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Guanaco: Auca Mahuida, Argentina

Migration Description

The guanaco, South America's largest native ungulate, was officially included in the CMS Appendix II in 2024. Throughout its range, guanaco populations exhibit partial altitudinal and longitudinal migrations, a pattern that appears to be predominant among this species. Migration is primarily driven by variations in plant productivity and winter severity, with migratory guanacos benefitting from high-quality forage year-round, as their seasonal ranges coincide with periods of peak vegetation greenness. By shifting to lower, snow-free areas in winter, they also avoid the challenges of deep snow cover. In northern Patagonia, the guanacos living along the slopes of the Auca Mahuida Volcano display partial migration. Six of the 9 radio-collared individuals were found to migrate, which as a first estimate may indicate that many more of this population of several thousand animals also migrate. Migratory guanacos traveled two distinct migration routes: northward and eastward from the volcano. This might reflect individual flexibility, with animals adopting different migratory behaviors depending on annual environmental conditions. Or, these routes may indicate different migratory tactics expressed in the population. However, more data is needed to evaluate these migrations. During spring, guanacos typically migrate upslope toward higher elevation summer ranges, returning to lower elevations in winter. Prior to this study, migratory movements

of guanacos in this region of Patagonia had only been documented in the La Payunia Protected Natural Area, 150 km north of Auca Mahuida.

Threats to Migration

Across the Argentine Patagonia, migratory guanacos face a range of threats, including the proliferation of private property fences, illegal hunting, grassland degradation and forage competition from extensive livestock farming—all of which contribute to habitat fragmentation. In the Auca Mahuida Volcano region, the most significant threats are habitat degradation due to hydrocarbon development and illegal hunting facilitated by the network of roads created for hydrocarbon extraction activities. More research is needed to understand the level of human activity that may impact guanaco movements and the degree of habituation possible for populations living near new and ongoing development. Climate change is also expected to impact guanaco migratory dynamics. Increasing aridity across the region may modify the timing and extent of the growing season in summer ranges, where vegetation productivity—critical for guanaco reproduction—relies heavily on winter precipitation.

Local Population Facts

Migration

Seasonal 
Short 7.5 km (avg.)

Threats



Species Facts

Common name: Guanaco

Species name: *Lama guanicoe*

Range: Argentina, Bolivia, Chile, Paraguay and Peru

Diet: Grazers, but will browse on woody vegetation when needed

Global population: 1,000,000-1,500,000 (estimated 2016)

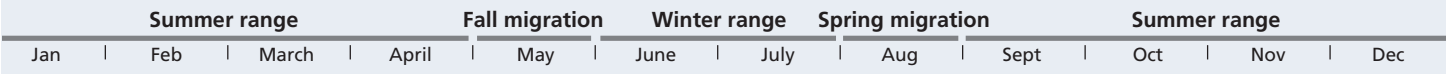
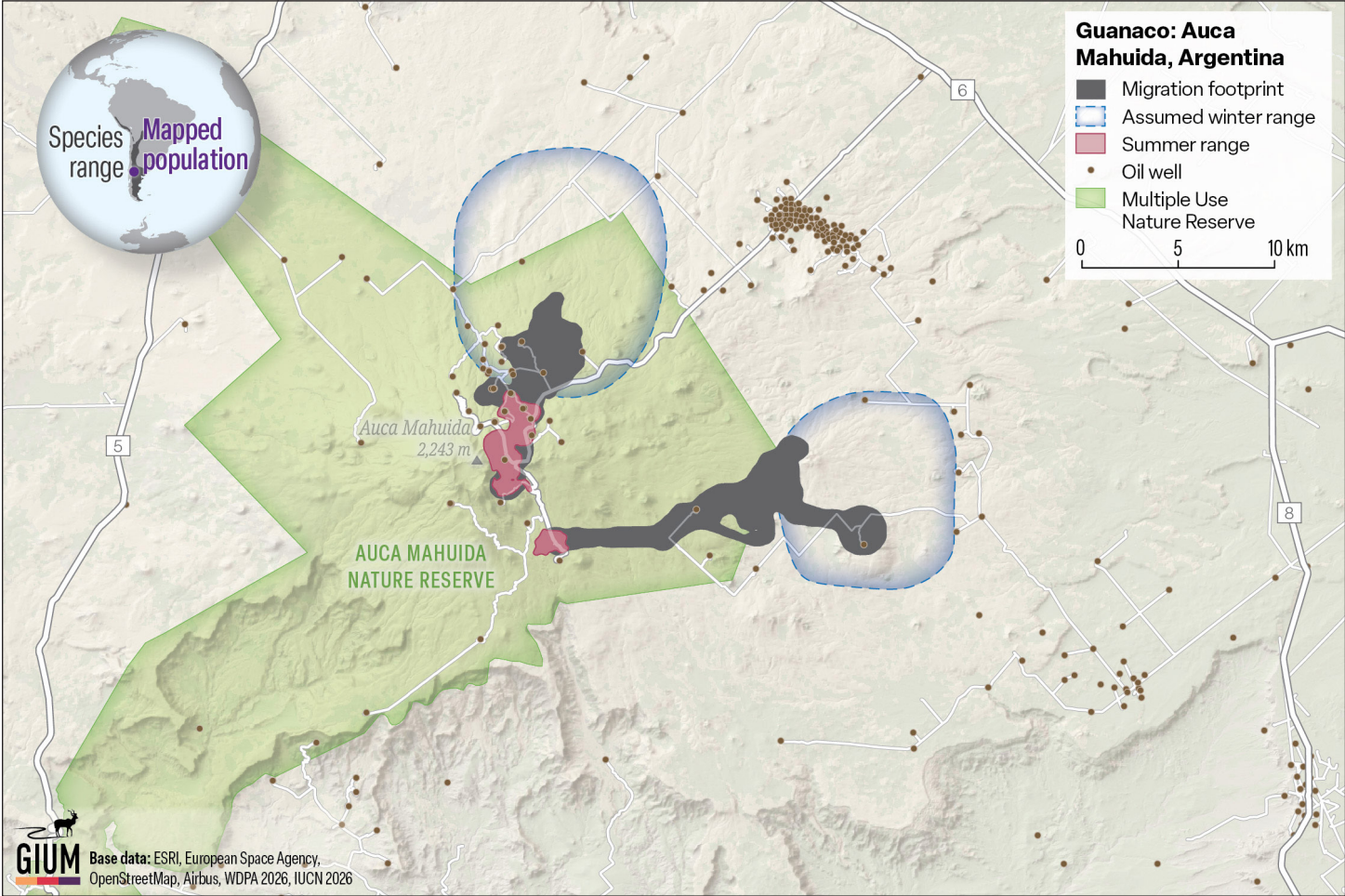
IUCN Conservation Status

LC Least concern

CMS Status

Appendix II Migratory species conserved through agreements

Guanaco Migration



Study Information

Relocation frequency

3 hours

Years mapped

2012–2013

Data Analysis

Migratory individuals mapped

6

Delineation of migration periods

Net squared displacement to delineate migration between seasonal ranges.

Models derived from

Brownian Bridge Movement Model; “assumed” seasonal ranges drawn from expert knowledge

Route Summary

Migration start and end date (median)

- Spring: August 4–August 11
- Fall: May 7–May 18

Average number of days migrating

- Spring: 12 days
- Fall: 6 days

Migration route length

- Min: 3 km
- Mean: 7.5 km
- Max: 16 km

Data Providers

Data were collected through the efforts of Andres Novaro, Lara Heidel, Marcela Uhuart, Virginia Rago, Pablo Gregorio, Gualberto Zalazar, Mariel Ruiz Blanco, Pablo Alarcón (INIBIOMA), and Ramiro J. A. Ovejero Aguilar with the support of Instituto de Biodiversidad Neotropical (IBN), Consejo Nacional de Investigaciones Científicas y Técnicas, Wildlife Conservation Society-Argentina, and Neotropical Grasslands Conservation.

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The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.



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The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.



View and Download Map Data from the GIUM Migration Atlas

All fact sheets, maps, and geospatial products are made available under a CC-BY 4.0 license.

Ovejero, R., L. Heidel & A. Novaro. 2026. Guanaco: Auca Mahuida, Argentina. Global Initiative on Ungulate Migration, editors. Atlas of Ungulate Migration. Convention on the Conservation of Migratory Species of Wild Animals. <https://doi.org/10.5281/zenodo.21878016>