



**CONSERVATION PLAN FOR THE BAIRD'S TAPIR
(*Tapirus bairdii*) IN THE COLOMBIAN ANDEAN MOUNTAIN**

Comprehensive strategies for the conservation of the mountain tapir, in the Emberá indigenous territory.

**WOMEN FOR BIODIVERSITY ORG
Chocó, Colombia.
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RESUME

After the irrefutable confirmation of the presence of this mammal in the Chocó Department, through the use of camera traps in December 2019, it is necessary to prioritize the implementation of the conservation strategy of this species that allows guaranteeing long-term the existence of this animal and its habitats in the Andean Mountain region of Colombia.

In this sense, this document corresponds to the presentation of the necessary actions to be carried out according to the assessment recently made on the ground, carried out by the **CORPOCHOCÓ - WOMEN FOR BIODIVERSITY ORG** agreement, identifying the viable possibilities to develop a particular plan that effectively corresponds to the characteristics current socio-environmental conditions of the area of influence of this animal that allows a harmonious execution between the indigenous Emberá, peasant, scientific and institutional communities of influence.

In January 2019, the National Program for the Conservation of the *Tapirus bairdii* in Colombia was published, Ministry of the Environment,

Housing and Territorial Development, where the national guidelines that seek to guarantee the conservation of the three species of this genus and their habitats present in Colombia were established. and to recover the populations of those that are in greater risk of extinction.

The document established the national action plan for the Colombian tapir *Tapirus bairdii* in a period of 1 to 10 years where it has now been adjusted for the conditions of the Colombian Andean Mountain Andes.

On the other hand, in 2016, with the publication of the Red Book for the Mammals of Colombia, the most threatened species were defined, where the Colombian tapir *Tapirus bairdii* is among those classified as the highest risk or critically endangered.

Similarly, the **CORPOCHOCÓ - WOMEN FOR BIODIVERSITY ORG 2020-2030** agreement took the first step in Colombia with the current location of *Tapirus bairdii* populations in La Colombian Andean mountain Andes, developing the first conservation actions for the Colombian tapir.

Keywords: conservation, indigenous Emberá, Danta, Andean Mountain, Andean region; water cycle.



Indigenous Emberá, in the Colombian Andean Mountain

1. OBJECTIVES

The objectives set for the work are:

1.1. General Objective

Identify and characterize the strategic ecosystems for the conservation of the Colombian tapir (*Tapirus bairdii*) in La Colombian Andean mountain Andes.



1.2. Specific Objectives

1. Carry out the characterization of the habitat of the Colombian Tapir and delimit its area of distribution in the Department of La Colombian Andean mountain Andes, with the purpose of proposing a protection category.
2. Carry out the corresponding genetic studies to know the genetic diversity of this population and the taxonomic revision of this sub-species through molecular analysis.
3. Develop an educational campaign for the conservation of the Colombian tapir in the communities of influence of this animal in La Colombian Andean mountain Andes.
4. Carry out continuous monitoring of the Colombian tapir and its habitat in La Colombian Andean mountain Andes, with the support of indigenous and peasant communities that inhabit the study area.

2. METHODOLOGY

For the identification and characterization of the ecosystems, the landscape units will be taken, where each one will be carried out an altitude record, georeferencing by GPS and sampling of the biodiversity present, for this purpose the characterization of the flora and predominant fauna as follows.

For the flora, samples of the plants will be taken by collecting the leaves, flower and fruit of the vegetation present, for subsequent characterization.

In the case of birds, the base list of AICA 004 San Salvador, made by Fundación Pro Sierra Nevada- FFE M- Ralf Strewed, will be taken and identification will be made by means of binoculars, songs and the use of fog nets to take photographs.

In the case of mammals, it will be done by identification of footprints, sightings and photographs of the camera traps to be installed.



For amphibians, direct nocturnal collections will be carried out in the study area to take photographs and subsequent identification.

In the case of reptiles, traps will be installed to collect this animal group and later be photographed and identify the species.

In the case of fish, fishing will be carried out in the rivers of influence for photographs and subsequent identification.

In the invertebrate group, the characterization will be done by trapping and direct collection for later identification and photographs.

2.1 Systematization of the information

The information generated will be managed in databases and geographic information systems of Colombian Andean Mountain Andes, for the generation of thematic maps.

The identification of species will be taken as the reference entity ICN the Institute of Natural Sciences of the National University of Colombia based in Bogotá.



To carry out the permanent monitoring of the Colombian tapir population in La Colombian Andean mountain Andes, it has previously been directly agreed with the indigenous communities, mainly Arhuaco and peasant farmers that share the habitat with the tapir, achieving total acceptance guaranteeing the execution of this activity,

since the people in concert have been defined (two indigenous and three peasants) to participate in this work according to the localities where the Tapir was found, which are:

- Jerez river basin.
- Basin of the San Salvador river and Naranjo river.
- Malaise River Basin.
- Middle part of the Palomino river basin called Sabena de Culebra.

In this sense, the training of these personnel will be carried out as a first step, for the management of camera traps and GPS, with the direct accompaniment of the specialist in tapirs of the IUCN (World Conservation Union).



The results (georeferenced photographs) of this work will be presented to Colombian Andean Mountain Andes in quarterly reports.

The genetic studies will be carried out in the Population Genetics laboratory of the Javeriana University directed by Professor Ph.D. Manuel Ruiz García and will be part of the project for the Master's candidate of the researcher responsible for this program.



The methodology to be used will be the collection of samples of hair, fecal matter and some pieces of skins, bones and teeth of hunted animals that can be obtained in the region, to carry out DNA extraction through the phenol Chlorophora procedure, the DNA will be amplified by Perkin Elmer's 9600 thermocycler system PCR and microsatellite markers developed for perissodactyls will be used for subsequent genetic analysis of the population according to the Hardy Weinberg equilibrium study, which will define the levels of excess or deficit of heterozygosity that will determine the levels accordingly. of genetic diversity.

On the other hand, the population Genetics laboratory in question has a large number of DNA samples from other populations of *Tapirus bairdii* the entire distribution in South America, which will make it possible to compare the genetic profiles and thus carry out the review. Taxonomy of this subspecies from the Sierra Nevada de Santa Marta using Molecular Biology.

The educational campaign on the conservation of the Colombian tapir in La Colombian Andean mountain Andes will consist of 7 workshops for the following localities: Roache, Comonoidal del Río Jerez, Dubula, Minogue, Río Ancho, Palomino and the indigenous community of Sabena de Culebra on the basin of the Palomino River.

Additionally, informative material will be distributed such as: posters, flyers, caps and t-shirts alluding to the conservation of the Tapir in La Colombian Andean mountain Andes.

2.2 Expected results

Carrying out this research will allow the identification of the main biotic components present associated with the habitat of the Colombian tapir with the purpose of proposing the definition of a sanctuary for the conservation of the Colombian tapir in La Colombian Andean mountain Andes and its associated biodiversity.



The product of this monitoring of the Colombian tapir population in La Colombian Andean mountain Andes will be the georeferenced photographs that will allow to start the process of knowledge of the

habitat zone of this subspecies and at the same time the recognition of individuals to understand the composition of the population associated with the ethological aspects such as activity, reproductive behavior, diets and relationships of individuals, among others.



The direct linkage of the community as co-researchers will be a stimulus that will generate a sense of belonging to the project, guaranteeing its realization and thus setting a precedent in the way of doing this type of project in Colombia.

Genetic studies will make it possible to know the level of evolutionary separation of this sub-species in the Sierra Nevada de Santa Marta, with the other sub-species of *Tapirus bairdii* thus together with the results of genetic diversity, estimate their expectations of viability of the future population.

At the same time, the environmental education actions around the Colombian tapir in La Colombian Andean mountain Andes will be the opportunity to promote the knowledge and the need for

conservation of this wonderful living fossil animal for Colombia and the world.

3. CONSERVATION PLAN FOR THE BAIRD'S TAPIR (*Tapirus bairdii*) IN THE COLOMBIAN ANDEAN ANDEAN MOUNTAIN

Based on the National Program for the Conservation of the *Tapirus* Genus in Colombia Ministry of Environment, Housing and Territorial Development, the Regional Autonomous Corporation of La Colombian Andean mountain Andes COLOMBIAN ANDEAN MOUNTAIN ANDES and the WOMEN FOR BIODIVERSITY ORG, in agreement, have initiated the corresponding actions to achieve the objectives of said plan, adjusted to the Department of La Colombian Andean mountain Andes from which the following document emerges.

3.1 The Tapir of Colombian Andean Mountain



Colombia is currently the only country with presence in its territory of the three species of Tapirs in South America, the Paramo Tapir *Tapirus bairdii*, the Chocó Tapir

Tapirus birdie and the Common Tapir Tapirus Terrestré's, the latter is known three sub species Tapirus bairdii Terrestré's, Tapirus bairdii enigmatic us and Tapirus bairdii.

For many years in the scientific environment the presence of this mammal in the Department of La Colombian Andean mountain Andes was speculated, which is why COLOMBIAN ANDEAN MOUNTAIN ANDES together with the WOMEN FOR BIODIVERSITY ORG made the diagnosis for this mammal in the Department, as a first step, in order to discard or confirm your presence.



The execution of the first part of the agreement, allowed to travel the north face of the Sierra Nevada de Santa Marta in the jurisdiction of the Department of La Colombian Andean mountain Andes, mainly in the Municipality of Dubula.

This work was able to verify what peasants and indigenous people have always been clear about, that the tapir is still in the wild in the Sierra Nevada, since in addition to searching for traces and conducting interviews in the local community, they could take the first photographs of the Colombian tapir in the Sierra Nevada de

Santa Marta in Guajardo territory, as evidenced by the attached report of the COLOMBIAN ANDEAN MOUNTAIN ANDES - WOMEN FOR BIODIVERSITY ORG agreement.

This finding has made it possible to draw attention to the need to build a conservation program for the Colombian tapir in the Department of La Colombian Andean mountain Andes that guarantees to avoid the extinction of the largest wild mammal present in the Department.

3.2 General objective of the program

Guarantee the conservation of the Colombian tapir Tapirus bairdii Hershkovitz 1954 and its habitats in La Colombian Andean mountain Andes.

Specific objectives

1. Assess, recover and protect critical habitat areas for the Colombian tapir in La Colombian Andean mountain Andes.
2. Design and carry out the monitoring of the identified tapir populations.
3. Design and execute ex situ conservation actions in support of the conservation program.
4. Implement environmental education and community participation actions that guarantee the development of public awareness about the Colombian tapir, its vulnerability to extinction and its importance in ecosystems.



4.3 Goals and methodologies

The specific goals are framed in four lines of action:



Line 1. Research and monitoring of populations

Line 2. Evaluation, recovery and protection of the habitat.

Line 3. Ex situ conservation.

Line 4. Environmental education and community participation.

4.4 Lines of action

Colombian Tapir *Tapirus bairdii* action plan in the Department of La Colombian Andean mountain Andes. The lines of action that

will be taken into account for the development of the proposal are:

4.4.1 Line of action 1.

Research and monitoring of populations 1-10 years:

- Search for new records.
- Determination of density and demography.
- Determination of the use of habitat and behavior.
- Molecular revision of the taxonomic determination.
- Health evaluation of the population.
- Determination of diets.

Results:

- Updated list, map of localities with confirmed presence of *Tapirus bairdii*
- Characterization of the populations in the areas with the presence of *Tapirus bairdii*.
- The evaluation of the use of the habitat.
- The molecular determination of the taxonomic status of the population of *Tapirus bairdii*.
- Determination of the health status of the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.



- Notes on the behavior of this population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.

Methodology:

For the permanent monitoring of the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes, the participation of the indigenous and peasant community influenced by the Dante will be counted on, through the training of these personnel in the management of photo-stations. monitoring through the use of camera traps and GPS.

The information obtained from the monitoring photo-stations will allow, in the long term, to know the use of habitat, composition and dynamics of the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes, refining the results by crossing methodologies such as the study of footprints and the use of collars for satellite telemetry.



The follow-up of this monitoring will allow knowing and associating aspects, nutritional and behavioral that will make it possible to make notes to infer the ecology of this mammal.

The installation of collars for telemetry will require the capture of some animals, making it possible to obtain biological samples, which together to the hair, fecal matter and skin samples of hunted animals, they will make possible the molecular genetic study for the taxonomic confirmation of this subspecies and of another part with the blood and DNA samples obtained to analyze the sanitary condition of the individuals that allows make a transpotation to the health condition of the population.



4.4.2 Line of action 2.

Habitat assessment, recovery and protection 1-10 years:

- Obtaining and analyzing geographic information in satellite images, aerial photographs and field evaluation of the current coverage, status and use of the land in the priority areas for the population of *Tapirus bairdii*
- Design and zoning of priority areas for the recovery of habitat in the potential distribution area of the *Tapirus bairdii* population.
- Protect the current areas with the presence of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.



- Recover the priority areas defined for the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Design and implement biological corridors between habitats that guarantee flows of the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Design and implement management plans for new protected areas in the distribution

region of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.

Results:

- Zoning map of coverage and current land use at a scale of 1: 50,000
- Document of the evaluation and characterization of the habitat for the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Municipal land use planning plans that include the recovery and protection of specific habitat areas for the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Management plans designed and implemented for protected areas for the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Temporal map of the recovery and maintenance of priority areas for the population of *Tapirus bairdii* in the Department of La Colombian Andean mountain Andes.
- Established biological corridors.



Methodology:

Through the use of GPS satellite technology, photographs and the use of geographic information systems, together with the permanent monitoring field work, it will allow the establishment of management plans and biological corridors for the benefit of the population of *Tapirus bairdii* in La Colombian Andean mountain Andes.

4.4.3 Line of action 3

Ex situ conservation 1-10 years:

- Design and implementation of the reproduction program for *T. Terrestre*, ex situ within La Colombian Andean mountain Andes.



- Design and implementation of a community education program associated with the *Tapirus bairdii* reproduction program in the Department of La Colombian Andean mountain Andes.

Results:

- Design and construction of the *Tapirus bairdii* reproduction center in the

Department of La Colombian Andean mountain Andes.

- Establishment of the first pair of *Tapirus bairdii* for the ex-situ reproduction program in the Department of La Colombian Andean mountain Andes.

- Establishment of the community education program associated with the *Tapirus bairdii* reproduction center in the Department of La Colombian Andean mountain Andes.

Methodology:

The permanent monitoring of the population of *Tapirus bairdii* in La Colombian Andean mountain Andes will allow to design and plan adequately and strategically the way to start the ex-situ reproduction program, which allows to support the conservation activities of this Tapir in the Department of La Colombian Andean mountain Andes.

4.4.4 Line of action 4.

Education and community participation 1-10 years:

- Active participation of the community of influence of the Tapir in the research activities of this conservation program.

- Development of information workshops on tapirs, their habitat and the conservation of biodiversity.



- Inclusion of the issue of conservation of tapirs and their habitat in the academic programs of the student population of the Department of La Colombian Andean mountain Andes.

- Promotion of the conservation of tapirs in La Colombian Andean mountain Andes.

Results:

- Training and participation of the group of indigenous and peasant Dante researchers from La Colombian Andean mountain Andes.

- Training of the community on the subject of Tapirs and their conservation.

- The daily management of the subject of Tapirs and their conservation in the academic centers of the different levels, in the Department of La Colombian Andean mountain Andes.

Methodology:

The direct involvement of the indigenous and peasants in the management of the photo monitoring stations of the tapirs in La Colombian Andean mountain Andes, will allow the formation of the group of community researchers. This aspect will facilitate the direct inclusion and

appropriation of this project by the community, in the same way the workshops will be carried out to a great extent by this group of community researchers, allowing greater success in penetrating the message in the community.



Additionally, academic material such as primers, posters and videos of the tapir and its conservation in La Colombian Andean mountain Andes will be prepared, which will be part of the study materials of the educational institutions of La Colombian Andean mountain Andes, to achieve greater coverage of this educational program.



All the previous activities will be reinforced with the elaboration of articles such as t-shirts, caps, flyers and others that will be delivered to the community of La Colombian Andean mountain Andes.

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