increasing threat (Berkunsky et al., 2017).

d) e) f)

Population surveillance and regulations:
P. couloni has been included in CITES Appendix I since 2003 when it was uplisted from Appendix II due to increase in both legal and illegal trade (CITES, 2002). The Philippines holds a reservation from the Appendix I listing.
P. couloni has been included in Annex A of the EU Wildlife Trade Regulations since 2003.
P. couloni occurs in several protected areas in Bolivia, Brazil and in Peru, around 20% of the species range falls within protected areas.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
One CITES registered breeding facility exists in the USA and one in Singapore.
For the years 2010 to 2019 the number of live birds traded for commercial purposes (purpose code T) registered in the CITES trade database was 127 by exporters and 29 by importers. 7 of these were from the US under source code D, none from Singapore.
The species is common in markets in Brazil, and in high demand since it is perceived to be rare.

Illegal:
According to data presented by Berkunsky et al. (2017) several of the Peruvian populations are, and will continue to be, impacted by capture for the international pet trade.

h)

Overall assessment of data quality:
The population estimate is very wide and was obtained in 2007, thus it is highly uncertain. The species presence in illegal trade is documented.

References:
Basic information (not cited in the text):

BirdLife International. 2018. *Primolius couloni*. *The IUCN Red List of Threatened Species* 2018: e.T22685593A132058374. https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22685593A132058374.en. Downloaded on 12 October 2020.

Collar, N., Boesman, P.F.D., Sharpe C.J. (2020). Blue-headed Macaw (*Primolius couloni*), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.buhmac1.01).

Additional literature (cited in the text):
Berkunsky, I., Quillfeldt, P., Brightsmith, D.J., Abbud, M.C., Aguilar, J., Alemán-Zelaya, U., Masello, J.F. (2017). Current threats faced by Neotropical parrot populations. Biological Conservation, 214, 278–287. https://doi.org/10.1016/j.biocon.2017.08.016

CITES (2002) Proposal to amend the Appendices: blue-headed macaw (*Ara couloni*): https://speciesplus.net/api/v1/documents/584

Tella, J.L. et al. (2015) Parrots as overlooked seed dispersers. Frontiers in Ecology and the Environment 13: 338-339. DOI: 10.1890/1540-9295-13.6.338

Tobias, J., Brightsmith, D.J. (2007). Distribution, ecology and conservation status of the Blue-headed Macaw *Primolius couloni*. Biological Conservation. 139:126–138.

3.1.26 *Primolius maracana*

a)

Name: *Primolius maracana* (Vieillot, 1816)
Look alike: *Primolius couloni,* that is also a CITES Appendix I species.

Common name: Blue-winged macaw

Norwegian name: Rødbukara

Distribution:
P. maracana inhabits the Marajó island, Pará, and most of Brazil to Paraná and adjoining parts of Paraguay. There are no recent records from Misiones, Argentina and it is thought to be virtually extinct in the country**.**

Life history:
In Brazil, breeding has been reported to occur from December through February, however a study from Serra de Santana reports breeding between December and May (Pichorim et al., 2014), thus indicating that the timing may vary among sites. There is not much information concerning brood size for this species. However, interviews conducted by Pichorim et al. (2014) suggested that brood size was 2.

Habitat:
P. maracana is a habitat generalist and is found in a broad range of evergreen and deciduous forest habitats, including mangrove, semi-deciduous and humid, Atlantic and Cerrado savanna. The species can be found up to 1,000 m.a.s.l.

Role in the ecosystem:
P. maracana feeds on seeds, such as *Cnidoscolus phyllacanthus*, *Jatropha* spp. and *Guazuma ulmifolia***.** Like many other parrot species, it is probably an important seed-disperser (Tella et al., 2015).

b)

Populations and trends:
There is no recent estimate of population size, the one given by BirdLife International 2020 (1,500-7,000 mature individuals) is from year 2000.
Argentina: Extreme decrease, and absent since 2001 (Berkunsky et al., 2017).
Paraguay: Extreme decrease (Berkunsky et al., 2017)
Brazil: Widespread but in decline

c)

Threats and conservation status:
Conservation status:
Near threatened, assessed in 2018.

Threats:
Population decline is only partly caused by deforestation, since the species also has disappeared from localities with suitable habitat. Capture for the pet trade is also a threat. According to Berkunsky et al. (2017) the population in Paraguay is threatened by habitat destruction, caused by logging and farming. The most probable reason for its disappearance in Argentina is persecution as a pest species.

d) e) f)

Population surveillance and regulations in the distribution area:
P. maracana has been listed in CITES Appendix I since 1990 and in Annex A of the EU Wildlife Trade Regulations since 1997.
In Brazil, some areas considered as stronghold for the species are largely protected or are not under strong pressure.

g)

Evaluation of legal/illegal trapping and trade:
Legal:
Between 2010 and 2019, 157 individuals were reported as exported for commercial trade (purpose code T), whereas 32 individuals were reported as imported for commercial purposes. All individuals were registered as being captive bred (Source code C, captive breeding). There are no CITES registered captive breeding facilities for this species.

Illegal:
Wild-caught individuals of *P. maracana* have been found in captivity in Brazil (Pichorim et al., 2014).

h)

Overall assessment of data quality
The most recent population estimate is from the year 2000 and is thus highly uncertain. The species presence in the illegal pet trade is not well documented.

References:
Basic information (not cited in the text):

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4 Conclusions (with answers to the terms of reference)

The main threats to parrots in all geographic regions are habitat destruction, fragmentation and loss. The IUCN conservation status for some species may not accurately reflect the current situation because the information about population status and trends is out-dated or missing. This is partly due to the challenges of collecting field data for assessment against the Red List criteria. Updated information is pending for several species and changes in population size estimates and conservation statuses can be expected in the next few years. Given the ongoing habitat loss for most parrot species, VKM considers population size estimates that are based on data published more than ten years ago to be uncertain.

23 of these 26 species assessed by VKM have been traded for commercial purposes since 2010. However, only nine of these species are currently bred in CITES- registered captive breeding operations and can thus be traded under the CITES source code D.

The majority of trade transactions for commercial purposes are registered using source code C (i.e., bred in captivity). In our assessment we found, however, that several authors warn for the mis-use of source code C for laundering of wild-caught birds.

There were discrepancies between import and export records in the UNEP-WCMC trade database for all of the 23 species in commercial trade. This highlights the importance of checking for inconsistencies in the prior use of source and purpose codes before issuing import and export permits for Appendix I parrot species.

The illegal pet trade, mainly domestic, but also international, is also a significant threat to many parrot species. The level and nature of this trade varies significantly among geographic regions and among countries (see section 1.3 for a further description on this matter). The Internet plays an increasingly important role in international trade of parrots and both digital and manual surveillance systems will be required to detect illegal transactions.

Due to the continuing and increasing threat to several of these parrot species, the different implementation of CITES resolutions in source, transit and destination countries, the limited registration of commercial Appendix-I captive breeding operations and the potential up-listing of new parrot species to Appendix I, this assessment should be updated at the latest by 2025.

Data gaps

- Updated data on population size and trends are missing for many species.
- The dynamics between captive breeding and poaching pressure on wild populations is understudied.
- For most species, there are substantial discrepancies in the trade data reported from importing and exporting Parties (see table 3.1-2). The widespread inaccuracies could be due to permitting issues and time lag in exports, but could also disguise illicit trade.

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