

**CONSERVATION AND MANAGEMENT PLAN FOR
ROSEWOOD (ANIBA ROSODORA) IN THE SOUTH-SOUTH
REGION OF THE AMAZON RIVER WATERSHED
2020-2030**



WOMEN FOR BIODIVERSITY ORG



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1. INTRODUCTION

Colombia is classified as a megadiverse country as it has around 10% of the planet's biodiversity. However, this biodiversity is at risk due to the increase in the area devoted to agricultural activities, the accelerated degradation and loss of the soil, the overexploitation of wood and the effects of climate change such as forest fires, floods and landslides that lead to the transformation of landscapes as they are known.

The species *Aniba rosodora* (L.), in the red book of plants of Colombia (preliminary version February 2006) has been categorized as Critically Endangered (CR A2cd) for the national territory, mainly due to the following factors, the ecosystem in which grows "dry forests of the Amazon" has suffered an accelerated process of destruction by man, and on the other, has been the subject of intense commercial exploitation. Notwithstanding the foregoing, in the CAR 2004 territory vegetation book, reference is made to the department of AMAZON RIVER WATERSHED, geographical distribution in the municipalities that are in the dry zone of the Magdalena river valley. It lives between 0 and 400 meters above sea level, in the tropical dry forest (bs-T) it is a native species.

As described above, the WOMEN FOR BIODIVERSITY ORG of AMAZON RIVER WATERSHED within the framework of the missionality granted by Law 99 of 1993 and in order to continue contributing to the generation of tangible strategies, I prioritize the species *Aniba rosodora* (L.) (ROSEWOOD) for the year 2019, in compliance with goal 4.1 "Formulate and



implement 100% of the diagnosis, conservation or management strategy for four (4) species of Fauna or Flora (Threatened - invasive) and / or ecosystems" of the 2020-2030 Action Plan; In this understanding, the development of the Management and Conservation Plan of the *Aniba rosodora* (L.) species, in the Amazon Jurisdiction, has been proposed as an input to generate and strengthen the actions that promote the conservation of this species.

1.2. Formulation of the management and conservation plan as a management tool for the threatened of the Amazon jurisdiction.

Floristic diversity, as part of the natural heritage of the territory, represents an enormous collection of biological diversity that, in the case of Colombia, gives it a privileged place in the ranking of world biological diversity; In addition to this, the floristic heritage is part of an important traditional heritage of uses and worldviews that is inherited from our predecessors and wealth for our predecessors, its components and services benefit society, as they provide a large number of benefits to urban communities and rural, elements necessary for the development of society. Colombia ranks second in floristic diversity, with approximately 41,000 species reported,

so its mission in the study, knowledge and conservation of species should be a priority on the agendas of the authorities that make up the National Environmental System SINA.

In addition to being an economic resource and providing environmental services, the evolutionary inheritance and the genetic pool that keeps floristic diversity is another bulwark of our nature, since it houses a promising bank of molecules, metabolites and other derivatives useful for biotechnology. specifically, for the pharmacological, food and nutritional fields. Currently we evidence pressures such as habitat reduction, habitat degradation, pollution and deforestation put our natural capital at risk (Vallejo & Gómez, 2017).

The WOMEN FOR BIODIVERSITY ORG, in its mission to face the loss of biodiversity, proposed the implementation of strategies at national and regional scale, which have been designed to identify the main threats to the conservation of species and in this way generate strategies to maintain their populations, mitigate the deterioration of ecosystems and develop strategies for the recovery of the species. Authors such as (Kattan, Mejía, & Valderrama, 2005) propose: “the formulation and implementation of Focal Species Conservation Plans, defined as “synthesis, consultation and planning tools that compile the state of knowledge about the biology of the species, their state of conservation, the threats they face and the actions that would be necessary to take to protect them, framed all this within a socio-political and economic context, to reverse the decline of populations”.

WOMEN FOR BIODIVERSITY ORG, as part of its management, aimed at the conservation and use of the territory's biodiversity, has proposed within the framework of the prioritization for 2019, the formulation of the Management and Conservation Plan for ROSEWOOD *Aniba rosodora* (L.), with the ultimate goal of conservation, that is, to prevent the extinction of the species, or better yet, to maintain its populations at ecologically healthy levels.

For the development of this Management and Conservation Plan, the following were taken as selection criteria for the species:

- The degree of threat
- Area of occupation within the jurisdiction of WOMEN FOR BIODIVERSITY ORG.
- Representativeness in ecological and functional terms of ecosystems.



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For the construction of this Management Plan, a compilation and consolidation of secondary information was carried out on aspects such as distribution, ecology, threats and habitats, tending to direct the information to the limits that the SINA has as an Amazonian jurisdiction.

2. OBJECTIVES

1.1 General objective

Generate a tool for the management and conservation of the *Aniba rosodora* (L.) species, which guarantees in the short, medium and long term the well-being of its populations in the Amazon jurisdiction.

1.2 Specific objectives

- Identify the conservation status and threats of the species in Colombia and in the Amazon jurisdiction.
- Diagnose the current state of the populations and habitat of the *Aniba rosodora* (L.) , in the Amazon jurisdiction.
- Formulate the action plan for the management and conservation of the *Aniba rosodora* (L.) , in the Amazon jurisdiction.

3. DESCRIPTION OF THE SPECIES

3.1. Taxonomy

Family: Lauraceae

Scientific name: *Aniba rosaeodora* Ducke

Common Name: "palo rosa"

Other Common Names: "pau rosa" (Brazil), "palorosa", "palo de rosa" (Colombia), "cara-cara" (Guyana), "rozenhout" (Suriname), "bois de rose" (French Guyana) and "palo rosa" (Peru).

The screenshot shows the IUCN Red List profile for *Aniba rosaeodora*. The top navigation bar includes tabs for Taxonomy, Assessment Information, Geographic Range, Population, Habitat and Ecology, Threats, and Use and Trade. Below the navigation bar, the Taxonomy section is expanded, showing the following classification:

KINGDOM	PHYLUM	CLASS
Plantae	Tracheophyta	Magnoliopsida
ORDER	FAMILY	GENUS
Lurales	Lauraceae	Aniba

Below the taxonomy section, there is a link for "Taxonomy in detail". The Assessment Information section shows the IUCN Red List Category and Criteria as **Endangered A1d+2d** and the Assessment Language as **English**. The version is noted as ver 2.3.

3.2. Botanical description of "palo rosa"

Medium to large tree, 30 to 80 cm in diameter and 18 to 35 m in total height, with stem straight and branching from the second third. Lenticel outer rind, light brown color; homogeneous inner bark, light pink color, with strong and fragrant odor. Terminal twigs with angular section, 2-4 mm in section, glabrate. Simple, alternate leaves, 8-12 cm long and 3-6 cm wide; petiole 4-6 mm long,

blades obovate with pinnate veins, secondary nerves 10-14 pairs, robust, flat on the upper surface and prominent on the underside, the apex of the lamina rotundo, the acute base, the entire margin, the leaves glabrous on the upper side, diminutively pubescent and pale on the underside. Inflorescences in panicles 10 to 17 cm long, puberulous.

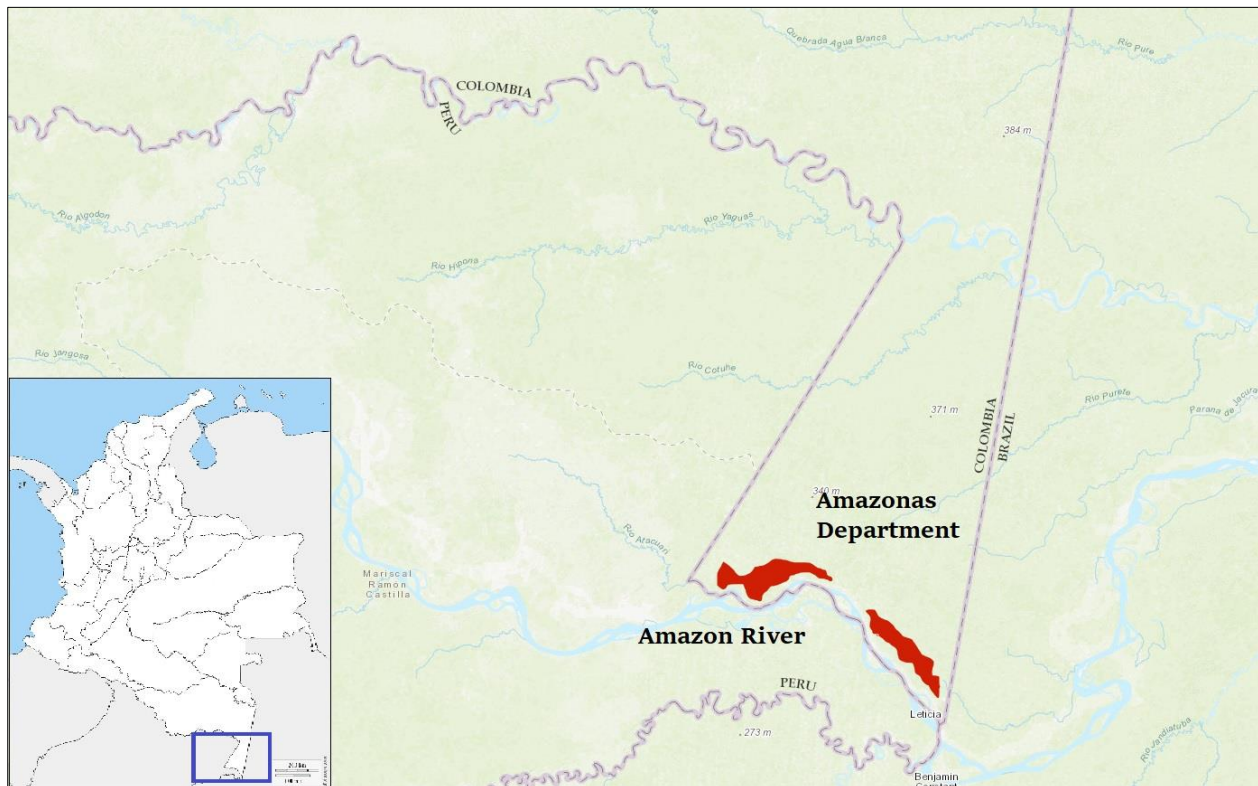
Flowers 1.5-1.8 mm long, hermaphroditic, actinomorphic, the pedicel 1-2 mm long, the tepals 6, ovate, 8 mm long, pubescent, the fertile stamens 9, 0.7 mm long length, in whorls I and II introrsos, in whorl III extruders, the pistil glabrous, 1.5 mm in length. Fruits drupe green, globose, 3.5 cm long, the dome lenticular, 2 cm long, covering half, the single seed. (Reynel et al 2016).


3.3. Distribution and Natural Habitat of "palo rosa".

In Colombia it has only been registered in the department of Amazonas (Cárdenas & Salinas 2007), (Ministry of Environment and Development Sustainable (MADS) 2015).

In Brazil, "palo rosa" has been found in the most remote areas of the state of Amapá, in the vicinity of the border with Perú, which are still preserved due to difficult access (IEA 1993); the strip with the highest concentration of "palo rosa" is located from the headwaters of the river Curua Una to the borders with Peru, in the southern part, and from the Trombetas River to Colombia on the northern side (IEA 1993), (Ministry of Environment and Sustainable Development (MADS, 2015).

Geographical distribution of the Rosewood populations



 **Rosewood populations in Colombia.**

The populations have experienced an observed reduction of $\geq 70\%$ in the last 10 years or in three generations, depending on the longest period, in which it can be shown that the causes of the reduction are clearly reversible based on overexploitation.

It grows mainly in Amazonian forests on the mainland; it has also been recorded in forests white sand shallows (Leite & Lleras 1993). It is preferably found inside the dense primary forest of highlands and of medium altitude, where the soil is deep and well drained (Lorenzi 1998). The areas that marginalize the Upper and Middle Amazon are considered as the suitable habitat for the “rosewood” (IEA 1993), (Ministry of Environment and Sustainable Development (MADS) 2015).

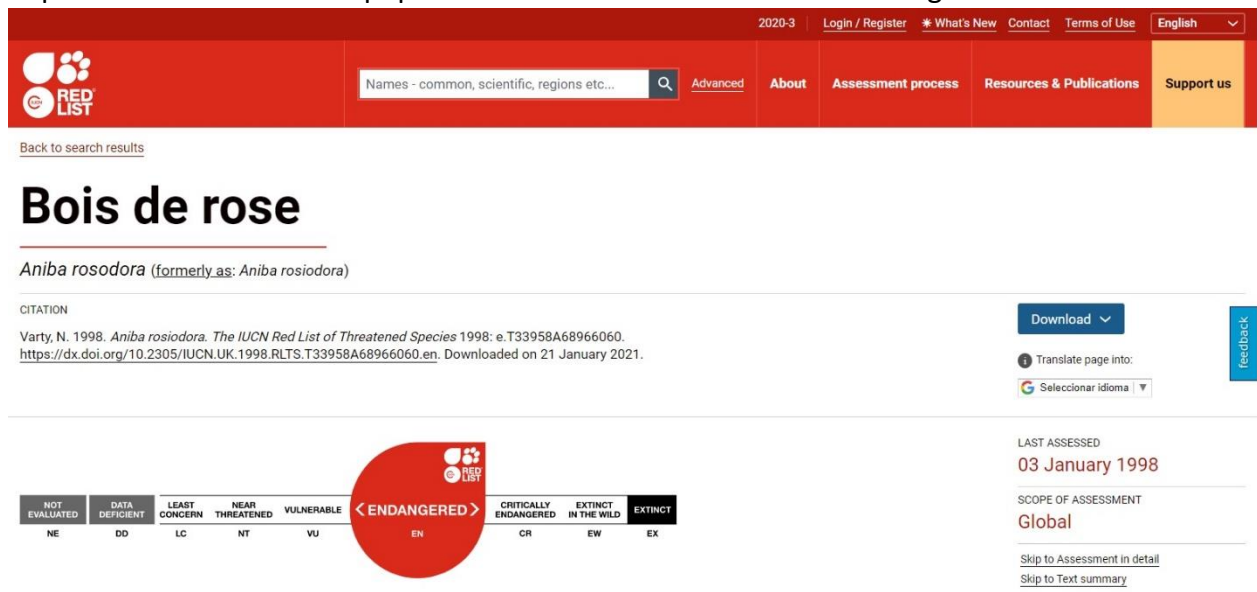
The habitat of the population evaluated in the department of Amazonas, corresponds to forests mature from the mainland, hilly area with slopes between 10 and 45%. The forest has height average of 28 meters with emergent trees up to 40 meters; presents high presence of lianas and high epiphytism. The understory is semi-dense and the litter is approximately 5 cm thickness. Among the associated species, the *Astrocaryum ferrugineum* palm stands out. Soils are very well drained, predominantly the sandy fraction.

3.5. Main threats

1. Forest fires
2. Overexploitation for oil extraction
3. Deforestation for agriculture and mining
4. Invasive species

3.6. Current situation

Species considered Critically Endangered (CR A2cd) due to the fact that only three localities are known in which an intense extraction process has been registered and, therefore, the impoverishment of natural populations. In Global IUCN redlist is Endangered:



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Bois de rose

Aniba rosodora (formerly as: *Aniba rosiodora*)

CITATION
Varty, N. 1998. *Aniba rosiodora*. *The IUCN Red List of Threatened Species* 1998: e.T33958A68966060. <https://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T33958A68966060.en>. Downloaded on 21 January 2021.

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LAST ASSESSED
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SCOPE OF ASSESSMENT
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NOT EVALUATED DATA DEFICIENT LEAST CONCERN NEAR THREATENED VULNERABLE < ENDANGERED > CRITICALLY ENDANGERED EXTINCT IN THE WILD EXTINCT
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4. OPERATIONAL FRAMEWORK: LINES OF ACTION AND STRATEGIES FOR THE MANAGEMENT AND CONSERVATION OF DEL ROSEWOOD (*Aniba rosodora*). IN THE JURISDICTION OF AMAZON RIVER WATERSHED.

The lines of action and strategies for the management and conservation of species and their habitats are based on the analysis of the state of their populations and the degree of threat. Seeking to generate priority actions in the short, medium and long term.

The planning process for the management of species with some threat risk requires involving a series of inter-institutional relationships and community participation, the promotion of research and educational programs, as well as the strengthening or revision of the existing legal regulatory framework. Said planning should trigger lines of action for its conservation, addressing in a comprehensive manner the solution to the problem of the exploitation of the species and destruction of the natural habitat. (G. Kattan et al., 2005; Valderrama & Kattan, 2006).

G. Kattan et al., 2015, establishes the following 5 lines of action to address the management and conservation of the species and their habitat:

1. IN-PLACE RESEARCH AND MONITORING

- 1.1. Action Recovery Plan
- 1.2. Systematic monitoring scheme

2. IN-PLACE LAND / WATER PROTECTION

- 2.1. Conservation sites identified
- 2.2. Area based regional management plan
- 2.3. Occurs in at least one protected area
- 2.4 Invasive species control or prevention

3. IN-PLACE SPECIES MANAGEMENT

- 3.1. Harvest management plan
- 3.2. Successfully reintroduced or introduced benignly
- 3.3. Subject to ex-situ conservation

4. IN-PLACE EDUCATION

- 4.1. Subject to recent education and awareness programs
- 4.2. Included in international legislation
- 4.3. Subject to any international management / trade controls

In the Colombian Amazon, for *Aniba rosodora*, records of occurrence were obtained from the collection of secondary and primary information. In this sense, there is a complex scenario for the formulation of strategies for the management and conservation of the species, therefore, research must be promoted in order to determine if the species is distributed or distributed naturally within Of the territory.



LINE OF ACTION 1: Inventory and knowledge of the species.

SPECIFIC OBJECTIVE 1: Compile, systematize and organize information on the species for the construction of the diagnosis on its current state and conservation.

SPECIFIC OBJECTIVE 2: Inventory the populations of Aniba rosodora for the creation of a current distribution map that guides decisions on their conservation and management.

Activities	Execution time	Expected results	Management indicators	Actors involved
Activity 1: review all available sources for the construction of a diagnostic document on the current status of the species in the Amazon jurisdiction.	2 years	Diagnosis of the current situation of the species for the Amazon jurisdiction.	Percentage of knowledge of the species according to the information collected, reviewed and presented in a diagnostic document.	- WOMEN FOR BIODIVERSITY ORG Corporation -CorpoAmazonas -UniAmazonas
Activity 2: carry out samplings in defined areas with high and medium probability of distribution to search for the species in the ecosystems reported.	2 years	Report on the current status of the distribution of the species for the Amazon jurisdiction.	Percentage of municipalities and ecosystems sampled to establish the real distribution of ROSEWOOD.	- WOMEN FOR BIODIVERSITY ORG Corporation -CorpoAmazonas -UniAmazonas

LINE OF ACTION 2: Landscape conservation and management

SPECIFIC OBJECTIVE 3: Inventory, reference and evaluate the current state of natural and artificial ecosystems where the presence of Rosewood (Aniba rosodora) occurs or could potentially occur.



SPECIFIC OBJECTIVE 4: Generate schemes and implement restoration, recovery and management actions of the ecosystems where the Rosewood (Aniba rosodora) lives or could potentially inhabit.

Activities	Execution time	Expected results	Management indicators	Actors involved
<p>Activity 3: delimit, evaluate and know the current state of the ecosystems in which the presence of Rosewood (Aniba rosodora) is reported, or in which it can potentially be reported.</p>	10 years	<p>Conclusions on the current state of the habitats of the Rosewood (Aniba rosodora), its threats and opportunities for its conservation as an element in the design and makes decisions about the restoration strategies to be implemented.</p>	<p>Number of wetlands evaluated in the Amazon jurisdiction.</p>	<p>- WOMEN FOR BIODIVERSITY ORG Corporation -CorpoAmazonas -UniAmazonas</p>
<p>Activity 4: based on the conclusions obtained from actions 1,2,3, design, standardize and implement actions for the restoration and recovery of ecosystems that favor the increase in the populations of Rosewood (Aniba rosodora), its associated species.</p>	10 years	<p>Recovery of the current and potential habitats of the species. Increase in populations. Increase in services environmental conditions it provides. Increase in populations of associated species.</p>	<p>Percentage of wetlands restored. Percentage of ecological connectivity generated. Percentage of increase in the populations of the species. Percentage of increase in associated populations.</p>	<p>- WOMEN FOR BIODIVERSITY ORG Corporation -CorpoAmazonas -UniAmazonas</p>

LINE OF ACTION 3: Conservation and management of specimens and populations in situ and ex situ

SPECIFIC OBJECTIVE 5: Define strategies for the increase and population connectivity of Rosewood (Aniba rosodora), in the WOMEN FOR BIODIVERSITY ORG territory.

SPECIFIC OBJECTIVE 6: Establish mechanisms for the recovery, rehabilitation and reintroduction of seized specimens of Rosewood (Aniba rosodora).

Activities	Execution time	Expected results	Management indicators	Actors involved
Activity 5: generate guidelines and procedures for handling specimens of Rosewood (<i>Aniba rosodora</i>), or those affected by any circumstance.	2 years	Protocol for the handling of Rosewood (<i>Aniba rosodora</i>) specimens, seized, or affected by any circumstance.	Documents generated from the protocol.	- WOMEN FOR BIODIVERSITY ORG -CorpoAmazonas -UniAmazonas

RESEARCH AND MONITORING LINE

The line of research and monitoring groups together all the activities and projects that may be developed in order to generate knowledge or fill information gaps on priority aspects for the conservation of the species, such as its biology, ecology, genetics, population dynamics, forestry, among others. One of the problems that arises when proposing the conservation of species is the difficulty of accessing sources of technical and scientific information by researchers, planners and decision makers (Kattan et al. 2005). This was evidenced in the formulation of the diagnosis of the species, therefore, the generation of knowledge, information and technology transfer, will be aimed at stimulating the scientific capacity to carry out the appropriate research that generates the necessary information for the improvement of the proposal for the management, conservation and sustainable use of the species.

PROBLEM: There is a lack of information for Colombia on priority aspects for the conservation of the species, such as its biology, ecology, genetics, population dynamics, forestry, distribution, among others. The foregoing did not allow to establish whether the species is distributed naturally, its populations are diminished or it is extinct in the jurisdiction of WOMEN FOR BIODIVERSITY ORG.

GOAL: To establish a research and monitoring program for biology, ecology, genetics, population dynamics, forestry, habitat and geographic distribution of the species that allows filling in information gaps on its natural history and the generation of new knowledge.

ACTION LINE 4: Investigation and monitoring

Specific Objective 1: Formulate strategies that allow obtaining the necessary information to determine the geographic distribution of the species in the Amazon jurisdiction.

Specific Objective 2: Formulate strategies that allow obtaining the necessary information on the habitat where populations of the species are registered within the national territory.

Specific Objective 3: Establish a research and monitoring program for the remaining natural populations of the species that allows filling in information gaps on its natural history and the generation of new knowledge.

Activities	Execution time	Expected results	Management indicators	Actors involved
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Activity 1: Evaluate the status of populations (population density and size) and their habitat.	1-5 years	Status of the populations of the species in the national territory	Number of populations and habitats evaluated	- WOMEN FOR BIODIVERSITY ORG -CorpoAmazonas -UniAmazonas
Activity 2: Determine the presence of populations at sites potentials within their high potential distribution.	1-5 years	Evaluation of potential sites	Number of sites explored	- WOMEN FOR BIODIVERSITY ORG Corporation -CorpoAmazonas -UniAmazonas
Activity 3: Formulate a program to monitor populations and their habitats.	1-5 years	Monitoring protocol	Number of monitoring carried out	- WOMEN FOR BIODIVERSITY ORG -CorpoAmazonas -UniAmazonas

ACTION LINE 5: Education and communication

SPECIFIC OBJECTIVE 9: Design and implement environmental education strategies for the protection of Rosewood (Aniba rosodora), and its habitats with related stakeholders.

Activities	Execution time	Expected results	Management indicators	Actors involved
Activity 9: design, implement and evaluate with the different actors involved, strategies that contribute to increasing knowledge about the species, the importance of protecting ecosystems and the environmental services involved. 2 years Production of pedagogical tools for working with the actors involved in the conservation of Rosewood (Aniba rosodora).	1 year	Increased awareness and participation in stakeholder engagement activities for the conservation of Rosewood	Percentage of tools generated for the conservation of Rosewood (Aniba rosodora). Percentage of success in the conservation of Rosewood (Aniba rosodora), through the designed pedagogical tools.	- WOMEN FOR BIODIVERSITY ORG -CorpoAmazonas -UniAmazonas

LINE OF ACTION 6: Institutional strategic alliances for conservation.

SPECIFIC OBJECTIVE 10: Identify and create strategic alliances with public and private entities to generate cooperation projects that contribute to the conservation of Rosewood (Aniba rosodora).

Activities	Execution time	Expected results	Management indicators	Actors involved
<p>Activity 10: Make strategic alliances with both governmental and non-governmental intuitions that allow joining efforts of various types, including economic, academic, physical, among others, to favor the development of this plan and the fulfillment of its objectives. 10 years.</p>	<p>2-10 years</p>	<p>Establish all possible strategic alliances that may benefit the management and conservation plan in each of the stages for the adequate and satisfactory development of all the lines of the plan.</p>	<p>Percentage of alliances, agreements, projects carried out with governmental or non-governmental institutions for the development of the lines for the management plan and conservation of the Rosewood (Aniba rosodora).</p>	<p>- WOMEN FOR BIODIVERSITY ORG -CorpoAmazonas -UniAmazonas</p>



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