

Compsospiza baeri
(Tucuman Mountain Finch)



Compsospiza baeri (Charlwood, 2000)

Compsospiza baeri (Tucuman Mountain-Finch)

(Figure 1) is a poorly understood species. Many questions about this species; like the role the *C. baeri* plays as a part of their ecosystem, the species population history baseline, and the historical range of the *C. baeri*, simply cannot be

answered due to the fact that there isn't enough information,

as of now, in these areas. To help understand the habits and pressures on the *C. baeri*, the *C.*

baeri will be compared to its close cousin the *Compsospiza garleppi* (Cochabamba Mountain-

Finch). These comparisons, along with known information, will be presented to help give a

greater understanding of the *C. baeri* to the public and the scientific community with current

knowledge of the species, and will also be aimed at pointing out topic areas of study that are

missing or lacking information for this species.

Description

The *C. baeri* is blue-gray with an orange forehead, spot under its eyes, throat, upper chest, and on its bottom under its tail feathers (BirdLife International, 2014). This is similar with the *C. garleppi*, but *C. baeri* has a gray chest and the *C. garleppi* has a continuous orange chest (BirdLife International, 2014; Huanca, et al., 2009). Both *C. baeri* and *C. garleppi* have gray wings, tail feathers, and beaks (BirdLife International, 2014; Huanca, et al., 2009). Males and Females have the same markings, but the females have a smaller orange breast patch (BirdLife International, 2014) and the males have a slightly larger wing span of around 80 mm, opposed to the female wing span that are around 78 mm (Peris, 1997).

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History

The *C. baeri* was discovered in 1904 by É. Oustalet (BirdLife International, 2014). The species was previously labeled under the genus *Poospiza*, along with the *P. garleppi*, until 2009, when both species were reclassified under the genus *Compsospiza* by the SACC (South American Classification Committee) (BirdLife International, 2014). The *C. baeri* may not be a local endemic to North Western Argentina as previously believed. It was thought to only be found in the North Western part of Argentina, but there is one account of two *C. baeri* being seen in Estancia Waykhu, Tarija, in Bolivia during December 1999 (BirdLife International, 2014). No other accounts have been recorded, but the International Union for Conservation of Nature (IUCN) Red List classifies the *C. baeri* as a non endemic species (IUCN, 2012). Although it is possible that the two individuals observed were *C. garleppi* instead of *C. baeri* do to the fact that *C. garleppi* and *C. baeri* look very similar, are roughly the same size, and the *C. garleppi* is an endemic species to Bolivia (Huanca, et al., 2009; Peris, 1997). Further research is required to determine if the *C. baeri* are expanding their range.

Population

The *C. baeri* is currently classified as vulnerable under the IUCN Red List since 2012 (IUCN, 2012) and the population is believed to be declining since the habitat the *C. baeri* occupy is declining (IUCN, 2012). In 1985 the *C. baeri* were believed to have had a population of 180-200 birds, with only a couple hundred hectares of available habitat due to the loss of habitat (BirdLife International, 2014). The new estimated population size is believed to consist of 1,500 to 7,000 mature individuals, and probably 2,500 to 10,000 total individuals (BirdLife International, 2014). This estimate consisted of analyzing records, comparing range and known abundance dispersal of the known *C. baeri* (BirdLife International, 2014). The current

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information is supported by the analysis of other known populations of bird species that are similar in body size to the *C. baeri*, and contrasting the *C. baeri* estimated population with the known species population (IUCN, 2012).

Habitat

The *C. baeri* live between 2000 and 3400 meters above sea level in North Western Argentina. The normal range that *C. baeri* can be found are in semi-humid to semi-arid climates (BirdLife International, 2014). The total area of habitat for the *C. baeri* for breeding and residence is believed to be 11,600 km² (BirdLife International, 2014). The Western part of the *C. baeri* range is mountainous arid region with big cactuses at the higher elevation and *Prosopis* species at lower elevation (Peris, 1997). The Eastern part of the *C. baeri* range is covered by mountainous terrain that is made up primarily of grasslands containing *Festuca* and *Stipa*, with some patches of *Alnus acuminata* and *Polylepis australis* trees (Peris, 1997).

These mountainous areas contain steep ravines and gullies with thick shrub cover where *C. baeri* have been observed to be perched on ledges and in the bushes (Peris, 1997). One speculation for why the *C. baeri* inhabit these bushes in the steep ravines and gullies could be that the rugged terrain and vegetation would make a defensive barrier that would make it difficult for predators to get to the birds as well as camouflage for concealment. *C. baeri* has been observed carrying grasshoppers and other insects in their beak, and were believed to be feeding this to their young (Peris, 1997). It is unknown



Figure 1. Map of the *Compsospiza baeri* habitat in South America (Ridgely, 2010)

what the food source for the *C. baeri* is, though the IUCN believes that the birds may feed on seeds (IUCN, 2012). The diet of the *C. garleppi* consists of seeds and insects (IUCN, 2012).

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Knowing this, it would be reasonable to conclude that the *C. baeri* have a similar diet due to the two species similarities.

During the winter (July-August) it is possible that the *C. baeri* descend elevation as far down to 1200 meters above sea level. There is only one record of this occurring in La Rioja, so the evidence is inconclusive with current data (BirdLife International, 2014). It has been observed that the *C. baeri*, in the town Tafi del Valle, will gather in greater numbers on the bushes of the town residences private property when there's a heavy snow fall (Peris, 1997).

Breeding Habits

The *C. baeri* can usually be found in pairs and the density per kilometer varies from season to season (Peris, 1997). The breeding season for the *C. baeri* is from January-March, which are the summer months in Argentina. When breeding season occurs the species population disperses apart into mating pairs, and there is an average of about 0.02-0.03 individuals per square km, depending on elevation (Peris, 1997). The *C. baeri* will be found in these pairs throughout the entire breeding season and post breeding (Peris, 1997).

The nests of the *C. baeri* are still poorly understood. The first two recorded findings of the *C. baeri* nests were by Salvador Peris on his expedition in 1993 (Peris, 1997). The nests were located at Infiernillo mountain pass and Munoz peak. The first nest was located in a gully with thick *Stipa* spp. grass for protecting it on the ground (Peris, 1997). The nest contained three white eggs with purplish-brown and olive brown spots around the large end of the eggs (Peris, 1997). Peris's team measured the eggs, recorded the data, and left. When Peris's team came back five days later for follow up nest analysis and the eggs were destroyed so no data could be collected (Peris, 1997). This insight shows how vulnerable the *C. baeri* nest are to predation and other environmental factors.

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The second nest was located on the ground and covered by dense *Stipa* and *Festuca* for protection (Peris, 1997). The nest had one hatchling in it, along with a very light blue, almost white, egg that had similar markings to the previous nesting site (Peris, 1997). Peris's team did not take measurements of the egg this time since there was a hatchling in the nest (Peris, 1997). One adult *C. baeri* was emitting an alarm call from 6 meters away while the group was examining the nest (Peris, 1997). Nine days later the team observed two *C. baeri* carrying grasshoppers near where the nest was believed to have been, but the team could not locate the nest site (Peris, 1997). It's possible that the two *C. baeri* were feeding their young the grasshoppers like the *C. garleppi* have been observed feeding their young insects (Huanca, et al., 2009), but as of now this is inconclusive. Also with both the nest sites being unable to be used for analysis, the post hatchling data, such as; food source for the young, and how long the hatchlings take to develop, is still a mystery.

After breeding season (or post breeding season) the *C. baeri* density goes from 0.02-0.03 individuals per square kilometer to 0.25 individuals per square kilometer at elevations between 2,600 and 3,100 meters above sea level (Peris, 1997). This fledgling usually occurs around late March-April (Peris, 1997). This increase in density is believed to be linked to the density abundance during the winter (Peris, 1997).

Threats

The *C. baeri* are a naturally fragmented species, so these populations are facing both local and global extinctions (BirdLife International, 2014). There are a few threats that the *C. baeri* are facing. First they are facing habitat loss by humans introducing herbivores, such as goats and cattle, into the ravines where these animals eat the vegetation and eliminating the bushes for the *C. baeri* to build nests under, since they build their nest on the ground, and use

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bushes for protection (BirdLife International, 2014). The second threat is the growing agriculture. Both the strawberry and potato plantations are expanding close to the *C. baeri* habitat (BirdLife International, 2014). Not only is this putting stress on the *C. baeri* because of the close proximity, but the pesticides being used during breeding season are having an impact on many of the species in the area (BirdLife International, 2014; Peris, 1997). Some of these species are insects, which may be what the *C. baeri* use to feed their young. Finally, fires are a natural process in grass lands, but human alteration to the landscape could increase the spread and occurrence of fires that could possibly threatening the ravines and other locations the *C. baeri* nest and inhabit (BirdLife International, 2014).

Conservation Efforts

Currently there is a reserve in El Infiernillo, Tucuman that is protecting some of the ravines to keep the *C. baeri* and other species safe (BirdLife International, 2014). However this reserve is located at the upper limit for the *C. baeri* around 3,400 meters above sea level, effectively making this reserve ineffective for these birds (BirdLife International, 2014). There are two other conservation areas that recently recorded that *C. baeri* were present; Campo de los Alisos National Park, Tucuman and Cordillera de Sama Biological Reserve, Tarija (BirdLife International, 2014). These two refuges offer a safe haven for the *C. baeri* and other species from human development and may be very effective in restoring the *C. baeri* population in the future.

Unknown Information

There are vast amounts of information about this species that is still greatly unknown. Almost every topic has little to no information about the whole field of study. This is probably due to the fact that this terrain is hard to travel, and in many places inaccessible, to the *C. baeri*

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habitat (Peris, 1997). Many of the primary sources on the *C. baeri* are inaccessible to the public, making it hard to validate the secondary sources that can be found.

Conclusion

The *C. baeri* needs to be studied a lot more, in great length, to provide us with enough knowledge to both understand and help restore the species to a healthy population. Without knowing a species baseline, this will be hard, but if we compare the *C. baeri* populations to other species population that are similar, we can get an idea of where the population should be at to be considered a healthy population. Even without this information the *C. baeri* needs greater steps to be taken in conserving the species. Current conservation efforts aren't adequate since they aren't really protecting the habitat that the *C. baeri* is using. Over all, the species needs people to have awareness and understand that their actions have direct impacts on this species and many other species.

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