# Junin Grebe: the survivor of Peru's high Andean wetlands

Alan Chamorro and Constantino Aucca

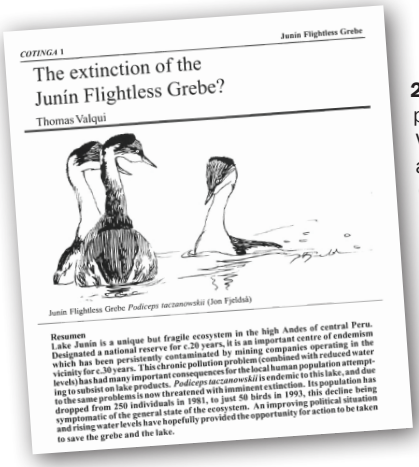
*In* Cotinga *1, Peruvian ornithologist Thomas Valqui penned an article alerting readers to the critical plight of the Junin Grebe* Podiceps taczanowskii. *Twenty-five years on, here is an update from those most closely involved in its conservation.*

Junin Grebe *Podiceps taczanowskii* is a flightless waterbird that occurs only on Lago Junín (aka Chinchaycocha). The existence of this Critically Endangered species – plus that of many birds, amphibians, plants and around 11 local communities – depends fundamentally on the quality of the lake's waters. This article summarises developments since the article by Thomas Valqui (1994) in the very first *Cotinga*. Valqui explained that the grebe's population had crashed by 80% in just 12 years to a terrifying low of 50 birds in 1993, which he ascribed to "chronic pollution combined with reduced water levels". Although the article mooted the prospect of the species's extinction, Valqui hoped that "an improving political situation and rising water levels" might provide "the opportunity for action… to save the grebe and the lake".

## Lago Junín: importance

Lago Junín is located c.150 km northeast of Lima in Junín and Pasco provinces. It lies in the Bombón plateau at 4,080 m altitude, in Peru's central Andes. Surrounded by high peaks, the lake serves as an oasis for a great diversity of local birds and a seasonal home for around 18 boreal migratory species. Three avian taxa are endemic: Junin Grebe,

**1** Junín Grebe *Podiceps taczanowskii*, Lago Junín, Junín, Peru, August 2018 (E. Zevallos).



COTINGA 1 Junín Flightless Grebe

The extinction of the Junín Flightless Grebe?

Thomas Valqui

Junín Flightless Grebe *Podiceps taczanowskii* (Jon Fjeldså)

**Resumen**

Lake Junín is a unique but fragile ecosystem in the high Andes of central Peru. Designated a national reserve for c.20 years, it is an important centre of endemism which has been persistently contaminated by mining companies operating in the vicinity for c.30 years. This chronic pollution problem (combined with reduced water levels) has had many important consequences for the local human population attempting to subsist on lake products. *Podiceps taczanowskii* is endemic to this lake, and due to the same problems is now threatened with imminent extinction. Its population has dropped from 250 individuals in 1981, to just 50 birds in 1993, this decline being symptomatic of the general state of the ecosystem. An improving political situation and rising water levels have hopefully provided the opportunity for action to be taken to save the grebe and the lake.

**2** The opening page of Thomas Valqui's (1994) article on Junín Grebe *Podiceps taczanowskii* in *Cotinga* 1.

White-tufted Grebe *Rollandia rolland morrisoni* and Black (Junin) Rail *Laterallus (jamaicensis) tuerosi* (split by BirdLife International and considered globally Endangered). There is also an important population of Silvery Grebe *Podiceps occipitalis*, which is here represented by the taxon *juninensis*, split by BirdLife International as Northern Silvery Grebe *P. juninensis* and classified as Near Threatened.

In 1974, the Peruvian government declared Lago Junín and its surroundings to be a National Reserve and adopted an objective of protecting its unique ecosystem and the services it provides. Other international designations have followed, notably Ramsar Site (i.e. a wetland of international importance) in 1996 (RIS 1996), and Important Bird Area in 2008 (Devenish *et al.* 2009, BirdLife International 2019).

## Lago Junín: threats

The problem with being flightless is that you can't escape from problems. The problem with being a waterbird is that you can't fundamentally shift habitat. So imagine being a flightless waterbird…

In the year before Thomas Valqui's *Cotinga* article was published, just 50 Junin Grebes were counted: the population's nadir. Pollution, poor water management and the El Niño Southern Oscillation have long had terrible consequences for wildlife at Lago Junín. In 1997/1998 there was a mass die-off of endemic amphibians (Lake Junin Frog *Telmatobius macrostomus* and Junin Riparian Frog *T. brachydactylus*) and native fish (*Orestia* sp.). Currently, during periods of high water, dead Junin Grebes are regularly found. Populations of other waterbirds such as Slate-coloured Coot *Fulica ardesiaca*, Puna Teal *Spatula puna*, Yellow-billed Teal *Anas flavirostris* and Common Gallinule *Gallinula galeata* are also decreasing (Dinesen *et al.* 2018). Birth rates for species such as Chilean Flamingo *Phoenicopterus chilensis* are declining (SERNANP 2017).

Regrettably then, the national and international recognition outlined above has not precluded environmental damage. Lago Junín has a long history of continuous contamination by mining waste and sewage from nearby towns, a problem increased by the presence of the Upamayo dam, constructed in 1936 on the lake's sole tributary, in the north of the waterbody. There is much evidence of ongoing water pollution, particularly

**3–4** Junín Grebe *Podiceps taczanowskii*, Lago Junín, Junín, Peru (David Fisher): **3** February 2017; **4** May 2014.

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**5** Lago Junín, Junín, Peru – as seen from the viewpoint at Conoc (Alan Chamorro).

**6** Cleaning rivers – here being undertaken by members of Conoc community – helps restore water quality (Arias W. Conoc).

**7** Sasicucho community residents cleaning and restoring a channel to improve water distribution into Lake Junín (Zevallos B. Sasicucho/ECOAN).

via Río San Juan, with high concentrations of heavy metals recorded (Walsh Peru 2002, Water Management Consultants 2008, Tinkuy EIRL 2009, ECOAN 2010, Rodbell *et al*. 2014, CENERGIA in press).

## Counting and conservation

In 2000, the Servicio Nacional de Áreas Naturales Protegidas (SERNANP, formerly INRENA: National Service of Natural Protected Areas) commissioned a species recovery plan. A species action plan for Junin Grebe (Walsh Perú 2002) initially recommended a comprehensive population survey to replace previous estimates based on extrapolation. The first three such censuses took place in 2001: 113 individual Junin Grebes were found in May, 160 in August and 304 in December. In 2007, a repeat survey using the same methodology recorded 217 birds. Putting these and earlier findings together, we reckon that they show that the population was actually relatively stable from the 1970s through to the noughties, at around 250–300 individuals. This, though, is on the context of a major decline since the 1930s, when the species was considered extremely abundant (Dinesen *et al.* 2018).

Since 2008, the NGO Asociación Ecosistemas Andinos (ECOAN) has worked intensively with SERNANP to develop actions that improve the quality of the grebe's habitat. We have made evidence-based conservation decisions and initiated a monitoring program that evaluates the impact of conservation actions on the grebe population (ECOAN 2009, 2010; Chamorro & Aucca 2015, 2017). An early action was to build capacity among SERNANP employees to carry out the various conservation actions and censuses. Since 2008 a dedicated team of professionals from both institutions have worked assiduously to protect and evaluate the species (ECOAN 2009).

Censuses conducted from 2010–18 reveal population fluctuations between 300–400 individuals (i.e. higher numbers than previously counted). We have also collated data to describe the spatial and temporal distribution of the species. We now know that adults use the deepest parts of the lake mainly during courtship (Aug–Dec), and waters between clumps of vegetation dominated by Southern Bulrush *Schoenoplectus californicus* and Baltic Rush *Juncus balticus* for nesting (Jan–Mar) and parental care (Apr–May). Mixed groups of Junin and Silvery grebes, including juveniles and chicks, favour these vegetated areas, leaving adults to frequent open water. Interestingly, two groups of Junin Grebe

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**8–10** ECOAN deploys a variety of tools to assist environmental education. These include an environmental education manual (**8**), posters (**9**) and colouring pictures for children (**10**).

frequent the central part of the lake year-round, an association that is probably diet related.

This fieldwork has enabled us to identify breeding areas. These are now strictly protected within the National Reserve: human access and hunting are now prohibited. Hunting of Junin Grebe is of course already illegal, but it may be disturbed (or its survival impacted) by the hunting of other species that share the habitat. However, Rolando Tito Uribe (pers. comm. 2019) suggests that hunting is no longer a major problem, given the overall reduction in hunting levels (because urban migration means that fewer local hunters remain and birds no longer form part of their diet) coupled with rigorous enforcement. Instead, Uribe believes that burning tracts of bulrush is a great threat as it destroys nests and breeding habitat.

Droughts and floods, accentuated by the Upamayo dam, have influenced the number of grebes. Low water reduces access to the breeding area, whereas excess water can flood nests and force fish deeper (beyond easy reach for juveniles). A new problem associated with higher water is that non-native Rainbow Trout *Oncorhynchus mykiss* (already a known threat to the Critically Endangered Hooded Grebe *Podiceps gallardoi* of Argentina; see Roesler *et al.* 2018) can reach nesting areas and aggressively compete with juveniles for food. With no natural predators, this fish's population is increasing exponentially.

## Environmental education and beyond

In co-operation with public and private institutions, ECOAN has established an environmental-education programme. We are targeting local authorities and schools, covering topics such as caring for the grebe's habitat and water protection. Every year small areas (particularly those used for feeding and breeding) are 'cleaned' with less contaminated water. Together with local stakeholders, we run awareness-raising campaigns about waste management and species conservation. In 2008, Junin Grebe became the official bird of the region (as designated by Junín's regional government). We are now implementing a formally approved management plan (ECOAN 2010) for three of Lago Junín's key birds: Junin Grebe, Black (Junin) Rail and Chilean Flamingo.

## Concluding thoughts

The challenges we face in conserving Junin Grebes are great. Yet political, institutional and financial support is neither continuous nor sustainable. This translates into insufficient resources to carry out large-scale actions. Current threats are likely to be exacerbated by El Niño events and by climate change. The current stability of the Junin Grebe's population is fragile – and likely to be temporary.

Twenty-five years after Thomas Valqui alerted Neotropical Bird Club members to the parlous situation of Junin Grebe, its overall situation has not changed much. The population is marginally larger, for sure, but environmental problems remain broadly the same. Without clear policies to improve conditions at Lago Junín, the future does not look promising. Change is needed urgently. We cannot wait until the ecosystem has collapsed. For

a start, we need a regional management tool on how to treat pollutants and how to sanction those responsible for their discharge. At a minimum, we need the continuation of actions led by institutions such as SERNANP and ECOAN, and by local actors. It is thanks to their efforts that the Junin Grebe's population is stable at all, and that the situation in 2018, when 294 birds were counted, is more promising than that outlined by Valqui, when just 50 birds were feared to remain.

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