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PROPOSAL FOR THE INCLUSION OF THE PERUVIAN PELICAN *(Pelecanus thagus)* IN APPENDICES I AND II OF THE CONVENTION

Summary:

The Governments of Chile, Ecuador, Panama and Peru have submitted the attached proposal* for the inclusion of the Peruvian Pelican *(Pelecanus thagus)* in Appendices I and II of CMS.

*The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CMS Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

PROPOSAL FOR THE INCLUSION OF THE PERUVIAN PELICAN *(Pelecanus thagus)* IN APPENDICES I AND II OF THE CONVENTION

A. PROPOSAL

Inclusion of the Peruvian Pelican (*Pelecanus thagus*) in Appendices I and II of CMS

B. PROPONENT

Republic of Peru, Republic of Chile, Republic of Ecuador and Republic of Panama

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class Aves
1.2 Order Pelecaniformes
1.3 Family Pelecanidae
1.4 Species *Pelecanus thagus* Molina, 1782
1.5 Scientific synonyms *Pelecanus occidentalis*
1.6 Common name(s):
Spanish: Pelícano Peruano, Pelicano de Humboldt, Alcatraz
English: Peruvian pelican
French: Pélican thage

2. Overview

The *Pelecanus thagus* (Peruvian Pelican) (Molina, 1782) is a seabird endemic to the Humboldt Current Ecosystem. Together with the *Leucocarbo bouganvilliorum* (Guanay Cormorant) (Lesson, 1837) and *Sula variegata* (Peruvian Booby) (Tshudi, 1843) they make up the group known as “guano birds”, as they are the guano-producing species on the islands.

While guano birds are the most abundant species along the Peruvian coast, the Peruvian Pelican is the least abundant of the three species (Meza, et al., 2020; Murphy, 1954). However, it has also shown population fluctuations over the years due to environmental changes in the marine ecosystem (Jahncke, 1998), and anthropogenic activities taking place within it (Goya, 2000).

In the early 1950s, the population of guano birds in Peru suffered a significant decline in size due to the development of industrial fishing, which was the main competitor for these species. It was seen that over the years the stock continued to decline as the anchoveta catch increased. However, it was in 1965 during El Niño that the guano bird population declined by more than 76% (Goya, 2000).

Although the guano bird population tried to recover, it did not reach previous numbers (Goya, 2000). Guidelines for the management of guano exploitation were also established during this period (Cushman 2005). During El Niño 1997-1998, the guano bird population was again hit, causing a decline in population numbers that to date has not been reversed (Jahncke, 1989).

The current situation shows that the population size of the Peruvian Pelican has decreased by 99.2%, comparing what was observed in 1973 (340,000 specimens) by Tovar (1983) and what was recorded in 2023 (2,412 specimens) (AGRORURAL, 2023a).

The estimated population range for 2023 was between 2,862 – 8,315 specimens (non-breeding and breeding) (Romero et al., 2023). The maximum value (8,315 specimens) for this range corresponds to the difference between the total number of adult specimens reported prior to their decline due to the H5N1 virus and the total number of dead specimens recorded by SENASA (2023), SERFOR (2023) on the coast, and by AGRORURAL (2023b) in their colonies. At the same time, the lower limit (2,862 specimens) corresponds to the number of adult specimens in their colonies, as recorded in the February 2023 census carried out by Agrorural.

Threats to this species emerged in the past and are currently not fully understood and are not reversible. These include: natural events such as El Niño, anthropogenic threats such as overfishing, competition with fisheries, over-exploitation of guano, direct capture, bycatch, and the effect of diseases such as avian flu. For all these reasons, this species is classified as Critically Endangered.

2. Migration

3.1 Kinds of movement, distance, the cyclical and predictable nature of the migration

The Peruvian Pelican (*Pelecanus thagus*) mainly inhabits the area of influence of the Humboldt Current Ecosystem (HCE), with colonies on islands and points along the coastline (Peru-Chile). During breeding, it is known that they can move within a radius of 41 km in search of food (Zavalaga et al., 2011), so this species tends to move relatively close to the islands it inhabits under normal conditions.

The HCE is characterized by a system of currents associated with coastal upwellings favored by the trade winds (Morón 2000), making it one of the most productive marine ecosystems (Chavez et al., 2008), with the Peruvian Anchoveta (*Engraulis ringens*) as a key species (Espinoza and Bertrand, 2008), and this is the main prey of guano birds, including pelicans (Guillen, 1990).

Macroscale anomalies such as the El Niño-Southern Oscillation (ENSO), can drastically change its characteristics through warm and cold cycles marked by events known as El Niño and La Niña respectively, causing an alteration in the balance of conditions that characterize the ecosystem (Morón 2000), bringing changes in the distribution of the Peruvian Anchoveta, leading to guano birds showing changes in breeding successes and/or changes in their distribution in search of prey.

During these recurrent anomalous cycles of variable intensity, it can be seen that, at the extremes, guano birds, including pelicans, move to Ecuador, and they have concentrated and extended their distribution in Chile following the movement of the anchoveta. This is known from ringed specimens found in Ecuador but coming from Lobos de Tierra Island, Lambayeque (northern Peru) in 1941 (Vogt, 1942). In addition, in 1965 (moderate El Niño) pelicans were seen to move as far as Guayaquil, and a significant number of deaths were observed on the beaches (Fuentes, 1965).

In 1953 (weak Niño) (Avila, 1953), an increase in guano bird populations was observed in northern Chile, which included pelicans, and a significant number of deaths were recorded on the beaches. In 1982, Peru was observed to be devoid of guano bird populations (Tovar and Cabrera 1983). During the 1997-1998 El Niño (extraordinary El Niño), it was observed that nesting sites in northern Peru were abandoned, and the population moved south (Jancke, 1998). El Niño events are recurrent phenomena that can occur with a certain frequency every one, two or even 10 years, and can be episodes of low or high intensity (Quinn et al., 1978).

3.2 Proportion of the population migrating, and why that is a significant proportion

Displacements occurring during events such as El Niño or La Niña depend on the magnitude of the event itself. In events such as those in 1982-1983, when almost the entire population in Peru was affected, it disappeared from Peruvian territory due to displacement and death, the latter being observed on the beaches (Tovar and Cabrera, 1985). During El Niño 1997-1998, the populations on Macabí and Guañape islands (La Libertad) and Mazorca (Lima) were the ones showing a decrease and migrating southwards, leading to an increase in the colonies on Punta Coles (Moquegua). During the 2017 coastal El Niño, only the populations of the Macabí and Guañapes islands were affected (Romero, pers. comm.)

3. Biological data (other than migration)

4.1 Distribution (current and historical)

Distribution in Peru

The Peruvian Pelican is a resident species of the Humboldt Current ecosystem (Peru - Chile). In our country it can be found mainly in the north, from Foca Island, Piura (5°12'S) (Figueroa and Stucchi 2012) to the border with Chile, with its last breeding site in Punta Coles, Ilo (17°S) in Peru (Zavalaga, 2011).

4.2 Population (estimates and trends)

Monthly counts conducted on the islands and at guano points along the Peruvian coast have shown a declining trend in Peruvian Pelican populations in recent decades. A significant decline was observed during the 1960s due to industrial fishing and as an effect of El Niño events in the Humboldt Current Ecosystem (Furness, R. W. and Monaghan, 1987: Goya, 2000).

Counts made during the first months of 2023 (AGRORURAL, 2023b) indicate that the Peruvian population of Peruvian Pelicans stands at 2,412 specimens, including within this count both breeding and non-breeding specimens, which is 99.2% fewer specimens than in 1973 (Tovar, 1983), when a total of 340,000 Peruvian Pelicans were recorded along the Peruvian coast.

4.3 Habitat (short description and trends)

Peru

It inhabits the sphere of influence of the Humboldt Current ecosystem, comprising continental and insular areas, which are used as resting and breeding sites.

Its presence in the sea is associated with areas of high primary productivity in summer and with its breeding grounds (Cursach et al., 2019), with food obtained from within the first two meters of the water column (Vogt 1942). In February 1986 and April 1987, dietary studies were carried out on Macabi Island, with the Anchoveta (sizes 14.0 - 18.5 cm) found to be its main food, in addition to Sardine, Horse Mackerel and Jack Mackerel, through an evaluation of their regurgitates (Guillen, 1990).

Regarding its breeding habitat, on the islands and points where it nests, it locates its colonies on flat areas (Koepcke, 1964), apparently on sites which are not steep (Cocker, 1919), with slopes of less than 4º being recorded (Duffy, 1983). These areas show high temperatures and are not strongly influenced by winds (Vogt, 1942). On some occasions they have been observed beyond the area immediately adjacent to the coast, spreading inland (SERNANP 2016). In addition, it can be seen resting in various areas on the Peruvian coast (beaches, wetlands).

4.4 Biological characteristics

Large seabird with a bulky body, broad wings and a long bill with the characteristic gular pouch, which remains hidden when perching. The adult is dark-bodied with white coverts, in basic (non-breeding) plumage, with yellowish head and white neck, and in alternate (breeding) plumage with the same head coloring, but with a black neck. The juvenile is dark-bodied with a white belly (Jaramillo, 2003; Schulenberg et al., 2010).

They breed in large colonies on islands and points off the Peruvian coast (Schulenberg et al., 2010). Their reproductive strategy depends on the availability of their main food, the Anchoveta (*Engraulis ringens*) (Magurran et al., 2010). Generally, the onset of the breeding season coincides with the lowest availability of their prey, so this ensures that when the young grow up and become independent there is a greater availability of food, which gives them a better chance of survival (Passuni et al., 2018). Research using geo-transmitters has shown that during their reproductive period they make feeding trips of up to 82.82 km from the island (Zavalaga et al., 2011).

Egg-laying can take place at any time of the year, but is more frequent during the southern spring and summer (Nelson, 2005), beginning in mid-September with colony occupation and courtship (Zavalaga, 2015). Specimens interact aggressively during the occupation of nesting areas, sometimes usurping nests (Duffy, 1983) with a pre-laying attention period of 14 days (Passuni, 2016).

For the nest, it uses nearby material such as feathers or branches and guano, in order to provide greater support, and lays between 1 to 4 eggs. (Figueroa & Stucchi, 2012, Passuni, 2016). Its peak laying season is between mid-November and early December (Zavalaga, 2012). The incubation period is 37 days (Passuni, 2016). Most chicks hatch between late December and early January, with the chick care period taking 80 days (Passuni, 2016). Towards the end of April, adults and juveniles disperse to other locations, returning to the colony in September (Zavalaga, 2015); Passuni et al., 2016). The post-fledging care period lasts 30 days (Passuni, 2016).

During the last decade, variations have been reported that move the reproductive onset from July to March, which could be due to a variation in the abundance of their food as a result of environmental and anthropogenic factors (Barbraud et al., 2018; Passuni et al.,2018).

4.5 Role of the taxon in its ecosystem

The Peruvian pelican is at the top of the ECH food web and is therefore considered an apex predator, i.e. it is an ecosystem integrator, indicating changes occurring in the other trophic levels through its biology.

In addition, it is important to mention that guano bird droppings, including pelican droppings, represent an important source of nutrients such as nitrogen and phosphorus, through a process called guano eutrophication (Signa et. al., 2021). This process stimulates primary production, which sustains primary producers and would have a“*bottom up*” effect on other components within the Humboldt ecosystem (Signa et., 2021).

5. Conservation status and threats

5.1. IUCN Red List Assessment

This species is included on the global red list as (NT - Near Threatened) under criterion A2cd, according to BirdLife International (2018).

5.2 Equivalent information concerning the assessment of conservation status

In the 2018 Peruvian regional assessment, it is classified as EN Endangered (Serfor 2018). In the updated regional assessment conducted in 2023, the species is listed as CR (Critically Endangered) according to IUCN criteria (Romero et al., 2023).

5.3 Threats to the population (factors, intensity)

1. Climate change and severe weather

Oceanographic Variations and the El Niño Southern Oscillation (ENSO)
Variations in oceanographic conditions in the South Pacific influence the availability of prey. In the Humboldt ecosystem, one of the most frequently recurring events is the El Niño Southern Oscillation (ENSO). These events have been recorded since the Holocene through stratigraphic research into sediments (Rein et al., 2005), and thus the fauna in this part of the Pacific would have been subject to this variation since that time.

The ENSO in its warm phase, such as the Extraordinary El Niño of 1981-1982, had the effect of making access to prey difficult, with the consequent displacement of their populations towards the south, and death for pelican eggs, chicks and/or juveniles. This event reached a fatality rate of 58% of the total number of guano birds (Tovar and Cabrera 1985). In addition, events such as these lead to increased interactions between guano birds and fisheries, as was observed during El Niño 1997-1998, when populations migrated to the central-southern zone, with a 99.4% decline in the pelican population on all islands and guano points by the end of 1997 (Jahncke, 1998). Also during this time, interactions between birds and the fisheries increased, causing the death of specimens due to gillnetting in purse seines (Jahncke, 1998). During its cold phase, in La Niña events, aggregation and death among this species has been recorded between 4ºS and 5ºS (Bouchon and Peña, 2008), latitudes at which aggregations of this species are not usually seen.

2. Fisheries

The anchoveta resource plays an important role in the development of bird populations, as it is the main food source for these birds. For that reason, any increased or reduced availability of Anchoveta influences fluctuations in the sizes of guano bird populations (Tovar, 1988).

From the 1960s onwards, the accelerated development of the industrial anchoveta fishery became one of the main limiting factors and competition for the development of guano bird populations (Tovar and Cabrera, 1983; Tovar, 1988). Excessive exploitation led to the collapse of stocks of this prey and of the resources that depend on it, limiting development and population growth, as is the case of the Peruvian Pelican (Goya, 2000).

While environmental changes bring with them changes in prey availability, fisheries intervention has made it more difficult for guano birds to exploit the resource (Barbraud 2018), which has been seen in population fluctuations.

Fishing affects adult survival rates and the probability of successful breeding attempts (Vogt, 1942; Barbraud et al., 2018, Passuni et al., 2016). In the case of Pelicans, optimal resource availability maximizes the survival of inexperienced juvenile feeders (Passuni, 2016).

3. Bycatch

Pelicans are sometimes consumed as bycatch, as in industrial purse seine fisheries (Ayala, 2012). During the recording of beachings carried out by Imarpe (2014-2019), evidence was found of interaction with curtain-type fishing nets in the northern part of the country, and use as meat for consumption. The use of prohibited fishing methods such as dynamite also affects this species (ACOREMA, 2010).

4. Direct capture

During the 19th century there are references to intruders collecting eggs or chicks from guano birds (Cushman 2018). Today, targeted pelican capture has been recorded for the purpose of harvesting and marketing pelican meat, as has been recorded in the province of Ascope, La Libertad (SERFOR, 2017). Some of these birds have been captured in their colonies from within protected natural reserves (SPDA, 2022). In some cities in the southern part of Peru, it has also been observed that pelican meat is on offer in some restaurants (Meza, pers. com.) This represents a threat to the species.

5. Disease

During evaluations carried out by Lavalle and Garcia (1924), it was observed that the guano bird species died from avian cholera, which caused weakening, a lack of appetite and inability to fly, happening when the birds faced a period of food shortage. Along the same lines, the monitoring carried out by Imarpe on the north coast records starvation as the main cause of death in juveniles (Imarpe 2014-2019). Mass deaths of juveniles have been recorded on the country's beaches, such as the one in 2012, for which the reasons remain unknown (Zavalaga, 2015).

In addition, it has been found that flu viruses can affect this species, such as the H4N5 subtype (Lang et al., 2016) and the H5N1 "avian flu", which reduced the population of this species by more than 90% during 2022 and 2023 (Romero et al., 2023). Furthermore, the Newcastle disease virus has been found in the faeces of specimens in the Paraíso wetlands (Ventosilla et al., 2011).

6. Natural predators

Disturbances within their breeding sites caused by other predators has been observed: gulls, gallinules and other introduced species, such as feral cats and coastal foxes, that prey on their eggs and chicks (Vogt 1942).

7. Human encroachment

It is important to mention that Pelicans fly away when faced with disturbances, which leads to egg loss and chick death (Vogt 1942). As mentioned above, the increase in and bad practices associated with tourism in recent years could be a factor influencing population decline in some areas (points and islands) such as Punta Coles, Ballestas Island, Guañapes Islands, Punta San Juan and Asia Island.

The reduction in areas suitable for the development of guano bird populations, due to human disturbance, could be a cause and limiting factor regarding the growth of their populations (Goya, 2000).

8. Pollution

The degradation of their habitats by various sources of pollution, such as solid waste (Thiel et al., 2011) and fuels (oil) (SERFOR, 2022; IMARPE, 2022).

5.4 Threats connected especially with migrations

Bycatch has been reported in industrial purse seine, trawl and traditional purse seine fishing in Peru and Chile (Ayala, 2012; Suazo et al., 2014). In addition, the poaching of adults is present in both countries (Romero et al., 2023; Cursach et al., 2018). Finally, the co-occurrence of fishing exploitation and reduced food availability due to El Niño events is considered to be a further threat (Passuni et al., 2016; Barbraud et al., 2018; and Cursach et al., 2019).

5.5 National and international utilization

Its hunting is banned in Ecuador, Peru and Chile. It has been declared as threatened by these countries (Government of Peru 2014; Government of Chile 2015; Freile et al., 2019).

6. Protection status and species management

6.1 National protection status

It is protected under Supreme Decree 0004-2014. This Supreme Decree approves the updating of the list which classifies and categorizes legally protected endangered wild fauna species.

6.2 International protection status

The International Union for Conservation of Nature (IUCN) includes it on its red list of species in the category of Near Threatened (NT)

6.3 Management measures

- The Ministry for the Environment protects the breeding and resting sites within the Protected Area in the National Reserve of Islands, Islets and Guano Points (RNIIPG) (DS 024-2009-MINAM) and Santa Rosa Island, Paracas National Reserve.
- The Ministry for Agriculture and Irrigation (MINAGRI), through its ProAbonos Program, is responsible for the protection and care of guano bird populations, including the Peruvian Pelican, so that their droppings can be used as organic fertilizer by local farmers.
- In addition, MINAGRI considers this species as legally protected wildlife through the list of endangered species protected by the state (MINAGRI 2014-004).
- Likewise, MINAGRI has designed the strategy to reduce illegal wildlife trafficking in Peru for the 2017 - 2027 period, and has a 2017 - 2022 Action Plan.

6.4 Habitat conservation

The Ministry for the Environment, through the setting up of the National Reserve of Islands, Islets and Guano Points, which covers some islands and points (islands, islets and groups of islands and 11 points along the Peruvian coast) that make up the resting and breeding habitat of the Peruvian Pelican, which extends to 140,833.47 hectares, in which guano exploitation is carried out in a sustainable manner through management plans.

There are no conservation programs aimed at protecting the Peruvian Pelican outside protected areas.

6.5 Population monitoring

The Ministry for Agriculture and Irrigation (MINAGRI), through its ProAbonos Program, is responsible for the protection and care of guano bird populations, including the Peruvian Pelican, so that their droppings can be used as organic fertilizer by local farmers. This program includes monthly monitoring of population numbers and the safeguarding of resting and breeding areas from human intervention.

7. Effects of the proposed amendment

7.1 Anticipated benefits of the amendment

Including the Peruvian Pelican in CMS Appendices I and II will encourage conservation measures throughout its area of distribution in order to preserve its insular, continental and marine habitats, and thus safeguard the species. Reaching agreements on the minimization of the impact of their threats or preventing further deterioration of the population. Also encouraging research in order to possess greater knowledge of biological aspects that permit a better understanding of the species, or encouraging the avoidance of bycatch through better practice, in addition to preventing capture for consumption through campaigns. Ultimately, following the impact caused by avian influenza (H5N1), this species needs greater protection in order to support its conservation.

In Peru, although the Ministry for Agricultural Development and Irrigation provides legal protection for this species under Supreme Decree 004-2014-MINAGRI, under which it is classified and categorized as an endangered species and its populations are protected in order that its droppings can be extracted for use as an organic fertilizer, and that in addition the Ministry for the Environment has its breeding and resting sites listed as protected areas within the National Reserve of Islands, Islets and Guano Points (RNIIPG) and Santa Rosa Island, Paracas National Reserve, it is not sufficient to maintain the population in an adequate conservation status, as although the aim is to protect its entire area of distribution, there are not enough resources to carry out monitoring in all the areas.

Although this species has always had lower population numbers compared to other species living on the islands and points, a series of natural and anthropogenic factors have impacted and endangered it. The main factors that have affected its conservation status are the ENSOs that occur in the Humboldt Ecosystem and that modify the environmental conditions, rendering its main prey, the Peruvian Anchovy, unavailable, and thus causing substantial movement related to its search for food, in addition to a large number of deaths. In addition, there was the development of industrial fishing, especially the Peruvian Anchovy fishery, which initially lacked adequate management measures to ensure extraction in quantities that could be sustainable within the demands of the ecosystem. Despite the application of fishing quotas with maximum catch limits per vessel, in addition to tolerance limits for juvenile catches and monitoring of this fishery, it is still necessary to provide better information for the models that estimate population parameters, which take into account not only anchovy biomass, but also distribution and availability for other components of the ecosystem, such as Pelicans.

Other anthropogenic factors must be added to these such as bycatch by some fisheries that do not yet have measures in place for the successful release of specimens; targeted capture in which it is caught for meat consumption by some coastal populations; human encroachment that disturbs the species in its breeding sites, in addition to bad practice in tourism. Among the natural factors to be considered is that, during its first stages of life, the Pelican is prey to natural predators such as seagulls and gallinules. Finally, diseases such as the most recent

avian flu (H5N1) have caused massive die-offs that have led to a 99.2% reduction in its already depressed population, putting it into a critical conservation status.

There are no multilateral measures or agreements in place to protect this species. It is not considered a CITES species and is not subject to RFMOs.

7.2 Potential risks of the amendment

Peru

No associated risks

7.3 Intention of the proponent regarding the development of an Agreement or Concerted Action

8. Range states

From the south of Ecuador, through Peru, to the south of Chile.

9. Consultations

The representatives of Ecuador and Chile have been consulted.

10. Additional remarks

There are no additional remarks.

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