

**U.S. FISH AND WILDLIFE SERVICE
BRANCH OF FOREIGN SPECIES
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Pauxi unicornis*

COMMON NAME: Southern helmeted curassow

DATE INFORMATION CURRENT AS OF: July, 2020

STATUS/ACTION

Species assessment - determined either we do not have sufficient information on threats or the information on the threats does not support a proposal to list the species and, therefore, it was not elevated to Candidate status

Listed species petitioned for uplisting for which we have made a warranted-but-precluded finding for uplisting (this is part of the annual resubmitted petition finding)

Candidate that received funding for a proposed listing determination; assessment not updated

New candidate

Continuing candidate

Listing priority number change

Former LPN:

New LPN:

Candidate removal: Former LPN:

A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

I – Insufficient information exists on biological vulnerability and threats to support listing.

M – Taxon mistakenly included in past notice of review.

N – Taxon does not meet the Act's definition of "species."

X – Taxon believed to be extinct.

Date when the species first became a Candidate (as currently defined): May 21, 2004

Petition Information:

Non-petitioned

X Petitioned; Date petition received: May 6, 1991

90-day substantial finding FR publication date: December 16, 1991

12-month warranted but precluded finding FR publication date: May 21, 2004

FOR PETITIONED CANDIDATE SPECIES:

- a. Is listing warranted (if yes, see summary of threats below)? Yes
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
- c. Why is listing precluded?

Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for this species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The “Progress on Revising the Lists” section of the current CNOR-FS

(<https://www.fws.gov/endangered/what-we-do/international-activities.html>) provides information on listing actions taken during the last 12 months.

ANIMAL/PLANT GROUP AND FAMILY: Bird, Cracidae

HISTORICAL COUNTRIES /STATES/TERRITORIES OF OCCURRENCE: Bolivia

CURRENT COUNTRIES /STATES/TERRITORIES/ OF OCCURRENCE: Bolivia

LAND OWNERSHIP: The southern helmeted curassow occurs primarily on public lands managed by the Bolivian government, or lands managed by indigenous communities in coordination with the Government of Bolivia. Areas occupied by the southern helmeted curassow include Amboró and Carrasco National Parks, the Isiboro-Secure Indigenous Territory and National Park, and the outer edge of the Cordillera Mosevenes in the Department of Cochabamba (BLI 2016, p. 2 citing several sources). We could not find a record of ownership for the Cordillera Mosevenes (a smaller region between Carrasco National Park and the Isiboro-Secure Indigenous Territory and National Park).

HQ CONTACT: Branch of Delisting and Foreign Species, Ecological Services, U.S. Fish and Wildlife Service, MS: ES, 5275 Leesburg Pike, Falls Church, VA 22041–3803; telephone, 703–358–2171. If you use a telecommunications device for the deaf (TDD), call the Federal Relay Service at 800–877–8339.

BIOLOGICAL INFORMATION

Species Description

The southern helmeted curassow, also known as the helmeted or horned curassow, or the unicorn bird, is a large (85–95 centimeter (cm); 33–37 inch (in)) ground-nesting bird with a bright red bill and a pale blue casque (a horn-like bony appendage above the bill). Plumage is mainly black

with a white vent and white tail tip; legs are normally pale red but turn yellowish in the male during the breeding season (BLI 2017a, unpaginated). Females appear similar to males but have a reddish brown (rufous) color phase (BLI 2017a, unpaginated).

The southern helmeted curassow strongly resembles the Sira curassow (*Pauxi koepckeae*) from Peru though their ranges are separated by approximately 2,000 kilometers (km) (1,243 miles (mi)). Casque shape and size are a good distinguishing feature; the casque of the southern helmeted curassow is upright and cone-shaped while that of the Sira curassow is shorter, rounder, and flattened against the head (BLI 2015, unpaginated; Gastañaga *et al.* 2011, p. 271). Additionally, although both species have a thin white tip on the tail, the Sira curassow's white tail tip is thinner (Gastañaga *et al.* 2011, p. 271).



Figure 1: Image of southern helmeted curassow (ARKive 2017, unpaginated).

Taxonomy

The southern helmeted curassow (*Pauxi unicornis*) is a bird in the Cracid family — a primitive family of the Order Galliformes that includes game birds such as Megapodes (also known as incubator or mound builder birds), grouse, quail, pheasants, turkeys, partridge and Guinea fowl (Banks 1998, p. 152). In 2014, BirdLife International's (BLI) BirdLife Taxonomic Working Group elevated the southern helmeted curassow (*P. unicornis unicornis*) from a subspecies to

species (*P. unicornis*) after evaluating all non-passerines (non-perching birds), including the southern helmeted curassow, to examine differences in morphology, vocalizations, ecology, and geographical relationships (Tobias *et al.* 2010, pp. 6–14) (BLI 2014a, entire; BLI 2014b, unpaginated). Although BLI and the International Union for the Conservation of Nature (IUCN) now recognize the southern helmeted curassow as a full species, the Integrated Taxonomic Information System (ITIS) continues to recognize it as a subspecies (*P. unicornis unicornis*) (ITIS 2017, unpaginated). Based upon our review of the available information we consider the southern helmeted curassow a valid full species.

Habitat/Life History

The southern helmeted curassow inhabits dense, humid foothill and lower montane forest and adjacent evergreen forest at altitudes between 450 and 1,500 meters (m) (1,476 to 4,921 feet (ft)) (Herzog and Kessler 1998, pp. 46–47; Cox *et al.* 1997, p. 200; Cordier 1971, p. 10). The bird is notoriously hard to find (Tobias and del Hoyo 2006, p. 61; Herzog and Kessler 1998, p. 46), which may be due to the remoteness of its preferred habitat and its reported intolerance of human disturbance (Herzog and Kessler 1998, p. 46).

Information on the ecology of the southern helmeted curassow is limited. It prefers eating nuts of *Byrsonima wadsworthii* (the almendrillo tree) (Cordier 1971, p. 11), but also eats fruit, seeds, soft plants, larvae, insects (BLI 2017a, unpaginated; Banks 1998, p. 153; Renjifo and Renjifo 1997, pp. 89–90) and the bones of small mammals (Renjifo and Renjifo 1997, pp. 89–90). The southern helmeted curassow reaches sexual maturity at age 3 (Renjifo and Renjifo 1997, pp. 89–90) and the breeding season is believed to be from August to December (BLI 2017a, unpaginated). Clutch size of the southern helmeted curassow is probably two, as is common in other members of the Cracidae family. However, the only nest found in the wild was found in October and contained one egg (Cox *et al.* 1997, p. 207); a pair in captivity laid only one egg in each of four observed clutches (Banks 1998, p. 154), indicating a low reproductive rate. An egg collected and incubated from a captive pair hatched in 32 days (Banks 1998, p. 154).

The southern helmeted curassow is vocal with both a distinctive alarm call and display singing (reviewed by del Hoyo and Motis, 2004, pp. 435, 436). Male “booming” (display songs) and pairing were noted in August (MacLeod *in litt.* 2000, as cited in BLI 2017a, unpaginated).

Historical Range/Distribution

The historical distribution of the southern helmeted curassow is not known.

Current Range/Distribution

The southern helmeted curassow is known only from central Bolivia on the eastern slope of the Andes, where it has been found in the neighboring Amboró and Carrasco National Parks (MacLeod *in litt.* 2000 as cited in BLI 2017a, unpaginated; Brooks 2006, p. 59; Maillard 2006, p. 95; del Hoyo and Motis, 2004, p. 433; Mee 1999, p. 18; Herzog & Kessler 1998, pp. 46–47; and Cox *et al.* 1997, pp. 199–200). The species has also been found in Isiboro-Secure Indigenous

Territory and National Park and along the outer edge of the Cordillera Mosestenes, Cochabamba (MacLeod *in litt.* 2007 as cited in BLI 2017a, unpaginated).

The estimated extent of the resident/breeding area is 10,700 km² (4,131 mi²) and declining (BLI 2017a, unpaginated; BLI 2016, p. 10). Within approximately the last decade, the southern helmeted curassow was found in just a few locations across the northern boundary of Carrasco National Park, where it was historically more abundant (MacLeod *in litt.* 2000 and 2007, as cited in BLI 2015, unpaginated). Extensive surveying over several years has not documented the species in other areas where it historically occurred, including (1) Madidi National Park (Hennessey 2004, p. 74; MacLeod *in litt.* 2003, as cited in BLI 2017a, unpaginated); (2) in the rio Tambopata area near the Peru/Bolivia border (Gastañaga and Hennessey 2005, p. 21; MacLeod *in litt.* 2004, as cited in BLI 2014, unpaginated); or (3) in the Cordillera Ccopata and along the inner edge of Cordillera Mosestenes (MacLeod *in litt.* 2003 and 2007, as cited in BLI 2015, unpaginated).

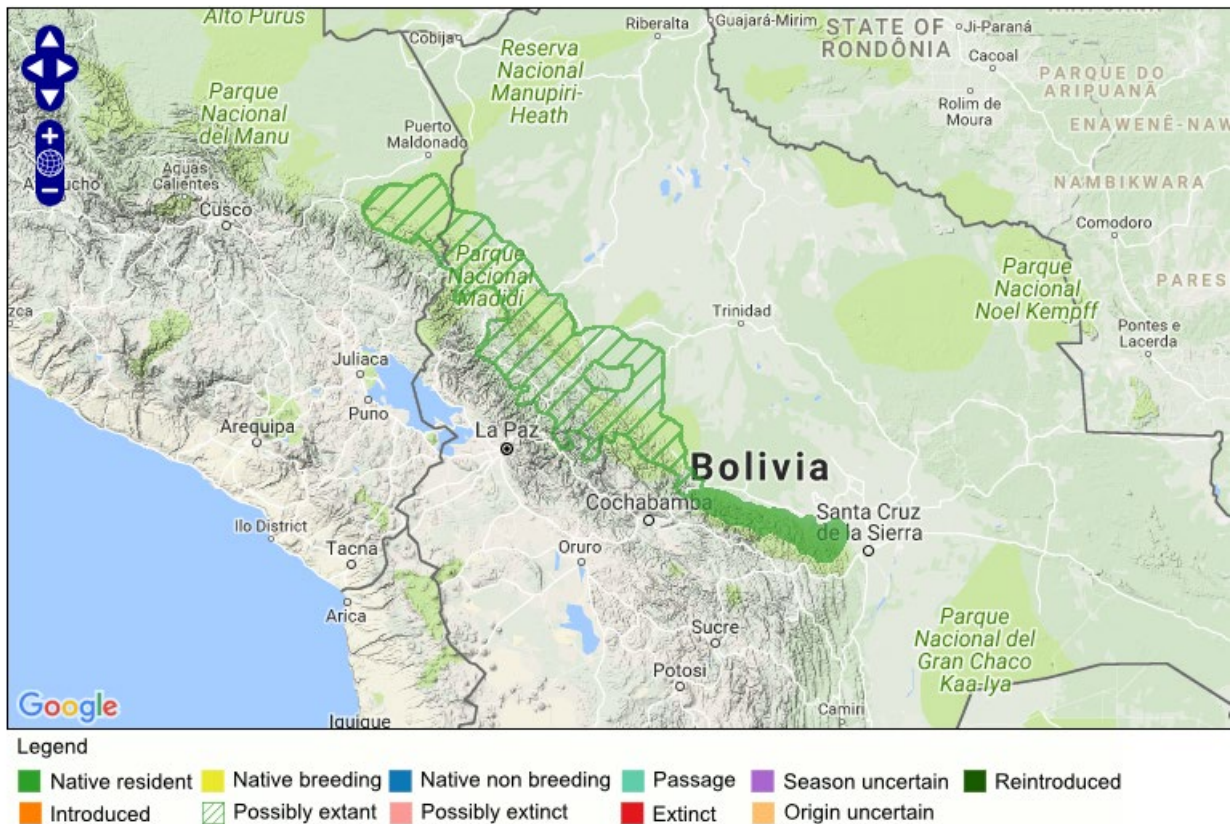


Figure 2. The current range of the southern helmeted curassow represented by the green polygon; hatched green indicates areas where the species is possibly extant (BLI 2017b, unpaginated).

Population Estimates/Status

The total current population of the southern helmeted curassow is estimated to be between 1,000 and 4,999 mature individuals, the equivalent of 1,500 to 7,500 individuals (BLI 2017a,

unpaginated). Within its limited range, the southern helmeted curassow has been reported at densities of up to 20 individuals per km² (0.39 mi²), but it is more common to see 1 or 2 individuals at most sites (MacLeod *in litt.* 2007 as cited in BLI 2017a, unpaginated).

The southern helmeted curassow is classified as critically endangered on the IUCN's Red List because its population is estimated to be rapidly declining due to hunting and habitat destruction (BLI 2016, p. 1). The species is known from few locations, and its range is limited to a small altitudinal band that is subject to habitat loss (BLI 2016, p. 1).

The southern helmeted curassow is not listed in any appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2017, unpaginated), which regulates international trade in animals and plants of conservation concern. Trade was reported at the local and national level but has not been noted internationally (BLI 2014c, p. 8). The species was listed in Annex B of the European Union Trade Regulations in 1997 with all species in the genus *Pauxi* (Eur-Lex 2017, unpaginated). In 2008, it was moved from Annex B to Annex D (i.e., a lower level of protection) because it was one of the species that “are not subject to levels of international trade that might be incompatible with their survival, but warrant monitoring of trade levels” (Eur-Lex 2008, unpaginated). It continues to be listed on Annex D (Eur-Lex 2017, unpaginated).

THREATS

Hunting and habitat loss and destruction are the primary threats to the species. Large portions of the southern helmeted curassow's habitat are in National Parks (i.e., Amboró, Carrasco, and the Isiboro-Secure Indigenous Territory). These areas have been important for the preservation of the species, although the National Parks do not have the financial and human resources needed to patrol and protect these areas (Armonía 2015, unpaginated). Human settlements and ongoing encroachment, illegal logging operations, forest clearing to grow coca (*Erythroxylum coca* var. *coca*) for cocaine production, and other farming are occurring in the parks (Armonía 2015, unpaginated; Macleod 2009, p. 16). Rural development and road building limit the species' ability to disperse (Fjeldså *in litt.* 1999 as cited in BLI 2017a, unpaginated; Herzog and Kessler 1998, p. 47). Recently, the Bolivian Government announced a plan to build a highway through the middle of the Isiboro-Secure Indigenous Territory and National Park, a protected area that may support the largest remaining southern helmeted curassow population in the world (Armonía 2015, unpaginated).

Bolivia was one of the top ten countries in the world to report the greatest loss (11.4 percent) of primary forest area from 1990 to 2015 (Morales-Hidalgo *et al.* 2015, p. 73). Habitat throughout the species' range has been and continues to be altered as a result of human activities, particularly human encroachment due to agricultural development and illegal logging. Results from modeling of forest loss (Soares-Filho *et al.* 2006 as cited in BLI 2017a unpaginated), taken together with data on the species' range and ecology indicated that 98 percent of its global extent of suitable habitat could be lost in 44 years (BLI 2017a, unpaginated).

Hunting the species for food is believed to be an even greater threat than habitat loss (MacLeod *in litt.* 2014 as cited in BLI 2015, unpaginated). In one valley in Carrasco National Park, the

species declined from 20 singing males to zero from 1999 to 2004 due to hunting (MacLeod *et al.* 2006, p. 62). Hunting pressure and human encroachment are similar or worse in other parts of its range (MacLeod and Soria-Auza *in litt.* 2014 as cited in BLI 2017a, unpaginated). In addition to harvesting for meat, its unique blue casque (or horn) was used historically by local people to make cigarette lighters (Cordier 1971, p. 11), and in the Amboró region, the bird's head was purportedly used in folk dances (Hardy 1984 as cited in Collar *et al.* 1992, p. 153). It is unclear whether these uses still occur.

Range reductions due to the effects of climate change are predicted for the southern helmeted curassow when warming temperatures may cause the species to shift its distribution upslope (del Rosario Avalos & Hernandez 2014, pp. 465–466). Modeling of these changes shows that portions of the diminished range may shift outside of protected National Parks (del Roario Avalos & Hernandez 2014, p. 467).

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

Although the southern helmeted curassow primarily occupies protected areas (i.e., Amboró and Carrasco National Parks and the Isiboro-Secure Indigenous Territory and National Park), these areas are currently threatened by human activity (hunting and habitat degradation) and offer no effective protection (BLI 2016, p.5).

The Asociación Armonía (a nonprofit, nongovernmental conservation organization) recently initiated a “horned curassow program” that focuses on the population at Amboró National Park, which they believe may be the last hope for preserving a population in the wild (Armonía 2015, unpaginated). The program has a three-pronged approach to help prevent extinction of the species: (1) promote ecotourism in the park; (2) support captive breeding in the local communities; and (3) carry out an educational and pride campaign with local communities (Armonía 2015, unpaginated). It is unclear how much has been accomplished to date, although the ecotourism component has seemingly begun (Tobias and del Hoyo, 2006, p. 61).

SUMMARY OF THREATS

The present and threatened destruction, modification, or curtailment of its habitat (Factor A) is a significant factor affecting the species. Human settlements, illegal logging operations and forest clearing are ongoing, including encroachment into the national parks, and are threatening the amount of habitat available for the southern helmeted curassow. Modelling results indicate 98 percent of its global extent of suitable habitat could be lost in 44 years (BLI 2017a, unpaginated).

In addition, hunting of the southern helmeted curassow for food is believed to be an even greater threat than habitat loss (MacLeod *in litt.* 2014 as cited in BLI 2015, unpaginated). Although the southern helmeted curassow is legally protected in the majority of its range within three national parks, illegal hunting is occurring and will cause continued declines in the species' population (Factor B).

Lastly, climate change may affect the southern helmeted curassow (Factor E). Range reductions due to warming temperatures may cause the species to shift its distribution upslope and outside of protected National Parks (del Rosario Avalos & Hernandez 2014, pp. 465–467).

LISTING PRIORITY

In the previous Assessment (81 FR 71457), the southern helmeted curassow was assigned an LPN of 2. After reevaluating the threats to the species, we have determined that no change in the LPN is warranted. The southern helmeted curassow does not represent a monotypic genus. It faces threats that are high in magnitude based on its small, limited range. The few locations where it is believed to exist continue to face pressure from hunting and habitat loss and destruction from agricultural development and illegal logging. The population is estimated to be between 1,000 and 4,999 mature individuals and declining. The factors affecting the species are ongoing, and are, therefore, imminent. Thus, the LPN remains at 2 to reflect imminent threats of high magnitude.

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2*
	Non-imminent	Subspecies/population	3
	Monotypic genus	4	
	Species	5	
Moderate to Low	Imminent	Subspecies/population	6
		Monotypic genus	7
		Species	8
	Non-imminent	Subspecies/population	9
		Monotypic genus	10
		Species	11
Subspecies/population	12		

Rationale for listing priority number:

Magnitude: The threat of habitat loss and hunting to the southern helmeted curassow is high. The species' population and suitable habitat are declining because of hunting and habitat loss and degradation. The southern helmeted curassow primarily occurs in protected areas, although these areas are threatened by human activities and offer inadequate protection (BLI 2016, p.5).

Imminence: The estimated population is small (1,000 - 4,999 adults) and the estimated extent of its range is predicted to decline by 98 percent in 44 years (BLI 2017a, unpaginated). Threats to the southern helmeted curassow from hunting and habitat loss and degradation (e.g., agricultural development, illegal logging and road building) are ongoing and are expected to continue to

occur in the future. Therefore, threats to the southern helmeted curassow are considered imminent.

Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? **Yes**

Is Emergency Listing Warranted? **No**

DESCRIPTION OF MONITORING

The southern helmeted curassow is not regularly monitored.

COORDINATION WITH RANGE COUNTRIES

Indicate which range countries provided information or comments on the species or latest species assessment: **None**

Indicate which range countries did not provide any information or comments: **Bolivia**

LITERATURE CITED

- ARKive (2017). Southern helmeted curassow (*Pauxi unicornis*). Image. Retrieved from <http://www.arkive.org/southern-helmeted-curassow/pauxi-unicornis/image-G21108.html>. Accessed June 07, 2017.
- Armonía. (2015). saving the horned curassow, as critically endangered species that is found only in Bolivia, from the edge of extinction. Retrieved from: <http://armoniabolivia.org/horned-curassow-program/>. Accessed March 7, 2016.
- Banks, K. (1998). Breeding the Southern Helmeted Curassow at Birdworld. Avicultural magazine, 104, 152-156.
- BLI (BirdLife International). (2017a) Species factsheet: *Pauxi unicornis*. Retrieved from <http://www.birdlife.org> on 12/05/2017. Accessed May 12, 2017.
- BLI (BirdLife International). (2017b) Species factsheet: *Pauxi unicornis* distribution map. Retrieved from <http://www.birdlife.org> Accessed August 1, 2017.
- BLI (BirdLife International). (2016). *Pauxi unicornis*. The IUCN Red List of Threatened Species 2016: e.T45090397A95140681. Retrieved from <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T45090397A95140681.en>. Accessed May 12, 2017.
- BLI (BirdLife International). (2015). Species factsheet: *Pauxi unicornis*. Retrieved from <http://www.birdlife.org>. Accessed on September 28, 2015.
- BLI (BirdLife International). (2014a). Archived 2014 discussion: Horned Curassow (*Pauxi unicornis*) is being split: list *P. koepckeae* as Critically Endangered and *P. unicornis* as Endangered? Retrieved from <http://www.birdlife.org/globally-threatened-bird-forums/2014/04/horned-curassow-pauxi-unicornis-is-being-split-list-p-koepckeae-as-critically-endangered-and-p-unicornis-as-endangered-2/> Accessed on October 20, 2015.
- BLI (BirdLife International). (2014b) The BirdLife checklist of the birds of the world: Version 7. Retrieved from http://www.birdlife.org/datazone/userfiles/file/Species/Taxonomy/BirdLife_Checklist_Version_70.zip [.xls zipped 1 MB]. Accessed on October 21, 2015.
- Brooks, D. M., Cancino, L., & Pereira, S. L. (2006). Conserving cracids: the most threatened family of birds in the Americas. *Miscellaneous Publications of the Houston Museum of Natural Science*, 6.
- CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) (2017). Appendices I, II and III, valid from 25 January 2017. Retrieved from <https://www.cites.org/eng/app/appendices.php>. Accessed March 20, 2017.

- Collar, N. J., Krabbe, L. P., Nieto, N. M., Naranjo, A., Parker III, L. G., & Wege, T. A. (1992). *Threatened birds of the Americas* (No. C/598.297 I2/2).
- Cordier, C. (1971). The quest for the horned curassow. *Animal Kingdom*, 742, 9–11.
- Cox, G., Read, J. M., Clarke, R. O. S., & Easty, V. S. (1997). Studies of horned curassow *Pauxi unicornis* in Bolivia. *Bird Conservation International*, 7(03), 199-211.
- del Hoyo, J., & Motis, A. (2004). Update chapter. *Curassows and related birds*, 322-476.
- del Rosario Avalos, V., & Hernández, J. (2015). Projected distribution shifts and protected area coverage of range-restricted Andean birds under climate change. *Global Ecology and Conservation*, 4, 459-469.
- Eur-Lex. (2017). Species+, *Pauxi unicornis*. *Pauxi unicornis*. Retrieved from https://www.speciesplus.net/#/taxon_concepts/6333/legal. Accessed August 2, 2017.
- Eur-Lex. (2008). Commission Regulation (EC) No 318/2008 of 31 March 2008 amending Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein. Official Journal of the European Union: 95: 3-62. *Verified August 20, 2012*: <http://eur-law.eu/EN/Commission-Regulation-EC-1332-2005-9-August-2005,158239,d> AND http://exporthelp.europa.eu/update/requirements/ehir_eu12_03v001/eu/auxi/eu_cites_annexes_abc_r338_1997.pdf
- Gastañaga, M., & Hennessey, A. B. (2005). Uso de información local para reevaluar la población de *Pauxi unicornis* en Perú. *Cotinga*, 23, 18-22.
- Gastañaga, M. G., MacLeod, R., Brooks, D. M., & Hennessey, B. (2011). Distinctive morphology, ecology, and first vocal descriptions of Sira Curassow (*Pauxi [unicornis] koepckeae*): evidence for species rank. *Ornitología Neotropical*, 22, 267-279.
- Hennessey, A. B. (2004). A bird survey of Torcillo-Sarayoj, the lower Yungas of Madidi National Park, Bolivia. *Cotinga*, 22, 73-78.
- Herzog, S. K., & Kessler, M. (1998). In search of the last Horned Curassows *Pauxi unicornis* in Bolivia. *Cotinga*, 10, 46-48.
- ITIS (2017). Integrated Taxonomic Information System. *Pauxi unicornis unicornis*. Retrieved from https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=715289#null. Accessed August 2, 2017.
- MacLeod, R. (2009). Threatened Birds of Bolivia Project 2004 to 2009 Proyecto Aves Amenazadas de Bolivia 2004 a 2009. Final Report.

- MacLeod, R., Soria, R., & Gastañaga, M. (2006). Horned Curassow (*Pauxi unicornis*). *Conserving cracids: the most threatened family of birds in the Americas. Misc. Publ. Houston Mus. Nat. Sci.*, 6, 59-62.
- Maillard, O. Z. (2006). Reciente espécimen de la pava copete de piedra (*Pauxi unicornis*) para Bolivia. *Kempffiana* 2(1): 95–98.
- Mee, A. (1999). Status of the Southern Helmeted Curassow (*Pauxi unicornis*) in the Yungas of Cochabamba. *Bolivia. Bol. CSG*, 9, 16-19.
- Morales-Hidalgo, D., Oswalt, S. N., & Somanathan, E. (2015). Status and trends in global primary forest, protected areas, and areas designated for conservation of biodiversity from the Global Forest Resources Assessment 2015. *Forest Ecology and Management*, 352, 68-77.
- Renjifo, J., & Renjifo, J. T. (1997). *Pauxi unicornis*: biología y ecología. *The Cracidae: their Biology and Conservation* (SD Strahl, S. Beaujon, DM Brooks, AJ Begazo, G. Sedaghatkish and F. Olmos, Eds.). Hancock House Publ., Wa, 89-92.
- Tobias, J.A. & del Hoyo, J. (2006). Birding in Bolivia: putting two rare curassows on the map. *Neotropical Birding*, 60-65.
- Tobias, J. A., Seddon, N., Spottiswoode, C. N., Pilgrim, J. D., Fishpool, L. D., & Collar, N. J. (2010). Quantitative criteria for species delimitation. *Ibis*, 152(4), 724-746.
- Vidal, J. (2011). Bolivia enshrines natural world's rights with equal status for mother earth. The Guardian, Sunday April 10, 2011. Retrieved from <http://www.theguardian.com/environment/2011/apr/10/bolivia-enshrines-natural-worlds-rights>. Accessed March 13, 2016.