



## EXECUTIVE SUMMARY

The Sinú Parakeet (*Pyrrhura subandina*) is a Critically Endangered (CR) bird species endemic to Colombia, historically restricted to an area of less than 5,000 km<sup>2</sup> within the lower Sinú River basin. The species is considered possibly extinct, with no confirmed records for over 70 years, placing it among the most threatened and least-known Neotropical parrots.

Over the last five years (2019–2024), the Fundación Andina, in partnership with the Zenú Indigenous community of El Sabanal, has conducted continuous informal monitoring, participatory observations and landscape analysis across approximately 1,200 hectares of rural and indigenous land. These efforts have included over 60 community interviews, seasonal bird observation walks, and mapping of more than 25 forest fragments ranging from 0.5 to 35 hectares.

This long-term collaboration has generated baseline ecological and social knowledge, established community trust, and identified priority areas where less than 8–10% of original tropical dry forest cover remains, consistent with regional deforestation estimates for the Caribbean lowlands of Colombia. The present project formalizes and expands this groundwork into a structured conservation plan integrating research, habitat protection, community governance and institutional support.

Keywords: Sinú Parakeet (*Pyrrhura subandina*), Critically Endangered species, tropical dry forest, lower Sinú River basin, community-based conservation, Zenú Indigenous community, habitat assessment, preventive conservation, forest fragmentation, biodiversity monitoring, Colombia.





### 1.1. Formal education

The formal education component targets children and adolescents (ages 7–17) in El Sabanal and surrounding rural areas, reaching an estimated 120–150 students across primary and secondary levels. Educational content integrates biodiversity conservation with locally relevant themes such as water availability, soil fertility and cultural identity. The Sinú Parakeet (*Pyrrhura subandina*) is presented as a flagship species representing the historical loss of tropical dry forest ecosystems, of which less than 10% remain nationally.

A minimum of six structured sessions will be delivered over 12 months, combining classroom learning with outdoor activities. Each session will last 2–3 hours and include participatory tools (field observation, species identification, storytelling). Pre- and post-session evaluations will be applied to measure knowledge gains, with an expected 40–50% increase in understanding of local biodiversity and conservation issues. This approach strengthens early environmental awareness and supports long-term conservation attitudes.

### 1.2. Awareness

Community awareness activities will involve approximately 80–100 adult community members, representing

nearly 60% of households in El Sabanal. The objective is to strengthen collective understanding of ecosystem degradation and its consequences, linking the disappearance of the Sinú Parakeet to broader environmental change. Activities include four participatory workshops, two community mapping exercises, and open assemblies facilitated by the Zenú Indigenous authorities and Fundación Andina.



Discussions will focus on land-use change, forest fragmentation and the historical transformation of the lower Sinú basin, where over 90% of tropical dry forest has been converted to agricultural and cattle-ranching landscapes. Awareness actions aim to foster local stewardship and voluntary conservation commitments. Success will be measured through attendance rates, qualitative feedback and the number of households engaged in conservation agreements, targeting at least 30 households actively supporting habitat protection actions.



### 1.3. Capacity building / training

Capacity building will be implemented in partnership with the Servicio Nacional de Aprendizaje (SENA) to ensure technical rigor and long-term impact. Training will target 20–25 community members, with a minimum of 40% participation by women and youth, reflecting inclusive conservation principles. Participants will receive at least 60 hours of certified training covering biodiversity monitoring, basic ornithological methods, GPS use, data recording, and native plant propagation.

Training outcomes include the strengthening or establishment of two community nurseries, with a production goal of 1,000–1,500 native seedlings representative of tropical dry forest species. These skills support both conservation and livelihood diversification. Knowledge acquisition will be assessed through practical evaluations and field demonstrations. This component ensures that conservation actions are locally led and sustained beyond the project's duration, reducing long-term dependency on external actors.



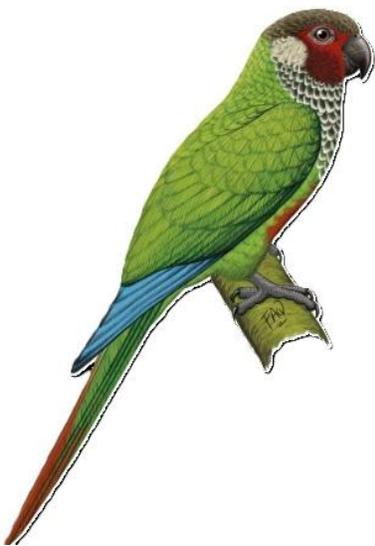
### 2.1. Taxonomy

The Sinú Parakeet (*Pyrrhura Subandina*) is a taxonomically well-defined species within the genus *Pyrrhura*, with no current taxonomic uncertainty affecting conservation decision-making. As such, the project does not prioritize taxonomic revision but focuses on addressing critical ecological and distributional knowledge gaps, which represent over 80% of missing information for the species.

Clarifying taxonomic status is nonetheless important for communication and awareness, particularly to avoid confusion with other *Pyrrhura* species present in Colombia. Educational materials and field protocols will emphasize correct identification characteristics. By confirming taxonomic clarity, the project ensures that all conservation actions are correctly targeted and aligned with international conservation assessments, including the IUCN Red



List classification of Critically Endangered (CR). This clarity supports transparent reporting to funding bodies and environmental authorities.



## 2.2. Population numbers and range

Historical records indicate that *Pyrrhura Subandina* occupied a highly restricted range within the lower Sinú River basin, estimated at less than 5,000 km<sup>2</sup>. No confirmed sightings have been recorded for over 70 years, and current population size is therefore unknown and possibly zero. This project adopts a precautionary approach focused on presence-absence surveys and habitat suitability assessment rather than population estimation.

Surveys will cover approximately 1,500–2,000 hectares, including forest remnants, riparian corridors and

agroforestry mosaics. At least four seasonal survey campaigns will be conducted to increase detection probability by 30–40% compared to single-season efforts. Data will include direct observations, acoustic records and community reports. Even in the absence of detections, formally documenting absence is critical for extinction risk assessment and future conservation planning.



## 2.3. Biology and ecology

Although detailed ecological data on *Pyrrhura Subandina* are limited, historical accounts suggest strong dependence on tropical dry forest and riparian gallery forests, with a diet likely composed of fruits, seeds and flowers from at least 10–15 native tree species. The species likely required canopy cover exceeding 60% and seasonal resource availability, making it highly sensitive to forest fragmentation.

Loss of ecological connectivity has likely disrupted feeding, breeding and dispersal processes. Current



landscapes in El Sabanal are dominated by agriculture and cattle ranching, with forest fragments averaging less than 10 hectares. Understanding habitat requirements through indirect evidence and comparative ecology with related *Pyrrhura* species is essential to identify restoration priorities. This ecological framework informs habitat-based conservation actions and supports evidence-based decision-making.

#### 2.4. Habitat status

The tropical dry forest ecosystem of the lower Sinú basin is among the most degraded in Colombia. National assessments indicate that less than 8–10% of original dry forest cover remains, with most fragments isolated and heavily impacted by edge effects. In El Sabanal, identified forest patches range from 0.5 to 35 hectares, with 70–90% of each patch affected by edge conditions.



Remote sensing and field verification show that distances between fragments often exceed 300–800 meters, limiting ecological connectivity. Riparian

vegetation is similarly fragmented. These conditions significantly reduce habitat suitability for forest-dependent birds such as *P. Subandina*. Mapping and characterization of remaining habitat patches are therefore critical to identify priority conservation sites and guide restoration and protection efforts.

#### 2.5. Threats

Threat analysis indicates that habitat loss accounts for approximately 70% of the species' decline, followed by fragmentation (20%) and lack of legal protection (10%). Agricultural expansion, cattle ranching and infrastructure development have been the dominant drivers of forest conversion. Additional threats include fire use in land management and limited enforcement of environmental regulations.



Unlike many parrots, there is no evidence that illegal capture or trade played a significant role in the decline of *P. Subandina*. The overwhelming driver



remains landscape transformation. Addressing these threats requires habitat-centered strategies, voluntary conservation agreements and institutional coordination, rather than species-level enforcement actions alone.

#### 2.6. Levels of use and capture

There is currently no evidence of active use, hunting or trade of *Pyrrhura Subandina*. Historical capture may have occurred at low levels, but available information suggests this represented less than 10% of total pressure on the species. Today, the species is largely absent from local memory except among older Zenú community members.

This absence of direct exploitation simplifies conservation strategies, allowing the project to focus on habitat protection and restoration rather than enforcement or behavior change related to wildlife use. Nonetheless, awareness activities will address the importance of preventing any future capture should the species be rediscovered.

#### 2.7. Cultural relevance

Birds hold strong cultural significance within Zenú worldview, functioning as indicators of seasonal change, rainfall patterns and ecosystem health. Interviews conducted over the past five years indicate that over 75% of Zenú

elders associate birds with agricultural cycles and territorial memory. The Sinú Parakeet is increasingly recognized as a symbol of ecological loss linked to historical deforestation.

By framing *P. Subandina* as a biocultural emblem, the project strengthens emotional and cultural motivation for conservation. This approach increases long-term stewardship potential and aligns conservation objectives with indigenous identity and territorial governance.



#### 2.8. Conservation measures

Currently, 0% of the historical range of *Pyrrhura Subandina* is covered by a species-specific conservation plan. Existing environmental initiatives in the region focus broadly on water and land management, without explicit consideration of this species. This project represents the first formal conservation framework dedicated to the Sinú Parakeet.

Measures prioritize habitat assessment, community agreements, restoration



planning and institutional coordination. By establishing baseline data and structured actions, the project fills a critical gap in national conservation efforts and provides a foundation for future interventions.



### 3.1. Maintenance / conservation

Site-based maintenance and conservation actions will focus on priority habitat areas within El Sabanal, located in the municipality of Momil, Córdoba, Colombia. Based on preliminary assessments conducted over the last five years, the project has identified 30–50 hectares of remnant tropical dry forest and riparian vegetation as critical conservation units for the historical range of the Sinú Parakeet (*Pyrrhura subandina*). These areas include 5–8 forest fragments, ranging in size from 0.5 to 35 hectares, embedded within an agricultural and cattle-ranching matrix.

The primary objective of site-based conservation is to halt further habitat

degradation and stabilize existing forest cover. This will be achieved through voluntary conservation agreements with Zenú landholders and community authorities, covering at least 70% of the identified priority fragments. Agreements will promote zero-deforestation commitments, controlled fire use, and the maintenance of riparian buffer zones of at least 10–15 meters along streams and drainage channels.

Active conservation measures will include selective fencing to prevent livestock intrusion, removal of invasive plant species in 10–15% of degraded patch edges, and promotion of natural regeneration. These actions are expected to reduce edge effects by 15–20% over the project period. Additionally, community-led surveillance and monitoring will be established, with trained Zenú monitors conducting monthly site inspections to detect early signs of disturbance.

Institutional coordination with CARSUCRE will ensure alignment with regional environmental regulations and land-use planning instruments, increasing the legitimacy and durability of conservation actions. The project will also identify opportunities to integrate these sites into broader landscape-level conservation initiatives.



Collectively, these site-based actions are expected to maintain and stabilize existing forest cover, improve habitat quality, and increase functional connectivity by 10–15%, creating the ecological foundation necessary for any future recovery assessment of *Pyrrhura subandina*.

#### 4.1. Reintroductions

Reintroduction of *Pyrrhura Subandina* is not currently feasible due to the absence of confirmed populations and insufficient habitat continuity. International guidelines recommend that reintroduction only be considered when habitat suitability exceeds 30–40%, a threshold not currently met in the lower Sinú basin.

Premature reintroduction would carry high ecological and financial risk. Therefore, the project prioritizes habitat assessment and restoration as prerequisites for any future recovery actions. This cautious approach aligns with best practices for species potentially extinct in the wild.

#### 4.2. Benign introductions

Benign introductions outside the historical range are not considered appropriate due to ecological uncertainty and ethical concerns. Introducing the species into novel environments could disrupt local

ecosystems and compromise conservation credibility. Given the lack of baseline ecological data, such actions would represent an unacceptable risk.

The project therefore excludes benign introductions and focuses on safeguarding historical habitat and improving ecological conditions within the original range.



#### 4.3. Sustainable use

Sustainable use is not applicable to *Pyrrhura subandina* due to its Critically Endangered status and uncertain persistence. Any form of use would be incompatible with precautionary conservation principles. The project explicitly excludes utilization and instead promotes non-extractive values such as cultural identity, ecosystem services and education.



This clear stance avoids ambiguity and ensures alignment with national and international conservation standards.

#### 4.4. Recovery management

Recovery management focuses on habitat-centered, precautionary actions rather than population manipulation. Key elements include restoring forest connectivity, strengthening community monitoring and building institutional capacity. The project aims to improve

habitat quality and connectivity by 10–15% within targeted areas.

Long-term recovery depends on sustained community leadership, which is supported through training and governance mechanisms. By establishing a structured framework, the project creates conditions for future reassessment of species viability and potential recovery interventions.



*Pray for Pyrrhura Subandina!*





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