



ESPINHAÇO RANGE BIOSPHERE RESERVE

PHASE 2

MINISTRY OF THE ENVIRONMENT
THE BRAZILIAN COMMISSION FOR
'THE MAN AND THE BIOSPHERE' PROGRAMME - COBRAMAB
STATE COMMITTEE OF ESPINHAÇO RANGE BIOSPHERE RESERVE



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



ESPINHAÇO, BIOSPHERE RESERVE OF THE MOUNTAIN - PHASE 2

MINISTRY OF THE ENVIRONMENT

BRAZILIAN COMMISSION FOR THE PROGRAM "THE MAN AND THE BIOSPHERE" - COBRAMAB

STATE COMMITTEE OF ESPINHAÇO MOUNTAIN - BIOSPHERE RESERVE



TECHNICAL TEAM OF THE STAGE 2 - BIOSPHERE RESERVE FROM ESPINHAÇO MOUNTAIN

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HOW TO QUOTE THIS DOCUMENT:

ANDRADE, Miguel Ângelo; DRUMMOND, Gláucia M.; DOMINGUES, Sérgio Augusto; MARTINS, Cássio Soares; FRANCO, André Rocha (Org.) et al. **BIOSPHERE RESERVE OF ESPINHAÇO - PHASE 2.** Biosphere Reserve of Espinhaço Mountain, MaB-UNESCO. Belo Horizonte, Minas Gerais, Brasil. 2018.

Cataloging-in-Publication Data

Prepared by the library of the Pontifical Catholic University of Minas Gerais

E77 Espinhaço Range Biosphere Reserve Phase 2 / Organizers: Miguel
Ângelo Andrade ... [et al.]. Belo Horizonte: Publishing Company PUC Minas,
2018.

330 p.

Others organizers: Gláucia M. Drummond, Sérgio Augusto Domingues,
Cássio Soares Martins, André Rocha Franco.

SIB PUC MINAS

1. Espinhaço Range Biosphere Reserve (MG) - Preservation. 2. Biosphere -
Conservation. 3. Ecology. 4. Zoning. 5. Brazil. Ministry of the Environment. I.
Andrade, Miguel Ângelo. II. Title.

CDU: 577.4

THANKS

We thank to all researchers, trainees, managers and, in particular, the members of the State Committee of the Biosphere Reserve of Espinhaço Mountain.

We thank the Ministry of the Environment of Brazil, through the Secretariat of Biodiversity and Forests, the people of Dr. José Pedro de Oliveira Costa, João Paulo Sotero de Vasconcelos, André Luis Lima and Daline Pereira; and the Government of Minas Gerais, through the Secretariat of Environment and Sustainable Development, Dr. Germano Vieira Gomes and Henri Dubois Collett, thank the IGAM (Minas Gerais Institute of Water Management), FEAM (State Foundation for the Environment) and IEF (State Forest Institute) teams.

We thank the partner institutions and their respective representatives for their key input in the preparation of this Phase 2 document, of the Biosphere Reserve of Espinhaço Mountain which are described in the item: Letter of Partnerships.

It is reinforced the information that the participating institutions of the RBSE State Committee, for having unanimously approved the zoning and information updating document for its Phase 2, at a meeting on August 31, 2018.





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LIST OF ABBREVIATIONS AND ACRONYMS

4WCBR	4th World Congress of Biosphere Reserves
ACELN	Ecological Cultural Association: Swimming Lake
ACER	Royal Road Walkers Association
ACMINAS	Commercial Association of Minas Gerais
ALMG	Legislative Assembly of Minas Gerais
AMA	Association of Residents, Farmers and Beekeepers
AMABs	Multilateral Environmental Agreements
AMDA	Minas Gerais Association for the Defense of the Environment
ANA	National Water Agency
APA	Environmental Protection área
APAC	Association for the Protection and Assistance of the condemned people
APE	Special Protection Area
APLs	Local Productive Arrangements
APM	Public Archive of Minas Gerais
APP	Areas of Permanent Preservation
ARPA	Protected Areas Program of the Amazon
AMAMS	Association of Municipalities of Minas Gerais of Sudene
ASSPROM	Professional Association of underage people
AVSI	Volunteer Association for International Service
AZE	Alliance for Zero Extinction
BEMGE	Bank of the State of Minas Gerais
BPW	International Federation of Business and Professional Women
CAA	Center of Alternative Agriculture of Northern Minas Gerais
CAR	Rural Environmental Registration
CBH RIO DAS VELHAS	Watershed Committee of the river: Rio das Velhas
CCO	Campus Center West "Dona Lindu"
CECAV	National Center for Cave Research and Conservation
CEDEFES	Documentation Center Eloy Ferreira da Silva
CEFET – MG	Federal Center for Technological Education of Minas Gerais
CEM	Hiking Center of Minas Gerais
CEMIG	Energy Company of Minas Gerais
CEP	ZIP code
CERBAC	Central Amazon Biosphere Reserve Committee
CERBSE	State Committee of the Biosphere Reserve of Espinhaço Mountain
CI	Conservation International
CISAL	Integration Center for Environmental Sustainability
CMDRS	Municipal Councils for Sustainable Rural Development
CMRR	Department in Minas Gerais for Reference regarding Waste
CNCFlora	National Center for Plant Conservation
CNI	National Confederation of Industry
CNPq	National Council for Scientific and Technological Development
COA-NM	Northern Bird Watchers Club Of Minas Gerais
COBRAMAB	Brazilian Commission of the Man and the Biosphere Program
Codecex	Commission for the Defense of the Rights of Extractive Communities of Espinhaço Mountain of Minas Gerais
Codemig	Minas Gerais Economic Development Company
CONECTA	NATIONAL LANDSCAPE CONNECTIVITY PROGRAM
COOPERCACHAÇA	Company of barrel booze Producers from the Salinas Microregion
COPAM	State Council for Environmental Policy
CPRM	Mineral Resources Research Company
CR11	Chico Mendes Institute for Biodiversity Conservation
CRBio 04	Regional Council of Biology 4th Region

CRER	Royal Road Religious Path
DNPM	National Department of Mineral Production
EBA	Endemic Bird Area
EBES	Brazilian Solar Energy Company
EFA	Agricultural Family Schools
EJA	Youth and Adult Education Program
EMATER	Company of Technical Assistance and Extension Rural
Emater MG	Company of Technical Assistance and Rural Extension of the State of Minas Gerais
EPL	Espeleogruppo Peter Lund
ER	Royal Road
FAEMG	Federation of Agriculture and Livestock of the State of Minas Gerais
FAO	Food and Agriculture Organization of the United Nations
FCP	Fund to Combat Poverty
FEAM	State Foundation for the Environment
FECITUR	Federation of Tourist Circuits of Minas Gerais
FIEMG	Federation of Industries of the State of Minas Gerais
FIPE	Foundation: Institute of Economic Research
FJP	João Pinheiro Foundation
FPMZB/BH	Foundation Of Municipal Parks And Zoobotany Of Belo Horizonte
FUNAI	National Indian Foundation
Funasa	National Health Foundation
Fundetec	Technological Development Foundation of the Northern region in Minas Gerais
GEE	Greenhouse gases
GESTA	Study Group regarding Environmental Issues
GESTA / UFMG	Study Group on Environmental Issues of the Federal University of Minas Gerais
GIAHS	Globally Important Agricultural Heritage Systems
GIPE	Espinhaço Integrated Research Group
GT	Work group
GTP APL	Permanent Working Group for Local Productive Arrangements
IABS	Brazilian Institute of Development and Sustainability
IBAMA	Brazilian Institute of Environment and Renewable Natural Resources
IberoMaB	Ibero Man and the Biosphere
IBGE	Brazilian Institute of Geography and Statistics
IBio	BioAtlântica Institute
IBRAM	Brazilian Institute of Museums
ICC	International Coordinating Council
ICMBio	Chico Mendes Institute for Biodiversity Conservation
ICMM	International Council Mine and Metals
ICMS	Goods and Services Circulation Tax
IDE Sisema	Spatial Data Infrastructure of the State System of Environment and Water Resources
IDH	Human development Index
IDHM	Municipal Human Development Index
IEDDH	European Instrument for Democracy and Human Rights
IEF	State Forestry Institute
IEL	Euvaldo Lodi Institute
IEPHA	State Institute of Historic and Artistic Patrimony
IER	Royal Estate Institute
IGAM	Minas Gerais Institute of Water Management
IGC - UFMG	Institute of Geosciences of the Federal University of Minas Gerais
INAES	Antonio Ernesto de Salvo Institute
INPI	National Institute of Industrial Property
IPHAN	Institute of National Historical and Artistic Heritage
IQA	Water Quality Index
ISA	Indicators of Sustainability in Agroecosystems
ISBN	International Standard Book Number
IUCN	International Union for Conservation of Nature

JBRJ	Research Institute: Jardim Botânico in Rio de Janeiro
KBA	Key Biodiversity Areas
Mab	Movement in defense for the Affected people, by barrages
MaB	Man and the Biosphere
MF2	Municipalities of Phase 2
MG	Minas Gerais
MI	Ministry of National Integration
MIF	Integrated Fire Management
MMA	Ministry of the Environment
MPMG	Public Ministry of the State of Minas Gerais
NIISA UNIMONTE	Interdisciplinary Center for Socio-environmental Research of the State University of Montes Claros
NINJA / UFSJ	Nucleus of Investigation in Environmental Justice of the Federal University of São João del Rei
NISP	National Industrial Symbiosis Programme
ODS	Global Objectives for Sustainable Development
ONGs	Non-governmental organizations
ONU	United Nations Organization
PA	Protect Areas
PAA	Food Acquisition Program
PANs	National Action Plan
PBF	Program: Bolsa Família
PCPR	Program to Combat Rural Poverty
PCTS	Traditional Peoples and Communities
PIB	Gross Domestic Product
PIMO	Building orientation block
PMSI	Minas Gerais Program regarding Industrial Symbiosis
PNAE	National School Feeding Program
PNAP	National Strategic Plan for Protected Areas
PNBSB	National Plan for the Promotion of Socio-biodiversity Products
PNCF	National Land Credit Program
PNCTC	National Policy for the Sustainable Development of Traditional Peoples and Communities
PNUD	United Nations Program for the development
PPAG	Multi-Year Government Action Plan
PRONABIO	National Biological Biodiversity Program
PRONAF	National Program for Strengthening Family Agriculture
PRONATEC	National Program of Access to Technical Education and Employment
PSA	Payment for Environmental Services
PUC	Pontifical Catholic University
RB	Biosphere Reserve
RBAC	Central Amazon Biosphere Reserve
RBSE	Biosphere Reserve of Espinhaço Mountain
RDS	Sustainable Development Reserve
RJ	Rio de Janeiro
RMRB	World Biosphere Reserves Network
RPPN	Private Reserve of Natural Heritage
RTMG	Teleassistance Network of Minas Gerais
AS	Anonymous society
SBU	Brazilian Society of Urology
SEAPA	State Secretariat for Agriculture, Livestock and Food Supply
Sedonor	State Secretariat for Development and Integration of the North and Northeast of Minas Gerais
SEGRH	State System of Water Resources Management
SEMAD	State Secretariat for Environment and Sustainable Development
SENAI	National Service of Industrial Learning
SENAR	National Rural Apprenticeship Service

SESI	Social Service Industry
SETUR	State Secretariat of Tourism of Minas Gerais
SFB	Brazilian Forest Service
SIBR	Waste Bag
SIGEP	Brazilian Commission of Geological and Paleobiological Sites
Sindiextra	Minas Gerais Extractive Industries Trade Union
Sipam	Important Systems of World Agricultural Heritage
Sisnama	National Environment System
Sítios BAZE	Brazilian Alliance for Zero Extinction sites
SNUC	National System of Conservation Units of Nature
SP	São Paulo
SUDENE	Northeast Development Superintendence
SUS	Health Unic System
TGBR	Technical Guidelines for Biosphere Reserves
TIC	Information and communication technology
UC	Conservation Unit
UFJF	Federal University in Juiz de Fora
UFMG	Federal University in Minas Gerais
UFTM	Federal University in Triângulo Mineiro
UFU	Federal University in Uberlândia
UFVJM	Federal University: Vales do Jequitinhonha e Mucuri
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNI BH	University Center of Belo Horizonte
UNIMONTES	State University of Montes Claros
VT	Video Tape
WWF	World Wildlife Fund
ZN	Core Zone

PRESENTATION

The Biosphere Reserve of Espinhaço Mountain (RBSE) was recognized by the craft of the *United Nations Educational, Scientific and Cultural Organization SC-05/CONF.210/2 Add*, in Paris, Room XIV (*Bonvin Building*), on June 24, 2005, through the Man and the Biosphere (MaB) Program - Meeting of the Bureau of the International Co-ordinating Council, UNESCO (United Nations Educational, Scientific and Cultural Organization) Headquarters. In 2015, its first decade was completed, and thus the 1st Periodic Revision of the Biosphere Reserve of Espinhaço Mountain was successfully approved, recognizing the efforts of the RBSE in the 22nd MEETING OF THE INTERNATIONAL ADVISORY COMMITTEE FOR BIOSPHERE RESERVES AS APPROVED BY THE CHAIR AND THE RAPPORTEUR IN UNESCO - United Nations Educational, Scientific and Cultural Organization), which happened in January 2016.

With the continuous development and monitoring of management actions and in compliance with the recommendations presented and approved in the 1st RBSE Periodic Review, the State Committee of the Biosphere Reserve of Espinhaço Mountain, jointly with the Ministry of the Environment and the Government of Minas Gerais, took the decision to expand to the RBSE Phase II. It is also important to emphasize the fulfillment of social demands, legitimizing participatory processes, which have taken place since the recognition of RBSE, and which has now been claimed by society, governments (national, state and municipal) and research sectors, among other strategic actors. Respect and meet these demands

for the revision of limits becomes a commitment of the RBSE, mainly for the maturity reached in these thirteen years of existence, as well as the installed capacity of the institutions that make up its network of partners.

In this context, we must present the greatest attributes that make this unique territory in Brazil and in the world: its cultural aspects, in a historical perspective, its biogeographic dynamics and its intrinsic relationships with the Atlantic Forest and savanna biomes, both of which are considered World Hotspots (MYERS, 2000). In this, we highlight the Rupestrian Fields, a phytophysiology with a large number of endangered and endemic species, in an environment of low resilience, thus becoming a World Endemism Center. As a major biogeographic identity of Espinhaço Mountain, the revision of the boundaries and zoning of the RBSE is done coherently to incorporate other distribution areas of this unique ecosystem, in the planet.

In addition to these attributes, the diversity of actors and processes that guide the field of the management of a complex and vast territory that, from its origin to the present, has summoned the axes of occupation, mainly of mining and extractive base, for the diverse cycles (gold, diamonds and iron ore). In this same space of growth and exploitation of resources, the Espinhaço mountain stands out because of its extreme importance for the conservation of biodiversity and water resources, reflecting in its traditional communities, and its knowledge associated with its most diverse identities and material and immaterial patrimonies identified in the Biosphere Reserve.

This revision proposal of the RBSE zoning, Phase II, presents the aspects established in the Biosphere Reserve and for the Biosphere Reserve, at different scales of units of official territorial planning, and with the active participation of governmental institutions, research centers and universities, representatives of local communities, managers of protected areas, private and third sector entities. Added to this participation are potentialities not yet exploited, as well as gaps and weaknesses in a territory surrounded by different political and economic interests. It is a question of assuming here the reissue of successful actions in the RBSE to areas with great needs to be instructed with the principles and functions of the MaB Program, which summon the lessons learned by the RBSE until then, and whose learning for the RBSE will be mutual, facing the new realities of this new territory, that is, the north of Minas Gerais. In these thirteen years, the lessons learned by RBSE have been many and the social and conservation gain has been recognized.

The search for the institutionalization of Espinhaço Mountain's identity has gained maturity and, at the moment, this proposal represents the reinforcement of amplifying the principles of the MaB Program for

regions still in need of territorial strengthening, and which may be favored by the principles of Biosphere Reserve.

The critical analysis that the revision of the limits of the RBSE provides is, in synthesis, a valuable instrument of (re) planning, evaluation and monitoring for the institutional arrangements of great size for the actions of the present and of the future. The zoning review of the RBSE-Phase II contributes to the strengthening of governance processes, the definition and promotion of dialogue on development principles and conservation, as well as the redefinition of responsibilities. This revision of the zoning, aligned with the implementation of the Action Plan of the Biosphere Reserve, appears as a mobilizing action of this proposal. Added to this challenge is the need to align the current RBSE Action Plan with the innovative processes brought by the Lima Plan, and the World Biosphere Reserve Network, which is already ongoing.

As the dynamism of Biosphere Reserves calls for their continuous monitoring and review, this proposal intends to **enlarge of 94 municipalities (Phase I), for 172 municipalities, with a territory of 3,210,903.3 hectares (Phase I), to 10,218,895.20 hectares (Phase II), considering the identities associated with the functions and strategic actions of conservation, development, logistic support and traditional and scientific knowledge, shared management and communication and monitoring of Espinhaço mountain.**

This document is structured according to the elements described below, in order to meet all the items of the MaB Program form for zoning reviews, in an integrated way, namely:

- Comparative analysis between Phase I and Phase II regarding their zoning;
- Information on RBSE's logistical support, management, communication and participation;
- Items on Conservation, Sustainable Development and Knowledge and Management;
- Criteria for Designation as a Biosphere Reserve;
- Presentation of Phase 2: proposed zoning and proposal detailing;
- Letters of Support;
- Bibliography and Annexes.

For its elaboration, the following principles and general criteria are considered, to be detailed throughout the document:

- **The articulation and mobilization** of strategic actors;
- The **consistency between the criteria and strategies adopted** in recognition of the RBSE (Phase 1, in 2015) and in the 1st Periodic Review of the RBSE (2015);
- The **connectivity between the rupestrian fields** and associated environments, the ecosystems of the Veredas and Pebbles of Espinhaço Mountain, as well as the integration between the territorial planning units of the savanna, Atlantic Forest and Caatinga Biomes, which make up the Espinhaço Mountain.
- The **collaborative geographic and institutional interface with Biosphere Reserves** of the Atlantic Forest and, as of Phase II, with the Caatinga Biosphere Reserve.
- The scientific knowledge of a region rich in biodiversity, archeological and paleontological sites, still little known and where the highlight is the highlight of the Biosphere Reserve of Espinhaço Mountain of the **Ferruginous Geosystems of Peixe Bravo**, in the north of Minas Gerais.
- The **recognition of products and rural producers, through verification of products of socio-biodiversity** like pequi – Brazilian fruit (*Caryocar brasiliense Camb*), the tree of umbu – Brazilian fruit (*Spondias tuberosa Arr. Cam*), from where the umbu is extracted the cajuzinho-do-cerrado - hinterland cashew (*Anacardium humile*), the rufão - brazilian fruit (*Peritassa campestris*), the macaúba - brazilian fruit (*Acrocomia aculeata*) and the broad bean (*Dimorphandra mollis*), and products of geographical identity, like the

booze of the Salinas region. On the other hand, it is incorporated with Phase II, **the challenge of strengthening one of the regions, with the lowest Human Development Index in Brazil.**

- The **decentralization of RBSE management processes**, regionalizing this vast territory of multiple identities, in its southern and northern portion,

- The propositions of **management of conservation territories, such as the Protected Area Mosaics of Espinhaço** (Mosaic of Protected Areas Espinhaço Alto Jequitinhonha - Cabral mountain, already recognized, and Mosaic of Protected Areas of the Southern Espinhaço) - Cipó Mountain, is recognized by the Ministry of the Environment).

- The potential for recognition of a **new Mosaic of Protected Areas in the northern region of the Biosphere Reserve of Espinhaço Mountain**, generating technical cooperation between conservation units, logistical support and programs for social mobilization and regional development, **as well as to the region of the Iron Quadrangle region, to the south of the RBSE.**

- The strengthening of the RBSE together with **National Landscape Connectivity Program – called: Conecta** (Ordinance, number: 75, March 26, 2018), instituted by the Ministry of the Environment.

- The creation, within the RBSE State Committee, of the **Program: Corredores da Reserva da Biosfera da Serra do Espinhaço (Corridors of the Biosphere Reserve of Espinhaço Mountain): connecting natural and cultural landscapes.**

- The incorporation of Biosphere Reserves in the State of Minas Gerais in **environmental regulation policies**, which assumed, in 2017, the Biosphere Reserve of Espinhaço Mountain, as a locational criterion of Environmental Licensing of undertakings with potential environmental impact (COPAM - State Council for Environmental Policy, Normative Resolution, number: 217/17).

- The **Tourist Routes of Espinhaço Mountain** which is added to the network of routes in the region, proposed for expansion of the RBSE where you can highlight: the Travessia Talhado: Cachoeira do Cerrado and Travessia Talhado : Sete Quedas and Talhado Serra Nova, all within the Serra Nova State Park, in Grão Mogol; the Crossing of the trail of the Baron, between the city of Grão Mogol and Cafezal Farm, historical in the region; the Tropa / Peripiri Trail, and the Folha Grande Broadwalk, both in Botumirim; the Travessia Gigante (the Giant Crossing), the Trilha da Bocaina; (the Bocaina Trail), the Trilha da Campina Pé da Serra (the Trail of Campina Pé da Serra); the Trilha do Laerte-Poço do Bananal (the Trail of Laerte-Well of Bananal); the Trilha Serrinha Rio de Peixe (the Trail: Serrinha Rio de Peixe); the Trilha Prata (Silver Trail) / Rio de Peixe to Lake Irapé; the Trilha do Vale da Limeira (Trail of the Limeira Valley) to Tamanduá; the Curiando Waterfall Trail; the Trail of the Encantado, in the Resplendent Mountain in Monte Azul; the Trail of the countryside city/ base of Pico da Formosa (base of Formosa peak); the Peak Climbing Trail of Formosa in Cristália; the city trail in Chapéu Mountain; the Off Road Road Map Gorutuba Lapinha da Serra. As well as the creation of the **Long Track Trails Program**

to the RBSE territory that inaugurated, in 2018, the installation of **Transespinhaço Trail**, itinerary of more than seven hundred kilometers, connecting some fifty conservation units, communities and natural and cultural attractions of Espinhaço. It also stands out the **CRER, Religious Way of the Royal Road**, which connects the Basilica Nossa Senhora da Piedade Sanctuaries (the most visited Integral Protection Conservation Unit in Minas Gerais) to the Sanctuary of Aparecida do Norte.

- The expansion of the **Situational Diagnosis of the Management of Municipal Conservation Units of RBSE** for the municipalities of Phase 2 of the RBSE.

- RBSE's participation in the creation of **new Core Areas in the proposed region**, highlighting the **Botumirim State Park**, area of special relevance, given the occurrence and the recent rediscovery of an extremely rare bird, the **Rolinha do Planalto (Columbina cyanopis)**, a highly vulnerable and fragile species. Given as extinct by science, the Rolinha do Planalto is endemic to the savanna - Espinhaço mountain, and was last sighted in 1941, but was rediscovered in the current conservation unit, in July 2015.

- The inclusion in Phase II zoning of the RBSE of **areas covered by institutions of artistic and cultural heritage, management of protected areas, with the limits of conservation units not considered in Phase I.**
- The implementation of a major priority of the RBSE Action Plan: The **Communication and the Monitoring**, with the creation of the Biosphere Reserve Magazine in 2017, which published in its first edition the synthesis of the 1st Periodic Review of the RBSE; the creation of the RBSE Website; the development and availability of up-to-date geospatial information through **RBSE Geoenvironmental Atlas; the signposting of roads with signs** of RBSE, in more than 20 municipalities, initially; the incorporation of the RBSE limits into the platform of **Spatial Data Infrastructure of the State System of Environment and Water Resources (IDE-SISEMA)**, established by the Joint Resolution SEMAD (Secretariat of State for Environment and Sustainable Development) / FEAM (State Foundation of the Environment) / IEF (State Forest Institute) / IGAM (Minas Gerais Institute of Water Management), number: 2.466/2017.
- The responses to UNESCO's recommendation in the 1st Periodic Review in 2016 on the issue of mining.
- The study and strategic responses for the biodiversity conservation of Espinhaço Mountain, with the **Project: Espinhaço Sempre Vivo** (2005), and that was updated in 2015 in our 1st Periodic Review, indicating the **Irreplaceable areas of Espinhaço Mountain.**
- The inclusion of the **farms (BAZE - Brazilian Alliance for Zero Extinction)** for the determination of the new zoning, territories defined starting, BAZE Global Project "Alliance for Zero Extinction: Protection of Irreplaceable Natural Sites for the Conservation of Endangered Biodiversity".
- Public policy for the conservation of biodiversity, through the **National Action Plans for Threatened Species of Extinction (PANs)**, being that, for the scope area of the RBSE, 15 National Action Plans are developed.
- The **inclusion of the Ramsar Farm LUND-WARMING**, in Phase II of the RBSE.

It must be noted that this document contains, in addition to the answers to the questions put in the MaB Program form, indicative of a next phase of review of the boundaries of the territory – **the Phase III of the Biosphere Reserve of Espinhaço Mountain**, expanding to the State of Bahia, in the plateau: Diamantina. Region of spectacular beauty, with conservation actions, development and scientific and traditional knowledge of high relevance and significance, the region for the future Phase III of the RBSE will be detailed in the near future, justifiably from the implementation of Phase II.

Thus, in 2020, it is intended to conduct a new referral to UNESCO (United Nations Educational, Scientific and Cultural Organization) - MaB Program for its evaluation, aiming at the required acceptance of the expansion of the boundaries of the Biosphere Reserve for Phase III.

The actors involved in this RBSE Phase II proposal are grateful to all those who participated in the direct and indirect organization of this document, and in particular to the MaB International Coordination Council - UNESCO (United Nations Educational, Scientific and Cultural Organization) because you received out project and we are very grateful for the appreciation of this Committee, for the achievement of improvements in the management and implementation of cooperative strategies for the coming years, in the Biosphere Reserve of Espinhaço Mountain.



State Committee of the Biosphere Reserve of Espinhaço Mountain.

September 2018



ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

PART I: GENERAL DATA / FORM UNESCO



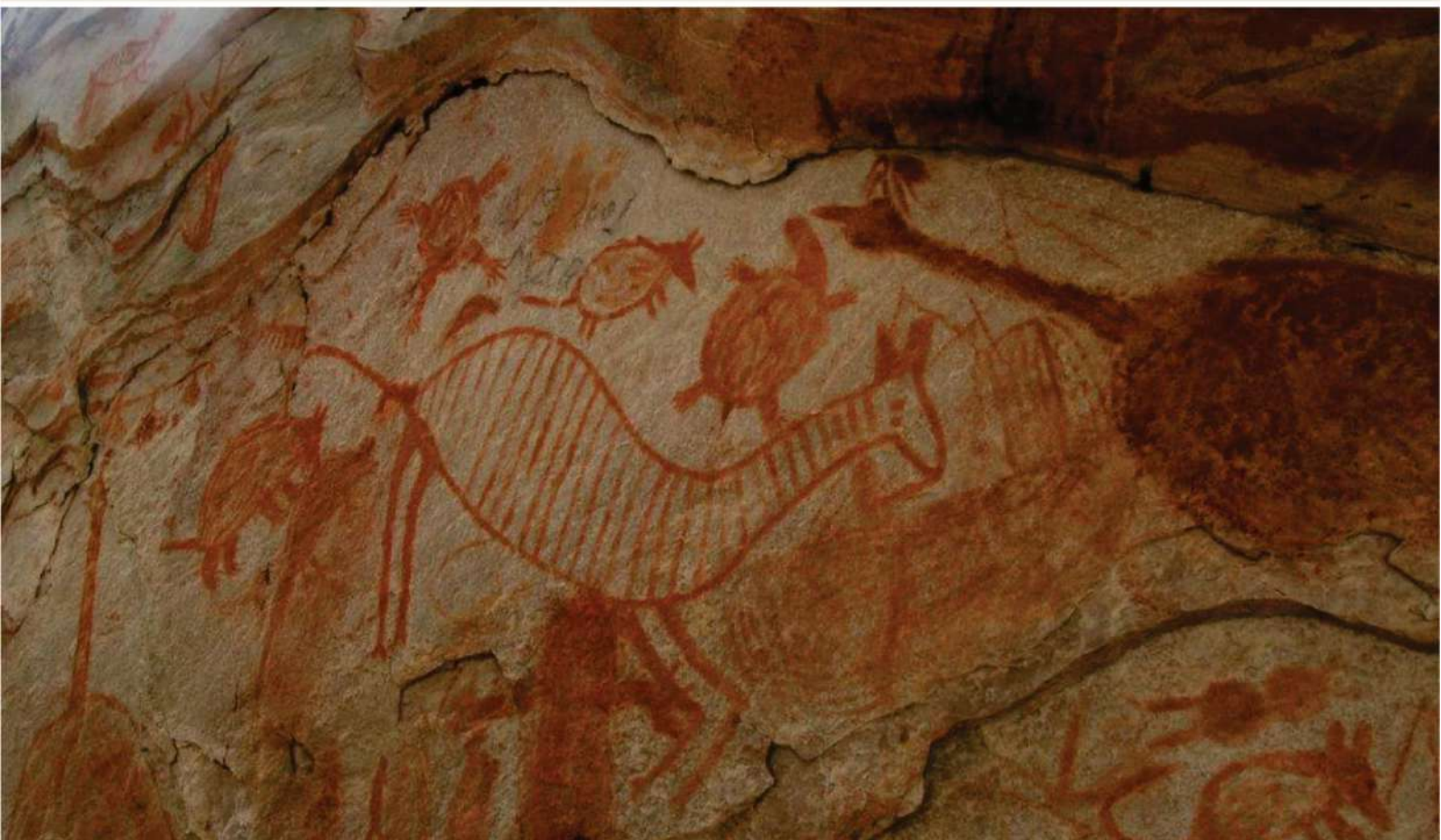
United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



PART 1: GENERAL DATA / UNESCO FORM

BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2

1. NAME

BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2

2. COUNTRY

Brazil – State: Minas Gerais

3. COMPLIANCE OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES: CONSERVATION, SUSTAINABLE DEVELOPMENT AND KNOWLEDGE AND PARTICIPATORY MANAGEMENT

The recognition of Espinhaço Mountain as a Biosphere Reserve by UNESCO in 2005 and the preparation of the First Periodic Review of Biosphere Reserve of Espinhaço Mountain, in 2015 represented a milestone for conservation efforts in Brazil, in addition to promoting the protection of a territory of great relevance to biodiversity, traditional cultures and river basins, promoted concrete actions for the integration of areas that previously remained unknown and isolated. This isolation could be understood in the political, scientific and geographical sphere. In this sense, the environmental management of the territory was driven by collaborative processes and shared information.

The Espinhaço Mountain identity has been recognized by society and has gained an edge in cultural expression, academic studies and publications, government actions and flows to sustainable development. Thematic discussion groups were formed in several areas, bringing results based on a more cooperative and systemic view on opportunities, problems and solutions.

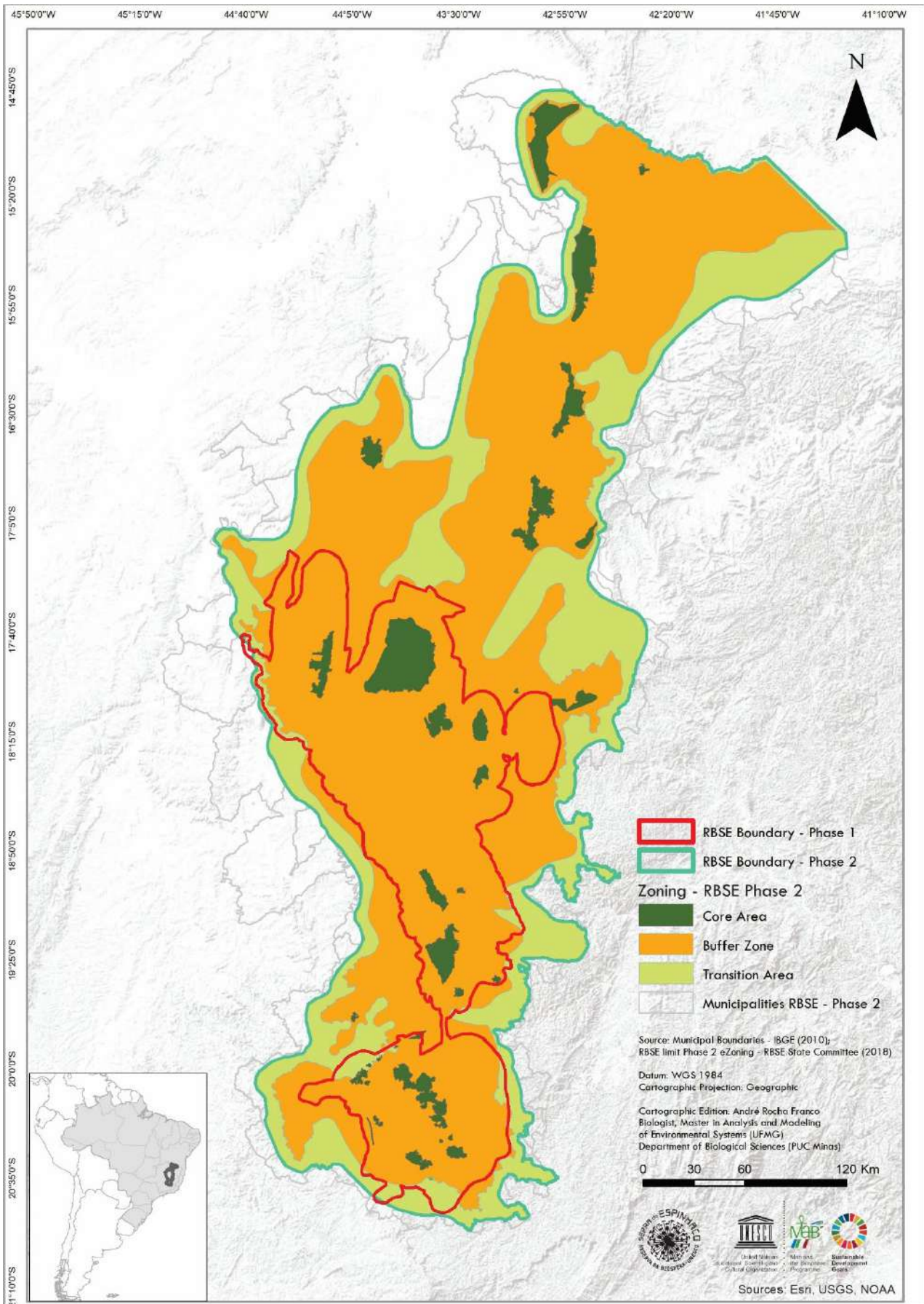
From the point of view of conservation, initiatives for the creation of conservation units, mosaics and ecological corridors, as well as action plans for biodiversity conservation were notably put into practice. In the field of sustainable development, there was a consistent approximation with the productive sectors, especially agriculture, tourism, industry federation and mining. However, on this agenda there is still a need for more dialogue between government bodies and more specific, applied and contextual public policies. With regard to the promotion of scientific knowledge, the production of academic articles on the Reserve has increased considerably in several areas (geosciences, biological, human, among others). In the same sense, the Steering Committee has held open meetings and expanding the participation of new actors, creating cooperative projects and partnerships and a decentralized management system.

It is important to note that, in order to fulfill the three functions of the Biosphere Reserve, in this Phase 2, efforts and resources will be made for alignment and more assertive commitments with Agenda 2030 and the "Sustainable Development Goals (ODS)".

It is also important to point out that the increase in new areas in Phase 2 contributes greatly to the expansion and greater articulation between conservation strategies, either through the inclusion of new protected areas, new logistical and technical support centers and spaces that promote sustainable development, or by the incorporation of new strategic actors.

To comply with milestones and legislation, as well as to promote the management of the territory of **10.218.895,20 hectares** of the Biosphere Reserve of Espinhaço Mountain - Phase 2 is considered the aspects of land use and occupation, in a historical perspective, considering the Neolithic occupation, the archaeological sites, the indigenous occupations, the great economic cycles (gold, diamond, iron and steel), cultural issues, environmental conservation and tourism. The axes of occupation and conservation of natural and anthropic aspects are clearly established, either by tourism processes, traditional cultures (quilombolas and indigenous people), culinary aspects, the distribution of biomes and species, the mining and urban territories, as well as the protected areas already presented. In this way, this mosaic of attributes composes, in its totality, the greatest identity of the Biosphere Reserve of Espinhaço Mountain, in an integrated way, with its gaps and potentialities for the accomplishment of the functions of conservation, sustainable development.

COMPARATIVE MAP OF THE LIMITS OF PHASE 1 AND 2 OF RBSE, WITH THE PROPOSED ZONING FOR PHASE 2.





ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

CONSERVATION FUNCTION



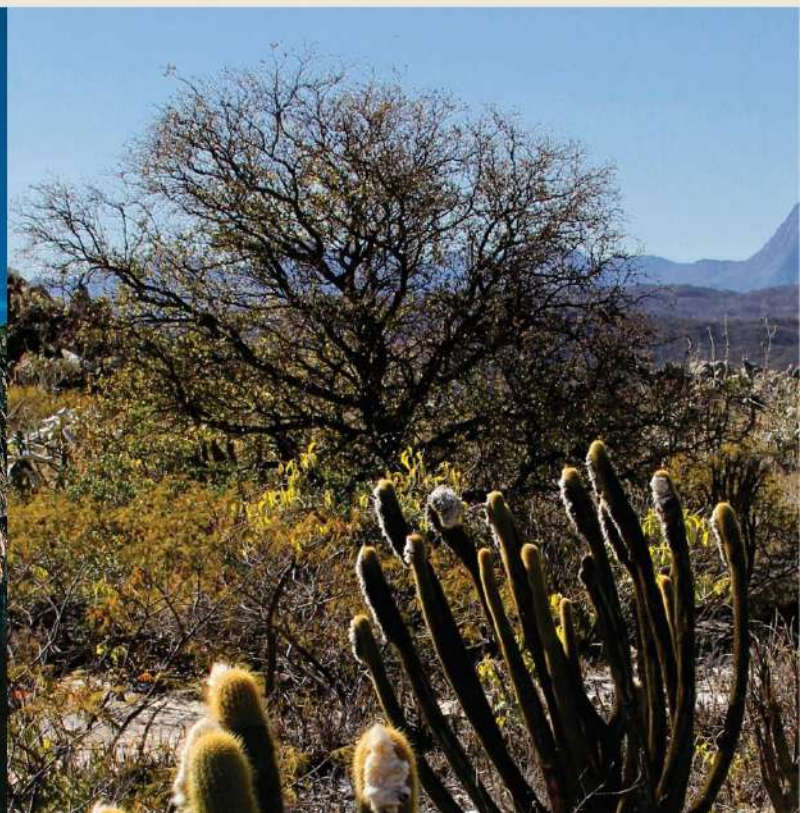
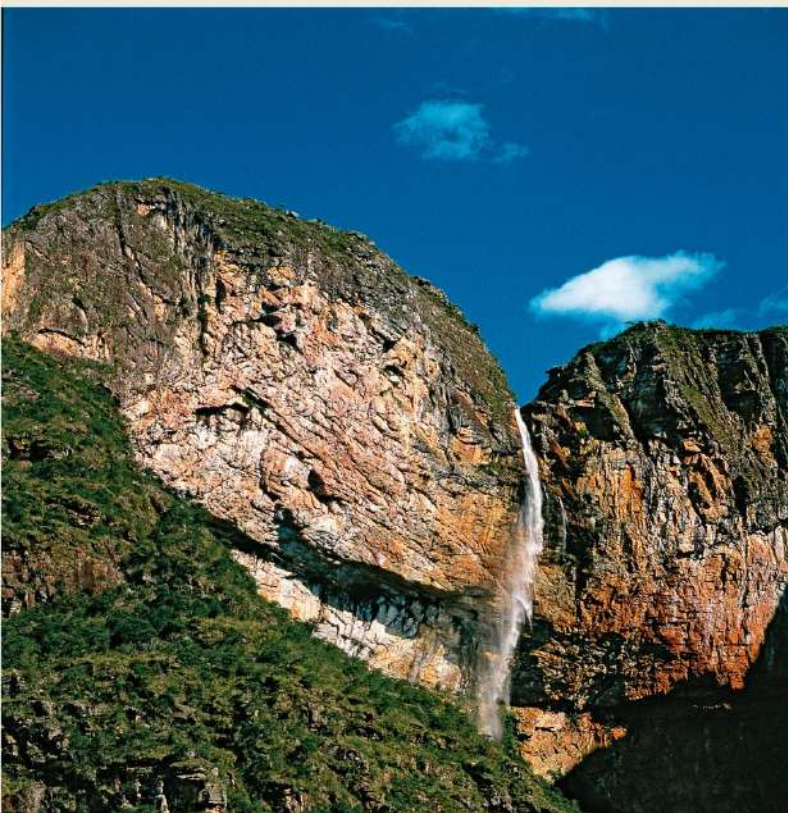
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Man and
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Sustainable
Development
Goals



3.1 CONSERVATION

And as each path, when we were beating, by its influenza, it waved to us a fine quiet without news - all buriti tree (brazilian fruit) and forest: sheet set and love in water. That was not even just bush, it was even forests! We set right in the city: Olho d'água-das-Outras, we walked and took the first path - dividing the the plateaus -: the sound of the wind caught in the buritis trees, frowning on the grid of its high leaves: and sassafras trees - - as that of lavender, a smell that refreshes: and waterings that always wet (JOÃO GUIMARÃES ROSA, 1985, page 233).

Objective: To contribute to the conservation of landscapes, ecosystems, species and genetic variability.

The Espinhaço Mountain represents one of the most unique portions of Brazil as far as biogeographic aspects are concerned, not only because it shelters three Brazilian biomes of high relevance for conservation (Caatinga, Savanna and Atlantic Forest), but mainly due to the connectivity between them, made possible by the geomorphological aspects inherent to its mountainous condition and demonstrating its strategic location, as a planning region for the conservation of natural resources.

The RBSE presents itself as a natural corridor of biodiversity at the same time as there is a high degree of endemism, mainly in ecotone zones, harboring significant portions of the Rupestrian Fields, which stand out as conservation targets due to their richness of species threatened and endemic. As a conservation function, the Espinhaço mountain was sometimes recommended as a priority region for the conservation of the existing natural resources, considered one of the most important endemism centers in Brazil, with numerous species of different taxonomic groups only found in this region, besides essential environmental services.

In spite of the environmental importance of the entire Espinhaço mountain chain, in 2005 the Biosphere Reserve of Espinhaço Mountain (RBSE) was created, covering only part of this mountain chain, in part of the state of Minas Gerais. Stage 1 of RBSE creation only covered the southern portion of the mountain, the Iron Quadrangle region until the PARNA (National Park) of Sempre-Vivas (brazilian flower), counting on only two biomes, the Atlantic Forest and the savanna, considered hotspots of biodiversity, that is, ecosystems with a great wealth of flora and fauna under threat. In Step 2, the RBSE boundary was extended to the limit of Minas Gerais with the state of Bahia, also covering a small part of the Caatinga biome.

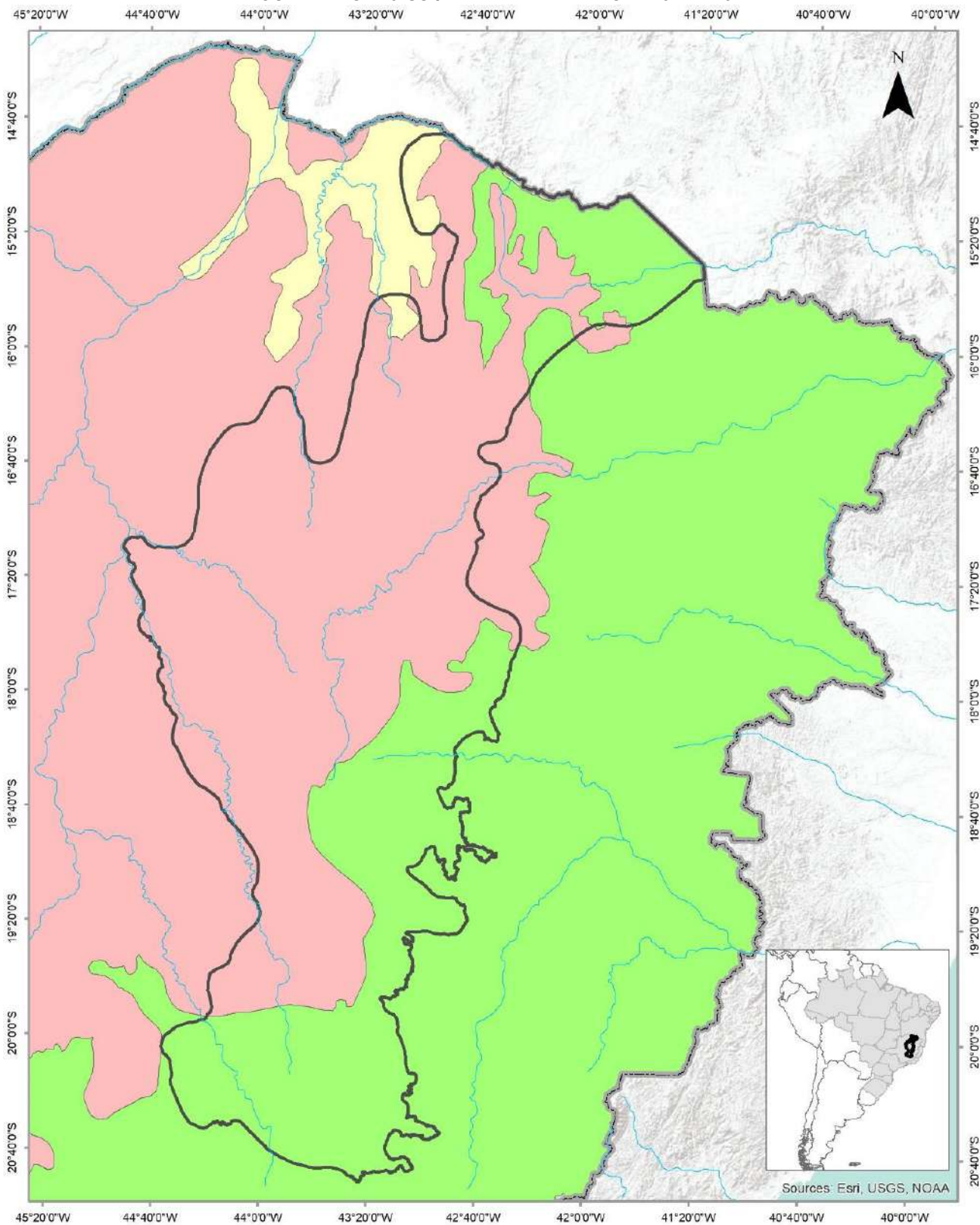
In Minas Gerais, the Espinhaço mountain extends for about 550 km, with approximately N-S direction and variable width up to 100km. To the north of Diamantina city, it presents / displays remarkable narrowing, following as discontinuous bands and of reduced width until the proximities of White Earth, where again it presents / displays abrupt relief and considerable breadth. This thinning promotes the individualization of the mountain range in two sectors: southern and northern, with distinct geological characteristics. This is the geological-morphological basis that gives the "ecological support" to Espinhaço mountain biota, as conceived by Tansley (1935) apud Ab'Saber (2003).

The main source of information about Espinhaço Mountain was the studies developed for all Brazilian biomes within the PRONABIO (National Program of Biological Diversity) framework of the Ministry of the Environment, the studies carried out in the project "Priority Actions for the Conservation of Biodiversity of the Savanna and wetlands" (MMA - Ministry of Environment and others., 1999), coordinated by Funatura, Conservation International (CI) and Fundação Biodiversitas, prioritize several areas in Espinhaço Mountain, such as the municipality of Diamantina city and Cipó mountain. Likewise, the "Assessment and Priority Actions for the Conservation of Biodiversity of the Atlantic Forest and Southern Fields" (CI -Conservation International and others, 2000), coordinated by CI (Conservation International), Biodiversitas foundation and SOS Mata Atlântica (Atlantic Forest) foundation, include areas of the eastern slope of Espinhaço mountain, as priorities for conservation. Among them, the region of Ouro Preto and Caraça mountain, in Minas Gerais, stands out; and the region of Lençóis / Andaraí and the Barbado Peak in Bahia, all considered of extreme biological importance.

More detailed studies of the RBSE region were carried out by the Workshop that defined the Priority Areas for Biodiversity Conservation of Minas Gerais (COSTA and others, 1998; DRUMMOND and others, 2005), coordinated by the Biodiversitas Foundation, Conservation International and SEMAD (Secretariat of State for Environment and Sustainable Development) -MG (Minas Gerais), gave Espinhaço mountain, the status of Special Importance, since it is a unique environment in the State and due to the large number of endemics present there, and it is recommended to create a Biosphere Reserve to preserve this important region. Such studies were used as the main sources to subsidize the limit definition of RBSE Phase 1.

The rupestrian and altitude fields of eastern Brazil (highlighted in Figure 3), which occur in the highest parts of Espinhaço Mountain Chain, of Mantiqueira and Serra do Mar Mountains, are recognized as important centers of endemism of Neotropical flora. In general, rupestrian fields occur mainly above 900 meters of altitude, associated mainly to outcrops of quartzite, sandstone and iron ore, distributed mainly along the Espinhaço Mountain Chain, although isolated areas of this type of vegetation are also found in the central Brazilian mountains (Plateau:Veadeiros and Pirineus Mountain, both in Goiás and Canastra mountain in the Southwest of Minas Gerais) or in mountains of the region of São João Del Rei (Lenheiro mountain), Tiradentes (São José Mountain) and Itutinga in Minas Gerais, the last three considered to belong to the Mantiqueira mountain, but with geology and floristic affinities more related to the rupestrian fields of the Espinhaço Mountain Chain.

FIGURE 1: BIOMES COVERED BY THE LIMIT OF RBSE PHASE 2.



- Legend**
- Rivers
 - RBSE Limit
 - State Limit
- Biomes**
- CAATINGA
 - SAVANNA
 - ATLANTIC FOREST

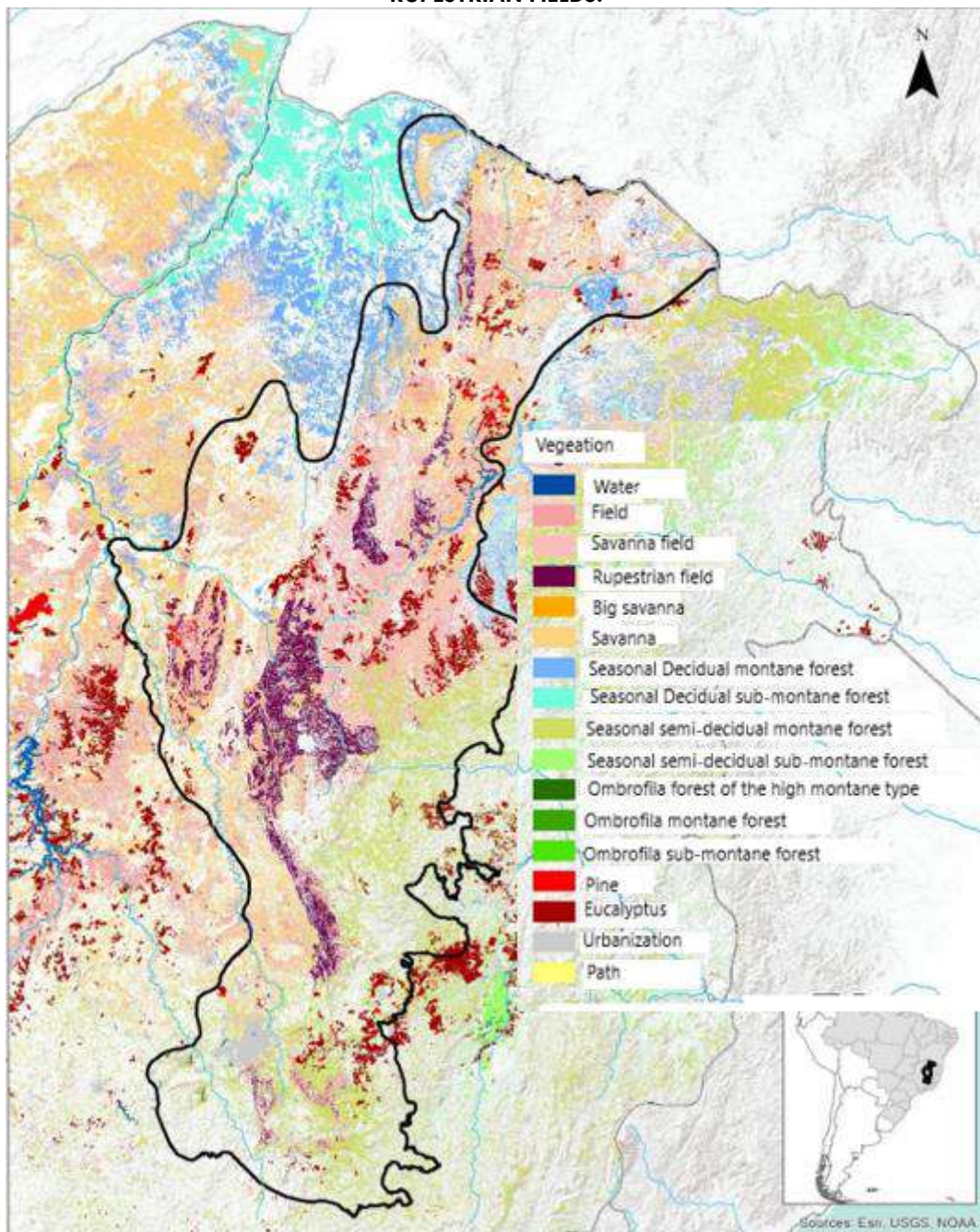


0 30 60 120 Km

Source: IBGE, 2004

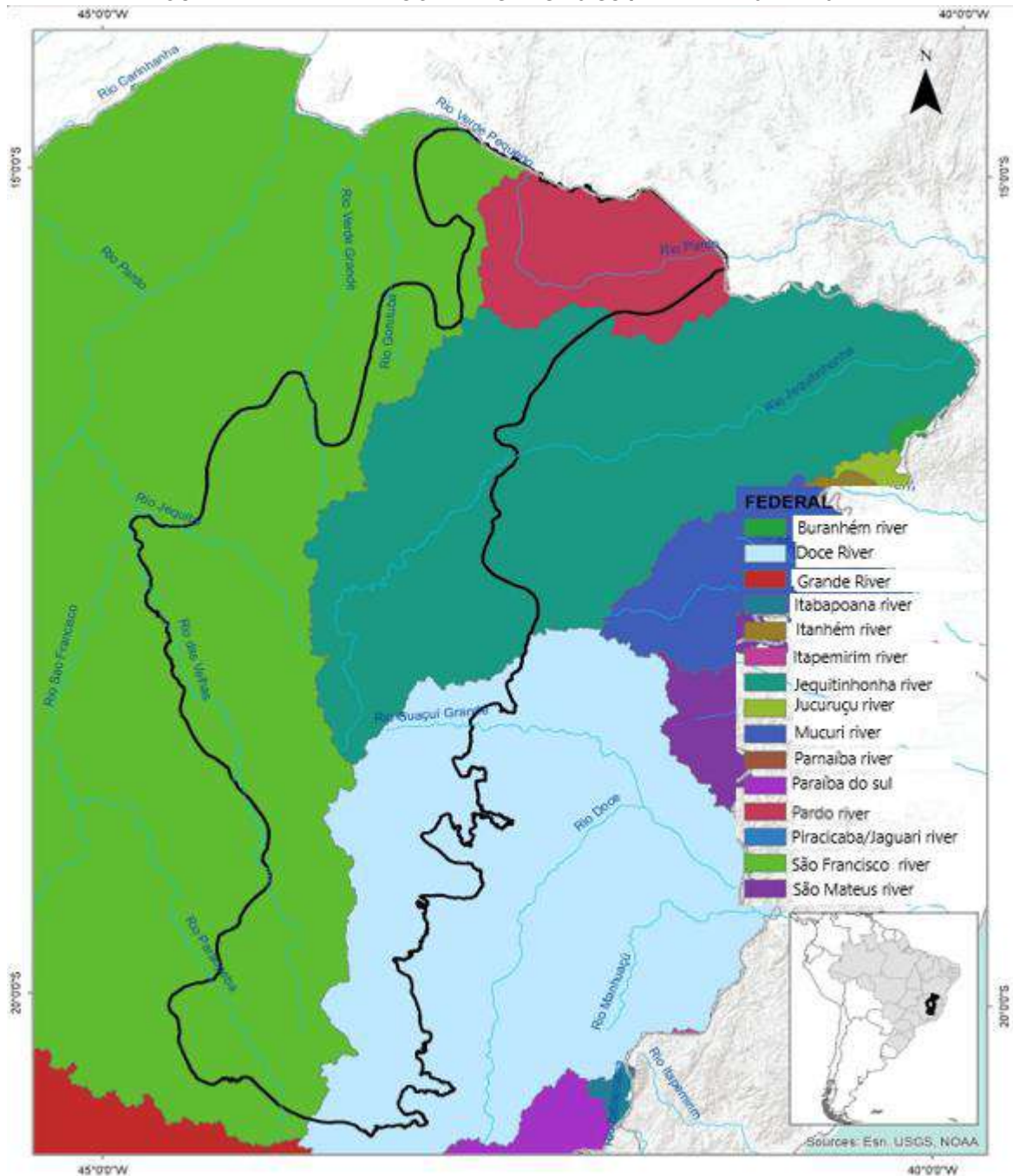
Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

FIGURE 2: DISTRIBUTION OF THE VEGETATION OF THE REGION OF THE RBSE PHASE, WITH HIGHLIGHT FOR THE RUPESTRIAN FIELDS.



With regard to the coverage of the federal watersheds, RBSE Phase 2 also included the 334 km² Pardo River Basin, covering almost 30 municipalities in the Salinas microregion.

FIGURE 4: FEDERAL HYDROGRAPHIC BACIAS COVERED BY RBSE PHASE 2.



For the definition of the RBSE Phase 2 limit, new available studies on the conservation status of Espinhaço mountain region were considered, such as updating the studies on the identification of priority areas for biodiversity conservation in Brazilian biomes in 2007, the update lists and distribution of endangered species of fauna (2014) and flora (2015), the study of the identification and distribution of rare plants with occurrence in the savanna biome (2014), the global study of identification of key areas for conservation (2017), the study of identification of the irreplaceable areas of the Espinhaço Range (2008), identification of wetland delimitation sites such as Ramsar farms, among others.

Priority Areas for Biodiversity Conservation (2005) in RBSE Phase 2

The methodology for the prioritization of areas for biodiversity conservation in Minas Gerais consisted of the collection and cross-checking of information on biological and non-biological topics. Data were collected on 13 thematic groups, with seven biological groups and six non-biological groups. The biological groups considered were: Mammals, Birds, Reptiles, Amphibians, Fish, Invertebrates and Flora. The six non-biological groups were: Public Policies, Abiotic Factors, Conservation Units, Socioeconomic Aspects, Sustainable Development, Indicators and Environmental Monitoring, with the latter two representing an additional analysis in relation to the first version of this document. The summary map of the priority areas presents 112 most important areas for the conservation of biodiversity in the state of Minas Gerais, distributed according to their biological importance: 17 as Special; 35, as Extreme; 36, as Very High; and 24, as High.

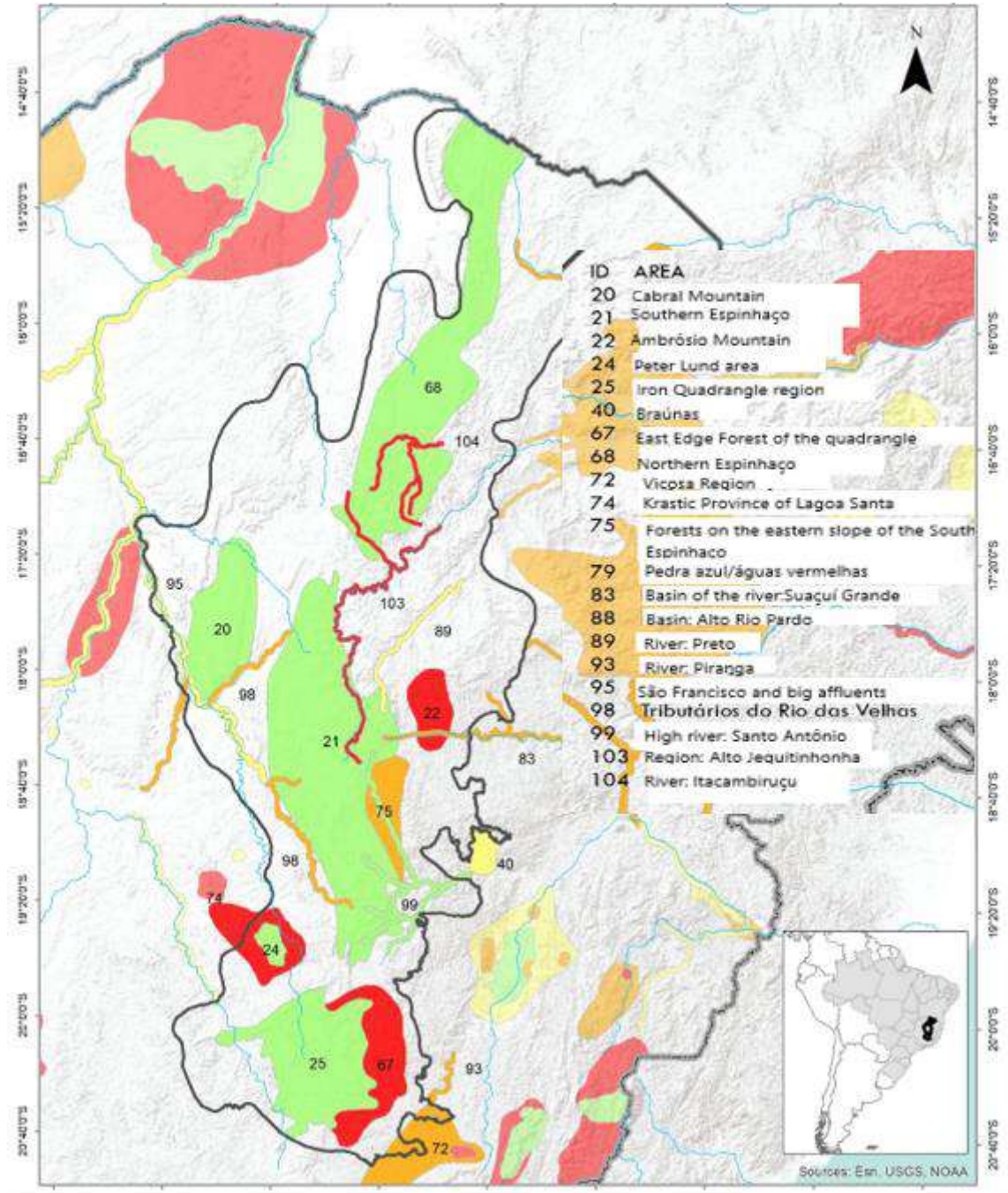
In the definition of the RBSE Phase 2 limit, in addition to the 13 priority areas considered in Phase 1, 6 other areas were covered: two of Special biological importance (Northern Espinhaço and Peter Lund Area), two of Extremely Biological importance (Karstic Province of Lagoa Santa and River: Itacambiruçu) and two of Very High importance (Pedra Azul/Águas Vermelhas and Basin: Alto Rio Pardo).

TABLE 1: PRIORITY AREAS FOR THE CONSERVATION OF BIODIVERSITY COVERED BY RBSE PHASE 2.

ID	AREA	BIOLOGICAL IMPORTANCE	PRIORITY ACTION
30	Cabral Mountain	SPECIAL	Creation of Conservation Unit
57	Southern Espinhaço	SPECIAL	Creation of Conservation Unit
60	Ambrósio Mountain	EXTREME	Creation of Conservation Unit
55	Peter Lund Area	SPECIAL	Creation of Conservation Unit
85	Quadrangle	SPECIAL	Scientific investigation
61	Braúnas	HIGH	Scientific investigation
84	Forests of East Edge of the Quadrangle	EXTREME	Management
10	Northern Espinhaço	SPECIAL	Scientific investigation
82	Viçosa Region	VERY HIGH	Creation of Conservation Unit
54	Karstic Province from Lagoa Santa	EXTREME	Creation of Conservation Unit
58	Forests of the East Ridge of the Southern Espinhaço	VERY HIGH	Scientific investigation
13	Pedra Azul / Águas Vermelhas	VERY HIGH	Creation of Conservation Unit
62	Basin of the river: Suaçuí Grande	VERY HIGH	Scientific investigation
12	River: Alto Rio Pardo	VERY HIGH	Scientific investigation
28	River: Preto	HIGH	Scientific investigation
83	River: Piranga	VERY HIGH	Recovery / Rehabilitation
9	São Francisco ang big affluents	HIGH	Creation of Conservation Unit
56	Affluents of the river: Rio das Velhas	VERY HIGH	Recovery / Rehabilitation
59	High river: Santo Antônio	SPECIAL	Creation of Conservation Unit
29	Region: Alto Jequitinhonha	EXTREME	Scientific investigation
11	River: Itacambiruçu	EXTREME	Creation of Conservation Unit

SOURCE: BIODIVERSITAS, 2005

FIGURE 5: PRIORITY AREAS FOR BIODIVERSITY CONSERVATION AT RBSE PHASE 2.



Irreplaceable Areas in RBSE Phase 2

With the goal of protecting biodiversity allied to sustainable development and scientific knowledge, in 2005 the Espinhaço Sempre Vivo Project was developed by the NGOs (Non-governmental organizations): Biotropics Institute for Wildlife Research, Conservation International and the Biodiversitas Foundation. The overall objective of the project was to gather existing information on biodiversity throughout the Espinhaço Mountain Chain, as well as identify threats and support decision-making for conservation.

From the establishment of explicit conservation targets for each of the targets considered, it was possible to evaluate the performance of the set of protected areas in the conservation of the selected targets, as well as to identify any conservation gaps and to point out other complementary areas necessary to ensure the representativeness of the Conservation Units of Espinhaço Mountain Chain. Analysis of conservation gaps revealed that 271 conservation objects (41.8% of the total) were not adequately protected in the region (considering a conservation goal representation below 10%) and for there to be a minimally adequate protection, it would be necessary 27 other areas in the protected area system of Espinhaço Mountain.

Methodologically, the evaluation work consisted in subdividing the region of analysis into planning units of 5,000 hectares and evaluating the degree of importance (irreplaceability) of each of them as a measure of the contribution to the achievement of the established goals, considering an implementation cost of conservation for each of them.

The cut of RB (Biosphere Reserve) Phase 1, in the region of analysis of irreplaceable areas of Espinhaço Mountain, comprised a total of 763 planning units (UPs), covering 17 Unicades of conservation in 2008 considered in the study in 2008. Already the cut of RB (Biosphere Reserve) Fase 2, comprised a total of 1,792 UPs (planning units), covering 25 Conservation Units considered in the study in 2008.

In order to evaluate the effectiveness of the set of protected areas in Espinhaço Chain region, a set of targets were considered: a) protection of 607 species selected from vertebrate groups (mammals, birds, reptiles, amphibians and fish), invertebrates and vascular plants considered to be endangered, endemic or rare occurring in the Espinhaço Mountain Chain (according to the List of the International Union for Conservation - IUCN 2004 and the Brazilian List of Threatened Species of Extinction, MMA, 2003); b) the protection of ecosystems related to the vegetation typology of Brazil (IBGE - Brazilian Institute of Geography and Statistics, 1993) subdivided into altitudinal bands (low: up to 800 meters, average: between 800 and 1,000 meters and high: over 1,000 meters) occurring in the mountain chain of Espinhaço; c) and the protection of environmental services, in the form of springs of rivers of the region of Espinhaço mountain chain, mapped from the map of hydrography of the region (IBGE-Brazilian Institute of Geography and Statistics, 2003).

Among the total of 607 species targets considered in the study, the RBSE Phase 1 cut included 500 of the vertebrate groups (mammals, birds, reptiles, amphibians and fish), endangered, rare and endemic groups, invertebrates and higher vascular plants, corresponding to more than 82% of the total wealth of the chain of Espinhaço mountain, referring to the targets of species considered. As for the Phase 2 cut, the number of target species increased to 596 species (98% of the total).

TABLE 2: TARGET SPECIES OF THE PROJECT: ESPINHAÇO SEMPRE-VIVO.

GROUP	NUMBER OF SPECIES RBSE PHASE 1	NUMBER OF SPECIES RBSE PHASE 2	TOTAL NUMBER OF SPECIES
Amphibians	27	27	29
Birds	51	54	54
Flora	310	357	395
Invertebrates	42	122	46
Mammals	49	50	50
Fishes	15	18	23
Reptiles	6	7	10
GRAND TOTAL	500		607

Similarly, of the 41 types of ecosystems selected in the chain of Espinhaço mountain, 24 of them (~ 58%) were identified in the RBSE Phase 1 cut, while in Phase 2 10 ecosystems were added to 34 (83% of the total). In relation to the targets related to conservation of environmental services, 2,099 (~ 27%) of the 7,756 springs mapped in the chain of Espinhaço mountain, were identified in RBSE Phase 1, while in Phase 2 the number of sources covered doubled, 4,658, increasing 2,559 springs (60% of the total).

In order to determine the irreplaceability value and the design of conservation scenarios, in addition to the indication of the targets (species, ecosystems and environmental services) associated to their respective conservation goals, a cost code was defined for each planning unit, with a view to selecting the planning units that contributed most (high irreplaceability) at the lowest possible cost. The cost associated with each planning unit was determined through a multivariate analysis of twelve different variables representing the greater or lesser anthropogenic pressure in the Espinhaço Chain, distributed in the form of costs evaluated as taxpayers to increase the effort that must be undertaken to promote the conservation of the RBSE region, costs evaluated as contributors to lessening the effort that must be made to promote the conservation of the RBSE region, synthesized by the result of the combination of variables related to the effort to be undertaken to promote the conservation of the RBSE region.

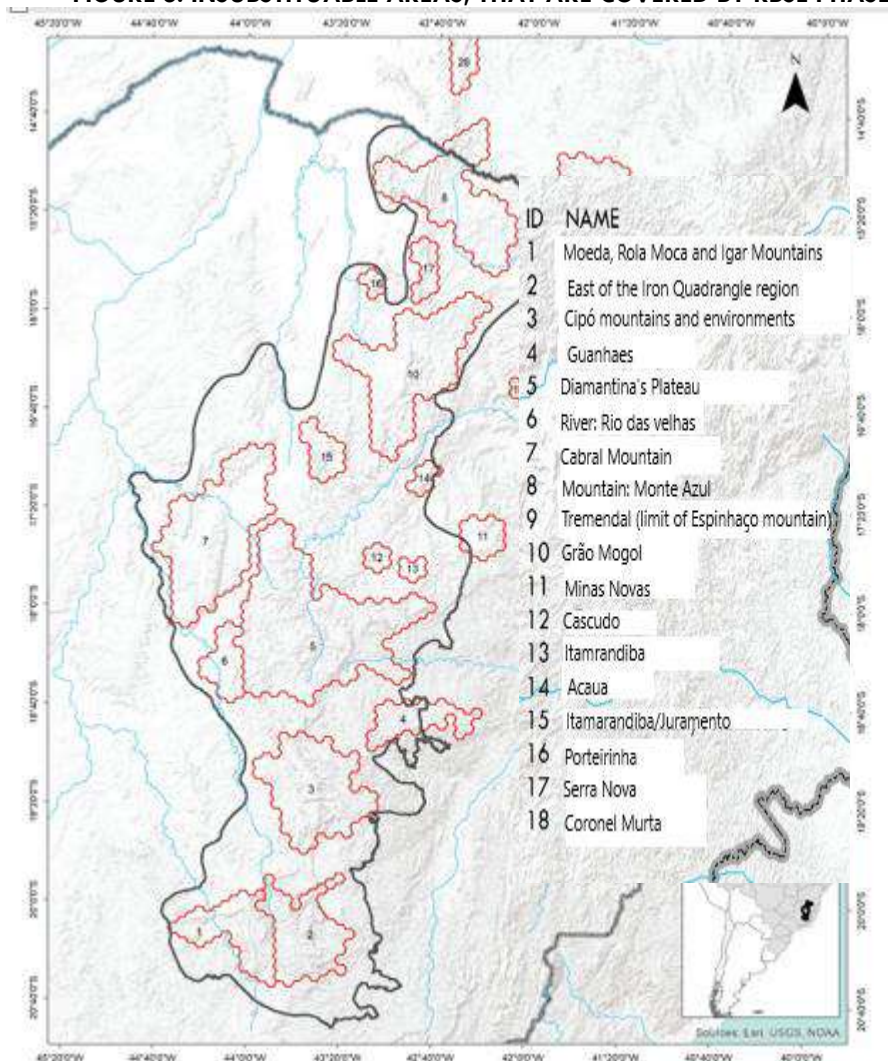
TABLE 3: VARIABLES USED FOR THE DEFINITION OF THE COST ASSOCIATED TO THE PLANNING UNITS OF ESPINHAÇO MOUNTAIN CHAIN.

VARIABLE	DESCRIPTION	WEIGHT	SOURCE
Increase the cost of conservation			
CULTIVATION	Area of active cultivations in the region	0.3787	Proximity of deforested areas considering the period from 2000 to 2005
POP	Total number of inhabitants per municipality in 2000	0.3237	Atlas of Human Development in Brazil - UNESCO (United Nations Educational, Scientific and Cultural Organization)
DESMAT	Proximity of deforested areas considering the period from 2000 to 2005	0.1508	images MODIS - (Moderate resolution Imaging Spectroradiometer) (MOD13QA)
ESTRA	Proximity of paved roads	0.0810	IBGE (Brazilian Institute of Geography and Statistics) Maps (Brazil to the Millionth)
FOCOS	Frequency of heat sources between 2001 and 2005	0.0509	Bank of Queimadas – INPE (National Institute of Space Research)
CRESC	Population growth rate between 1991 and 2000	0.0147	Encyclopedia Atlas of Human Development in Brazil - UNESCO (United Nations Educational, Scientific and Cultural Organization)
Decrease the cost of conservation			
NATIV	Percentage of remnants and native areas in 2005	0.4637	images MODIS - (Moderate resolution Imaging Spectroradiometer) (MOD13QA)
APP	Density of permanent preservation areas	0.2130	Maps IBGE - (Brazilian Institute of Geography and Statistics) Maps (Brazil to the Millionth)
UCPI		0.1323	Basis CI - (Conservation International) -Brazil

	Proximity of Conservation of integral protection units		
GOVER	Governance structure in the municipalities that were considered	0.1302	Base 'Profile of Brazilian Municipalities' – IBGE (Brazilian Institute of Geography and Statistics)
UCUS	Proximity of Conservation Units of sustainable use	0.0330	Basis CI (Conservation International) - Brazil
APA	Environmental proximity to protected areas	0.0277	Basis – C.I. (Conservation International) - Brazil

For the identification of complementary areas for the conservation of all identified targets (species, ecosystems and environmental services), as an ideal scenario to assure the representativeness of the set of protected areas in the Espinhaço Mountain Chain, a decision support software, MARXAN (Marine Reserve Design Using Spatially Explicit Annealing), (Ball & Possingham, 2000) was used. The distribution of the irreplaceable areas in the cut of the Biosphere Reserve and the distribution of priority areas for conservation in the region, identified from the grouping of planning units by specially invited experts, are presented below in a seminar in 2005. While that in RBSE Phase 1 only 6 areas were covered, Phase 2 covered 16 areas.

FIGURE 6: INSUBSTITUABLE AREAS, THAT ARE COVERED BY RBSE PHASE 2.



Conservation Units in RBSE Phase 2

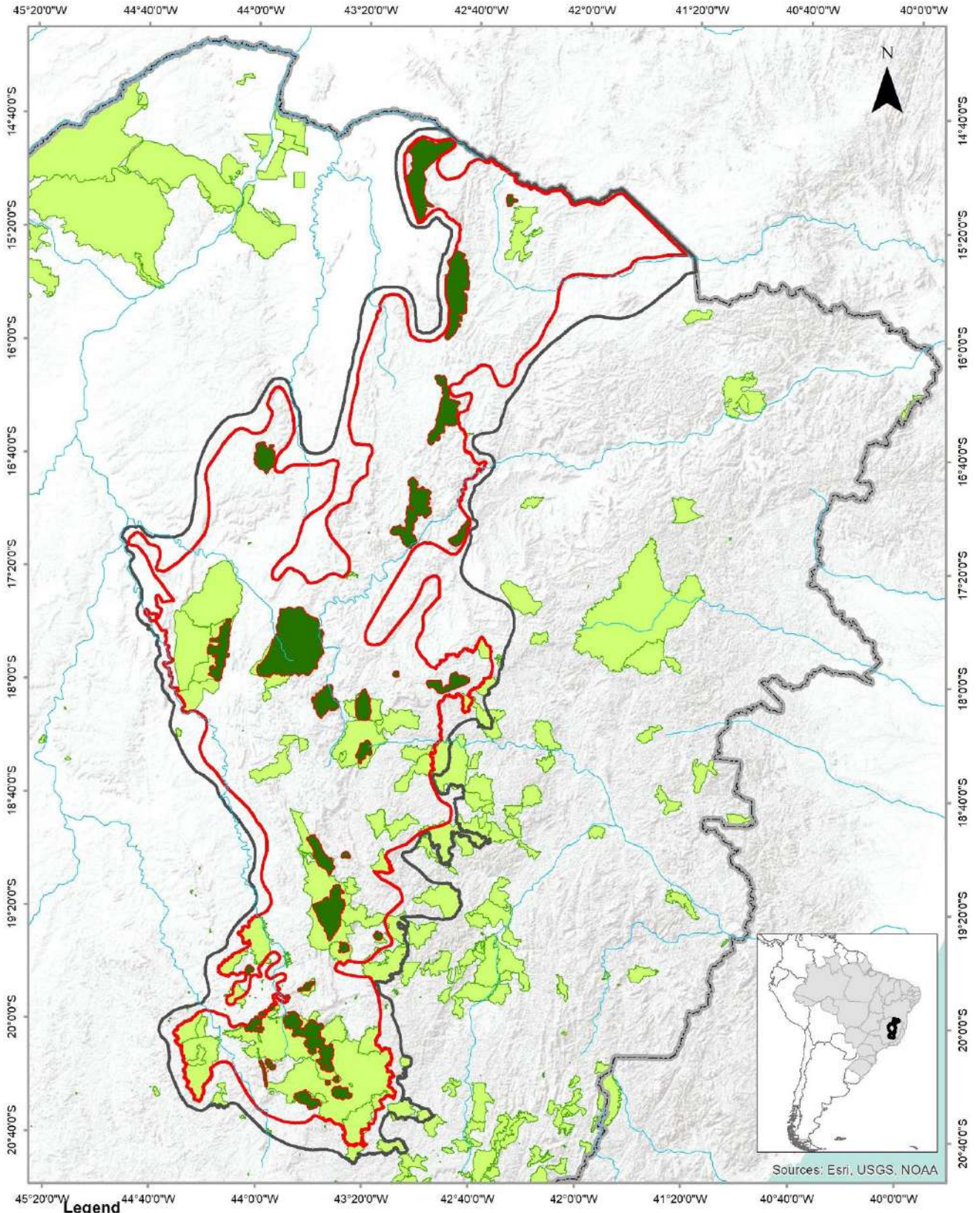
One of the most significant contributions of IEF (State Forestry Institute) to biodiversity conservation within the scope of the Biosphere Reserve of Espinhaço is the strengthening of the protected area system through the creation and implementation of Conservation Units - Conservation Units.

Conservation Units incorporate areas of great environmental relevance that must follow the norms and regulations established in their creation, management and implementation process, directly contributing to the preservation of biodiversity and significant historical and cultural attributes. In addition to the function of preserving ecosystems, Conservation Units also play an important role in society, especially as regards the provision of environmental services, promotion and strengthening of scientific research, ecotourism valuation, education and environmental interpretation, contribution to sustainable development, among others.

Among the legal instruments applicable to these areas are Federal Law 9,985 / 2000 and Federal Decree, number: 4,340 / 2002, which institute and regulate the National System of Conservation Units (SNUC), respectively. At the state level, it is worth mentioning the publication of the State Law number: 20,922 / 2013, which provides for the state policy on forests and biodiversity. Set up with the challenge of preserving portions of our territory still conserved for the maintenance of biodiversity, the creation and implementation of protected areas has been the most widely used worldwide strategy for environmental conservation of ecosystems. However, in Minas Gerais, as well as in other states in Brazil, these areas face serious difficulties regarding their structuring, maintenance and management, generally related to the lack of human and financial resources and the slowness of the processes involving conservation.

According to table 1, up to 2005, the Biosphere Reserve of Espinhaço mountain had more than 261,085 hectares in Protected Areas, which represent the RBSE Nuclear Areas, and had more than 1,423,076 hectares of Conservation Units of Sustainable Use, representing the Damper Areas. In the last ten years, up to 2015, there was an increase of almost 61,000 hectares in Protected Areas of Integral Protection, representing an increase of more than 23% in areas considered as Core Areas. This number can be considered quite significant, seeing that in recent years, initiatives for the creation of new Conservation Units have become increasingly scarce due to the various conflicts of interest between economic development and the conservation of natural resources.

FIGURE 7: CONSERVATION UNITS IN THE RBSE REGION PHASE 2.



- Legend**
- Rivers
 - Core Zone
 - Buffer Zone
 - Transition Zone
 - State Limit
 - Conservation Units



0 30 60 120 Km

Source: SISEMA, 2018

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

Phase 2, at present, has 158,435.44 hectares inserted in Conservation Units of Integral Protection, and has been contemplated in the efforts of the IEF (State Forestry Institute) to protect its biodiversity, having had, as of 2006, an increase of 41, 44% of protected areas in protected areas.

TABLE 4: INCREASE OF AREAS PROTECTED BY CONSERVATION UNITS IN THE RBSE.

CREATION OF CONSERVATION UNIT /PERIOD***	UNTIL 2005	2006 TO 2015	2016 TO 2018	
PHASE 1 *	Area in hectares	Area in hectares	Area in hectares	
INTEGRAL PROTECTION	261.085,33	60.954,87	-	23,34
SUSTAINABLE USE	1.423.076,66	17.198,11	-	0,012
OUTROS (APE - SPECIAL PROTECTION AREA)	351.352,93	-	-	-
TOTAL	1.656.669,17	78.152,98	-	4,71
CREATION OF CONSERVATION UNIT / PERIOD **	Until 2005	2006 to 2015	2016 to 2018	INCREASE FROM 2006 TO 2018 (%)
PHASE 2	Area in hectares	Area in hectares	Area in hectares	
INTEGRAL PROTECTION	24.201,24	155.750,15	35.682,49	791,00%
SUSTAINABLE USE – RPPN - PRIVATE RESERVE OF NATURAL HERITAGE	627,04	45.019,54	711,00	7.293,08%
USO SUSTENTÁVEL (OUTRAS NÃO RPPN - PRIVATE RESERVE OF NATURAL HERITAGE)	180.004,00	50.440,27	98,45	28,07%
OTHERS (APE - PRIVATE RESERVE OF NATURAL HERITAGE)	489.287,78			-
TOTAL ***	694.120,06	251.209,96	36.491,94	41,44%

* Adapted from BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - 1ª PERIODIC REVIEW (2005-2015).

** For the period was considered the first act of creation in spite of later revisions and publication of new legal acts.

*** Including Federal, State and Municipal Conservation Units

TABLE 5: CONSERVATION UNITS WITHIN THE RBSE

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)	NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
APA State Environmental Protection area: Águas Vertentes	1	APA Municipal Environmental Protection area: Barão e Capivara	1
APA State Environmental Protection area: Cachoeira das Andorinhas	1	APA Municipal Environmental Protection area: Cachoeira Alegre	1
APA State Environmental Protection area: Seminário Menor de Mariana	1	APA Municipal Environmental Protection area: Carvão de Pedra	1
APA State Environmental Protection area: Sul RMBH	1	APA Municipal Environmental Protection area: Córrego da Mata	1
APA Federal Environmental Protection area: Morro da Pedreira	1	APA Municipal Environmental Protection area: Descoberto	1
APA Municipal Environmental Protection area: Águas da Serra da Piedade	1	APA Municipal Environmental Protection area: Felício	1
APA Municipal Environmental Protection area: Aliança	1	APA Municipal Environmental Protection area: Gameleira	1

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
APA Municipal Environmental Protection area: Gatos	1
APA Municipal Environmental Protection area: Gualaxo do Sul	1
APA Municipal Environmental Protection area: Igarapé	1
APA Municipal Environmental Protection area: Itacuru	1
APA Municipal Environmental Protection area: Jacutinga	1
APA Municipal Environmental Protection area: Pedra Gaforina	1
APA Municipal Environmental Protection area: Piranga	1
APA Municipal Environmental Protection area: Renascença	1
APA Municipal Environmental Protection area: Rio Manso	1
APA Municipal Environmental Protection area: Rio Manso	1
APA Municipal Environmental Protection area: Rio Picão	1
APA Municipal Environmental Protection area: Minas Mountain	1
APA Municipal Environmental Protection area: Cabral Augusto de Lima Mountain	1
APA Municipal Environmental Protection area: Cabral Buenópolis Mountain	1
APA Municipal Environmental Protection area: Cabral Francisco Dumond Mountain	1
APA Municipal Environmental Protection area: Cabral Joaquim Felício Mountain	1
APA Municipal Environmental Protection area: Cabral Lassance Mountain	1
APA Municipal Environmental Protection area: Gavião	1
APA Municipal Environmental Protection area: Intendente Mountain	1
APA Municipal Zabele	1
APE State Hydrographic Basin : Córrego Barreiro	1
APE State Hydrographic Basin : Córrego do Taboão	1
APE State Hydrographic Basin : Córrego Mutuca	1
APE State Hydrographic Basin : Ribeirão do Veríssimo	1
APE State Hydrographic Basin Ribeirão Serra Azul	1
APE State Hydrographic Basin: Rio Manso	1
APE State Hydrographic Basin of the system: Balsamo-Rola Moça	1
APE State Hydrographic Basin of the system: Córrego Cercadinho	1
APE State Special Protection Area Ouro Preto/Mariana	1

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
APE State Special Protection Area: Santana do Riacho and Jaboticatubas	1
APE State Hydrographic Sub-basin of Córrego dos Fechos	1
APE State Sub-basin of Ribeirão Catarina	1
State Ecological Station: Arêdes	1
State Ecological Station: Fechos	1
State Ecological Station: Cercadinho	1
State Ecological Station: Tripuí	1
State forest: Uaimii	1
State Natural Monument: Moeda Mountain	1
State Natural Monument: Piedade Mountain	1
State Natural Monument: Itatiaia	1
State Natural Monument: Pico do Itabirito	1
State Natural Monument: Várzea do Lajeado e Serra do Raio	1
Municipal Natural Monument: Mae D'Água	1
Municipal Natural Monument: Morro do Elefante	1
Municipal Natural Monument: Morro do Pires	1
Municipal Natural Monument: Calcada Mountain	1
Municipal Natural Monument: Serra do Souza	1
State Park: Baleia	1
State Park: Cabral mountain	1
State Park: Cipó Mountain	1
State Park: Rola Moca Mountain	1
State Park: Biribiri	1
State Park: Itacolomi	1
State Park: Pico do Itambé	1
State Park: Rio Preto	1
State Park: Sumidouro	1
State Park: Mata do Limoeiro	1
State Park: Serra da Candonga	1
State Park: Serra do Intendente	1
State Park: Serra do Ouro Branco	1
City Park: Aggeo Pio Sobrinho	1
City Park: Cachoeira das Andorinhas	1
City Park: Tropeiro	1
Forest Municipal Park: Chácara do Lessa	1
City Park: Mangabeiras	1
City Park: Mata das Borboletas	1
Natural City Park: Ribeirão do Campo	1
Natural City Park: Salão de Pedras	1
City Park: Roberto Burle Marx	1
National Park: Gandarela Mountain	1
National park: Cipó mountain	1
National park: Sempre Vivas	1
Municipal Biological Reserve: Rupestrian Fields of Moeda Norte	1
Municipal Biological Reserve: Campos Ruprestres de Moeda Sul	1

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
RPPN Albert Scharle	1
RPPN Alto do Palácio	1
RPPN Ana Helena	1
RPPN AngloGold Ashanti-Cuiaba	1
RPPN Aves Gerais	1
RPPN Brumas do Espinhaço	1
RPPN Comodato Reserva Peti	1
RPPN do Andaime	1
RPPN Ermo dos Gerais	1
RPPN Farm: Capivary	1
RPPN Farm: Córrego Acima	1
RPPN Farm: Arrenegado	1
RPPN Farm: Joao Pereira / Poço Fundo	1
RPPN Farm: Nascer	1
RPPN Horto Alegria	1
RPPN Inhotim	1
RPPN Itabirucu	1
RPPN Itajuru ou Sobrado	1
RPPN Luiz Carlos Jurovsk Tamassia	1
RPPN Mata do Jambreiro	1
RPPN Mata Samuel de Paula	1
RPPN Paixãozinha	1
RPPN Quebra Ossos	1
RPPN Quinta dos Cedros	1
RPPN Riacho Fundo I e II	1
RPPN Sanctuary: Santuário da Serra do Caraça	1
RPPN Moeda Mountain	1
RPPN Farm: Borges	1
RPPN Farm: Grimpas	1
RPPN Farm: Mata da Cruz	1
RPPN Valley: Vale das Borboletas	1
RPPN Valley: Vale do Parauninha	1
RPPN Valley: Vale dos Cristais	1
RPPN Vargem do Rio das Pedras	1
RPPN Vida Verde	1
RPPN Ville Casa Branca	1
APA State Environmental Protection area: Vargem das Flores	2
APA Federal Environmental Protection area: Carste Lagoa Santa	2
APA Municipal Barra Longa	2
APA Municipal Brecha	2
APA Municipal Córrego das Flores	2
APA Municipal Esperança	2
APA Municipal Fortaleza de Ferros	2
APA Municipal Matinha	2
APA Municipal Piracicaba	2
APA Municipal Presidente Bernardes	2
APA Municipal Pureza	2
APA Municipal São Lourenço	2
APA Municipal Senhora de Oliveira	2
APA Municipal Suaçuí	2
APA Municipal Vale do Rio Macaúbas	2
APA Municipal Vista Alegre	2
APA Park: Fernão Dias	2
APE State Airport International	2
APE State Hydrographic Basin of the Reservoir of Vargem das Flores	2

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
APE State Hydrographic Basin: Ribeirão do Urubu	2
State Ecological Station: Mata dos Ausentes	2
State Ecological Station: de Acauã	2
State Forest: São Judas Tadeu	2
State Natural Monument: Experiencia da Jaguará	2
State Natural Monument: Lapa Vermelha	2
State Natural Monument: Santo Antônio	2
State Natural Monument: Vargem da Pedra	2
State Natural Monument: Várzea da Lapa	2
State Park: Caminho dos Gerais	2
State Park: Cerca Grande	2
State Park: Lapa Grande	2
State Park: Serra do Sobrado	2
State Park: Serra Negra	2
State Park: Botumirim	2
State Park: Grão Mogol	2
State Park: Montezuma	2
State Park: Serra Nova e Talhado	2
City Park: Serra Verde	2
City Park: Água Santa	2
City Park: Fazenda Lagoa do Nado	2
Natural City Park: Ribeirão São Jose	2
Natural City Park: Felisberto Neves	2
Natural City Park: Mata do Intelecto	2
City park: Reserva Ecológica do Bairro União (Parque Matinha)	2
City park Ursulina de Andrade Melo	2
State Wildlife Refuge: Macaúbas	2
State Wildlife Refuge: Aroeiras Mountain	2
Municipal Biological Reserve: Mata do Bispo	2
Federal Reserve of Sustainable Development: Nascentes Geraizeiras	2
RPPN Água Boa	2
RPPN Barra do Bacalhau	2
RPPN Bem	2
RPPN Cachoeira do Curiango	2
RPPN Córrego do Sitio I	2
RPPN Diogo	2
RPPN Empresa Brasileira do Quartzo	2
RPPN Fartura	2
RPPN Farm: Campinho	2
RPPN Farm: Cordeiros	2
RPPN Farm: Velha/Verdever	2
RPPN Gentio	2
RPPN Grota da Serra 01	2
RPPN Grota da Serra 03	2
RPPN Herculano	2
RPPN Juliano Banco	2
RPPN Mata da Copaíba	2
RPPN Mata do Confisco	2
RPPN Nossa Senhora Aparecida	2
RPPN Olga Coelho Ulman	2

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
RPPN Portal Sul	2
RPPN Raiz	2
RPPN Japanese Culture Society of Brazil of Minas Gerais	2

NAME OF THE PRESERVATION UNIT	RBSE (PHASE)
RPPN Sol Nascente	2
RPPN Tambasa	2

Land regularization of the State Conservation Units

Regarding land regularization, there is a consensus that this is one of the main mechanisms for the effective control of the areas included in the public domain Conservation Units, the lack of which is one of the main aspects favoring the forest fire and the development of other activities harmful to the environment, such as breeding cattle (trampling, dispersal of invasive species and degradation of APPs - Areas of Permanent Preservation), invasions and irregular subdivisions, hunting and uncontrolled visitation, etc..

One of the first instruments for the implantation and governability of Conservation Units in the public domain is land regularization, which can be defined as a set of administrative, judicial, environmental, social and other activities aimed at regularizing the occupations and / or detentions established within the Conservation Units. As a rule, land regularization occurs through the expropriation instrument, established in Federal Decree number: 3365/1941. However, the IEF (State Forest Institute), in addition to working with the expropriation, uses other instruments that make it possible to Land Regularization of the properties located inside the Conservation Units. In this case other instruments such as: Compensation of Legal Reserve in Conservation Unit, Forest Replenishment, Environmental Compensation, Forest Compensation, Forest Compensation, Speleological Compensation and Environmental Settlement Processes (Licensing).

In the State of Minas Gerais, land regularization takes place regionally in the regional offices of the State Forestry Institute, together with the UC team and with the support of the IEF (State Forestry Institute) / Minas Gerais Land Tenure Management. In the case of compensation, there is also the participation of the Regional Superintendencies for Environmental Regulation and Sustainable Development (SUPRAMs). The objective of regionalization of land regularization is to provide rapid process instruction, maintaining the standard in the way of working and setting up action plans specific to each unit, due to its particularities. The IEF begins the regularization work on the real estate registry and the collection of documents for each expropriated person. After registration, a folder of each property or possession is opened, which will be the basis for analysis and referrals to be made by the technical and legal teams of the Regional Office. In cases of expropriation, the situation of each property is verified and the documentation must attend to the list of documents necessary for the procedural instruction. After the investigation and analysis, the process is sent to the State Attorney General's Office (AGE), which will evaluate the possibility of the proceeding through friendly or judicial channels. The Conservation Units of Minas Gerais are in diverse land situations.

In this regard, the IEF (State Forestry Institute)'s efforts to reduce this liability are highlighted, which can be seen in the following table showing the State's investments in the last year in land regularization of the Conservation Units in phase II of the RBSE. Information on the land regularization of the State Conservation Units included in the Biosphere Reserve of Espinhaço Mountain: are shown in the table below:

TABLE 6: STATE OF REGULARIZATION OF THE CONSERVATION UNITS IN THE RBSE.

Conservation unit	RBSE Phase	Total Area of Conservation Unit (hectares)	% Area Regulated	Areas with regularization in progress (hectares)	Available areas for Regularization (hectares)	Notes:
STATE PARKS						
P. E. (State Park) Biribiri	1	16998,6600	0	12841,0435	4157,6000	Judicial processes of the stamping farm of 12841 hectares
P.E. (State Park) Alto Cariri		6151,1400	0	600,0000	5651,1400	Compensation in progress and registration
P.E. (State Park)Baleia	1	102,0000	100	102,0000	0,0000	Public area - Minas Gerais
P.E. (State Park)Caminhos das Gerais	2	56237,3700	49,15	0,0000	28599,1522	There is a suspicion of unsettled lands
P.E. (State Park) Cerca Grande	2	134,1915	0	0,0000	134,5000	Compensation of 100% of the areas by the company Cimentos Tupi, which is in progress
P.E. (State Park)do Grão Mogol	2	28404,4870	12,27	0,0000	24920,0000	There is a suspicion of unsettled lands
P.E. (State Park)do Itacolomi	1	7543,0000	3,79	64,0000	7193,3000	Suspicion exists of unsettled lands - SAMARCO survey in progress
P.E. (State Park)Lapa Grande	2	15360,4300	54	0,0000	8360,0000	Pending areas, due to lawsuits in progress and new extension
P.E. (State Park) Mata do Limoeiro	1	2056,7084	0	2056,7084	0,0000	Conditional item of the company: VALE, area of the Conservation Unit to be donated
P.E. (State Park) Montezuma	2	1743,2060	80	33,0000	0,0000	Previously identified lands. Transfer Pending -Existence of Some Properties with Compensation in Progress
P.E. (State Park)Pico do Itambé	1	6520,3385	8,65	5956,3385	0,0000	The pending cases are resettlement proceedings and judicial ones.
P.E. (State Park)Rio Preto	1	12184,3255	0	11822,0000	0,0000	The pending cases are judicial expropriation proceedings
P.E. (State Park)Serra da Candonga	1	3302,6600	0	600,0000	2700,0000	Existence: Area in process of compensation
P.E. (State Park) Cabral Mountain	1	22494,1728	1,58	14000,0000	8107,2000	Areas that are being proposed for donation in payment of environmental and forest compensation
P.E. (State Park) Intendente Mountain	1	13508,8300	0	2500,0000	11108,8000	Suspicion of unsettled lands
P.E. (State Park) Ouro Branco Mountain	1	7520,7888	0	7520,7888	0,0000	Areas that are being proposed for donation in payment of environmental and forest compensation. Mining Areas
P.E. (State Park) Rola Moça Mountain	1	3941,0900	38,71	1415,0000	1000,0000	Suspected land of COPASA (Sanitation Company of Minas Gerais), State and Municipality - Existence Area in compensation process
P.E. (State Park) Sobrado Mountain	2	383,6040	0	383,6040	0,0000	100% in Expropriation Process
P.E. (State Park)Serra Verde	2	142,0168	0	142,0168	15,0000	40% of Judicial Processes and 40% of the area of the city hall of Belo Horizonte
P.E. (State Park)Sete Salões		12520,9000	0	25,0000	12495,9000	

Conservation unit	RBSE Phase	Total Area of Conservation Unit (hectares)	% Area Regulated	Areas with regularization in progress (hectares)	Available areas for Regularization (hectares)	Notes:
P.E. (State Park) Sumidouro	1	2001,9375	17,28	856,0814	800,0000	50% of litigation
TOTAL OF ECOLOGICAL PARKS.		219251,8568		60917,5814	115242,5922	
ECOLOGICAL STATIONS						
Ecological Station (E.E.) Tripuí	1	337,0000	13,55	291,3400	0,0000	Public area with condition of removal of squatters to be transferred to the IEF (State Forestry Institute)
Ecological Station (E.E.): Mata dos Ausentes	2	445,0000	37,13	280,0000	33,0000	Instruction in progress
Ecological Station: Acauã	2	5195,7700	100	0,0000	0,0000	
Ecological Station: Fechos	1	602,9500	100	0,0000	0,0000	Areas of PBH (Belo Horizonte City Hall) - A donation made by VALE company
Ecological Station: Cercadinho	1	224,8900	100	224,8000	0,0000	Areas of the State of Minas Gerais
Ecological Station: Arêdes	1	1157,8556	100*	1001,9786	0,0000	CETEC (technical school) area in donation to IEF (State Forest Institute) / * Law changed 2018 limits
TOTAL OF ECOLOGICAL STATIONS		7963,4656		1798,1186	33,0000	
NATURAL MONUMENTS						
Natural Monument: Itatiaia	1	3216,0174	0	0,0000	3216,0174	
Natural Monument: Santo Antônio	2	31,1262	0	0,0000	31,1262	
Natural Monument: Experiência de Jaguará	2	38,4815	0	0,0000	38,4815	
Natural Monument: Vargem da Pedra	2	10,0979	0	0,0000	10,0979	
Natural Monument: Lapa Vermelha	2	33,7118	0	0,0000	33,7118	
Natural Monument: Serra da Moeda	1	2372,5572	0	0,0000	2372,5572	
Natural Monument: Várzea da Lapa	2	23,5324	0	0,0000	23,5324	
Natural Monument: Várzea do Lajeado e Serra do Raio	1	2199,9754	0	1100,0000	1100,0000	In the process of Discriminatory of unsettled lands - SEDA
TOTAL OF MONUMENTS		7925,4998		1100,0000	6825,5244	

To carry out the management, the basic actions developed by the IEF (State Forest Institute), the Management Plan, the institution of the manager and the work team, the creation of the advisory board, and the implementation of structures, vehicles and equipment for the management and development of activities, according to the objectives of each category of Conservation Unit.

For its effective implementation, each Conservation Unit must have a manager, responsible for its administration and for the fulfillment of its creation objectives, and this one must report to the superior administration of the IEF (State Forest Institute). Such a professional must have skills and qualification consistent with the range of demands to which the Conservation Unit is exposed. Due to the responsibility of the function, it is recommended that the managers be professionals of a higher level, with broad knowledge in the environmental area and be nominated for this purpose.

In addition to the manager of the Conservation Unit, a team is needed to support management and monitoring, so that the Conservation Units develop their daily activities, as well as projects and programs in the medium and long term. The actions developed by the management and staff of each Conservation Unit range from protecting them (mainly against fire, invasion and deforestation), through environmental education and the regulation of public visitation, the maintenance of existing trails and structures, besides of the continuous actions of monitoring and articulation with the community. In order to carry out these actions, the IEF (State Forest Institute) counts on a contingent of employees for each Conservation Unit, which gained greater stability from the selection process carried out by MGS in 2016.

Law 9,985 / 2000, which establishes the National System of Conservation Units, defines the management plan as a technical document whereby, based on the general objectives of a Conservation Unit, its zoning and to preside over the use of the area and the management of natural resources.

All Conservation Units must have a management plan, which must cover the area of the Conservation Unit, its buffer zone and ecological corridors, including measures to promote their integration into the social economic life of neighboring communities (Article 27, §1) (BRAZIL, 2000).

The management plans are fundamental for the management of the Conservation Units, since they establish the zoning of the area, its buffer zone and all the management and visitation norms, besides guidelines of compatibility of economic activities with the environmental conservation, when fit It is important to emphasize that the Management Plan is a dynamic instrument that, once elaborated, must be periodically reviewed, making possible the management process. In addition, the Management Plans are sources of research and promotion of the RBSE's Logistical Support function.

The table below presents the Conservation Units belonging to the Espinhaço Biosphere Reserve that have a management plan, those that do not have, and those whose management plans are in preparation or in the contracting phase. It is noteworthy that of the 25 units belonging to the Biosphere Reserve of Espinhaço Mountain, 09 do not have a management plan, 09 have a plan, 06 are under preparation and 01 are in the contracting phase.

TABLE 7: SITUATION OF THE MANAGEMENT PLANS OF THE UCS COMPOSING THE RBSE.

NAME OF THE PRESERVATION UNIT	RBSE (phase)	Status of the Management Plan	Approval meeting	Approval date
APA State Environmental Protection area: Aguas Vertentes	1	approved	19th Regular Meeting of CPB (Chamber of Protection to Biodiversity and Protected Areas	26.06.2018
APA State Environmental Protection area: Cachoeira das Andorinhas	1	There is not.		
APA State Environmental Protection area: Seminario Menor de Mariana	1	There is not.		
APA State Environmental Protection area: Sul RMBH	1	There is not.		
APE Hydrographic State Basin: Corrego do Taboao	1	There is not.		
APE Hydrographic State Basin: Corrego Mutuca	1	There is not.		
APE Hydrographic State Basin Ribeirao do Verissimo	1	There is not.		
APE Hydrographic State Basin Ribeirao Serra Azul	1	There is not.		
APE Hydrographic State Basin: Rio Manso	1	There is not.		
APE Hydrographic State Basin of the system Balsamo_Rola Moca	1	There is not.		
APE State Hydrographic Basin of the system: Corrego Cercadinho	1	There is not.		
APE State Special Protection Area: Ouro Preto/Mariana	1	There is not.		
APE State Special Protection Area: Santana do Riacho e Jaboticatubas	1	There is not.		
APE State Hydrographic Sub-basin of Corrego dos Fechos	1	There is not.		
APE State Hydrographic Sub-basin of Ribeirao Catarina	1	There is not.		
State Ecological Station: Aredes	1	There is not.		
State Ecological Station: Fechos	1	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1386	25.01.2008
State Ecological Station: Cercadinho	1	There is not.		
State Ecological Station: Tripui	1	approved	It did not pass through IEF (State Forest Institute) board for approval.	1995
State Forest :Uaimii	1	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1510	05.07.2012

NAME OF THE PRESERVATION UNIT	RBSE (phase)	Status of the Management Plan	Approval meeting	Approval date
State Natural Monument: Moeda Mountain	1	approved	18th CPB (Chamber of Protection to Biodiversity and Protected Areas) Regular Meeting	21.05.2018
State Natural Monument: Piedade Mountain	1	beginning of articulation to elaborate		
State Natural Monument: Itatiaia	1	Approved	3rd Ordinary Meeting CPB (Chamber of Protection to Biodiversity and Protected Areas)	27.03.2017
State Natural Monument: Pico do Itabirito	1	There is not.		
State Natural Monument: Varzea do Lageado e Serra do Raio	1	There is not.		
Baleia State Park	1	There is not.		
Serra do Cabral State Park	1	approved	59th Regular Meeting CPB (Chamber of Protection to Biodiversity and Protected Areas)	07.08.2015
Serra do Cipo State Park	1	There is not.		
Serra do Rola Moca State Park	1	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1386	25.01.2008
Biribiri State Park	1	Reviewed	Portaria IEF nº 104	04.08.2012
Itacolomi State Park	1	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1408	17.07.2008
Itambe Pico State Park	1	approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 001	13.09.2004
State Park of Rio Preto	1	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 001	13.09.2004
Sumidouro State Park	1	approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1476	03.12.2010
Mata do Limoeiro State Park	1	Approved	47th CPB (Chamber of Protection to Biodiversity and Protected Areas) Ordinary Meeting	28.03.2014
State Park: Candonga Mountain	1	There is not		
State Park: Intendente Mountain	1	There is not		
State Park: Ouro Branco Mountain	1	There is not		
Environmental Protection state area: Vargem das Flores	2	There is not		

NAME OF THE PRESERVATION UNIT	RBSE (phase)	Status of the Management Plan	Approval meeting	Approval date
Environmental Protection state area:, Park: Fernao Dias	2	There is not		
APE State Airport International	2	There is not		
Special Protection state area, Hydrographic Basin of the Vargem das Flores Reservoir	2	There is not		
Special Protection state area, Hydrographic basin of Ribeirao do Urubu	2	There is not		
State Ecological Station of Mata dos Ausentes	2	Approved	69th Regular Meeting CPB (Chamber of Protection to Biodiversity and Protected Areas) Ordinary Meeting	05.08.2016
State Ecological Station of Acauã	2	There is not		
State Forest Sao Judas Tadeu	2	approved	Management of FUNED (Ezequiel Dias Foundation)	2005
State Natural Monument Jaguará Experience	2	There is not		
State Natural Monument: Lapa Vermelha	2	There is not		
State Natural Monument: Santo Antônio	2	There is not		
State Natural Monument:Vargem da Pedra	2	There is not		
State Natural Monument: Várzea da Lapa	2	There is not		
State Park: Caminho dos Gerais	2	There is not		
State Park: Cerca Grande	2	There is not		
State Park: Lapa Grande	2	Emergency plan	58th Regular Meeting CPB (Chamber of Protection to Biodiversity and Protected Areas)	15.07.2015
State Park: Serra do Sobrado	2	There is not		
State Park: Serra Negra	2	There is not		
State Park: Botumirim	2	There is not		
State Park: Grão Mogol	2	There is not		
State Park: Montezuma	2	There is not		
State Park: Serra Nova e Talhado	2	under elaboration		
State Park: Serra Verde	2	Approved	Deliberation of the Administrative Council of the IEF (State Forest Institute), number 1477	03.12.2010
State Wildlife Refuge: Macaubas	2	There is not		
State Wildlife Refuge: Serra das Aroeiras	2	There is not		
Municipal Biological Reserve : Mata do Bispo	2	There is not		
Federal Sustainable Development Reserve: Nascentes Geraizeiras	2	There is not		

An important element present in the National System of Conservation Units (SNUC) is the formation of Advisory or Deliberative Councils to advise on the management of Conservation Units. The Councils are chaired by the manager of the Conservation Unit, who conducts an elective process to appoint the other advisers appointed by the sectors to be represented. These must have parity representation being composed of public bodies and civil society.

According to the IEF (State Forestry Institute) Ordinance 19/2017, Conservation Unit Council: a collegiate body formally instituted through an Ordinance of the General Director of the State Forestry Institute, whose function is to constitute a democratic forum for dialogue, valorization, participation and social control, debate and management of the Conservation Unit, including its buffer zone and influence territory, to address environmental, social, economic and cultural issues related to the Conservation Unit.

Still according to the same ordinance, the formation of the council is carried out process conducted in a democratic and transparent manner, establishing actions that allow the participation of the different individuals, institutions and social groups that have relation with the uses of the territory of influence of the Conservation Unit, with the aim of defining the composition and instituting the creation of the Council.

Considering the establishment of councils of Conservation Units, one of the strategies for participatory management, communication and institutional arrangements in the Core Areas, a table is presented with the Conservation Units in the Biosphere Reserve of Espinhaço Mountain, which have current council, regiment internal, current ordinance, date of inauguration and ordinance of the regiment.

TABLE 8: STATUS OF MANAGEMENT OF CONSERVATION UNITS AT RBSE PHASE 2.

CONSERVATION UNIT	MANAGER	IS THERE A CURRENT BOARD ?	ARE THERE INTERNAL RULES?	PRESENT DECREE	YEAR OF THE PRESENT DECREE	DECREE OF THE REGIMENT
APA Águas Vertentes	YES	YES	NO	number 25, on April 12	2016	number 24, from January 9/2013
State Park: Biribiri	YES	YES	YES	number 73, OF OCTOBER 11	2016	Issue 147 of September 15, 2011
State Park: Pico do Itambé	YES	YES	YES	number 53, OF JUNE 19	2017	number 121 of June 22, 2011
State Park: Rio Preto	YES	YES	YES	number 97, of August 18	2017	number 251/2009 - Update?
State Park: Intendente Mountain	YES	YES	YES	Number 111, OF OCTOBER 09	2017	number 113 of July 15/2013
State Park: Cabral Mountain	YES	YES	YES	number 94, OF AUGUST 09	2017	To update the decree number
State Park: Sumidouro *	YES	YES	YES	Number 51, June 06, 2017	2017	number 157 of october 30, 2013
State Park: Serra do Cipo	YES	NO	NO			
APA (Environmental Protection Area) Cachoeira das Andorinhas	YES	SIM	NÃO	number 30, of April 7	2017	
Mountain: Moeda	YES	SIM		number 59, OF SEPTEMBER 16	2016	DECREE OF THE IEF (State Forest Institute) number 51, AUGUST 02, 2018

Ecological station: Tripuí	YES	YES	NO	number 39, of MAY 10	2017	number 172, of November 11, 2013
State Park: Itacolomi	YES					
APA (Environmental Protection area) Seminário Menor de Mariana	YES					
Mountain: Itatiaia	YES	YES	YES			number 145, November 13, 2014
State Park: Serra de Ouro Branco	YES	YES	YES	number 69, on OCTOBER 03	2016	Number: 05, ON FEBRUARY 5, 2018
Ecological station: Aredes	YES	YES	YES	number 24 OF MARCH 31, 2017.	2017	Number 110, of October 16, 2014
Ecological station: Cercadinho	YES	NO	NO			
Ecological station: Fechos	YES	NO	NO			number 196 of September 26, 2005
State Park: Rola Moça	YES	YES	YES	number 18, OF MARCH 21	2016	number 196 of September 26, 2005
State Park: Baleia	YES	NO	NO			
APA (Environmental Protection area) Sul	YES	YES	NO	number 47, OF JULY 29	2016	
Peak: Pico do Itabirito						
Natural Monument: Serra da Piedade	NO	YES	NO	number 37, MAY 04	2017	
Natural monument: Várzea do Lageado e Serra do Raio	YES	YES	NO	number 24 of April 12	2016	
Ecological station: Acauã	YES	YES	NO	number 131, OF DECEMBER 19	2017	There is not.
Ecological station: Mata dos Ausentes	YES	YES	NO	number 23, April 12	2016	There is not.

State Park: Serra Negra	YES	YES	YES	IEF (State Forest Institute), number 77, OF JULY 24	2017	number 188, 11/23/2012
State Park: Caminhos dos Gerais	YES	YES	YES	number 29, of April 14	2014	number 137, dated November 10, 2014
State Park: Grão Mogol	YES	YES	YES	number 58, of September 14	2016	number 128 of November 10, 2014
State Park: Lapa Grande	YES	YES	YES	number 78, OF JULY 24, 2017.	2017	number 90, AUGUST 09, 2017
State Park: Montezuma	*	YES	YES	IEF (State Forest Institute), number 135, OF DECEMBER 20	2017	number 139, of November 10, 2014
Natural Monument: Experiencia da Jaguará*	YES /	YES	NO	number 83, November 22	2016	
Natural Monument: Santo Antônio*	YES					
Natural Monument: Vargem da Pedra*	YES /					
PE (State Park) Cerca Grande*	YES					
Natural Monument: Lapa Vermelha*	YES	YES	NO	number 51, JUNE 06	2017	
PE (State Park) Serra do Sobrado*	YES	NO	NO			
RVS Aroeiras *	YES	NO	NO			
RVS Macaúbas *						

PE Serra Verde	YES	YES	YES	number 127, of October 23	2014	number 09, of January 13, 2010
APA (Environmental Protection area) Vargem das Flores	YES	YES	NO	number 79, OF NOVEMBER 10	2016	
APA (Environmental Protection area) Parque Fernão Dias	NO	NO	NO			

But the table below shows the Conservation Units that belong to the Biosphere Reserve of Espinhaço Mountain which have some type of infrastructure, those that have headquarters ceded by municipal governments and those that do not have a structure.

TABLE 9: INFRASTRUCTURE OF CONSERVATION UNITS AT RBSE PHASE 2.

APA	Águas Vertentes	1	0	1	0	0	0	0	0	0	0	0	0
APA	Cachoeira das Andorinhas	1	0	1	0	0	0	0	0	0	0	0	0
APA	Seminário Menor de Mariana	1	0	1	0	0	0	0	0	0	0	0	0
APA	Sul RMBH	1	0	1	0	0	0	0	0	0	0	0	1
APA	Vargem das Flores	1	0	0	0	0	0	0	0	0	0	0	0
EE	Arêdes	1	0	0	0	0	0	0	0	0	0	0	0
EE	Cercadinho	1	1	0	0	0	0	0	0	0	0	0	0
EE	Fechos	1	0	0	0	0	0	0	0	0	0	0	0
FLOE	Uaimii	1	2	0	1	1	0	0	0	0	2	1	0
MN	Itatiaia	1	0	0	0	0	0	0	0	0	0	0	0
MN	Serra da Moeda	1	0	1	0	0	0	0	0	0	0	0	0
MN	Várzea do Lajeado e Serra do Raio	1	0	1	0	0	0	0	0	0	0	0	0
PE	Biribiri	1	1	1	0	0	0	0	0	0	0	0	0
PE	Da Baleia	1	0	0	0	0	0	0	0	0	0	0	0
PE	Itacolomi	1	1	1	2	1	5	1	0	0	1	1	1
PE	Mata do Limoeiro	1	0	1	3	0	15	0	0	0	1	0	0
PE	Pico do Itambé	1	1	1	3	0	0	0	0	1	0	0	0
PE	Rio Preto	1	1	1	5	1	1	1	1	1	1	1	4
PE	Serra do Cabral	1	0	1	0	0	0	0	0	0	0	0	1
PE	Serra do Intendente	1	0	1	0	0	0	0	0	0	0	0	0
PE	Serra do Ouro Branco	1	0	1	0	0	0	0	0	0	0	0	0
PE	Serra do Rola-Moça	1	3	2	6	0	6	1	0	0	0	0	1
PE	Sumidouro	1	2	2	2	1	1	1	1	0	0	0	0
APA	Fernão Dias	2	0	1	0	0	0	0	0	0	0	0	0
EE	Acauã	2	0	1	1	1	0	0	1	0	0	0	1
EE	Mata dos Ausentes	2	1	1	0	1	0	0	0	0	0	0	1
FLOE	São Judas Tadeu	2	0	0	0	0	0	0	0	0	0	0	0
MN	Experiência da Jaguará	2	0	1	0	0	0	0	0	0	0	0	0
MN	Santo Antônio	2	0	1	0	0	0	0	0	0	0	0	0
MN	Vargem da Pedra	2	0	1	0	0	0	0	0	0	0	0	0
PE	Caminho dos Gerais	2	0	0	0	0	0	0	0	0	0	0	0
PE	Cerca Grande	2	0	1	0	0	0	0	0	0	0	0	0
PE	Grão Mogol	2	1	1	2	0	0	0	0	0	0	0	0
PE	Montezuma	2	0	0	0	0	0	0	0	0	0	0	0

PE	Serra do Sobrado	2	0	0	0	0	0	0	0	0	0	0	0
PE	Serra Negra	2	0	0	0	0	0	0	0	0	0	0	0
PE	Serra Verde	2	0	0	0	0	0	0	0	0	0	0	0
REVS	Macaúbas	2	0	0	0	0	0	0	0	0	0	0	0

Created by means of the State Decree number 44.043, of June 9, 2005, the **PREVINCÊNDIO**, Program for the Prevention and Combat of Forest Fires, aims to coordinate actions to prevent, control and combat forest fires in protected areas under the responsibility of the State of Minas Gerais, areas of great ecological importance and that endanger the heritage and community of Minas Gerais.

Currently Previncêndio has been incorporated into the structure of the IEF (State Forest Institute) Conservation Units Directorate, as a Forest Fire Prevention and Combat Management, having a partnership with the Military Police, Military Fire Brigade, Civil Police, Civil Defense Coordinator, Curvelo City Hall, Januária City Hall, City Hall of Viçosa, in addition to several partnerships signed with organizations that provide logistical support in actions to prevent and combat forest fires at the state level.

Previncêndio, in conjunction with the managers of the Conservation Units, collects and analyzes data on forest fires, as a way of planning and optimizing the prevention actions to be carried out in the Conservation Units and their environment.

Each manager annually reviews the Forest Fire Prevention, Control and Combat Plan, which guides the emergency actions of the Conservation Unit in the event of fire outbreaks. After each combat, managers complete reports determining the georeferenced location and extent of the fire, which subsidizes future strategies for fire control in the Conservation Unit and in the State.

The Forest Fire Prevention and Combat Management also promotes the hiring in the critical period (August to November) of brigades for the Conservation Units with the highest demand, as well as the training of the same, as well as the staff of each Conservation Unit.

Scientific research in Conservation Units under the jurisdiction of the State Forest Institute is analyzed by the Research and Projects Management. Such research is relevant to knowledge and has been carried out by several institutions, generating numerous publications related to biodiversity in the State of Minas Gerais. The management is carried out through a partnership between the IEF (State Forest Institute) and Institutions of teaching and research.

Authorizations issued and published articles deal with several areas of knowledge, ranging from fauna, flora, land reclamation, soil, geology, water quality, environmental services, ecology, ecotourism, among others, portraying the importance of the area for science and conservation of biodiversity.

The IEF (State Forest Institute)'s proposal is to provide, whenever possible, infrastructure, housing and human resources, as well as creating mechanisms to disseminate the work carried out in Conservation Units. This disclosure has been made through the IEF (State Forest Institute) Portal and the scientific technical bulletin - Biota of Minas Gerais.

With respect to phase I, at the time of the RBSE Report 2005-2015, of the 66 State Conservation Units inserted in the Biosphere Reserve of Espinhaço Mountain, 39% were issued. It is also verified that the three most researched Conservation Units were the State Parks of Rio Preto, Itacolomi and Rola Moça Mountain.

Regarding the publications of articles in the scientific technical bulletin: Biota of Minas Gerais, it was verified that of the 39 editions published so far, 19 articles included Conservation Units inserted in the Chain of Espinhaço and 23 contemplated 22 municipalities of the 94 inserted in Espinhaço mountain chain, being the municipality of Ouro Preto the most searched.

With regard to the Research carried out in the Conversation Units, which were included in Phase II of the RBSE, the table below shows the surveys already carried out.

TABLE 10: RESEARCH PERFORMED IN RBSE CONSERVATION UNITS PHASE 2.

APA (State Environmental Protection Area) Estadual de Vargem das Flores "Management Plan - Environmental Protection Area (APA) Vargem das Flores "
APA (Environmental Protection Area) Park Fernão Dias "Biogeography of Vascular Epiphytes in Mantiqueira mountain, Southeastern Brazil" "
APE (Special Protection Area) State Airport International) "Molecular systematics, chromosomal evolution and DNA content of Oxalis sections Polymorphae, Holophyllun, Phylloxera and Psoraleoideae (Oxalidaceae)
APE (Special Protection Area) State Airport International) State Hydrographic Basin of the Vargem das Flores Reservoir
APE State Hydrographic Basin of the Ribeirão do Urubu
Estação Ecológica Estadual da Mata dos Ausentes Field mapping of Sempre Vivas in the Mosaic of Espinhaço protected areas: Alto Jequitinhonha and Cabral mountain and Vegetation and Land Use of the National Park: Sempre Vivas, "Phylogeny of Ceiba Mill (Malvaceae, Bombacoideae) "Patterns of geographic distribution and species diversification of the subfamily Paratelmatoibiinae Ohler & Dubois, 2012 (Anura: Leptodactylidae)". "Evolutionary studies in the Velloziaceae family and in other groups of monocotyledons".
State Ecological Station of Acauã New species of birds in Minas Gerais? Phylogeny of Ceiba Mill (Malvaceae, Bombacoideae)
State Forest: São Judas Tadeu
State Natural Monument: Experiencia da Jaguará "Geomorphological mapping of Karstic areas: an analysis of the use of Remotely Piloted Aircraft in the Karst of Lagoa Santa".
State Natural Monument: Lapa Vermelha Management Plan Natural State Monument: Lapa Vermelha "Underground hydraulic intercommunication study using dye tracers and hydrochemistry in the APA (Environmental Protection area) Carste de Lagoa Santa, Minas Gerais" "Blocks Diagrams: caving and morphological analysis of some caves in the karst region of Lagoa Santa"
State Natural Monument: Santo Antônio Underground hydraulic intercommunication study using dye tracers and hydrochemistry in the APA (Environmental Protection area) region Carste de Lagoa Santa, Minas Gerais " "Blocks Diagrams: caving and morphological analysis of some caves in the karst region of Lagoa Santa"
State Natural Monument: Vargem da Pedra "Ecomuseum do Carte Mocambeiro and sustainability: the contribution of design in museum signaling"
State Natural Monument: Varzea da Lapa
State Park: Caminho dos Gerais

"Preliminary characterization of the flora of the State Park: Path of the General".
"Technical project for inventory of the Ictiofauna of the barrage of Gameleiras - State Park: Caminho das Gerais", "Lychnophora pinaster MART.: Genetic Diversity and Chemistry of Populations."
"Foliar Anatomy and the Chemical Diversity of Lychnophora pinaster Mart Populations"
"Diversity of Verbenaceae J. St Hil. in the State Parks of Minas Gerais: a contribution to the Flora of Brazil 2020 "
"Evolutionary studies in the Velloziaceae family and in other groups of monocotyledons".

State Park: Cerca Grande

"Underground hydraulic intercommunication study using dye tracers and hydrochemistry in the APA (Environmental Protection area) region karst of Lagoa Santa, Minas Gerais"

"Blocks Diagrams: caving and morphological analysis of some caves in the karst region of Lagoa Santa"

"Dynamics of water resources in the new Ramsar Lund Warming far and its implications for biodiversity"

State Park: Lapa Grande

"Fires in Conservation Units"

"Relationship between food dissipation and the frequency of tool use by a group of Sapajus xanthosternos (Sapajus xanthosternos)"

"Phylogeny and taxonomic revision of Mimosa (Leguminosae): series Campicolae, Echinocaulae, FiliPEdes and Paucifoliatae

"Lychnophora pinaster MART.: Genetic Diversity and Chemistry of Populations."

"Foliar Anatomy and the Chemical Diversity of Lychnophora pinaster Mart Populations"

"Recruitment of preexisting mechanisms underlying C4 photosynthesis in the sister families Brassicaceae and Cleomaceae"

State Park: Sobrado Mountain

State Park: Negra Mountain

"Phylogeography and Morphometry of Inga subnuda Salzm. Ex Benth. (Leguminosae, Mimosoideae). "

"Taxonomy, molecular phylogeny and DNA barcodes of mycorrhizal and endophytic fungi associated with the Brazilian Atlantic Orchidaceae Orchidaceae".

"Phylogeny and taxonomic revision of the Neotropical species of the group" Asplenium serra "(Aspleniaceae)".

"Ecology and Population Dynamics of Crossodactylodes in the Espinhaço mountain Chain, Minas Gerais, Brazil"

"Diversity of Verbenaceae J. St Hil. in the State Parks of Minas Gerais: a contribution to the Flora of Brazil 2020 ".

"Evolutionary studies in the Velloziaceae family and in other groups of monocotyledons".

State Park: Montezuma

"Molecular systematics, chromosomal evolution and DNA content of Oxalis sections Polymorphae, Holophyllun, Phyllodoxys and Psoraleoideae (Oxilidaceae)".

"Diversity of Verbenaceae J. St Hil. in the State Parks of Minas Gerais: a contribution to the Flora of Brazil 2020 ".

State Park: Serra Nova e Talhado

"Avifauna of the mountain: Verde Park: wealth, relative abundance and conservation of species".

"Recruitment of preexisting mechanisms underlying C4 photosynthesis in the sister families Brassicaceae and Cleomaceae".

"Measurement of anatomical changes by reactive oxygen species (ROS) in *Ditylenchus gallaeformans* (Tylenchida: Anguinidae) galls induced in *Miconia* spp (Melastomataceae)".

State Park: Verde Mountain

State Wildlife Refuge: Macaubas

State Wildlife Refuge: Aroeiras Mountain

One of the factors that have contributed positively to the conservation of natural resources in the RBSE is the Solidarity ICMS (Goods and Services Circulation Tax) Law and, specifically, the Ecological ICMS. The State Forestry Institute is the institution responsible for implementing the Ecological ICMS (Goods and Services Circulation Tax) program, a sub-criterion related to Conservation Units in the State of Minas Gerais, provided for in State Law 18.030 / 2009 (article 4-section II), which provides for the distribution of the revenue from the proceeds of the collection of ICMS (Goods and Services Circulation Tax) belonging to the municipalities.

To receive the transfer of the Ecological ICMS (Goods and Services Circulation Tax), the municipalities that have Conservation Units inserted in their territories must register them according to the provisions set forth in the SEMAD (Secretariat of State for Environment and Sustainable Development) Resolution, number: 318/2005, sending all the documents listed in its Article 6. These documents are inherent to the Conservation Units, which were created and have a management system in place, such as documents proving the implementation of the Consultative Councils, preparation of the Management Plan, financial resources used in the unit, among others.

The evaluation of the Ecological ICMS (Goods and Services Circulation Tax) is annual and is closely related to the management of the Conservation Units inserted in the cadastre. The evaluation of the parameters is regulated by the COPAM Normative Resolution, number: 086, of 07/17/2005, and by the COPAM (State Council for Environmental Policy) normative number: 161, of 12/16/2010, which establish the procedures for the application of the Quality Factor. Considering that the parameters evaluated by the Quality Factor are diverse and represent not only aspects related to the conservation area of the Conservation Unit, but also aspects related to the management of the Unit, it is understood that these parameters are good indicators for the evaluation of the role of the Conservation unit as a specially protected area and its contribution to regional development.

In 2015, considering the Conservation Units inserted in the RBSE Phase 1, it was verified that 23 Conservation Units (06 State and 17 Municipal) inserted in the Biosphere Reserve of Espinhaço mountain, are not yet included in the state registry of conservation units for the purpose of receiving ICMS (Goods and Services Circulation Tax) Ecological: APA Municipal Águas da Serra da Piedade, APA Municipal Gatos, APA Municipal Alliance, APA Municipal Córrego da Mata, APA Municipal Itacuru, APA Municipal Serra do Gavião, APA Municipal Carvão de Pedra, State APE (Special Protection Area) Santana do Riacho and Jaboticatubas, APE Estadual Ouro Preto / Mariana, ESEC State Cercadinho, MONA State Serra da Piedade, MONA (Monumento Natural: Moeda Mountain) State Pico do Itabirito, MONA Municipal Morro do Elefante, MONA (Monumento Natural: Moeda Mountain) Municipal Morro do Pires, MONA Municipal Serra da Calçada, MONA Municipal Serra do Souza, MONA (Natural Monument: Mountain Currency) Mãe D'Água Municipal Park, Serra do Cipó State Park, Do Tropeiro Municipal Park, Andorinhas Waterfall Municipal Park, Ribeirão do Campo Natural Municipal Park, REBIO Municipal Rupestrian Fields of Southern Moeda, REBIO Municipal Rupestrian Fields of Northern Coin. Data for Phase 2 is still being raised.

The registration of federal conservation units, state and municipal, and the consequent transfer of ICMS (Goods and Services Circulation Tax) resources to the municipalities represents an increment of significant resources for the municipalities in which they are inserted, being an important valorization

tool of conservation units within municipal management, as well as a way to transfer resources to municipalities that generate environmental services.

The relationship between conservation actions and regional sustainable development can be observed by the strengthening of Conservation Units and the correlation between them and their environment. In order to achieve the objectives for which they were established, conservation units must have investments ranging from the allocation of specific human resources to their management, physical structuring, preparation of management plans and formation of advisory councils, among others. In addition, in order to fully fulfill its role, it is imperative that the Conservation Units be integrated into its environment.

In order to fully fulfill its role, it is imperative that the Conservation Units are integrated with each other and with their surroundings, in this sense the Mosaic of Conservation Units is an integrated management tool, with the form and objectives established by the Federal Law, number: 9985/00 (National System of Conservation Units - UNSC).

Article 26. When there is a set of Conservation Units of different or not, near, juxtaposed or overlapping categories and other public or private protected areas, constituting a mosaic, the management of the whole, will have to be done in an integrated and participative way, its different conservation objectives are set, in order to make the presence of biodiversity compatible, the valorization of sociodiversity and sustainable development in the regional context.

In recent years, public authorities have created some important Conservation Units in Espinhaço mountain region, which have represented a significant way of preserving and guaranteeing the conservation of ecosystems and vital natural resources for the maintenance of ecological processes, the basis for actions of development and improvement of the living conditions of the human populations that are in the surroundings of these units of conservation. However, the implementation of a Mosaic of conservation units can improve the capacity to implement the goals proposed for the conservation of the region.

Currently, RBSE has the Mosaic Mosaic of Espinhaço Conservation Units: Alto Jequitinhonha - Serra do Cabral, recognized by MMA (Ministry of the Environment), number: 444, dated November 26, 2010. The creation process was coordinated by the Biotrópicos Institute, an institution that participates in the Espinhaço Biosphere Reserve State Committee and is a scientific and conservation non-governmental organization, in partnership with the State Forest Institute of Minas Gerais and with the support of Conservation International Brazil and Instituto Chico Mendes of Biodiversity Conservation.

In 2015, the first region of cooperation with the co-management processes was officially instituted by the Biosphere Reserve Committee of Espinhaço mountain. This process is in a detailed phase with the actors of the region, according to RBSE and MaB (Man and the Biosphere) / UNESCO (United Nations Educational, Scientific and Cultural Organization) premises. This premise is necessary, either by the various potentials already established, in a cooperative way between Conservation Units, or by the size of the RBSE itself.

It has been identified regions with potential for recognition of Mosaics of Protected Areas that can attend to the collaborative process in the management of the RBSE, highlighting the potentialities and discussions in progress:

A. Mosaic of Protected Areas of RBSE - Southern Sinking: National Park: Cipó mountain, APA: Pedreira Mountain, State Parks of Serra do Intendente and Limoeiro, Municipal Natural Park of Tabuleiro.

B. Mosaic of Protected Areas of the RBSE - Iron Quadrangle region 1: State Parks of Itacolomi and Serra de Ouro Branco, State Forest of Uaimií, Ecological Station of Tripuí, Major Seminary of Mariana, RPPN (Private Reserve of Natural Heritage) of Caraça, Natural Monument of Piedade mountain and National Park of Gandarela.

C. Mosaic of Protected Areas of the RBSE - Iron Block 2: Rola-Moça State Park, Mata do Jambreiro RPPN (Private Reserve of Natural Heritage), Closures Ecological Station, Serra do Curral Parks, Mangabeiras and Baleia State Park.

With regard to actions related to the protection of endangered species occurring in the RBSE region, we present the various action plans in progress considering the scope of Biosphere Reserve of Espinhaço mountain.

TABLE 11: ACTION PLANS IN THE RBSE AREA OF SCOPE.

ACTION PLANS	REGULATION / YEAR
1. Plan of National Action for the Conservation of Migratory Waterbirds	Ordinance of MMA (Ministry of Environment), number 203, of July 5, 2013
2. Plan of National Action for the Conservation of Savanna and Pantanal Birds	Ordinance of MMA (Ministry of Environment), number 34, March 27, 2014
3. Plan of National Action for the Conservation of Pato Mergulhão	Ordinance of MMA (Ministry of Environment), number 44, April 8, 2014
4. Plan of Action for Conservation Birds of Prey	2006
5. Plan of National Action for the Conservation of Galiforms	2008
6. Plan of National Action for Conservation of Lepidoptera	Ordinance of MMA (Ministry of Environment), number: 92, of August 27, 2010
7. PAN (National Action Plan) for Conservation of Painted Ounce	Ordinance of MMA (Ministry of Environment), number 63, June 9, 2014
8. PAN (National Action Plan) for conservation of Cactaceae	Ordinance of MMA (Ministry of Environment), number 84, of August 27, 2010
9. PAN (National Action Plan) Mammals of the Central Atlantic Rainforest	Ordinance of MMA (Ministry of Environment), number: 134, December 23, 2010
10. PAN (National Action Plan) Caves of the São Francisco	Ordinance of MMA (Ministry of Environment), number: 18, of February 17, 2012
11. PAN (National Action Plan) Conservation of Sempre-Vivas	Ordinance of MMA (Ministry of Environment), number 22, of February 17, 2012
12. PAN (National Action Plan) puma	Ordinance of MMA (Ministry of Environment), number 76, June 27, 2014
13. National Plan of Action of the Southern Espinhaço	In preparation.
14. National Action Plan for the Conservation of Lobo-Guará	Ordinance of MMA (Ministry of Environment), number 31, 27 de março de 2014
15. National Action Plan for the conservation of Herpetofauna of Espinhaço mountain	Ordinance of MMA (Ministry of Environment), number 24, of February 17, 2012

An important action for the conservation and even restoration of biodiversity is the reception and treatment of animals seized in surveillance operations and referred by the community for being injured or sick. These animals may be referred to registered release areas after being rehabilitated in the Cetas - Wild Animal Screening Centers.

The Wild Animal Triage Centers in the State have a standard project, with 1,200 square meters of constructed area, and have the purpose of receiving, identifying, marking, triaging, evaluating, recovering and rehabilitating wild animals, as well as conducting and supporting researches scientific, teaching and extension.

Considering that the species most removed from nature and that represent 50% of all seizures are birds, is developing the Project: Asas, which consists of the registration of areas for release. Annex II shows the areas registered within the RBSE phase I and II.

The average of rehabilitation until the release is two months. The return of the animals to the nature forces us to do a rigorous research work, and after displacement to make the release where it must occur without any imbalance.

Animals that arrive at Cetas and that, after receiving the necessary care, can not return to live in nature are taken to creators of legalized animals. The IEF (State Forestry Institute) warns those who illegally create wildlife animals to deliver spontaneously on the Cetas and thus be free from any punishment.

One of the programs contributing to the conservation of natural resources in the RBSE area is **Programa Bolsa Verde (Green bag program)**. This initiative aims to encourage the expansion and conservation of native vegetation cover through the adoption of financial incentives, such as the payment to owners who maintain native vegetation areas for predetermined periods. Created in 2008, by the State of Minas Gerais, through the State Law, number: 17.727, which provides financial incentives to producers who preserve the environment, and in this way, may receive financial incentives for environmental services provided to society.

The regulation of this initiative requires that producers be included in the program to recover, preserve and conserve areas necessary for the protection of riparian forests, recharge of aquifers, protection of biodiversity and especially sensitive ecosystems. In this same line, the owners of urban areas can still benefit.

The Bolsa Verde (Green bag) program has as a priority reaching family farmers and small farmers. Producers whose properties are located inside Conservation Units and, therefore, subject to future expropriation may also be considered. The amounts of the financial incentive provided for in the State Law, number: 17,727 will be defined by the Executive Committee of Bolsa Verde (Green bag).

Regarding the inclusion of actions carried out in the scope of the Biosphere Reserve of Espinhaço Mountain (RBSE), the table below shows the amount paid to beneficiaries of the Bolsa Verde Program in 2017, when there were transfers to landowners and rural squatters in this initiative of payments for environmental services. In the spreadsheet, the number of beneficiaries per municipality received in that year, as well as the amount transferred and the territorial extension in hectares, are broken down. In addition, 314 beneficiaries located in 26 municipalities within the perimeter of this territorial management instrument received the pecuniary transfer in the total amount of R \$ 5,780,416.84 for having conserved areas of native vegetation cover under the Program 17,262,6187 hectares.

TABLE 12: BOLSA VERDE (GREEN EXCHANGE) BENEFICIARIES IN 2017.

CITY	BENEFICIARIES PAYMENTS	AMOUNT (R\$)	CONSERVED AREA (HECTARES)
ÁGUAS VERMELHAS	2	R\$ 4.800,00	24,0000
ARICANDUVA	-	-	-
BERILO	-	-	-
BERIZAL	-	-	-
BONFIM	-	-	-
BOTUMIRIM	-	-	-
CAPELINHA	-	-	-
CAPIM BRANCO	-	-	-
CARBONITA	-	-	-

CITY	BENEFICIARIES PAYMENTS	AMOUNT (R\$)	CONSERVED AREA (HECTARES)
CATUTI	3	R\$ 37.404,00	187,0200
CONFINS	-	-	-
CORAÇÃO DE JESUS	3	R\$ 55.886,00	123,3500
CRISTÁLIA	2	R\$ 36.182,00	180,9100
CRUCILÂNDIA	-	-	-
CURRAL DE DENTRO	-	-	-
ESMERALDAS	-	-	-
ESPINOSA	17	R\$ 229.614,92	1134,6226
FRANCISCO SÁ	17	R\$ 159.500,00	221,0884
FREI LAGONEGRO	-	-	-
FRUTA DE LEITE	-	-	-
FUNILÂNDIA	-	-	-
GAMELEIRAS	17	R\$ 447.230,22	2.236,1511
GLAUCILÂNDIA	-	-	-
GRÃO MOGOL	8	R\$ 185.097,26	925,4863
GUARACIABA	2	R\$ 5.544,20	16,6562
GUARACIAMA	-	-	-
INDAIABIRA	-	-	-
INIMUTABA	-	-	-
ITACAMBIRA	1	R\$ 83.200,00	104,0000
ITAGUARA	-	-	-
ITAÚNA	-	-	-
JANAÚBA	43	R\$ 1.294.715,30	2088,1653
JEQUITIBÁ	-	-	-
JOSÉ GONÇALVES DE MINAS	-	-	-
JOSENÓPOLIS	-	-	-
JUATUBA	-	-	-
JURAMENTO	-	-	-
LAGOA SANTA	-	-	-
LEME DO PRADO	18	R\$ 52.278,88	238,5919
MAMONAS	6	R\$ 728.764,00	728,7640
MATEUS LEME	-	-	-
MATO VERDE	9	R\$ 181.114,22	403,8511
MATOZINHOS	-	-	-
MINAS NOVAS	3	R\$ 14.476,70	58,7911
MONTE AZUL	20	R\$ 613.341,25	2127,2403
MONTES CLAROS	4	R\$ 44.884,04	224,4202
MONTEZUMA	1	R\$ 3.762,00	18,8100
NINHEIRA	-	-	-
NOVA PORTEIRINHA	-	-	-
NOVORIZONTE	-	-	-
PADRE CARVALHO	-	-	-
PAULISTAS	-	-	-
PEDRO LEOPOLDO	-	-	-

CITY	BENEFICIARIES PAYMENTS	AMOUNT (R\$)	CONSERVED AREA (HECTARES)
PIEDADE DOS GERAIS	-	-	-
PIRACEMA	1	R\$ 1.253,34	6,2667
PORTEIRINHA	28	R\$ 250.771,36	451,1119
PRESIDENTE BERNARDES	2	R\$ 5.923,92	9,8732
PRUDENTE DE MORAIS	-	-	-
RIACHO DOS MACHADOS	1	R\$ 44.000,00	55,0000
RIBEIRÃO DAS NEVES	-	-	-
RIO PARDO DE MINAS	85	R\$ 989.200,17	4141,0831
RUBELITA	-	-	-
SALINAS	-	-	-
SANTO ANTÔNIO DO RETIRO	3	R\$ 116.706,96	583,5348
SÃO JOÃO DA LAGOA	-	-	-
SÃO JOÃO DO PARAÍSO	6	R\$ 13.711,50	68,5575
SÃO JOSÉ DA LAPA	-	-	-
SÃO JOSÉ DO JACURI	-	-	-
SÃO SEBASTIÃO DO MARANHÃO	-	-	-
SENHORA DE OLIVEIRA	-	-	-
SERRANÓPOLIS DE MINAS	12	R\$ 181.054,60	905,2730
TAIOBEIRAS	-	-	-
TURMALINA	-	-	-
VARGEM GRANDE DO RIO PARDO	-	-	-
VEREDINHA	-	-	-
VESPASIANO	-	-	-
TOTAL	314	5.780.416,84	17.262,6187

This information refers to beneficiaries of the openings for receipt of proposals for 2010 and 2011, whose Mutual Cooperation Terms generally terminated respectively in July 2016 and July 2018. However, although they have completed their commitment to conservation of the areas in relation to the Program, the State Government continues with its internal procedures aimed at completing the remaining transfers to beneficiaries throughout the State, including the RBSE region.

This information refers to beneficiaries of the openings for receipt of proposals for 2010 and 2011, whose Mutual Cooperation Terms generally terminated in July 2016 and July 2018. However, although they have completed their commitment to conservation of the areas in relation to the Program, the State Government continues with its internal procedures aimed at completing the remaining transfers to beneficiaries throughout the State, including the RBSE region.

TABLE 13: FORESTRY FIRE PREVENTION AND FIGHTING ACTIVITIES IN THE LAST THREE YEARS.

RBSE - PHASE	NAME OF THE PRESERVATION UNIT	Fire Fighting Actions			Training activities and training of brigades (FBP - Previncêndio Brigade Formation, FBV - Voluntary Brigade Formation and COSCIF - Blower Operation Course)						Training activities of the unit of the conservation unit and of communities inserted or in the environment		
		2016	2017	2018	2016		2017		2018		2016	2017	2018
					Activities / skilled employees		Activities / Trained employees		Activities / Trained employees				
2	State APA: Vargem das Flores	1	0	0									
2	State Ecological Station: Mata dos Ausentes	3	5	0									
2	State Ecological Station: Acaua	0	1	0	FBP	12	*	*	*	*	Community		
2	State Park: Caminho dos Gerais	0	1	1	COSCIF/2	FBP/21	FBP	16	FBP	25			Team of the conservation unit
2	State Park: Cerca Grande	0	0	0							Community		
2	State Park: Lapa Grande	5	3	0	COSIF /2	FBP 25	FBP	26	FBP	28			Team of the conservation unit
2	State Park: Serra do Sobrado	23	26	0	COSIF/1	FBP 11	FBP	9					
2	State Park: Serra Negra	4	5	0	FBP	12	FBP	7					
2	State Park: Grao Mogol	0	2	0	COSIF/ 2	FBP/ 25	FBP	22	FBP	25			
2	State Park: Montezuma	0	1	0	FBV	33							Team of the conservation unit
2	State Park: Serra Nova and Talhado	0	0	0	COSIF 2	FBP 29	FBP	20	FBP	26			Team of the conservation unit
2	State Park: I Serra Verde	29	28	20	COSIF2	FBP 12	FBB	9	FBP	8			
2	State Wildlife Refuge: Macaubas	4	10	1									
2	State Wildlife Refuge: Serra das Aroeiras	8	5	0									

RBSE - PHASE	NAME OF THE PRESERVATION UNIT	Fire Fighting Actions			Training activities and training of brigades (FBP - Previncêndio Brigade Formation, FBV - Voluntary Brigade Formation and COSCIF - Blower Operation Course)						Training activities of the unit of the conservation unit and of communities inserted or in the environment		
		2016	2017	2018	2016		2017		2018		2016	2017	2018
					Activities / skilled employees		Activities / Trained employees		Activities / Trained employees				
1	State APA:Aguas Vertentes	59	41	6							Community		
1	State APA:Cachoeira das Andorinhas	0	2	3									
1	State APA: Seminario Menor de Mariana	2	1	0									
1	State APA Sul RMBH	9	24	7									
1	State Ecological Station: Aredes	0	5	1									
1	State Ecological Station: Fechos	3	2	4									
1	State Ecological Station: Cercadinho	4	0	1									
1	Estacao Ecologica Estadual: Tripui	0	2	0									
1	State Forest: Uaimii	7	35	1									
1	State Natural Monument: Serra da Moeda	12	20	3							Community		
1	State Natural Monument: Serra da Piedade	0	1	0									
1	Monumento Natural Estadual de Itatiaia	8	9	2									
1	State Natural Monument: Várzea do Lajeado e Serra do Raio	20	9	0							Community		
1	Baleia State Park	0	4	1									
1	State Park: Cabral Mountain	66	140	45									Team of the conservation unit.
1	State Park Serra do Rola Moca	76	97	53									
1	State Park: Biribiri	55	42	6	COSIF 2	FBP 25	FBP	22	FBP	25	Diamantina	Community	Team of the conservation unit
1	State Park Itacolomi	13	20	2	FBV	33							
1	State Park Pico do Itambe	3	2	0	COSIF 2	FBP 29	FBP	20	FBP	26			

RBSE - PHASE	NAME OF THE PRESERVATION UNIT	Fire Fighting Actions			Training activities and training of brigades (FBP - Previncêndio Brigade Formation, FBV - Voluntary Brigade Formation and COSCIF - Blower Operation Course)						Training activities of the unit of the conservation unit and of communities inserted or in the environment		
		2016	2017	2018	2016		2017		2018		2016	2017	2018
					Activities / skilled employees		Activities / Trained employees		Activities / Trained employees				
1	State Park Rio Preto	6	1	0									
1	State Park Sumidouro	9	45	12									
1	State Park:Mata do Limoeiro	5	8	0									
1	State Park: Serra da Candonga	0	3	0									
1	State Park: Serra do Intendente	18	17	5									
1	State Park: Serra do Ouro Branco	22	24	0									Community

TABLE 14: ASAS (RELEASE AREAS) IN MUNICIPALITIES PLANNED FOR RBSE ENLARGEMENT.

Municipalities with release areas (ASAS) with active process (19 areas)	Municipalities that have already had release areas registered, currently filed	
Berilo	Carbonita	
Bonfim	Crucilândia	
Capelinha	Esmeraldas	
Capim Branco	Francisco Sá	
Esmeraldas	Itaúna	
Francisco Sá	Janaúba	
Itaúna	Juatuba	
Janaúba	Juramento	
Montes Claros	Lagoa Santa	
Montezuma	Mateus Leme	
Pedro Leopoldo	Montes Claros	
Porteirinha	Pedro Leopoldo	
Santo Antônio do retiro	Porteirinha	
São João da Lagoa	Riacho dos Machados	
RELEASE AREAS THAT WERE REGISTERED IN LISTED MUNICIPALITIES AND THEIR RESPECTIVE SITUATION		
City	Situation	Detailing
Berilo	fit	THE RELEASE is suitable
Bonfim	Awaiting return from owner or Regional	Waiting for return from Regional
Capelinha	Others	Others
Capim Branco	Previous pending review	Previous pending review - reanalysis
Carbonita	Filed	Rejected in survey
Crucilândia	Filed	Rejected in survey
Esmeraldas	Awaiting return from owner or Regional	Waiting for return from Regional
Esmeraldas	Filed	Filed for lack of return / difficulty of contact / duplicity / others
Esmeraldas	Filed	Withdrawal
Francisco Sá	Pending documentation	Pending documentation
Francisco Sá	Filed	Withdrawal
Itaúna	Pending documentation	Pending documentation
Itaúna	Filed	Rejected in survey
Janaúba	Apta	The release is suitable
Janaúba	Previous pending review	Previous pending review
Janaúba	Previous pending review	Previous pending Review - Waiting for Owner Return
Janaúba	Filed	Rejected in survey
Juatuba	Filed	Rejected in remote analysis
Juatuba	Filed	Rejected in remote analysis
Juramento	Filed	Withdrawal
Lagoa Santa	Filed	Rejected in survey
Lagoa Santa	Filed	Rejected in survey

Mateus Leme	Filed	Filed - IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) area
Mateus Leme	Filed	Rejected in survey
Montes Claros	Suitable	THE RELEASE is suitable
Montes Claros	Pending documentation	Pending documentation
Montes Claros	Filed	Filed (environment of conservation unit) - IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) area
Montes Claros	Filed	Filed (environment of conservation unit) - IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) area
Montes Claros	Filed	Filed (environment of conservation unit) - IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) area
Montes Claros	Filed	Rejected in remote analysis
Montezuma	Pending documentation	Pending documentation
Pedro Leopoldo	Suitable	REHABILITATION is suitable
Pedro Leopoldo	Previous pending review	Previous Pending Review - Waiting for Owner Return
Pedro Leopoldo	Filed	Filed (environment of conservation unit) - IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) area
Pedro Leopoldo	Filed	Rejected in remote analysis
Porteirinha	Suitable	THE RELEASE is suitable
Porteirinha	Filed	Filed for lack of return / difficulty of contact / duplicity / others
Riacho dos Machados	Filed	Withdrawal
Santo Antônio do retiro	Previous pending review	Previous Pending Review - Waiting for Owner Return
São João da Lagoa	Suitable	THE RELEASE is suitable
São João da Lagoa	Suitable	THE RELEASE is suitable

Biodiversity of RBSE

At the end of 2014 the ICMBio carried out the national assessment of the risk of extinction of the Brazilian fauna. A total of 12,256 fauna taxa including 732 mammals, 1980 birds, 732 reptiles, 973 amphibians and 4,507 fish were evaluated, of which 3,131 were freshwater (including 17 rays) and 1,376 marine, totaling 8,924 vertebrate animals. Also evaluated were 3,332 invertebrates, among crustaceans, mollusks, insects, poríferos, myriapods, among others.

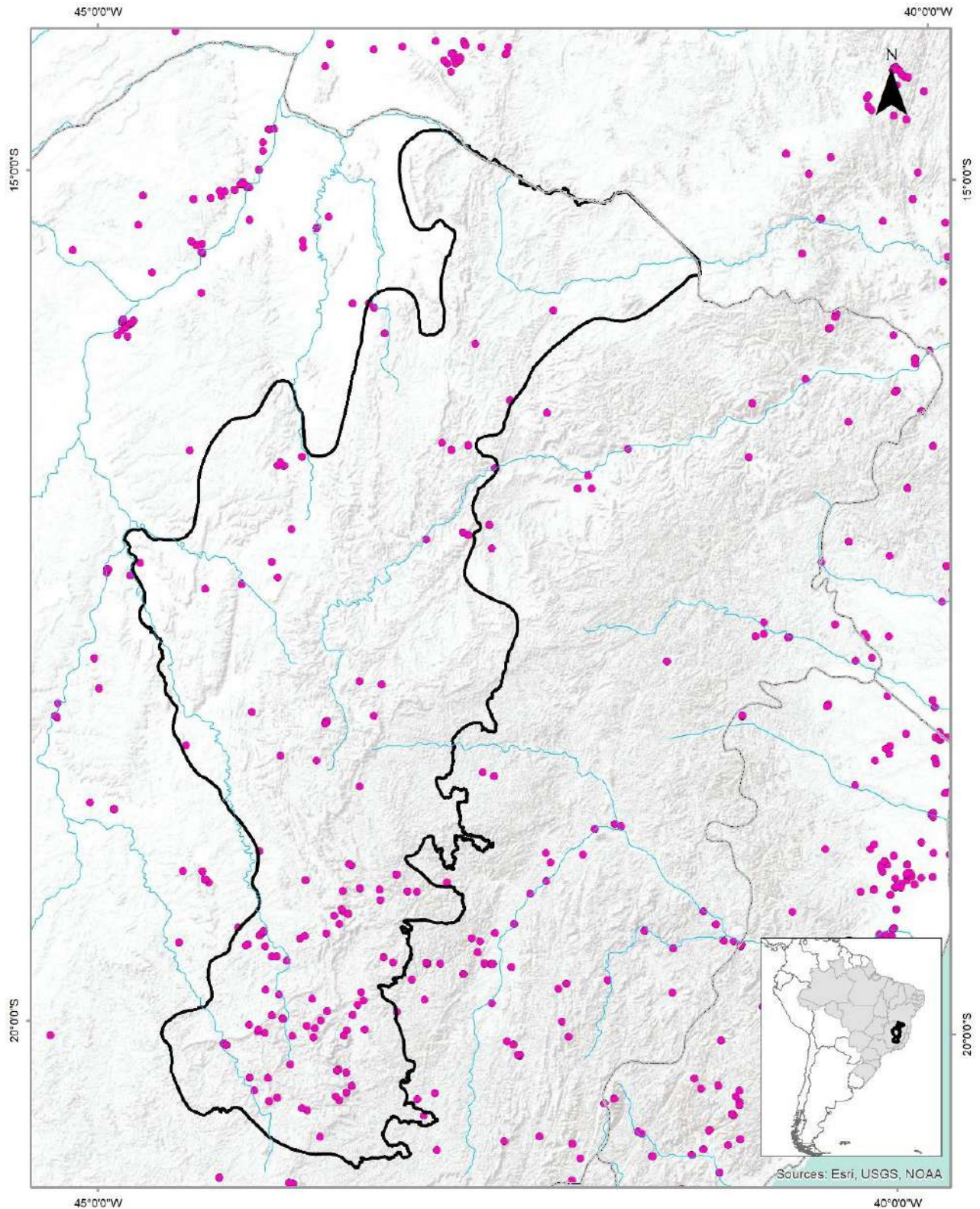
The results point to 1,173 taxa threatened in Brazil, which are listed in two Ordinances published by the Ministry of the Environment (MMA) through MMA Ordinance number: 444, dated December 17, 2014 (for 698 taxa related to terrestrial species and aquatic mammals) and the Environment Ordinance, number: 445 of December 17, 2014 (for 475 taxa related to fish and aquatic invertebrates), divided into 110 mammals, 234 birds, 80 reptiles, 41 amphibians, 353 bony fish (310 freshwater and 43 marine), 55 cartilaginous fish (54 marine and 1 freshwater), 1 witch fish and 299 invertebrates. There are a total of 448 Vulnerable (VU), 406 In Peril (EN), 318 Critically In Peril (CR) and 1 Extinct in Nature (EW) species.

At the RBSE Fase, we identified the point distribution of 39 species of Brazilian fauna threatened with extinction.

TABLE 15: THREATENED SPECIES OF EXTINCTION AT RBSE PHASE 2.

Accipitridae	<i>Urubitinga coronata</i>	Papilionidae	<i>Parides burchellanus</i>
Aeshnidae	<i>Rhionaeschna eduardoi</i>	Paronellidae	<i>Troglobius ferroicus</i>
Anatidae	<i>Mergus octosetaceus</i>	Phyllostomidae	<i>Lonchophylla dekeyseri</i>
Anostomidae	<i>Hypomasticus thayeri</i>	Picidae	<i>Piculus polyzonus</i>
Bulimulidae	<i>Thaumastus lundii</i>	Pimelodidae	<i>Steindachneridion amblyurum</i> <i>Steindachneridion doceanum</i>
Buthidae	<i>Ananteris infuscata</i>	Pipridae	<i>Neopelma aurifrons</i>
Characidae	<i>Brycon devillei</i> <i>Henochilus wheatlandii</i>	Prodidomidae	<i>Brasilomma enigmatica</i>
Columbidae	<i>Claravis geoffroyi</i>	Rhinocryptidae	<i>Scytalopus iraiensis</i>
Cracidae	<i>Crax blumenbachii</i>	Rhynchocyclidae	<i>Phylloscartes roquettei</i>
Cricetidae	<i>Oligoryzomys rupestris</i> <i>Rhipidomys tribei</i> <i>Thalpomys lasiotis</i>	Riodinidae	<i>Rhetus belphegor</i> <i>Strymon ohausi</i>
Dendrocolaptidae	<i>Lepidocolaptes wagleri</i>	Rivulidae	<i>Hypsolebias hellneri</i> <i>Hypsolebias janaubensis</i>
Furnariidae	<i>Cinclodes espinhacensis</i>	Scleruridae	<i>Geositta poeciloptera</i>
Glossoscolecidae	<i>Fimoscolex sporadochaetus</i>	Theraphosidae	<i>Oligoxystre diamantinensis</i>
Heteragrionidae	<i>Heteragrion petienses</i>	Thraupidae	<i>Coryphaspiza melanotis</i>
Loricariidae	<i>Pareiorhaphis mutuca</i> <i>Pareiorhaphis scutula</i>	Tinamidae	<i>Nothura minor</i>
Nymphalidae	<i>Hyaliris fiammetta</i>	Trichomycteridae	<i>Trichomycterus novalimensis</i>

FIGURE 8: SPECIFIC DISTRIBUTION OF SPECIES OF THE BRAZILIAN FAUNA THREATENED OF EXTINCTION, IN THE RBSE



Legend

- Species Endangered - Wildlife (2014)
- Rivers
- State Limit
- ▭ RBSE Limit



0 30 60 120 Km

Source: MMA, 2014

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

Likewise, the list of endangered Flora of Brazil species was published in the Flora Red Book of Brazil in 2013, included in MMA (Ministry of the Environment) Ordinance 443, dated December 17, 2014. A total of 6,132 species of (CR - Critically Endangered, EN - Endangered and VU - Vulnerable). In order to avoid the threat of extinction, it is important that the 2,113 species out of a total of 4,617 species assessed in the 1st Flora Red Book of Brazil, published in 2013, were classified as endangered.

In RBSE Phase 2, the point distribution of 452 species of Brazilian flora threatened with extinction was identified.

TABLE 16: BRAZILIAN FLORA SPECIES THREATENED BY EXTINCTION AT RBSE PHASE 2.

Family	Species
Acanthaceae	<i>Staurogyne elegans</i>
	<i>Staurogyne vauthieriana</i>
	<i>Staurogyne warmingiana</i>
	<i>Stenandrium hatschbachii</i>
	<i>Stenandrium stenophyllum</i>
Alstroemeriaceae	<i>Alstroemeria brasiliensis</i>
	<i>Alstroemeria penduliflora</i>
Amaranthaceae	<i>Pfaffia argyrea</i>
	<i>Pfaffia minarum</i>
Amaryllidaceae	<i>Griffinia aracensis</i>
	<i>Griffinia liboniana</i>
	<i>Habranthus irwinianus</i>
	<i>Hippeastrum morelianum</i>
Apiaceae	<i>Klotzschia rhizophylla</i>
Apocynaceae	<i>Ditassa auriflora</i>
	<i>Ditassa cipoensis</i>
	<i>Ditassa cordeiroana</i>
	<i>Ditassa itambensis</i>
	<i>Ditassa laevis</i>
	<i>Ditassa leonii</i>
	<i>Ditassa longisepala</i>
	<i>Hemipogon abietoides</i>
	<i>Hemipogon furlanii</i>
	<i>Hemipogon hatschbachii</i>
	<i>Hemipogon piranii</i>
	<i>Minaria bifurcata</i>
	<i>Minaria diamantinensis</i>
	<i>Minaria grazielae</i>
	<i>Minaria hemipogonoides</i>
	<i>Minaria inconspicua</i>
	<i>Minaria magisteriana</i>
	<i>Minaria monocoronata</i>
	<i>Minaria polygaloides</i>
	<i>Minaria refractifolia</i>
	<i>Minaria semirii</i>
	<i>Prestonia solanifolia</i>
	Aquifoliaceae

Family	Species
	<i>Ilex prostrata</i>
Araliaceae	<i>Schefflera gardneri</i>
	<i>Schefflera glaziovii</i>
Areaceae	<i>Butia capitata</i>
	<i>Euterpe edulis</i>
	<i>Syagrus glaucescens</i>
	<i>Syagrus macrocarpa</i>
	<i>Syagrus mendanhensis</i>
Aspleniaceae	<i>Asplenium schwackei</i>
Asteraceae	<i>Acritopappus irwinii</i>
	<i>Aldama goyazii</i>
	<i>Anteremanthus hatschbachii</i>
	<i>Aspilia almasensis</i>
	<i>Aspilia belo-horizontinae</i>
	<i>Aspilia caudata</i>
	<i>Aspilia cordifolia</i>
	<i>Aspilia cylindrocephala</i>
	<i>Aspilia diamantinae</i>
	<i>Aspilia diffusiflora</i>
	<i>Aspilia diniz-cruzeanae</i>
	<i>Aspilia eglerii</i>
	<i>Aspilia espinhacensis</i>
	<i>Aspilia jugata</i>
	<i>Aspilia ovalifolia</i>
	<i>Aspilia prostrata</i>
	<i>Aspilia reticulata</i>
	<i>Baccharis concinna</i>
	<i>Baccharis elliptica</i>
	<i>Baccharis lychnophora</i>
	<i>Baccharis polyphylla</i>
	<i>Baccharis pseudoalpestris</i>
	<i>Calea abbreviata</i>
	<i>Calea heteropappa</i>
	<i>Campuloclinium parvulum</i>
	<i>Chionolaena lychnophorioides</i>
	<i>Chronopappus bifrons</i>
	<i>Disynaphia praeficta</i>
	<i>Eremanthus polycephalus</i>

Family	Species
	<i>Heterocoma albida</i>
	<i>Lepidaploa gnaphalioides</i>
	<i>Lepidaploa spixiana</i>
	<i>Lessingianthus adenophyllus</i>
	<i>Lessingianthus exiguus</i>
	<i>Lessingianthus pumillus</i>
	<i>Lessingianthus rosmarinifolius</i>
	<i>Lessingianthus stoechas</i>
	<i>Lychnophora albertinioides</i>
	<i>Lychnophora brunioides</i>
	<i>Lychnophora diamantinana</i>
	<i>Lychnophora gardneri</i>
	<i>Lychnophora granmogolensis</i>
	<i>Lychnophora humillima</i>
	<i>Lychnophora markgravii</i>
	<i>Lychnophora martiana</i>
	<i>Lychnophora mello-barretoi</i>
	<i>Lychnophora pohlii</i>
	<i>Lychnophora ramosissima</i>
	<i>Lychnophora reticulata</i>
	<i>Lychnophora rosmarinifolia</i>
	<i>Lychnophora sellowii</i>
	<i>Lychnophora souzae</i>
	<i>Lychnophora syncephala</i>
	<i>Lychnophora tomentosa</i>
	<i>Lychnophora villosissima</i>
	<i>Lychnophoriopsis candelabrum</i>
	<i>Lychnophoriopsis damazioi</i>
	<i>Lychnophoriopsis hatschbachii</i>
	<i>Mikania argyreiae</i>
	<i>Mikania cipoensis</i>
	<i>Mikania clematidifolia</i>
	<i>Mikania glabra</i>
	<i>Mikania glauca</i>
	<i>Mikania hartbergii</i>
	<i>Mikania itambana</i>
	<i>Mikania neurocaula</i>
	<i>Mikania premnifolia</i>
	<i>Mikania warmingii</i>
	<i>Minasia alpestris</i>
	<i>Minasia pereirae</i>
	<i>Minasia scapigera</i>

Family	Species
	<i>Moquiniastrum hatschbachii</i>
	<i>Piptolepis buxoides</i>
	<i>Piptolepis imbricata</i>
	<i>Piptolepis leptospermoides</i>
	<i>Proteopsis argentea</i>
	<i>Richterago angustifolia</i>
	<i>Richterago arenaria</i>
	<i>Richterago caulescens</i>
	<i>Richterago conduplicata</i>
	<i>Richterago elegans</i>
	<i>Richterago hatschbachii</i>
	<i>Richterago lanata</i>
	<i>Richterago polyphylla</i>
	<i>Richterago riparia</i>
	<i>Richterago stenophylla</i>
	<i>Senecio gertii</i>
	<i>Senecio hatschbachii</i>
	<i>Stevia riedelli</i>
	<i>Symphiopappus uncinatus</i>
	<i>Wunderlichia senae</i>
Bignoniaceae	<i>Adenocalymma magnoalatum</i>
	<i>Anemopaegma arvense</i>
	<i>Paratecoma peroba</i>
	<i>Zeyheria tuberculosa</i>
Bromeliaceae	<i>Aechmea bambusoides</i>
	<i>Alcantarea duarteana</i>
	<i>Cryptanthus caracensis</i>
	<i>Cryptanthus glazioui</i>
	<i>Cryptanthus minarum</i>
	<i>Dyckia rariflora</i>
	<i>Dyckia ursina</i>
	<i>Eduandrea selloana</i>
	<i>Encholirium biflorum</i>
	<i>Encholirium heloisae</i>
	<i>Encholirium irwinii</i>
	<i>Encholirium longiflorum</i>
	<i>Encholirium luxor</i>
	<i>Encholirium pedicellatum</i>
	<i>Encholirium scrutor</i>
	<i>Encholirium vogelii</i>
	<i>Lapanthus duartei</i>
	<i>Neoregelia leprosa</i>
	<i>Orthophytum humile</i>
	<i>Pitcairnia bradei</i>
	<i>Vriesea diamantinensis</i>
	<i>Vriesea longistaminea</i>
	<i>Vriesea minarum</i>
	<i>Vriesea monacorum</i>
	<i>Vriesea saxicola</i>

Family	Species
Burseraceae	<i>Trattinnickia ferruginea</i>
Cactaceae	<i>Arrojadoa eriocalis</i>
	<i>Arthrocerus glaziovii</i>
	<i>Arthrocerus melanurus</i> <i>subsp. odor</i>
	<i>Arthrocerus rondonianus</i>
	<i>Brasilicereus markgrafii</i>
	<i>Cipocereus bradei</i>
	<i>Cipocereus crassisepalus</i>
	<i>Cipocereus laniflorus</i>
	<i>Cipocereus minensis</i>
	<i>Cipocereus pusilliflorus</i>
	<i>Discocactus horstii</i>
	<i>Discocactus pseudoinsignis</i>
	<i>Micranthocereus albicephalus</i>
	<i>Micranthocereus auriazureus</i>
	<i>Micranthocereus violaciflorus</i>
	<i>Pereskia aureiflora</i>
	<i>Pilosocereus aurisetus</i> <i>subsp. aurilanatus</i>
	<i>Pilosocereus fulvilanatus</i>
	<i>Pilosocereus multicosatus</i>
	<i>Uebelmannia buiningii</i>
	<i>Uebelmannia gummifera</i>
	<i>Uebelmannia pectinifera</i>
Caprifoliaceae	<i>Valeriana organensis</i>
Celastraceae	<i>Maytenus rupestris</i>
Chrysobalanaceae	<i>Parinari brasiliensis</i>
Commelinaceae	<i>Dichorisandra glaziovii</i>
Connaraceae	<i>Rourea cnestidifolia</i>
Convolvulaceae	<i>Evolvulus chrysotrichos</i>
	<i>Evolvulus glaziovii</i>
	<i>Evolvulus kramerioides</i>
	<i>Evolvulus stellariifolius</i>
	<i>Jacquemontia cephalantha</i>
	<i>Jacquemontia revoluta</i>
	<i>Merremia repens</i>
Cyperaceae	<i>Bulbostylis smithii</i>
	<i>Lagenocarpus bracteosus</i>
Dichapetalaceae	<i>Stephanopodium engleri</i>
Dicksoniaceae	<i>Dicksonia sellowiana</i>
Droseraceae	<i>Drosera graomogolensis</i>
Dryopteridaceae	<i>Elaphoglossum acrocarpum</i>
Ericaceae	<i>Gaylussacia centunculifolia</i>

Family	Species
	<i>Gaylussacia oleifolia</i>
	<i>Gaylussacia setosa</i>
Eriocaulaceae	<i>Actinocephalus cipoensis</i>
	<i>Comanthera brasiliana</i>
	<i>Comanthera elegans</i>
	<i>Leiothrix echinocephala</i>
	<i>Paepalanthus ater</i>
	<i>Paepalanthus hydra</i>
	<i>Syngonanthus itambeensis</i>
	<i>Syngonanthus laricifolius</i>
Euphorbiaceae	<i>Bernardia crassifolia</i>
	<i>Croton leptobotryus</i>
	<i>Euphorbia attastoma</i>
	<i>Euphorbia gymnoclada</i>
Fabaceae	<i>Aeschynomene laca-buendiana</i>
	<i>Apuleia leiocarpa</i>
	<i>Chamaecrista cipoana</i>
	<i>Chamaecrista fodinarum</i>
	<i>Chamaecrista lagotois</i>
	<i>Chamaecrista stillifera</i>
	<i>Chamaecrista tephrosiifolia</i>
	<i>Chamaecrista ulmea</i>
	<i>Dalbergia nigra</i>
	<i>Dimorphandra wilsonii</i>
	<i>Harpalyce parvifolia</i>
	<i>Leucochloron minarum</i>
	<i>Lupinus coriaceus</i>
	<i>Lupinus decurrens</i>
	<i>Lupinus laevigatus</i>
	<i>Melanoxylon brauna</i>
	<i>Mimosa acroconica</i>
	<i>Mimosa adamantina</i>
	<i>Mimosa barretoii</i>
	<i>Mimosa bombycina</i>
	<i>Mimosa chrysastra</i>
	<i>Mimosa leprosa</i>
	<i>Mimosa lithoreas</i>
	<i>Mimosa macedoana</i>
	<i>Mimosa montis-carasae</i>
	<i>Mimosa paucifolia</i>
	<i>Mimosa uniceps</i>
Gentianaceae	<i>Senaea coerulea</i>
Gesneriaceae	<i>Paliavana werdermannii</i>
	<i>Sinningia rupicola</i>
	<i>Sinningia tuberosa</i>
Hymenophyllaceae	<i>Hymenophyllum silveirae</i>
Hypericaceae	<i>Hypericum mutilum</i>
Iridaceae	<i>Pseudotrimezia brevistamina</i>

Family	Species
	<i>Pseudotrimezia concava</i>
	<i>Pseudotrimezia elegans</i>
	<i>Pseudotrimezia gracilis</i>
	<i>Pseudotrimezia synandra</i>
	<i>Pseudotrimezia tenuissima</i>
	<i>Trimezia exillima</i>
	<i>Trimezia fistulosa</i>
	<i>Trimezia fistulosa</i> var. <i>longifolia</i>
	<i>Trimezia plicatifolia</i>
Lamiaceae	<i>Hyptidendron clausenii</i>
	<i>Hyptis rhyphiophylla</i>
	<i>Ocephalus piranii</i>
Lauraceae	<i>Cinnamomum erythropus</i>
	<i>Cinnamomum quadrangulum</i>
	<i>Ocotea confertiflora</i>
	<i>Ocotea felix</i>
	<i>Ocotea odorifera</i>
	<i>Ocotea porosa</i>
	<i>Ocotea tabacifolia</i>
	<i>Persea pedunculosa</i>
Lecythidaceae	<i>Cariniana legalis</i>
Loganiaceae	<i>Spigelia aceifolia</i>
	<i>Spigelia cipoensis</i>
	<i>Spigelia lundiana</i>
Lycopodiaceae	<i>Phlegmariurus itambensis</i>
	<i>Phlegmariurus ruber</i>
	<i>Pseudolycopodiella benjaminiana</i>
Lythraceae	<i>Cuphea adenophylla</i>
	<i>Cuphea cipoensis</i>
	<i>Cuphea rubro-virens</i>
	<i>Cuphea teleandra</i>
	<i>Diplusodon aggregatifolius</i>
	<i>Diplusodon glaziovii</i>
	<i>Diplusodon minasensis</i>
	<i>Diplusodon orbicularis</i>
	<i>Diplusodon ovatus</i>
	<i>Diplusodon villosissimus</i>
Malpigiaceae	<i>Banisteriopsis andersonii</i>
	<i>Banisteriopsis cipoensis</i>
	<i>Byrsonima cipoensis</i>
	<i>Byrsonima fonsecae</i>
	<i>Byrsonima onishiana</i>
	<i>Heladena multiflora</i>
	<i>Peixotoa andersonii</i>
	<i>Peixotoa barnebyi</i>
	<i>Peixotoa cipoana</i>

Family	Species
Malvaceae	<i>Pavonia grazielae</i>
Melastomataceae	<i>Cambessedesia weddellii</i>
	<i>Eriocnema acaulis</i>
	<i>Eriocnema fulva</i>
	<i>Huberia pirani</i>
	<i>Lavoisiera cordata</i>
	<i>Lithobium cordatum</i>
	<i>Marcetia hatschbachii</i>
	<i>Marcetia semiriana</i>
	<i>Miconia cipoensis</i>
	<i>Microlicia cuspidifolia</i>
	<i>Microlicia glazioviana</i>
	<i>Microlicia microphylla</i>
	<i>Microlicia obtusifolia</i>
	<i>Ossaea warmingiana</i>
	<i>Tibouchina riedeliana</i>
	<i>Trembleya calycina</i>
	<i>Trembleya chamissoana</i>
	<i>Trembleya hatschbachii</i>
	<i>Trembleya pityoides</i>
Meliaceae	<i>Cedrela fissilis</i>
	<i>Cedrela odorata</i>
Moraceae	<i>Ficus cyclophylla</i>
Myrtaceae	<i>Accara elegans</i>
	<i>Campomanesia hirsuta</i>
	<i>Campomanesia prothecesepala</i>
	<i>Eugenia blanda</i>
	<i>Eugenia neosericea</i>
	<i>Myrceugenia bracteosa</i>
Ochnaceae	<i>Luxemburgia angustifolia</i>
	<i>Luxemburgia corymbosa</i>
	<i>Luxemburgia flexuosa</i>
	<i>Ouratea hatschbachii</i>
Oleaceae	<i>Chionanthus subsessilis</i>
Orchidaceae	<i>Brachionidium restrepioides</i>
	<i>Cattleya walkeriana</i>
	<i>Cleistes aphylla</i>
	<i>Constantia cipoensis</i>
	<i>Cyrtopodium lamellaticallosum</i>
	<i>Cyrtopodium lissochiloides</i>
	<i>Cyrtopodium palmifrons</i>
	<i>Cyrtopodium poecilum</i> var. <i>roseum</i>
	<i>Grandiphyllum hians</i>
	<i>Grobya cipoensis</i>
	<i>Habenaria itaculumia</i>
	<i>Hadrolaelia brevipedunculata</i>

Family	Species
	<i>Hadrolaelia jongheana</i>
	<i>Hadrolaelia pumila</i>
	<i>Hoffmannseggella briereri</i>
	<i>Hoffmannseggella caulescens</i>
	<i>Hoffmannseggella ghillanyi</i>
	<i>Hoffmannseggella milleri</i>
	<i>Octomeria geraensis</i>
	<i>Phragmipedium vittatum</i>
	<i>Pseudolaelia cipoensis</i>
	<i>Scuticaria irwiniana</i>
	<i>Thysanoglossa jordanensis</i>
	<i>Vanilla dubia</i>
Orobanchaceae	<i>Agalinis brachyphylla</i>
	<i>Agalinis itambensis</i>
	<i>Agalinis ramulifera</i>
	<i>Agalinis schwackeana</i>
	<i>Esterhazyia caesarea</i>
Oxalidaceae	<i>Oxalis diamantinae</i>
Pentaphragmaceae	<i>Ternstroemia cuneifolia</i>
Phyllanthaceae	<i>Phyllanthus gladiatus</i>
Phytolaccaceae	<i>Microtea papilosa</i>
Piperaceae	<i>Peperomia cordigera</i>
	<i>Peperomia hemmendorffii</i>
	<i>Piper duartei</i>
Poaceae	<i>Aristida brasiliensis</i>
	<i>Axonopus fastigiatus</i>
	<i>Axonopus monticola</i>
	<i>Canastra lanceolata</i>
	<i>Chusquea attenuata</i>
	<i>Chusquea heterophylla</i>
	<i>Chusquea tenuiglumis</i>
	<i>Leersia ligularis</i>
	<i>Lithachne horizontalis</i>
	<i>Ocellochloa brachystachya</i>
	<i>Paspalum repandum</i>
	<i>Zizaniopsis bonariensis</i>
Polygalaceae	<i>Polygala stephaniana</i>
	<i>Polygala tamariscea</i>
Polypodiaceae	<i>Ceradenia capillaris</i>
	<i>Ceradenia warmingii</i>
	<i>Moranopteris perpusilla</i>
Primulaceae	<i>Myrsine congesta</i>
	<i>Myrsine villosissima</i>
Proteaceae	<i>Euplassa incana</i>
	<i>Euplassa semicostata</i>
	<i>Panopsis multiflora</i>

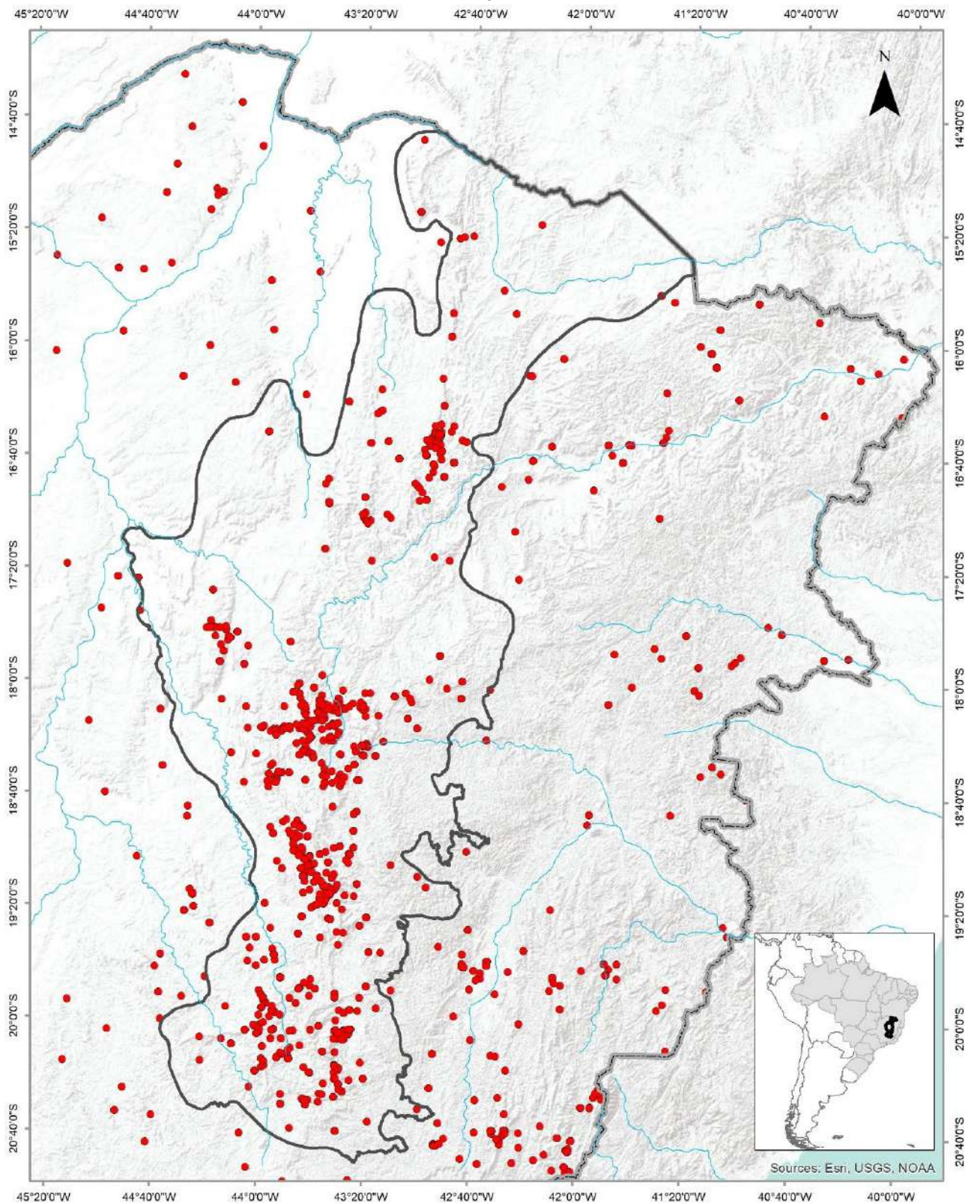
Family	Species
Pteridaceae	<i>Adiantum papillosum</i>
	<i>Doryopteris paradoxa</i>
	<i>Doryopteris rufa</i>
	<i>Jamesonia cheilanthoides</i>
	<i>Jamesonia insignis</i>
	<i>Pellaea cymbiformis</i>
	<i>Pellaea gleichenioides</i>
Rubiaceae	<i>Psychotria microcarpa</i>
	<i>Rudgea sessilis</i> subsp. <i>cipoana</i>
	<i>Staelia hatschbachii</i>
Rutaceae	<i>Esenbeckia irwiniana</i>
Sapotaceae	<i>Micropholis emarginata</i>
	<i>Pouteria furcata</i>
Simaroubaceae	<i>Simaba suaveolens</i>
	<i>Simaba warmingiana</i>
Solanaceae	<i>Calibrachoa elegans</i>
	<i>Schwenckia curviflora</i>
	<i>Solanum graveolens</i>
	<i>Solanum warmingii</i>
Velloziaceae	<i>Barbacenia delicatula</i>
	<i>Barbacenia exscapa</i>
	<i>Barbacenia glutinosa</i>
	<i>Barbacenia longiscapa</i>
	<i>Barbacenia pungens</i>
	<i>Barbacenia riparia</i>
	<i>Barbacenia rodriguesii</i>
	<i>Barbacenia spiralis</i>
	<i>Vellozia alata</i>
	<i>Vellozia armata</i>
	<i>Vellozia barbata</i>
	<i>Vellozia gigantea</i>
	<i>Vellozia glabra</i>
	<i>Vellozia hatschbachii</i>
	<i>Vellozia leptopetala</i>
	<i>Vellozia lilacina</i>
	<i>Vellozia metzgerae</i>
	<i>Vellozia nuda</i>
	<i>Vellozia patens</i>
	<i>Vellozia piresiana</i>
	<i>Vellozia streptophylla</i>
	<i>Vellozia subalata</i>
Verbenaceae	<i>Lippia bradei</i>
	<i>Lippia rhodocnemis</i>
	<i>Stachytarpheta procumbens</i>
Vitaceae	<i>Cissus inundata</i>
Vochysiaceae	<i>Vochysia pygmaea</i>
Xyridaceae	<i>Xyris aurea</i>
	<i>Xyris blepharophylla</i>
	<i>Xyris cipoensis</i>
	<i>Xyris coutensis</i>

Family	Species
	<i>Xyris dardanoi</i>
	<i>Xyris hystrix</i>
	<i>Xyris nigricans</i>
	<i>Xyris obtusiuscula</i>

Family	Species
	<i>Xyris platystachya</i>
	<i>Xyris sincorana</i>
	<i>Xyris sororia</i>
	<i>Xyris tortilis</i>

Despite the profusion of rarity concepts and different definitions, it is agreed that rare species may be highly vulnerable and therefore must be prioritized in conservation measures. The Red Book of the Brazilian flora - rare plants of the savanna evaluated the risk of extinction of species considered rare according to the concept of rarity of Giuliatti and others (2009) and with occurrence and / or endemic of the savanna and 578 species were listed.

FIGURE 9: PUNCTUAL DISTRIBUTION OF SPECIES OF THE BRAZILIAN FLORA THREATENED OF EXTINCTION IN THE RBSE.



Legend

- Species Endangered - Plants (2015)
- Rivers
- ▭ RBSE Limit
- ▭ State Limit



0 30 60 120 Km

Source: CNCFlora, 2015

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

IN THE RBSE PHASE 2, THE DISTRIBUTION OF 276 RARE SPECIES OF THE SAVANNA WAS IDENTIFIED. TABELA 1:
RARE SPECIES OF THE SAVANNA

Family	
Species	<i>Cipocereus pleurocarpus</i>
Acanthaceae	Caryophyllaceae
<i>Staurogyne minarum</i>	<i>Paronychia fasciculata</i>
Amaranthaceae	Commelinaceae
<i>Gomphrena hillii</i>	<i>Tripogandra elata</i>
<i>Gomphrena marginata</i>	<i>Tripogandra warmingiana</i>
Apocynaceae	Cyperaceae
<i>Mandevilla rubra</i>	<i>Bulbostylis lombardii</i>
<i>Mandevilla semirii</i>	<i>Cryptangium humile</i>
<i>Marsdenia virgultorum</i>	<i>Eleocharis almensis</i>
<i>Minaria campanuliflora</i>	<i>Eleocharis loefgreniana</i>
Araceae	<i>Lagenocarpus adamantinus</i>
<i>Anthurium megapetiolatum</i>	<i>Lagenocarpus humilis</i>
<i>Philodendron cipoense</i>	<i>Rhynchospora nanuzae</i>
<i>Philodendron pachyphyllum</i>	<i>Rhynchospora tenuis</i>
<i>Philodendron rhizomatosum</i>	<i>Scleria cuyabensis</i>
Araliaceae	Eriocaulaceae
<i>Didymopanax lucumoides</i>	<i>Actinocephalus aggregatus</i>
<i>Schefflera botumirimensis</i>	<i>Actinocephalus callophyllus</i>
<i>Schefflera fruticosa</i>	<i>Actinocephalus compactus</i>
<i>Schefflera lucumoides</i>	<i>Actinocephalus coutoensis</i>
Asteraceae	<i>Actinocephalus deflexus</i>
<i>Dasyphyllum lanosum</i>	<i>Actinocephalus diffusus</i>
<i>Dasyphyllum reticulatum</i>	<i>Actinocephalus falcifolius</i>
<i>Dasyphyllum reticulatum robustum</i>	<i>Actinocephalus fimbriatus</i>
<i>Dasyphyllum trichophyllum</i>	<i>Actinocephalus glabrescens</i>
<i>Lessingianthus scaposus</i>	<i>Actinocephalus graminifolius</i>
<i>Minasia cabralensis</i>	<i>Actinocephalus robustus</i>
<i>Minasia lewinsohnii</i>	<i>Actinocephalus stereophyllus</i>
<i>Stevia resinosa</i>	<i>Blastocaulon albidum</i>
<i>Vernonanthura lindbergii</i>	<i>Blastocaulon rupestre</i>
<i>Vernonia lindbergii</i>	<i>Comanthera cipoensis</i>
<i>Vernonia scaposa</i>	<i>Comanthera circinnata</i>
Bignoniaceae	<i>Eriocaulon angustifolium</i>
<i>Jacaranda racemosa</i>	<i>Eriocaulon aquatile</i>
<i>Lundia damazii</i>	<i>Eriocaulon cipoense</i>
Bromeliaceae	<i>Leiothrix cipoensis</i>
<i>Alcantarea hatschbachii</i>	<i>Leiothrix crassifolia</i>
<i>Cryptanthus leopoldo-horstii</i>	<i>Leiothrix distichoclada</i>
<i>Dyckia argentea</i>	<i>Leiothrix luxurians</i>
<i>Dyckia brachyphylla</i>	<i>Leiothrix milho-verdensis</i>
<i>Dyckia bracteata</i>	<i>Leiothrix nubigena</i>
<i>Dyckia mello-barretoii</i>	<i>Leiothrix obtusifolia</i>
<i>Dyckia pectinata</i>	<i>Leiothrix rupestris</i>
<i>Encholirium reflexum</i>	<i>Leiothrix sclerophylla</i>
<i>Orthophytum itambense</i>	<i>Leiothrix sinuosa</i>
<i>Orthophytum mello-barretoii</i>	<i>Leiothrix spiralis</i>
<i>Orthophytum schulzianum</i>	<i>Paepalanthus albidus</i>
<i>Pitcairnia curvidens</i>	<i>Paepalanthus anamaricae</i>
<i>Tillandsia sprengeliana</i>	<i>Paepalanthus argenteus</i>
<i>Vriesea densiflora</i>	<i>Paepalanthus aureus</i>
Cactaceae	<i>Paepalanthus barbiger</i>
	<i>Paepalanthus callophyllus</i>

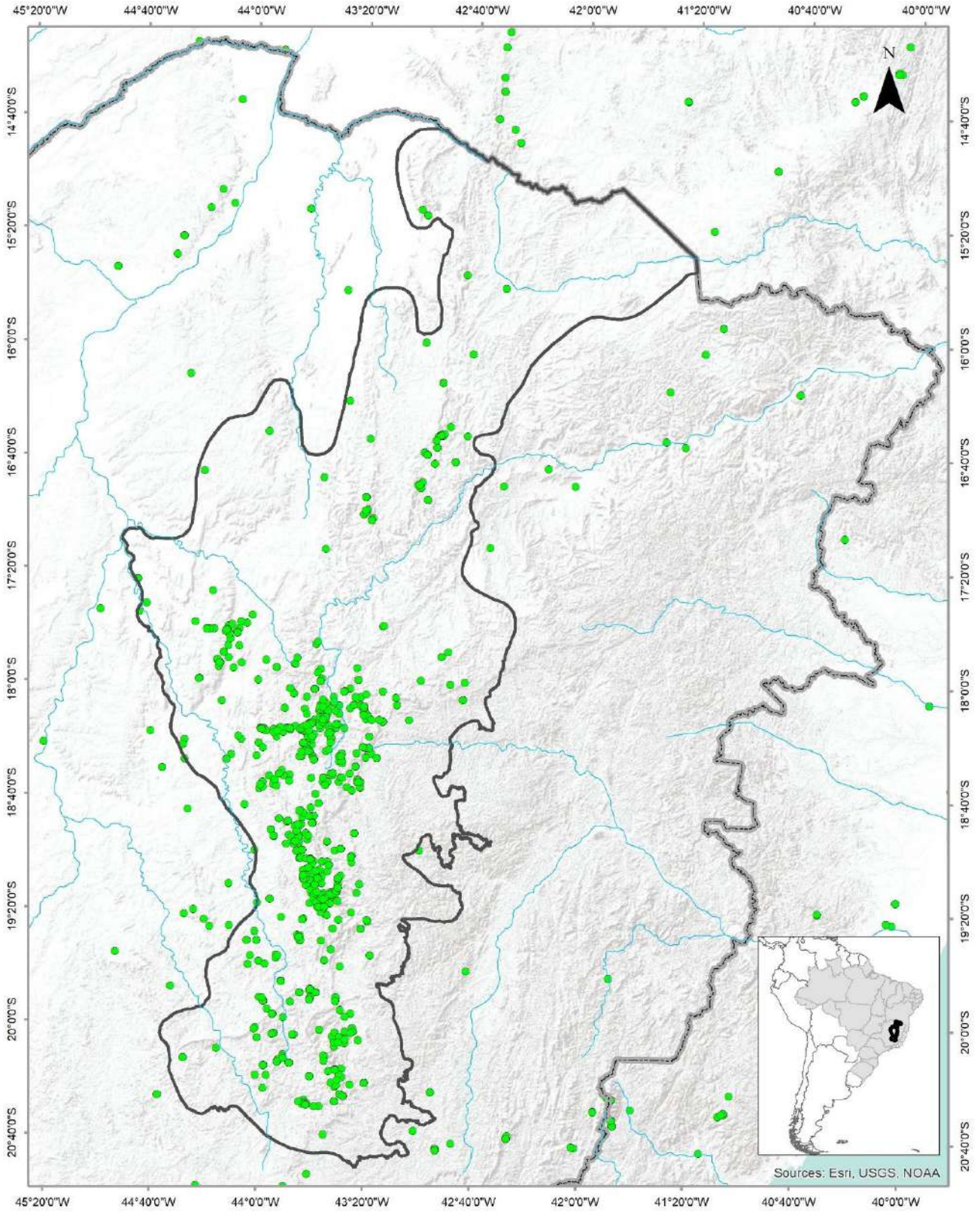
<i>Paepalanthus ciliatus glabrescens</i>
<i>Paepalanthus compactus</i>
<i>Paepalanthus complanatus</i>
<i>Paepalanthus crassifolius</i>
<i>Paepalanthus densifolius</i>
<i>Paepalanthus diffusus</i>
<i>Paepalanthus digitiformis</i>
<i>Paepalanthus falcifolius</i>
<i>Paepalanthus fimbriatus</i>
<i>Paepalanthus globulifer</i>
<i>Paepalanthus habenuifer</i>
<i>Paepalanthus homomallus</i>
<i>Paepalanthus lanuginosus</i>
<i>Paepalanthus nodifer</i>
<i>Paepalanthus nudus</i>
<i>Paepalanthus pulvinatus</i>
<i>Paepalanthus revolutus</i>
<i>Paepalanthus rupestris</i>
<i>Paepalanthus senaeanus</i>
<i>Paepalanthus stereophyllus</i>
<i>Paepalanthus superbus</i>
<i>Paepalanthus tuberculatus</i>
<i>Paepalanthus urbanianus</i>
<i>Syngonanthus bracteosus</i>
<i>Syngonanthus cipoensis</i>
<i>Syngonanthus circinnatus</i>
<i>Syngonanthus hygrotichus</i>
<i>Syngonanthus rufipes</i>
Fabaceae
<i>Calliandra linearis</i>
<i>Calliandra santosiana</i>
<i>Cassia caracensis</i>
<i>Cassia itabiritoana</i>
<i>Chamaecrista adamantina</i>
<i>Chamaecrista caracensis</i>
<i>Chamaecrista catapodia</i>
<i>Chamaecrista centiflora</i>
<i>Chamaecrista coriacea</i>
<i>Chamaecrista deltoidea</i>
<i>Chamaecrista fuscescens</i>
<i>Chamaecrista geraldii</i>
<i>Chamaecrista gumminans</i>
<i>Chamaecrista hatschbachii</i>
<i>Chamaecrista itabiritoana</i>
<i>Chamaecrista ixodes</i>
<i>Chamaecrista phyllostachya</i>
<i>Chamaecrista pilicarpa</i>
<i>Chamaecrista simplifactor</i>
<i>Chamaecrista vauthieri</i>
<i>Crotalaria rufipila</i>
<i>Poiretia unifoliolata</i>
<i>Zornia subsessilis</i>
Fabaceae/Leguminosae
<i>Chamaecrista gumminans</i>

<i>Chamaecrista ixodes</i>
Gesneriaceae
<i>Paliavana plumerioides</i>
Lamiaceae
<i>Eriope angustifolia</i>
<i>Eriope filifolia</i>
<i>Hyptis coriacea</i>
<i>Hyptis tenuifolia</i>
Leguminosae-Pap
<i>Zornia subsessilis</i>
Loranthaceae
<i>Psittacanthus corynocephalus</i>
Lythraceae
<i>Cuphea anamariae</i>
<i>Cuphea disperma</i>
<i>Cuphea fuchsiifolia</i>
<i>Cuphea sclerophylla</i>
<i>Cuphea warmingii</i>
<i>Diplusodon bradei</i>
<i>Diplusodon glocimarii</i>
<i>Diplusodon mononeuros</i>
<i>Diplusodon rosmarinifolius</i>
<i>Diplusodon rotundifolius</i>
<i>Diplusodon saxatilis</i>
Malpighiaceae
<i>Banisteriopsis arborea</i>
<i>Banisteriopsis byssacea</i>
<i>Peixotoa irwinii</i>
Melastomataceae
<i>Cambessedesia pityrophylla</i>
<i>Cambessedesia salviifolia</i>
<i>Cambessedesia semidecandra</i>
<i>Comolia edmundoi</i>
<i>Lavoisiera adamantium</i>
<i>Lavoisiera angustifolia</i>
<i>Lavoisiera bradeana</i>
<i>Lavoisiera caryophyllea</i>
<i>Lavoisiera firmula</i>
<i>Lavoisiera humilis</i>
<i>Lavoisiera macrocarpa</i>
<i>Lavoisiera mucorifera</i>
<i>Lavoisiera punctata</i>
<i>Lavoisiera senaei</i>
<i>Lavoisiera subulata</i>
<i>Lavoisiera tetragona</i>
<i>Microlicia cipoana</i>
<i>Microlicia scoparia</i>
<i>Microlicia suborbicularifolia</i>
<i>Microlicia tenuifolia</i>
<i>Microlicia trichocalycina</i>
<i>Microlicia vernicosa</i>
<i>Trembleya rosmarinoidea</i>
Monimiaceae
<i>Macropeplus schwackeanus</i>

Myrsinaceae
<i>Myrsine cipoensis</i>
Myrtaceae
<i>Calycolpus australis</i>
<i>Plinia nana</i>
<i>Psidium firmum</i>
Ochnaceae
<i>Luxemburgia ciliatibracteata</i>
<i>Luxemburgia damazioana</i>
<i>Luxemburgia hatschbachiana</i>
<i>Luxemburgia speciosa</i>
Orchidaceae
<i>Cattleya pendula</i>
<i>Habenaria meeana</i>
<i>Habenaria pseudohamata</i>
<i>Hadrolaelia praestans</i>
<i>Hoffmannseggella pendula</i>
Orobanchaceae
<i>Esterhazyia nanuzae</i>
Passifloraceae
<i>Passiflora hypoglauca</i>
Piperaceae
<i>Peperomia warmingii</i>
Poaceae
<i>Axonopus aureus</i>
<i>Axonopus grandifolius</i>
<i>Dichantherium assurgens</i>
<i>Dichantherium sendulskyii</i>
<i>Digitaria pampinosa</i>
<i>Paspalum brachytrichum</i>
Polygalaceae
<i>Polygala apparicioi</i>
<i>Polygala asperuloides</i>
<i>Polygala pseudoerica</i>
<i>Securidaca acuminata</i>
Polygonaceae
<i>Coccoloba cereifera</i>
Rubiaceae
<i>Borreria rosmarinifolia</i>
<i>Mitracarpus pusillus</i>
<i>Psyllocarpus schwackei</i>
Scrophulariaceae
<i>Philcoxia minensis</i>
Solanaceae
<i>Brunfelsia rupestris</i>
Symplocaceae
<i>Symplocos glaberrima</i>
<i>Symplocos insolita</i>
<i>Symplocos saxatilis</i>
Turneraceae
<i>Turnera cipoensis</i>
<i>Turnera coccinea</i>
<i>Turnera collotricha</i>
<i>Turnera coriacea</i>

<i>Turnera ignota</i>
<i>Turnera princeps</i>
<i>Turnera revoluta</i>
Velloziaceae
<i>Aylthonia blackii</i>
<i>Barbacenia blackii</i>
<i>Barbacenia fulva</i>
<i>Barbacenia minima</i>
<i>Barbacenia reflexa</i>
<i>Barbacenia umbrosa</i>
<i>Barbacenia williamsii</i>
<i>Vellozia bradei</i>
<i>Vellozia costata</i>
<i>Vellozia luteola</i>
<i>Vellozia maxillarioides</i>
<i>Vellozia prolifera</i>
<i>Vellozia sellowii</i>
<i>Vellozia spiralis</i>
<i>Vellozia tillandsioides</i>
<i>Vellozia torquata</i>
Verbenaceae
<i>Bouchea chascanooides</i>
<i>Bouchea fluminensis</i>
<i>Lantana gracilis</i>
<i>Lantana rubella</i>
<i>Lippia diamantinensis</i>
<i>Lippia duartei</i>
<i>Lippia gardneriana</i>
<i>Lippia lasiocalycina</i>
<i>Lippia rosella</i>
<i>Lippia rubella</i>
<i>Lippia violacea</i>
<i>Stachytarpheta ajugifolia</i>
<i>Stachytarpheta discolor</i>
<i>Stachytarpheta itambensis</i>
<i>Stachytarpheta lacunosa</i>
<i>Stachytarpheta lacunosa angustifolia</i>
<i>Stachytarpheta monachinoi</i>
<i>Stachytarpheta pohliana</i>
Vochysiaceae
<i>Callisthene erythroclada</i>
<i>Vochysia pygmaea</i>
<i>Vochysia rotundifolia</i>
Xyridaceae
<i>Xyris archeri</i>
<i>Xyris itambensis</i>
<i>Xyris obcordata</i>
<i>Xyris rupicola</i>
<i>Xyris spectabilis</i>
<i>Xyris subsetigera</i>
<i>Xyris villosicarinata</i>

FIGURE 10: DISTRIBUTION OF RARE PLANTS OF THE SAVANNA, IN THE RBSE.



Legend

- Rare Plants of Biome Cerrado
- Rivers
- RBSE Limit
- State Limit



0 30 60 120 Km

Source: CNCFlora, 2014

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018

Special Protection Areas and Ramsar Farm

The State of Minas Gerais, based on article 14 of Law 6766/79, created special protection areas, by decree, with the purpose of protecting the environment, under the jurisdiction of the Sanitation Company of Minas Gerais - COPASA. Sub-basins are usually delimited upstream of catchment points, in which, in some cases, plots are purchased for the installation of Water Collection Stations. In the remainder, the parceling of the soil is subject to the licensing of the state environmental agency, representing an instrument to control the use of the soil with the intention of protecting fountainheads.

In the cut-off of RBSE Phase 2 these areas were incorporated into the buffer zone since climate change has caused periods of rain scarcity causing water insecurity in large Brazilian metropolises. Such areas have as their basic function to protect the reservoirs that supply the large urban centers.

TABLE 18: AREAS OF SPECIAL PROTECTION IN THE RBSE.

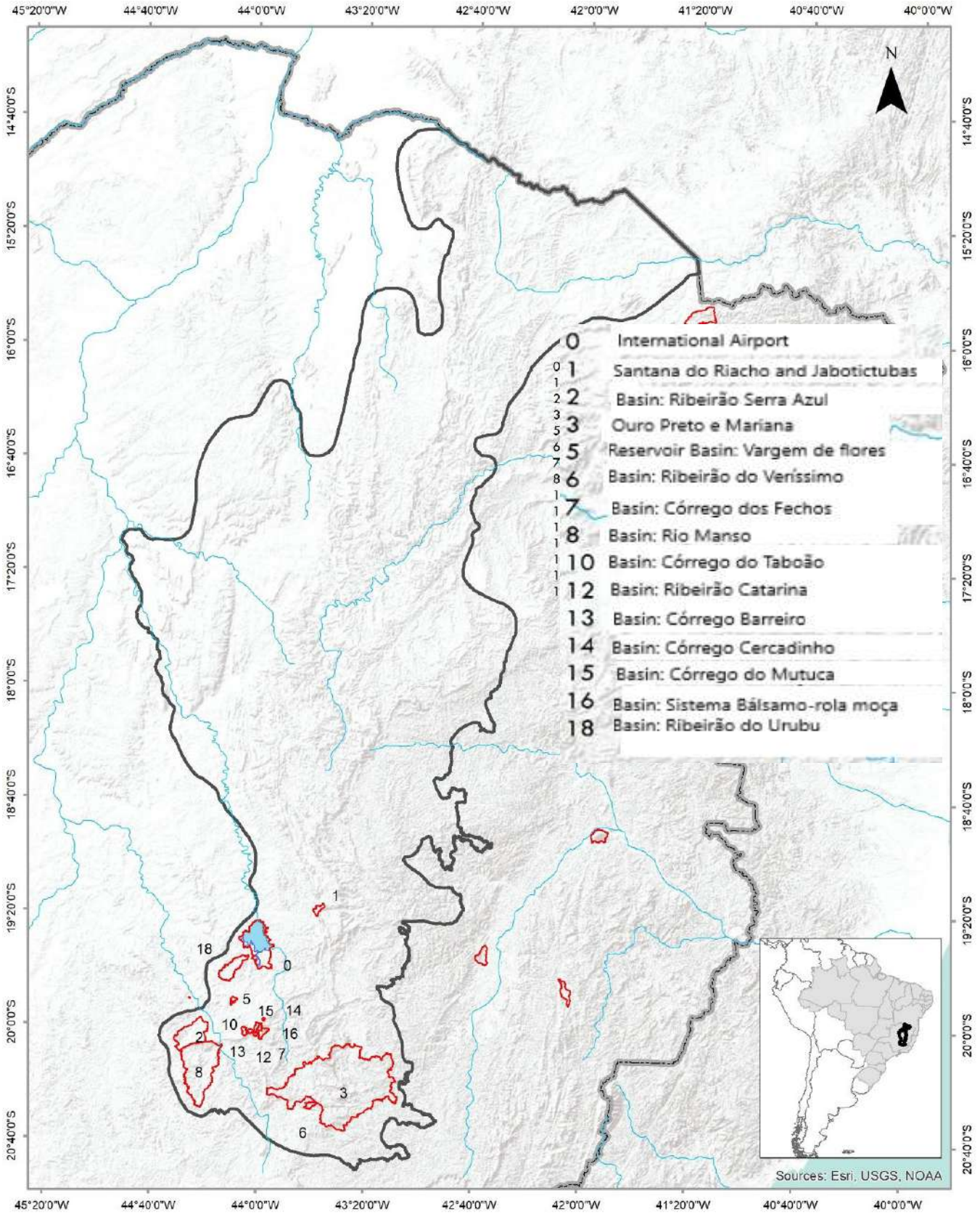
ID	NAME
0	International Airport
1	Santana do Riacho e Jaboticatubas
2	Basin: Ribeirão Serra Azul
3	Ouro Preto and Mariana
5	Basin: Reservatório Vargem das Flores
6	Basin: Ribeirão do Veríssimo
7	Basin: Córrego dos Fechos
8	Basin: Rio Manso
10	Basin: Córrego do Taboão
12	Basin: Ribeirão Catarina
13	Basin: Córrego Barreiro
14	Basin: Córrego Cercadinho
15	Basin: Córrego do Mutuca
16	Basin: Sistema Bálsamo-Rola Moça
18	Basin: Ribeirão do Urubu

The Convention on Wetlands of International Importance, also called the Ramsar Convention, of which Brazil has been a signatory since 1993, establishes an intergovernmental treaty providing parameters for conservation actions and for the sustainable use of the natural resources of wetlands considered strategic for the environment, given its ecological, social, economic, cultural, scientific and recreational value, fundamental for the maintenance of ecosystem services. In the world, there are just over 2.2 thousand recognized Ramsar Farms in 169 countries.

Recently, in 2018, the karst relief area located in the Federal Environment Protection Area of Lagoa Santa, was officially made a Ramsar Farm by the Ministry of the Environment, with the seal of the International Ramsar Committee, Ramsar Lund Warming Site.

The new status enhances the management and sustainable use of natural resources and the preservation of the region's biodiversity under this intergovernmental treaty. The region has rich archaeological and palaeontological sites rich in Pleistocene fossils, shelters, artefacts and cave paintings of humans who inhabited the region for thousands of years, as well as the famous fossil of Luzia, the oldest fossil found in America, with about 12, 5,000 years old, in addition to its biological importance as regards the conservation of dozens of species of water birds found in the numerous temporary lagoons of the region, such as herons, biguás, mallards, jaburus, saracuras, ibises, hawks, mosquitoes and tortoises.

FIGURE 11: SPECIAL PROTECTION AREAS AND RAMSAR FARM, WITH OCCURRENCE IN RBSE PHASE 2.



- 0 International Airport
- 01 Santana do Riacho and Jaboticubas
- 2 Basin: Ribeirão Serra Azul
- 3 Ouro Preto e Mariana
- 5 Reservoir Basin: Vargem de flores
- 6 Basin: Ribeirão do Veríssimo
- 7 Basin: Córrego dos Fechos
- 8 Basin: Rio Manso
- 10 Basin: Córrego do Taboão
- 12 Basin: Ribeirão Catarina
- 13 Basin: Córrego Barreiro
- 14 Basin: Córrego Cercadinho
- 15 Basin: Córrego do Mutuca
- 16 Basin: Sistema Bálamo-rola moça
- 18 Basin: Ribeirão do Urubu

Legend

- Rivers
- RBSE Limit
- State Limit
- Special Protection Areas - APes
- Site Ramsar LUND-WARMING



0 30 60 120 Km

Source: Ramsar.org, 2018
IGA, 2017

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018

Global Studies of Conservation Priority Identification

The special characteristics of Serra do Espinhaço were also recognized by global studies to identify conservation priorities, and the region is classified in WWF (World Wildlife Fund) / IUCN (International Union for Conservation of Nature) Plant Diversity Centers (DAVIS and others, 1997) in the list of World Wildlife Funds Global 2000 (WWF - World Wildlife Fund, 1997) and BirdLife International Bird Endemic Areas (EBAs) (STATTERSFIELD and others, 1998).

These are identified areas through a Global Standard for the Identification of Key Biodiversity Areas (IUCN - International Union for Conservation of Nature, 2016) which establishes globally agreed criteria for the identification of KBAs worldwide. The KBA (Key Biodiversity Areas) Standard establishes a science-based advisory process for the identification of KBAs (Key Biodiversity Areas), based on the consistent application of global criteria with quantitative limits.

Sites qualify as global KBAs (Key Biodiversity Areas) if they meet one or more of the 11 criteria grouped into five categories: biodiversity threatened; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability. KBA's (Key Biodiversity Areas) criteria can be applied to species and ecosystems in terrestrial, inland aquatic and marine environments. Although not all KBA (Key Biodiversity Areas) criteria may be relevant to all elements of biodiversity, the thresholds associated with each of the criteria can be applied to all taxonomic groups (except microorganisms) and ecosystems.

The consultation process to develop a Global Standard for the Identification of Key Biodiversity Areas was led by the IUCN (International Union for Conservation of Nature) Joint Task Force WCPA (World Commission on Protected Areas)-SSC on Biodiversity and Protected Areas.

In Brazil, 241 areas have already been identified, and in RBSE Phase 2 there are 7 areas related to terrestrial environments:

TABLE 19: KEY AREAS FOR CONSERVATION (KBAS) IN THE RBSE IN TERRESTRIAL ENVIRONMENTS.

ID	NAME	COD
20158	Plateau: Catuni	BR137
20159	Botumirim	BR138
20161	State Park: Rio Preto	BR140
20162	State Park: Pico do Itambé e Serra do Gavião	BR141
20163	Cipó Mountain	BR142
20165	Caraça Mountain	BR145
20167	Ouro Preto / Mariana	BR147

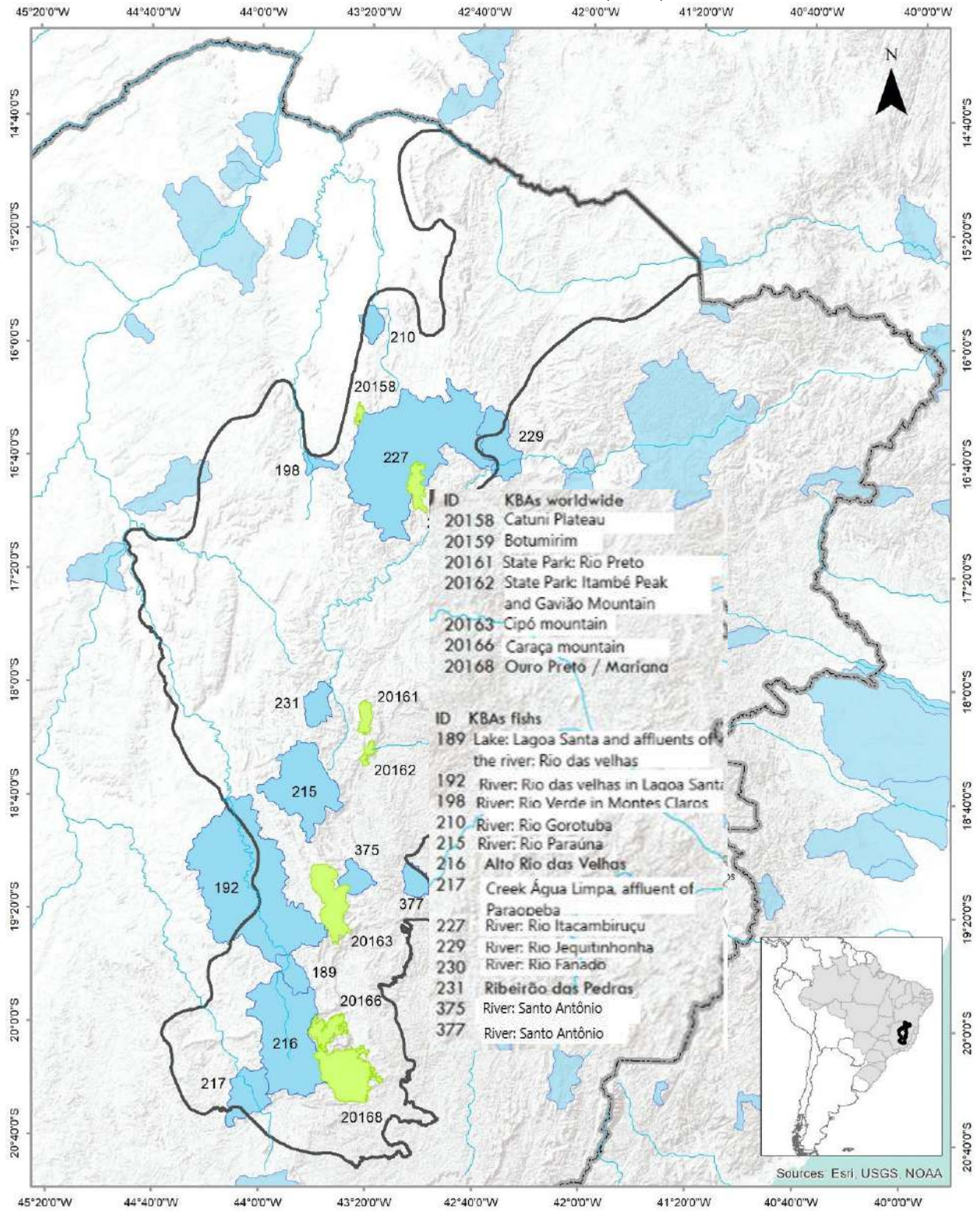
And thirteen areas related to aquatic environments:

TABLE 20: KEY AREAS FOR CONSERVATION (KBAS -KEY BIODIVERSITY AREAS) IN RBSE IN AQUATIC ENVIRONMENTS.

ID	Name	Cod
189	Lake: Lagoa Santa and affluents of the river: Rio das Velhas	SFR12
192	River: Rio das Velhas em Lagoa Santa	SFR15
198	River: Rio Verde Grande em Montes Claros	SFR21
210	River: Rio Gorotuba	SFR33
215	River: Rio Paraúna	SFR38
216	Alto Rio das Velhas	SFR39
217	Creek: Riacho Agua Limpa, Afluente do Paraopeba	SFR40
227	River: Rio Itacambiruçu	ALE10
229	River: Rio Jequitinhonha	ALE12

230	River: Rio Fanado	ALE13
231	River: Ribeirão das Pedras	ALE14
375	River: Rio Santo Antônio	ASE02
377	River: Rio Santo Antônio	ASE04

FIGURE 12: KEY AREAS FOR CONSERVATION (KBAS) IN THE RBSE.



Legend

- KBAs worldwide
- KBAs fish
- Rivers
- RBSE Limit
- State Limit



0 30 60 120 Km

Source: IUCN, 2018

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018

BAZE - Brazilian Alliance for Zero Extinction

The Alliance for Zero Extinction (*Alliance for Zero Extinction – AZE*) is an initiative that brings together environmental and public sector entities in a joint effort to conserve endangered species to identify and protect sites or sites that represent the ultimate refuge for endangered species in the categories Critically Endangered (CR) and In danger (EN), according to the International Union for Conservation of Nature's IUCN Red List of Threatened Species. More than 580 farms have been identified by the world, home to about 920 endangered species. The initiative was created in 2000 and launched worldwide in 2005 with the intention of providing support for the establishment of strategies and policies for the conservation of biodiversity in several countries through maps indicating the occurrence sites of the species. Global AZE (Alliance for Zero Extinction) encourages the creation of national initiatives to make site protection more effective. Currently, four countries have national strategies: Brazil, Mexico, India and Colombia. The national AZEs (Alliance for Zero Extinction) in Chile and Madagascar are under development.

Inspired by the global AZE, the Brazilian Alliance for Zero Extinction (BAZE) began in 2006. In 2008, the Biodiversitas Foundation produced the first BAZE site map, using as reference the Official List of Brazilian Fauna Threatened Extinction, prepared by Biodiversitas Foundation and collaborators and recognized by the Normative Instruction MMA nº3 / 2003. A total of 32 sites were identified for 36 vertebrate species distributed in all Brazilian biomes. In addition to the selection methodology adopted by AZE, BAZE used the methodology proposed for Key Biodiversity Areas (KBA) to delimit the sites, facilitating the proposition of management strategies.

In 2016, as part of the AZE Global Project "Alliance for Zero Extinction: Protection of Irreplaceable Natural Sites for the Conservation of Endangered Biodiversity", with an institutional arrangement composed of the American Bird Conservancy, BirdLife International and governments of Brazil - in partnership with the Foundation Biodiversitas, Chile and Madagascar and financing of the Global Environmental Facility (GEF), a strengthening component of the National Alliance was included, which would update the map of the farms according to the revision of the national red lists, approved by MMA (Ministry of the Environment) Ordinances 443, 444 and 445.

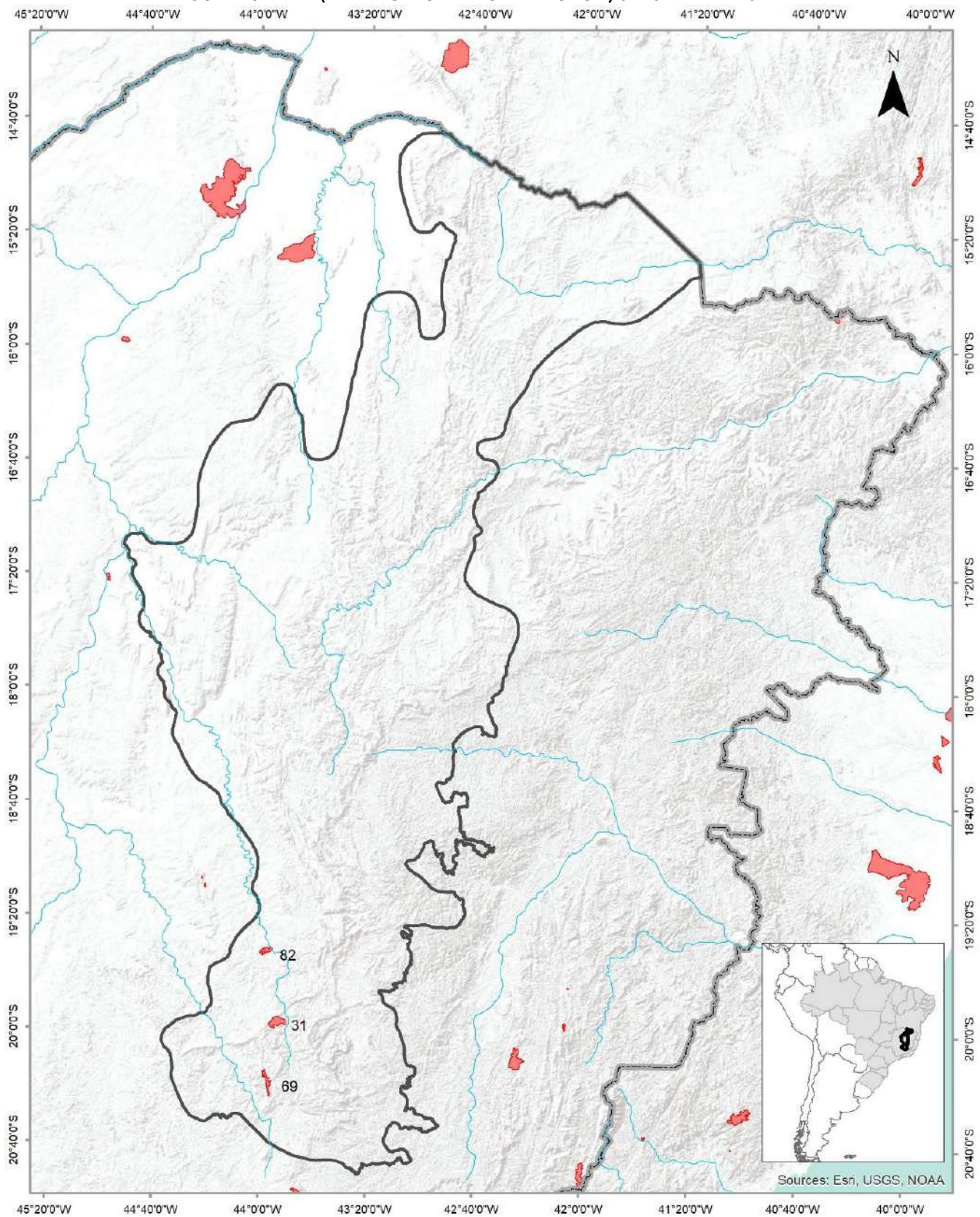
Responsible for coordinating the effort to elaborate the new document, Fundação Biodiversitas counts on the partnership of the Department of Conservation and Management of Species of the Ministry of the Environment, the Chico Mendes Institute for Biodiversity Conservation and Associated Research Centers, as well as the essential collaboration of researchers and organizations involved in research and conservation of endangered species in Brazil. This project represents, therefore, the identification of conservation gaps that endanger endangered species, at the same time as it guides public managers on where and how to act as a priority, with the advantage of having the commitment of organized civil society, through BAZE.

In RBSE Phase 2, three sites were identified:

TABLE 21: BAZE SITES IN THE RBSE PHASE 2.

ID	SITE	SPECIES	DESCRIPTION
31	Córrego do Mutuca	<i>Trichomycterus novalimensis</i>	Endemic species of creeks of altitudes in the watershed of Mutuca creek, municipality of Nova Lima, Minas Gerais.
69	Natural Monument: Moeda mountain	<i>Troglobius ferroicus</i>	Recently described (2014), known only for the typical locality, the Cave VL29 / 30, in the Iron Quadrangle region, in Itabirito, Minas Gerais.
82	State Park: Sumidouro	<i>Thaumastus lundi</i>	Endemic species of the limestone outcroppings of the Gruta da Lapinha, in the Sumidouro State Park, in Lagoa Santa, in Minas Gerais.

FIGURE 13: BAZE (ALLIANCE FOR ZERO EXTINCTION) SITES IN THE RBSE.



- Legend**
- BAZE Site
 - Rivers
 - RBSE Limit
 - State Limit



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals

0 30 60 120 Km

Source: IUCN, 2018

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018



RUPESTRAN FIELDS



THE RUSSIAN FIELDS AS BIOGEOGRAPHIC IDENTITY OF RBSE AND THE VALLEY OF PEIXE BRAVO

The Biosphere Reserve of Espinhaço Mountain is located between two biomes of great importance in the world: the Atlantic Forest and the savanna. In these biomes are a great amount of endemic species of plants and animals. However, they are regions that suffer great threat of destruction by economic interests, (bad) man's actions and urban expansions. For all these characteristics, the biomes were included in the so-called Hotspots worldwide.

The biological and geomorphological characteristics of the Espinhaço massif offer exceptional conditions for the gene flow of the species, establishing themselves as an immense Natural Ecological Corridor in the north-south direction. The ecosystem that distinguishes the Espinhaço Mountain from other regions of the world is the rupestrian field, an extremely fragile and low resilient environment, with a megadiversity formed by a complex mosaic of communities and a high degree of endemism, thus becoming a Center for Global Endemism.

For RBSE, the Rupestrian Fields translate this importance for its conservation and management, for the high levels of endemism, threats and beauty, which was decisive for the international recognition of this region.

Generally, at altitudes above 900 m, it is estimated that more than 3,000 plant species occur in the rupestrian fields, although only a small number of areas have been inventoried. Among these 3,000 species, about 2,000 occur only in these locations (not including birds, mammals, amphibians, invertebrates, reptiles and fish). Another very interesting aspect is the adaptation and tuning between species and the environment, which resulted in the evolution of behaviors, morphology and physiologies highly developed to survive in this environment, formed on rocky outcrops, with sandy, fine or chalky soil, shallow, acid and poor soil in nutrients and organic matter.

The distribution of the Rupestrian Fields reaches, in great totality, the northern region of Minas Gerais, intended area for Phase II of the RBSE. Thus, it is necessary, coherent and strategic to review the boundaries of the RBSE for this region, for the necessary construction in the conservation processes of the Brazilian Rupestrian Fields. Adding to this, the future RBSE Phase III proposal for the state of Bahia, in the region of Diamantina Plateau, corroborate this justification.

THE FERRUGINOUS GEOSYSTEMS AND THE PEIXE BRAVO VALLEY -STRATEGIC BIOGEOGRAPHIC AND GEOMORPHOLOGICAL IDENTITY FOR PHASE II

In the northern part of Espinhaço mountain, in areas not included in the RBSE, there are also biomes of Caatinga, where dry forest ecosystems and xerophytic vegetation (cacti) are interspersed with savanna vegetation. It is worth mentioning that these areas have a relatively low human occupation index when compared to the southern portion.

The southern portion of Espinhaço Mountain is characterized by a mosaic between the Atlantic Forest, in lowland areas or where the soils are deeper, and rock vegetation, which may be associated with quartzitic soil (region of Cipó mountain) or soil metalliferous (Iron Quadrangle region, where the highest population density and, consequently, the main anthropic impacts are observed).

Two of the most important ferruginous geosystems of Minas Gerais are in the Biosphere Reserve of Espinhaço mountain: the Iron Quadrangle and Serra da Serpentina, integrating the geosystems of the Santo Antônio river basin in the Southern Espinhaço region (Jacobi; Carmo, 2009), Carmo and others, 2012, Carmo and Kamino, 2015).

The ferruginous outcrops, known as cangas, constitute, along with the ferruginous formations, ferruginous geosystems, which in turn represent one of the most important ecological systems in Brazil and in the world. In these environments occur communities of plants known as ferruginous rupestrian fields, characterized by the great diversity of species, by the presence of rare species - at least 116 species have already been identified in the cangas of the Quadrilátero Ferrífero - for example, the legume *Mimosa calodendron* Mart. ex. Benth. and the *Gomesagracilis* (Lindl.) orchid M.W. Chase & N.H. And the presence of species that only occur in this region and several others that are threatened with extinction, being regions of extreme importance for conservation.

These areas have unique characteristics that make this region unique and very special. Temperatures can reach 70 ° C in ferruginous harnesses and relative humidity of less than 10%. These microclimatic conditions provoke an extreme ecophysiological situation, which is reflected in plant adaptations such as succulence, xeromorphism and desiccation tolerance, that is, a physiological ability capable of performing dehydration and rehydration cycles. In addition, ferruginous harnesses can be composed of up to 90% iron oxides and hydroxides, and soils, when present, are very acidic, shallow, and with a low organic matter content (Carmo, 2010; Jacobi and others., 2015; Schaefer and others, 2015).

In addition to all these particularities, these geosystems have great environmental heterogeneity, such as caves, lagoons, swamps, slabs, crevices, pools and cliffs, which favor ecological conditions that generally differ from the rest of the landscape. In only 14 ferruginous outcrops located in the Iron Quadrangle region, whose total area is less than 550 hectares, approximately 1,100 species of vascular plants have already been identified (Carmo and Jacobi, 2012).

Parallel to all this wealth and environmental singularity, ferruginous geosystems are associated with the main iron ore deposits, being among the most threatened regions of the Country. Currently, 100% of ferruginous geosystems are superimposed on the distribution of mining titles. The potential environmental impacts resulting from the extraction of iron ore are high, and deposits and major extraction trenches are often located on the tops or slopes of the mountain ranges that form a dense hydrographic network. The ferruginous geosystem itself is an aquifer with high recharge capacity and water storage. Thus, the pollution potential throughout the system is quite high when large-scale changes occur in the higher parts of the relief (Carmo et al., 2012; Jacobi and others., 2015). In addition to mining, another major impact of the rocky fields is the trampling of livestock and the frequent use of fires by farmers to "renew" (in fact, destroy) pasture, as well as predatory tourism and road paving.

- With studies of FERRUGINOUS GEOSYSTEM FISH, developed by the Prístino Institute, a direct partner of RBSE, which bases the expansion of the RBSE territory to the northern region of the State of Minas Gerais. These studies have been published by Instituto Prístino, a partner and with the cooperation of the State Committee of RBSE since 2015, which has highlighted the northern region of Espinhaço mountain, as an environment of rare beauty, still conserved, with geological, biogeographic, speleological, paleontological and archaeological, as a great differential of identity for the Phase II of the RBSE. The details of this region can be found throughout this document. It is important to note the following recently published scientific documents on this region:

- The book: *Geossistemas Ferruginosos do Brasil: priority areas for conservation of geological and biological diversity, cultural patrimony and environmental services*. Organized by Flávio Fonseca do Carmo and Luciana Hiromi Yoshino Kamino. Belo Horizonte: Book publisher: 3i 2015, page: 552, ISBN (International Standard Book Number) 978-85-66115-48-2

- The book: Canga Plateau: natural and cultural patrimony of relevant interest for conservation. Organized by Flávio Fonseca do Carmo and Luciana Hiromi Yoshino Kamino. - Belo Horizonte: Book publisher: 3i, 2017, page: 360 - ISBN (International Standard Book Number) 978-85-9548-017-9 (<https://www.institutopristino.org.br/wp-content/uploads/2018/01/Chapada-de-Canga-VF.pdf>)
- The book: Ilhas de ferro: discovering the environmental importance of ecosystems in ferruginous cangas. Flávio Fonseca do Carmo [and others]. - Belo Horizonte: Book publisher: 3i 2017. 64 p. yl. ISBN 978-85-9548-004-9. (<https://www.institutopristino.org.br/wp-content/uploads/2017/04/Carlilha-Irhas-de-Ferro-Descobrimdo-a-importancia-environment-of-systems-in-cangas-ferruginosas.pdf>).

And, with emphasis,

- The book: O Vale do Rio Peixe Bravo: islands of iron in the hinterland of Minas Gerais. Organized by Flávio Fonseca do Carmo and Luciana Hiromi Yoshino Kamino. - city: Belo Horizonte: Book publisher: 3i Editora, year: 2017, page: 208, ISBN 978-85-9548-026-1. Link: https://www.institutopristino.org.br/wp-content/uploads/2018/03/Vale-do-Rio-Peixe-Bravo_WEB-VF.pdf.

The RBSE's Phase II strategic region, Vale do Peixe Bravo is located in the northern sector of Minas Gerais, and covers the municipalities of Grão Mogol, Fruta de Leite, Rio Pardo de Minas, Riacho dos Machados and Serranópolis de Minas. Without adequate protection by any category of Conservation Unit or other type of protected area, areas of cangas with environmental and cultural attributes are also unique and of extreme importance for conservation (Carmo and others, 2015). Among these attributes is the ferruginous karstic system, containing dozens of natural subterranean cavities; the paleotoxes, representing the first record in Brazil in ferruginous rocks; and the diversity of a very rare flora, with some species not described (Carmo et al., 2011a; 2011b; Jacobi, and others 2015).

So far, 18 paleotoxes excavated by extinct megafauna have been cataloged (Buchmannet, 2015), representing a paleontological group of world importance. There are also other relevant conservation articles made up of troglomorphic invertebrates and an archaeological and historical potential linked to the speleological site, all with a scientific knowledge gap for the region, as well as environmental services such as recharging and water storage (Carmo and others, 2015).

These attributes and peculiarities make this region a cradle of plant and animal species that occur only in Espinhaço mountain. Other regions of Espinhaço mountain Chain, deserve to be covered in the conservation process, in an attempt to preserve what still exists and is under heavy threat. We are talking about one of the most important ecological systems in the world that once lost we will no longer have the beauty of their specificities, the recharges of numerous aquifers and the importance of their ecological services already known, and many still to discover and understand. Therefore, this region is an important mosaic of special attributes for the expansion of the Biosphere Reserve of Espinhaço mountain.

Among the plant species, in the canyons of the Peixe Bravo, four species were identified in the catalog of rare plants in Brazil (Giulietti and others, 2009): *Encholirium re flexum* Forzza & Wand. (Bromeliaceae); *Arrojaerio caulis* Buining & Brederoo, *Micranthocereus violaciflorus* Buining and *Pilosocereus fulvilanatus* (Buining & Brederoo) Ritter (Cactaceae).

NATURAL RESOURCES, ENVIRONMENTAL HERITAGE AND MAIN THREATS OF THE PEIXE BRAVO VALLEY

One of the most relevant characteristics of ferruginous geosystems is the association with local or regional expression aquifers. In this way, the conservation of the iron formations will maintain the capacity of recharge and water storage, favoring countless sources, such as the Iron Quadrangle region, central region of Minas Gerais (Mourão, 2007; Gama & Matias, 2015). In the Rio Peixe Bravo valley (Figure 5), the relationship between ferruginous rocks and water resources is evidenced by the occurrence of springs that supply streams and by the exposure of the aquifer within some natural cavities, as already reported by Carmo and others (2011, 2015). This water production is a fundamental environmental condition, considering that the region is located in the Brazilian semi-arid region, which is characterized by annual rainfall of less than 800 millimeters, because it presents a risk of drought greater than 60% and because it has a index of aridity of up to 0.5 calculated by the water balance that relates the precipitations and potential evapotranspiration (Ministry of National Integration, 2005).

In spite of the fact that the speleological potential of ferruginous rocks is still not very well known to society, unlike the situation of caves in carbonate rocks, there is a very high potential of caves in places where there are iron formations (CECAV, 2017). Thus, in the ferruginous geosystem of Peixe Bravo an important caving site occurs (Figure 6), with tens - or perhaps hundreds - of natural cavities that are in good condition (Carmo and others, 2011).

Ferruginous geosystems in Minas Gerais also contain colossal mineral reserves, and the State is currently the largest Brazilian producer of iron ore, extracting more than 180 million tons per year (IBRAM - Brazilian Institute of Museums, 2015). This mineral production is the result of dozens of open-pit winches, where millions of tons of iron formations are processed annually, generating at the same time millions of tons of sterile material and millions of cubic meters of tailings deposited in dams that can reach more of 100 meters of height. In addition, when opening the mining fronts, cangas are generally discarded, resulting in irreversible loss of natural areas (Carmo and others, 2012). Therefore, the mineral exploitation of ferruginous geosystems generates revenues, but also generates a substantial environmental liability, whose socio-environmental losses have not yet been economically evaluated.

In the Peixe Bravo River Valley, some studies have been carried out estimating the iron ore reserve, with one of the oldest estimating the reserve preliminary at 2.7 million tons per meter of depth and inferring a total reserve of 540 million tons of iron ore (Schobbenhaus, 1972). Currently, about 80% of the surface area of the ferruginous geosystems are superimposed on mining rights titles granted by the National Department of Mineral Production (DNPM). Locally, these mining titles are predominantly Mining Requirements, followed by Availability and Mineral Research Authorization. Despite the fact that there is no industrial scale mining activity, the Rio Peixe Bravo valley has already suffered negative environmental impacts related to the opening of hundreds of poles of geological survey.

Another agent of environmental degradation in the region is the eucalyptus monoculture activity, covering thousands of hectares of the plains tops along the Peixe Bravo River (Figure 7).

The Peixe Bravo River valley is inserted between the hydrographic basins of the Jequitinhonha and Pardo rivers. It is also inserted among the Phytogeographical Domains of the Atlantic Forest and the Savanna. The region is superimposed on several Priority Areas for Conservation (Table 2). According to the Ministry of Environment (2008), the Priority Areas for Conservation, Sustainable Use and Biodiversity Benefit Sharing represent: ... "an instrument of public policy to support decision-making in an objective and participatory manner, in the planning and implementation of actions such as creation of conservation units, licensing, inspection and promotion of sustainable use. "

It is noticed that the Peixe Bravo River Valley concentrates several areas of relevant interest for Conservation. However, no protected area / conservation unit has yet been created, which represent the main policy for the preservation, maintenance and sustainable use of Brazilian environmental heritage.

When analyzing the main actions and recommendations regarding the priority areas that occur in Peixe Bravo, two important points can be highlighted: 1) the indication of "Involvement of the local community in environmental issues and in the management and preservation of the local biota", which we consider fundamental; and 2) the absence of environmental education actions. Filling this gap is the big challenge.

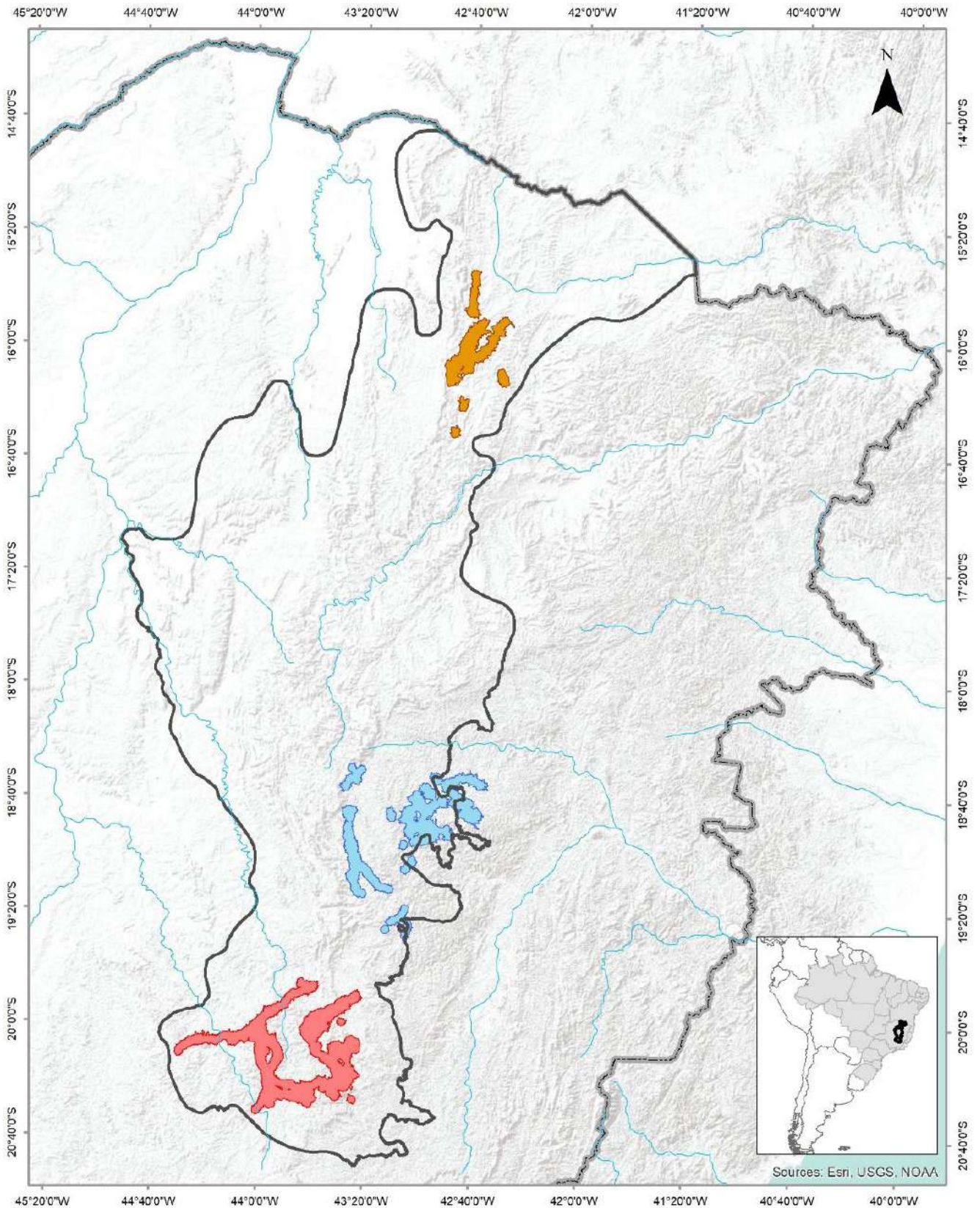
Certainly, the expansion of the RBSE in its Phase II, for this important region, has enormous potential for the application of the functions of the Biosphere Reserves of the MaB (Man and the Biosphere) program, strengthening the recognition of one of the richest regions of Minas Gerais.

In the valley: Vale do Peixe Bravo there are areas of cangas with unique environmental attributes, without any protection in Conservation Units. According to Carmo and others (2015), "the Vale do Rio Peixe Bravo brings a diversity of environmental and cultural attributes, conservation objects and ecosystem services that elevate the importance of the region for the preservation of these geosystems" (Carmo and others, 2012). Among the attributes already documented are the ferruginous karstic system, containing dozens of natural subterranean cavities; the paleotocks, representing the first record in Brazil in ferruginous rocks; and Florea (Carmo et al., 2011a; 2011b; Jacobi and others, 2015). There are also other relevant conservation articles made up of troglomorphic invertebrates and an archaeological and historical potential linked to the speleological site, all with a scientific knowledge gap for the region, as well as environmental services such as recharging and water storage. "

Considering the restricted geographical limits of occurrence, at least 116 species inventoried in the canals of the Quadrilátero Ferrífero can be characterized as rare plants (*sensu* Giulietti and others, 2009), that is, they have a restricted distribution at 1st latitude and 1° longitude, corresponding to an area of 10,000 km². Among these rare plants are the leguminous *Mimosa calodendron* Mart. ex. Benth. and the orchid *Gomesa gracilis* (Lindl.) M.W. Chase & N.H. Willians.

Because they are associated with the main iron ore deposits, ferruginous geosystems are among the most threatened regions of the country. The environmental impacts resulting from the extraction of iron ore have a high potential for pollution. The deposits and, therefore, the main excavation caves are often located in the tops or slopes of the mountains that form a dense hydrographic network. The ferruginous geosystem itself is an aquifer with high recharge capacity and water storage. Thus, the potential of pollution throughout the system is quite high when large-scale changes occur in the higher parts of the relief (Carmo and others, 2012; Jacobi and others, 2015). Currently, 100% of ferruginous geosystems are overlapping the distribution of mining titles.

FIGURE 14: FERRUGINOUS GEOSYSTEMS AT RBSE.



Legend

- Rivers
- RBSE Limit
- State Limit

Ferruginous Geosystems

- Valley: Vale do Peixe Bravo
- Iron Quadrangle region
- Basin: Santo Antônio



0 30 60 120 Km

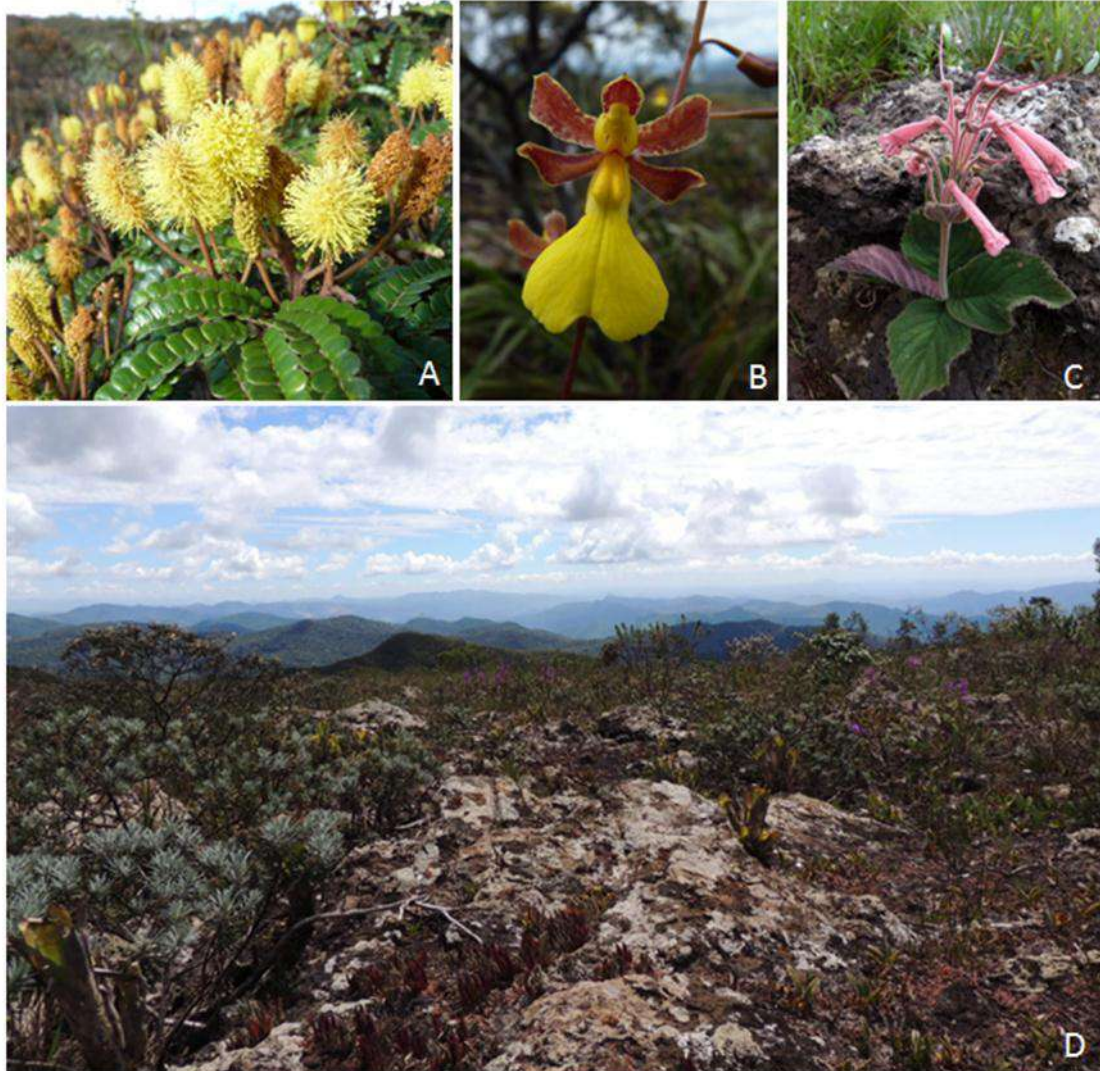
Source: Biodiversitas, 2005

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

FIGURE 15: VEGETATION TYPES THAT OCCURRED ASSOCIATED WITH ENVIRONMENTAL HETEROGENEITY IN CANGAS IN IRON QUADRANGLE REGION SOUTHERN PORTION OF RESERVE OF SERRA DO ESPINHAÇO BIOSPHERE. A) VEGETATION ISLANDS FORMED BY VELLOZIA SP, ON EXTENDED EXTENSIONS LOCATED IN CANGA PLATEAU, MUNICIPAL OF CATAS ALTAS. B) RUPEST VEGETATION IN CANGAS LOCALIZED IN CAPANEMA MOUNTAIN, OURO PRETO; C) ROUGH VEGETATION LOCATED IN THE BRIGIDA MOUNTAIN, OURO PRETO; D) ASSOCIATED VEGETATION TO LAGOAS DEVELOPED IN CANGAS, CATAS ALTAS; E) TREE VEGETATION ALONG SCARPA, STATE PARK OF THE MOUNTAINS: ROLA MOÇA, NOVA LIMA; F) CAPACITY OF ALTITUDE LOCATED IN MONEDA MOUNTAIN, CURRENCY. ADAPTED FROM CARMO (2010).



FIGURE 16: RARE AND ENDEMIC PLANTS OF THE CANGAS OF THE IRON QUADRANGLE REGION, SOUTHERN PORTION OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN. A) MIMOSA CALODENDRON MART. EX BENTH. (FABACEAE); B) GOMESA GRACILIS (LINDL.) M.W.CHASE & N.H. WILLIAMS (ORCHIDACEAE); C) SINNINGI.



The valley of Peixe Bravo covers the municipalities of Grão Mogol, Fruta de Leite, Rio Pardo de Minas, Riacho dos Machados and Serranópolis de Minas. The ferruginous geosystems of the Peixe Bravo Valley are mainly distributed along 60 km, in a su-southwest / north-northeast direction, on the eastern side of the Espinhaço mountain Chain. In this locality, 18 paleotoxes excavated by the extinct megafauna (Buchmann and others, 2015) have already been cataloged, representing a palaeontological group of world importance. The vegetation is still little studied, however rare species have been found, threatened and some not yet described by science.

According to Carmo and others (2015), the region presents a heterogeneity of phytophonomies and high species richness, with rare and threatened elements. These characteristics, to a great extent, are related to the proximity to the Savanna, the Caatinga and the Atlantic Forest. Savanna phytomedicine predominates, including important big savanna patches, these associated to the latosols. In the drainage, riparian forests occur along the slopes and are replaced by seasonal semideciduous forests (notably the presence of Brauna (*Melanoxylon brauna* Schott), a species threatened with extinction in the vulnerable category (MMA - Ministry of the Environment, 2014) - and by seasonal deciduals. In the plateaus, there is an arboreal-shrub vegetation known as "carrasco" and characterized by intensely ramified species, interspersed by cacti (Pirani and others, 2003). Some authors have characterized this vegetation as savanna-caatinga transition formations (Meguro and others, 1994; Harley, 1995).

FIGURE 17: ENVIRONMENTAL IMPACTS IN THE FERRUGINOUS GEOSYSTEMS RESULTING FROM THE EXTRACTION OF IRON ORE. ABOVE: COMPLEX OF CAVES TO OPEN SKY IN ITATIAIUÇU MOUNTAIN, IRON QUADRANGLE REGION. BELOW: PILE OF DEPOSITION OF STERILE MATERIAL, NEW LIMA. PHOTOS: FLÁVIO DO CARMO.



The booms of cangas make strong environmental filters for species that occur in the vegetative matrix, represented by the stressful conditions of ferruginous a flowers such as very shallow soils, acidic and poor in nutrients, high temperatures and low humidity (Jacobi and others, 2015).

In the cangas of Peixe Bravo, four species were identified in the catalog of rare plants in Brazil (Giulietti and others, 2009): *Encholirium reflexum* Forzza & Wand. (Bromeliaceae); *Arrojadoa eriocalis* Buining & Brederoo, *Micranthocereus violacifolus* Buining and *Pilosocereus fulvilanatus* (Buining & Brederoo) Ritter (Cactaceae).

In the ferruginous blooms two physiognomies predominate: sub-shrub herbaceous vegetation, occurring in the open areas, and shrub-tree species.

In open areas there are three main types of communities: epileptic vegetation; islands formed by clonal species (vegetative reproduction); and species associated with soil patches accumulated in cracks or slumps of the substrate. Among the most frequent epilítico species is the endemic cactus of Minas Gerais *Discocactus placentiformis* (Lehm.) K.Schum. Several species of *Vellozia* and the rare bromeliad *Encholirium reflexum* represent some clonal species. Always associated with soil patches, there are sub-bushes of *Puffia siqueiriana* (Marchioretto & Miotto) and *Tibouchina heteromalla* (surname: Don Don) and the bromeliad of the genus *Orthophytum*, not yet described by science.

FIGURE 18: PALEOTOCA LOCATED IN THE VALLEY OF PEIXE BRAVO, NORTH OF MINAS GERAIS AND THE POSSIBLE EXCAVATOR ANIMALS. ADAPTED OF CARMO AND OTHERS., 2011; BUCHMANN AND OTHERS (2015).

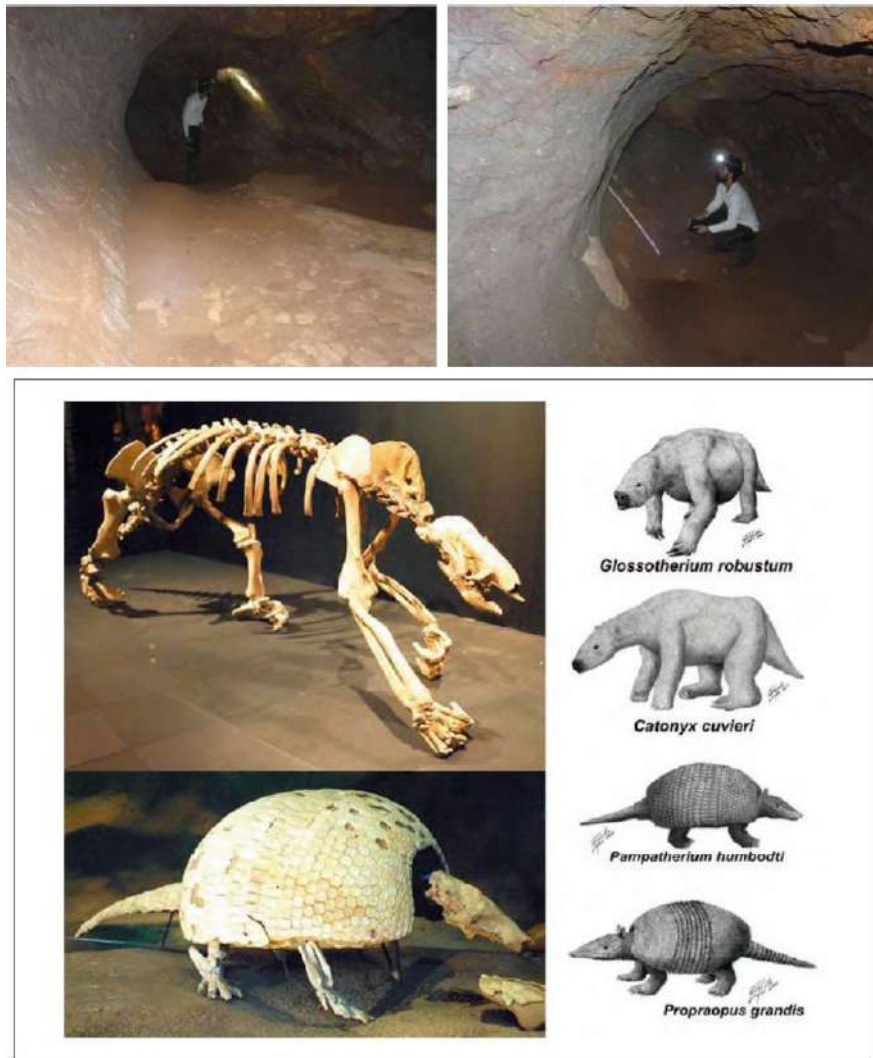


FIGURE 19: AREAS OF CANGA, LOCATED IN RIO PARDO DE MINAS (ON THE LEFT) AND CAPIM MOUNTAIN, IN THE FOREGROUND, AN AFLORATION OF ITABIRITO, MUNICIPALITY OF RIACHO DOS MACHADOS (ON THE RIGHT). ADAPTED FROM CARMO AND OTHERS. (2015).



Phase 3 of RBSE: Proposal for Biosphere Reserve Expansion of Espinhaço Mountain, to the State of Bahia

According to the Espinhaço Project (COMIG, 1997), the Espinhaço Chain "represents an important geographical accident that extends from the vicinity of Belo Horizonte to the northern limit of the State of Bahia with the State of Piauí. The relief of the mountain range is markedly uneven with altitude generally exceeding 1,000m, reaching a maximum of 2,002m altitude in the Itambé Peak, located about 30km southeast of Diamantina Plateau.

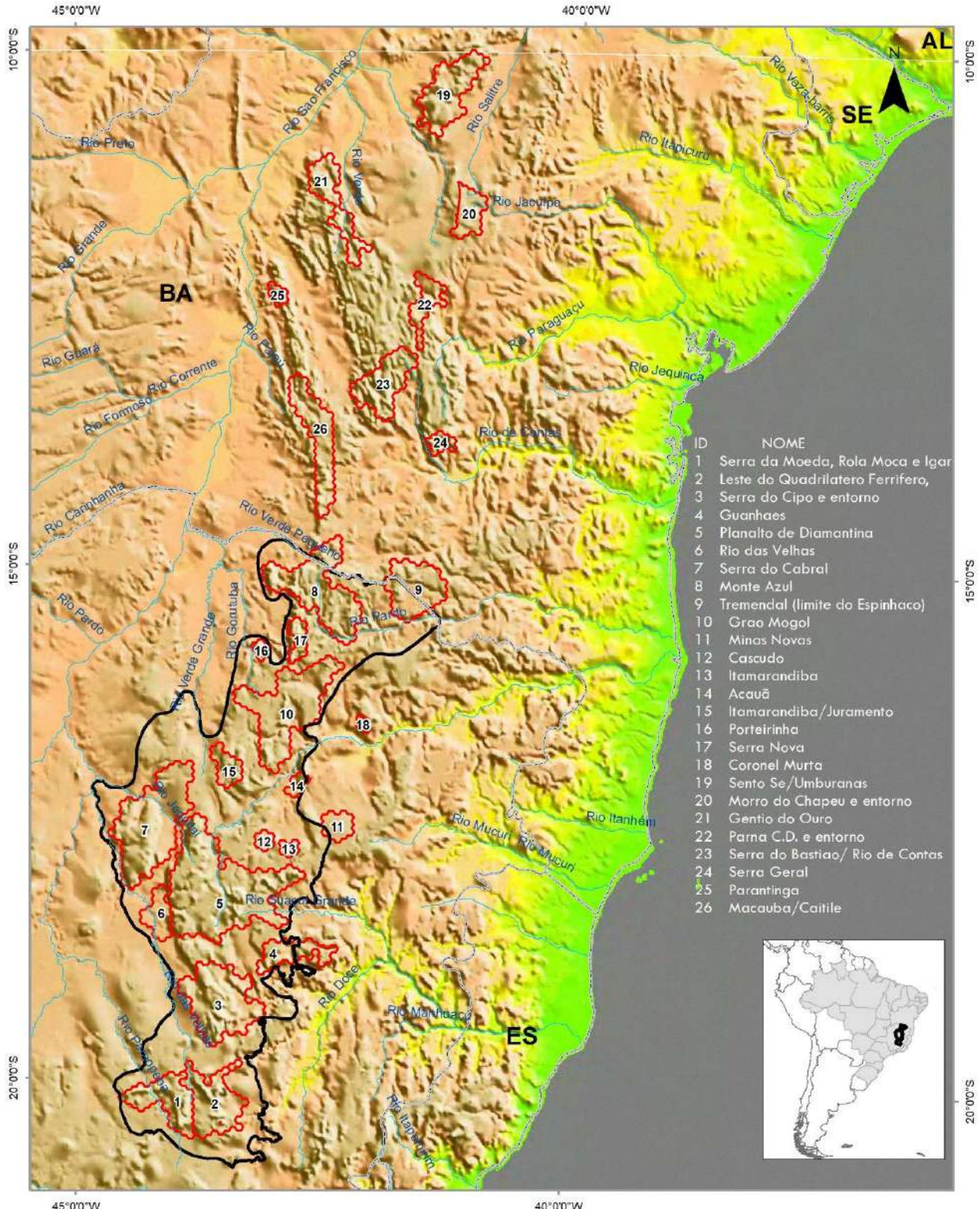
In Phase 1, the RBSE boundary extended from the Iron Quadrangle region, in Minas Gerais until the PARNA of Semper-Vivas, covering the southern portion of the Espinhaço mountain.

Phase 2, proposed in this document, extends the limit of the RBSE to the currency with the state of Bahia. This extension of the boundary to the northern part of the Espinhaço Chain in the State of Minas Gerais is important to protect important preserved areas of rupestrian fields. In addition, this expansion encompasses important protected areas such as Botumirim State Park, of great scenic beauty and place of occurrence of the dove of the plateau, given as extinct by science, Grão Mogol State Park, Montezuma State Park, Caminho das Gerais State Park, Serra Nova and Telhado State Park, Federal Sustainable Development Reserve: Nascente Geraizeiras, among other conservation units.

However, according to the assessment of the performance of a set of protected areas in the region of Espinhaço mountain chain in relation to the conservation of 648 targets, 607 species of fauna and flora, 41 different types of ecosystems, and the protection of springs, as essential environmental services for the population, resulted in the indication of a set of areas considered irreplaceable for conservation throughout the Espinhaço mountain chain.

Therefore, it is expected that Phase 3 of extending the RBSE limits may cover these areas in the state of Bahia, according to the recommendations of the studies conducted throughout the Espinhaço Mountain Chain, demonstrating the need to extend the RBSE boundaries, as recommended by the MaB (Man and the Biosphere) / UNESCO (United Nation Educational, Scientific and Cultural Organization) program.

FIGURE 20: INSUBSTITUABLE AREAS IN ESPINHAÇO MOUNTAIN CHAIN. NOTE THAT IN THE STATE OF BAHIA INSUBSTITUABLE AREAS ARE NOT STILL COVERED BY THE RBSE, PROPOSED FOR ENLARGEMENT IN PHASE 3



ID	NOME
1	Serra da Moeda, Rola Moca e Igar
2	Leste do Quadrilátero Ferrífero,
3	Serra do Cipó e entorno
4	Guanhaes
5	Planalto de Diamantina
6	Rio das Velhas
7	Serra do Cabral
8	Monte Azul
9	Tremendal (limite do Espinhaço)
10	Grão Mogol
11	Minas Novas
12	Cascudo
13	Itamarandiba
14	Acauã
15	Itamarandiba/Juramento
16	Porteirinha
17	Serra Nova
18	Coronel Murta
19	Sento Se/Umburanas
20	Morro do Chapéu e entorno
21	Gentio do Ouro
22	Parna C.D. e entorno
23	Serra do Bastião/ Rio de Contas
24	Serra Geral
25	Paratinga
26	Macauba/Caitile

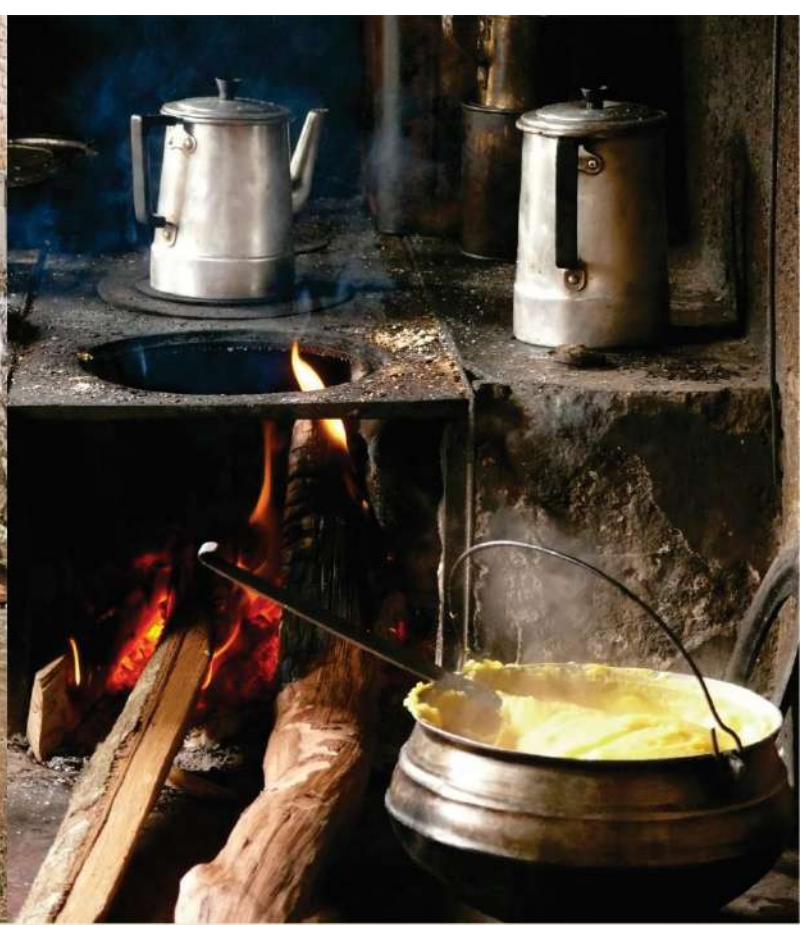
- Legend**
- Irreplaceable Areas of Espinhaço
 - State Limit
 - Rivers
 - RBSE Limit



0 55 110 220 Km

Source: Geotopo30, 2018

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018



ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

SUSTAINABLE DEVELOPMENT



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



3.2 SUSTAINABLE DEVELOPMENT

Objective: to promote economic and human development in a social, cultural and ecologically sustainable way.

The Biosphere Reserve of Espinhaço Mountain is located in a region marked from the colonial period by the extraction of natural resources, with an emphasis on mineral resources, beginning in the 18th century, with the period of discovery of gold and diamonds in the region. Later, at the end of the 18th century and beginning of the 19th century, iron ore deposits were discovered, mainly in the mountains: Iron quadrangle region (southern portion of RBSE), which became the main iron ore producing area of Brazil and one of the largest mining provinces in the world.

With an impressive geo and biodiversity in RBSE, it is important to emphasize that mining needs to coexist with areas with such characteristics. Although environmental impact assessments, which permit a license for economic enterprises to follow a very strict set of rules under Brazilian law, other factors must be considered, especially those related to the human dimension and the biotic peculiarities of the areas affected by the projects. The locational criteria between non-renewable natural resources, in this case for iron ore, as well as unique landscapes and endemic biodiversity and local cultures, create a dilemma and generate commitments that must guide the present and future of the RBSE. In this context, the presence of Ferruginous Rupestrian Fields in the RBSE, a phyto-physiognomy with great ecological, archaeological and geoenvironmental value, and at the same time very threatened due to its restricted distribution and association with the main ore deposits of iron of Brazil (CARMO, 2010). In this sense, collaborative actions that guarantee interlocution with the mining sector are pressing. To this end, the creation of a Working Group on Mining in the RBSE and the participation of FIEMG (Federation of Industries of the State of Minas Gerais) and Sindiextra in its State Committee provide effective dialogue and continuous improvement in the management of the territory and natural resources of Espinhaço mountain and that must be continually improved.

In order to promote economic and human development in a socially, culturally and ecologically sustainable way in the territory proposed for Phase 2, it is fundamental to consider the greatest distancing of these municipalities from the state capital of Minas Gerais - Belo Horizonte. The territory of Phase 2 has a lower IDH (Human development Index) when compared to the municipalities contemplated in Phase 1. This fact imposes a strategic configuration more adjusted to these realities. In this new scenario, the option will be a more in-depth approach to the Agenda 2030 for Sustainable Development, aligned with the strategies advocated by the Lima Plan. It is important to say that the RBSE territory comprises the largest Gross Domestic Product of the state of Minas Gerais and, on the other hand, we have in the northern region of this territory, where it intends to expand the RBSE in its Phase 2, the lowest IDH (Human development Index) in the state of Minas Gerais.

Considering that the 17 Objectives for Sustainable Development are integrated and indivisible and blend, in a balanced way, the three dimensions of sustainable development: economic, social and environmental, the components that drive sustainable development in Espinhaço mountain, seek to engage the various sectors in this construction.

It is a fact that the economy of this territory (RBSE Phase 1 and RBSE Phase 2) is strongly based on three main axes: mineral extractivism, agriculture and tourism. As a means of implementing Agenda 2030, it has been essential to create networks for dialogue and the organization of partnerships. In this sense, RBSE permanently seeks to approach local governments, traditional communities, private companies, third sector organizations and universities.

It is also important to highlight that the managers of the core zones of the RBSE have played a very important role as articulators of this process. In this sense, conservation units also function as indicators of public policies for sustainable development, from environmental licensing procedures, through integration with the buffer zone, promoting shared management among them, through Mosaics of Protected Areas.

An evolution of society's understanding of the need for greater protection of ecosystems, either by an urgent need such as ensuring water security (city supplies or economic enterprises), or by more conscious activism, as a result of consistent educational programs or a culture adjusted to the new times. On the other hand, it is worth mentioning the incorporation of sustainability in projects of intelligent cities, organic agriculture, agroforestry, clean energies, reverse logistics, ecological tourism among others.

Considering these premises, the RBSE has carried out a deeper evaluation, always integrating the different sectors, on environmental assets and ecosystem services. From there we have found opportunities for bilateral and multilateral partnerships. Autonomous initiatives are also observed in the tourism, agriculture and mining sectors. Whenever possible, the RBSE Steering Committee seeks integration and follow-up.

One aspect that deserves to be highlighted as a development and planning challenge in the RBSE is its privileged location in relation to the main tourist emitting poles with reasonable distances to the main urban centers and the presence of Tancredo Neves International Airport, located in the northern capital Belo Horizonte, in the municipality of Confins (incorporated in Phase 2 of RBSE). In addition, it is pertinent to point out the tourist circuits present in the RBSE region, such as Ecological Tourism in protected areas; Cultural Tourism in the historic centers of Minas Gerais, considered as World Cultural Heritage Sites - Congonhas, Diamantina, Ouro Preto; the Rural Tourism, emerging with prominence in the municipalities of the north of Minas Gerais, that are incorporated to Phase 2; Gastronomic Tourism; the Religious Tourism, represented, with emphasis, by the Caminho Religioso da Estrada Real - Religious Path of the Royal Road (CRER).

The tourism activity represents a relevant promoter of development in the municipalities of the Reserve, but it is necessary to adopt solutions aimed at reducing negative impacts of disordered tourism, especially those related to the environmental degradation of tourism equipment, such as in protected areas.

A strategic path that is incorporated in the planning and management processes of the RBSE involves the creation of environmental awareness and interpretation initiatives, with emphasis on the Road Signing Program and the municipalities of the Reserve, to support the management of protected areas through studies on the municipal conservation units present in the territory and the strengthening of regional identities, dialogue and participative management through the proposal of mosaics of protected areas, such as Mosaics: Alto Jequitinhonha - Cabral and Cipó mountains, which already represent a great effort of conservation, participatory management and sustainable development in the RBSE territory since its recognition.

Another space that promotes tourism and conservation that needs to be evidenced is Espinhaço Station. It is an interactive space created in 2018 through a partnership between the Biotrópicos Institute (member of the RBSE State Committee) and the IPHAN (Institute of National Historical and Artistic Heritage) for the revitalization of a building in the historic center of Diamantina (a city recognized as a World Heritage

Site), which houses information and exhibitions regarding the Biosphere Reserve of Espinhaço mountain and which promotes events, educational activities, among other initiatives to the geoenvironmental and cultural context of Espinhaço. The environment also includes the coordination of the Conserva Mundi (Green Rooms Project of MMA - Ministry of the Environment), the management of the Natural Attraction of the Salitre Cave and the Executive Secretariat of the Mosaic of Protected Areas of Espinhaço Mountain.

FIGURE 21: ESPINHAÇO STATION, STRATEGIC PLACE FOR THE PROMOTION, DIFFUSION AND ARTICULATION OF BIOSPHERE RESERVE ACTIONS OF ESPINHAÇO MOUNTAIN.



SOURCE: INSTITUTE: BIOTROPICS, DIAMANTINA CITY, MINAS GERAIS (2018).

In addition to the natural, historical and cultural attractions of RBSE, which favor tourism mainly in the context of the "Royal Road", the expressive manifestation of culture, through crafts that use natural raw materials such as flowers, wood, rocks and minerals, leather, straw - and the folk art of cooking, literature, music, dances and parties, makes the "Terroir - place" of the Espinhaço an area full of meanings and values with an extraordinary potential for the development of sustainable tourism. On the other hand, most of the municipalities of RBSE develop mining activity, which, in many cases, is contradictory when associated with tourism.

In this context, boosting economic and human development in a socially, culturally and ecologically sustainable way has undoubtedly been the greatest challenge, requiring a lot of effort and commitment on the part of its Steering Committee.

The first factor refers to the history and profile of the region marked by a process with colonialist roots to obtain these riches. It is a fact that a large part of the mining sector has already evolved and modernized, however, all attention must still be given to ensuring the conservation of water sources, biodiversity, traditional culture and human rights, considering as a transversal axis of the management of the RBSE the Global Objectives for Sustainable Development.

Another factor is the demand imposed by the international market for the metallic minerals, with great emphasis on iron ore. The strong valorization of this commodity in the first 7 years after the creation of the

RBSE triggered an overexploitation in the territory. Even the deposits with low iron content became viable. The consequences have been observed since the acceleration of the licenses with fragile conditions and environmental compensations, until the demographic explosion and the social problems. The processes of mineral extraction have been the object of strong charges in relation to the environmental degradation. In addition, the question of community movements about the real social benefits generated by the mining activity has been increasingly frequent, especially for the local populations where the mines are operated. In this scenario, the Steering Committee has been building paths that focus on the possibility of solutions and agreements, guided by social dialogue, involving the premises of groups that integrate cooperatively.

Since its recognition as a Biosphere Reserve by UNESCO in 2005, efforts to promote sustainable development strategies have increased significantly, both with the creation of Conservation Units for Integral Protection (Core Areas) and Sustainable Use (Cushioning and Connectivity), or through the implementation of initiatives for the valorization and support of local populations, such as the Environmental Services Payments Programs (such as the Bolsa Verde, the State Forest Institute of Minas Gerais), the Sustainable Management of Native Species (such as sustainable cultivation of *sempre-vivas* in Alto Jequitinhonha).

A major breakthrough in RBSE since its recognition in 2005, and after the preparation of the First Periodic Review in 2015, refers to the traditional farming system of the Serra do Espinhaço, in the territory of Alto Jequitinhonha, which may be the first Brazilian World Agricultural Heritage. In this region, there are traditional communities that have been collecting evergreens (Eriocaulaceae family) for centuries. The flower catchers will be the first Brazilian application for recognition of the "Important Systems of World Heritage" (SIPAM) or "Globally Important Agricultural Heritage Systems" (GIAHS), granted by the Food and Agriculture Organization of the United Nations (FAO). This traditional agricultural system of the evergreen gatherers occurs in the Serra do Espinhaço and covers the municipalities of Bocaiúva, Olhos D'Água, Diamantina, Buenópolis, Couto Magalhães, Serro and Presidente Kubitschek. The document, which was submitted to FAO (Food and Agriculture Organization of the United Nations), was prepared in partnership by the Commission for the Defense of the Rights of Extractive Communities of Espinhaço Mountain in Minas Gerais (Codecex), by the Minas Gerais government, by the municipalities where the communities are located and by the universities. Currently, only 3 sites in 3 countries (1 local in Chile - Chiloé Agriculture, 1 local in Mexico - Chinampas Agricultural System, and 1 local in Peru - Andean Agriculture) are designated as GIAHS (Globally Important Agricultural Heritage Systems) in the Latin American and Caribbean region.

Still referring to the practices of sustainable agriculture and models of sustainable development, it is important to emphasize the outstanding initiatives of the municipalities of the north of Minas Gerais, major area of expansion of the RBSE in its phase 2. In this context, the Agriculture Center North of Minas Alternative (CAA) - an organization of family farmers, based in Montes Claros, whose composition is made generally by representatives of traditional peoples and communities of Minas Gerais, involving *geraizeiros* (inhabitants of the savanna), *catingueiros* (inhabitants of the *caatinga*), *quilombolas*, indigenous and farmers. The CAA (Agriculture Center North of Minas Alternative) actions have been developed since 1985 through the pillars of sustainability, agroecological production and the rights of traditional peoples and communities.

As for the municipalities in the northern portion of the Serra do Espinhaço Biosphere Reserve, whose incorporation is proposed in this RBSE Phase 2 document, extensive livestock farming and family farming and agroextrativism practices constitute their economic base with their villages appearing on the banks of the rivers - especially the São Francisco. In 2003, a specific secretariat was created for the region, the Extraordinary Secretariat of State for the Development of the Jequitinhonha, Mucuri and Norte de Minas (Sedvan) Valleys, with a view to strengthening the region and implementing participatory governance actions. which the North and Northeast Development Institute of Minas (Idene) was linked. Due to the

relevance of its area of activity, which covered 188 municipalities, the portfolio was no longer "extraordinary" and became permanent in 2011. In 2014, to expand the scope of public policies, a further 68 municipalities were included in the Vale do Rio Doce and two of the Northwest of Minas to the area of activity of the portfolio, which became known as the State Secretariat for Development and Integration of the North and Northeast of Minas Gerais (Sedinor). Nowadays, Sedinor covers 258 cities.

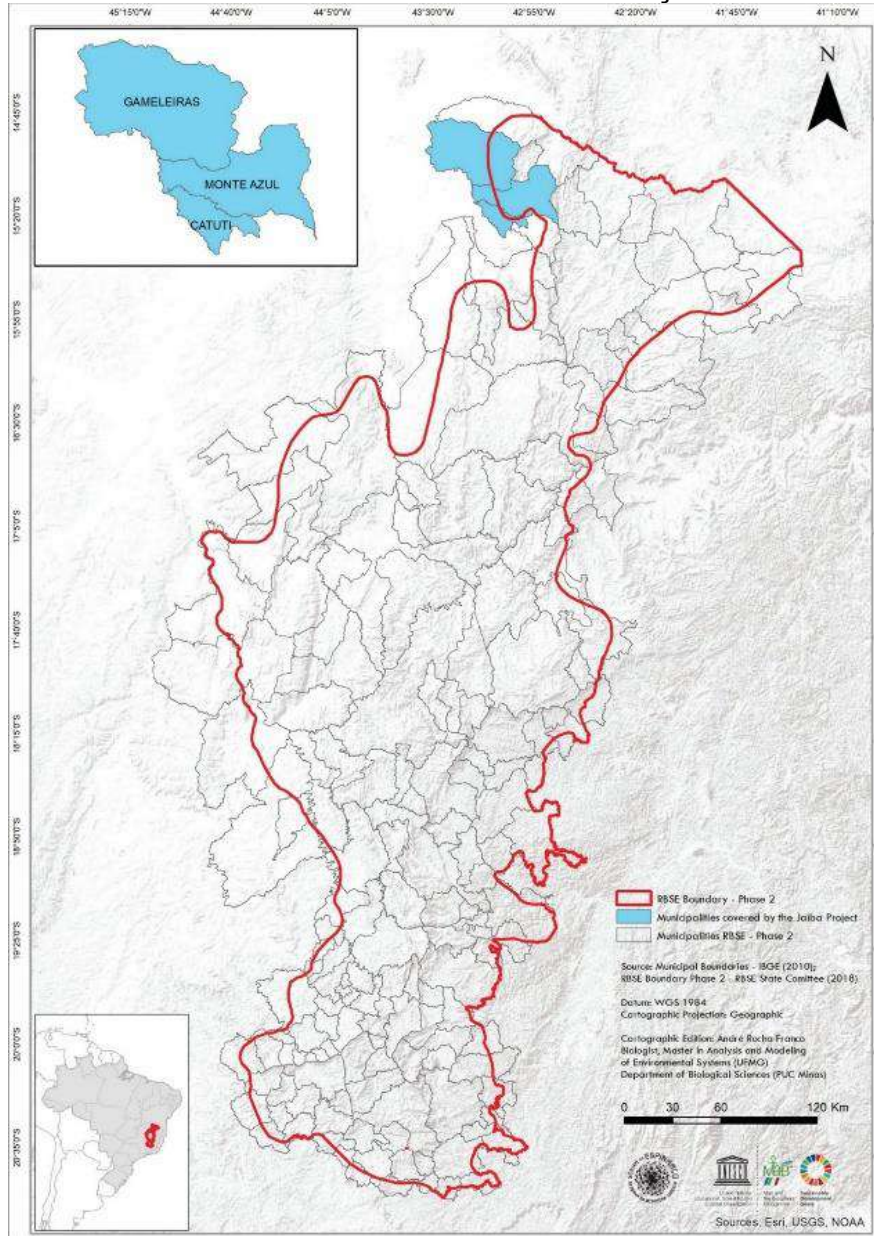
In this regional context, irrigation projects stand out, such as the Jaíba Project, whose genesis dates back to 1950 and is currently considered the largest irrigated agriculture project in Latin America. Its primary objective is to support the settlement of rural producers in the project, restructuring and revitalizing their productive processes, as well as promoting the sustainable development of agriculture in the north of Minas Gerais, aiming to consolidate an agroindustrial pole and increase the region's participation in the internal and external markets, mainly of cultivation of fruit, grain, forage, forestry or olericultura species. Among the municipalities bordering the Jaíba Project region, present in Phase 2 of RBSE, stand out Catuti, Gameleiras and Monte Azul, with a population of 32,241 people, according to the 2010 Brazilian Institute of Geography and Statistics (IBGE) census.

FIGURE 22: LIMITROPAL MUNICIPALITIES OF THE JAÍBA PROJECT REGION.



SOURCE: SECRETARIAT OF STATE OF AGRICULTURE, LIVESTOCK AND SUPPLY OF MINAS GERAIS - REPORT OF THE JAÍBA PROJECT 2005-2010.

FIGURE 23: MAP OF THE MUNICIPALITIES SERVED BY THE JAÍBA PROJECT IN PHASE 2 OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.



The municipalities of the "sertão de Minas" are faithful to their traditions, reflected in culinary practices, manifestations of popular culture, music and a rich handicraft, very close to the municipalities of the Northeast region of Brazil in their economic, social and cultural characteristics. cultural activities. The northern region of Minas Gerais, however, is not following the growth of the Northeast, as highlighted by Santos & Silva (2011).

The regional differences in the State were not significantly reduced with the intervention of the Northeast Development Superintendency (SUDENE). Even nowadays, the economic and social indicators stratified by region confirm a huge discrepancy between the Central and Minas Gerais Triangle, as opposed to northern Minas and the Jequitinhonha and Mucuri Valleys (SANTOS & SILVA, 2011, page 21).

Considering the precarious socioeconomic condition on the one hand, and its great natural and historical-cultural potential, it is urgent to implement initiatives aimed at its sustainable development. In this sense, the expansion of RBSE boundaries to the north of Minas Gerais may favor a greater visibility and attraction of new sustainable businesses for the region, which demonstrates synergy with the Strategic Objectives of the MaB Program for 2015-2025, with emphasis on: "promotion sustainable use of natural resources "and" contribution to building healthy and fair economies and societies with prosperous human settlements in harmony with the Biosphere, " as well as the opportunity to collaborate in reducing the "accelerated loss of cultural and biological diversity and its unexpected consequences on the ability of ecosystems to continue to provide services that are fundamental to the well-being of humanity," as challenged by the MaB (Man and the Biosphere) Program. This expansion of the RBSE to the north of Minas Gerais and the promotion of actions in the region are also in line with the Global Objectives for Sustainable Development (ODS), which emphasize "zero hunger and sustainable agriculture", "Reduction of inequalities", "peace, justice and effective institutions", among others that can be identified as challenges of implementation in this part of the Espinhaço mountain.

The vocation of tourism in the north of Minas Gerais also deserves to be highlighted, creating more and more sustainable opportunities for the economic development of one of the regions with one of the lowest per capita GDP (Gross Domestic Product) and the Municipal Human Development Index (IDHM) of the Brazil.

The municipality of Salinas, as an example of tourism vector of the mesoregion of northern Minas Gerais, stands out for the production of artisanal booze, which was adopted as an element of identification for the tourism structuring of Salinas and that provides the attraction of visitors throughout the year. In this context, it must be emphasized that the "cane spirit, booze type" was certified by the National Institute of Industrial Property (INPI) on October 16, 2012, as a Geographical Indication, in the Indication of Origin category.

FIGURE 24: SEAL OF GEOGRAPHICAL INDICATION OF THE CANE SUGAR SPIRIT, BOOZE TYPE OF THE SALINAS REGION.



FIGURE 25: BOOZE MUSEUM IN SALINAS.



SOURCE: WELLINGTON PEDRO/IMPrensa MINAS GERAIS.

Another element that promotes sustainable tourism that deserves to be evidenced is the presence of Conservation Units of Integral Protection and Sustainable Use, composing a mosaic of protected areas in the northern portion of Espinhaço Mountain. In this proposal of Phase 2 of the RBSE, the presence of **new Conservation Units, composing the buffer zones and core zones for the RBSE - Phase 2.**

It is pertinent to highlight, as a territorial model in which the conciliation of environmental protection with sustainable activities carried out by traditional communities is recommended, the Federal Reserve for Sustainable Development (RDS) Nascentes Geraizeiras - the first Conservation Unit of this category in RBSE, located in Municipalities of Montezuma, Rio Pardo de Minas and Vargem Grande do Rio Pardo, created by Decree without number, of October 13, 2014 and whose administration is applicable to the Chico Mendes Institute for Biodiversity Conservation.. he individuals residing in this conservation unit are the geraizeiros (inhabitants of the savanna) or "inhabitants of the hinterland" - traditional populations that inhabit the right bank of the São Francisco river, in the north of Minas Gerais, in savanna regions known as "Gerais". These are small farmers who live from the planting of diverse crops such as corn, beans, peanuts, cassava, sugar cane, fruits and vegetables. The savanna is part of the productive strategy of these communities, providing by means of extractivism, feed for livestock, wood, fruit harvest, leaves, honey and medicinal plants.



*[...] Sir, tolerate, this is the hinterland. Some want it not to be: that the mentioned hinterland is for the general fields, the force inside, they say, end of course, too high lands of Urucuia. Toleima. For those of Corinth and Curvelo, then, the here is not said hinterland? Oh, there is place that is bigger than this! When the place is a hinterland, it must be disclosed: it is where the grasslands lack closures (...). The group runs around. These groups are without size. In short, each one approves what he wants, you know: bread or breads, it's a question of opinions ... **THE HINTERLAND IS EVERYWHERE.** (ROSA, 2001, pages 23-24).*

The Sustainable Development Reserve of the Savanna Headwaters

The RDS: Savanna Headwaters has 38,177 hectares, responsible for the protection of numerous water sources that supply water to the municipalities of the region and for the conservation of natural resources of the savanna biome, which are used collectively and sustainably by more than 20 savanna communities. Since the early 2000s, these communities have sought the creation of the unit as a way to guarantee the conservation and sustainable use of the region, with the support of the Minas Gerais Public Prosecutor's Office.

3.2.1 Socio-environmental conflicts

The north of the state of Minas Gerais is historically characterized as an underdeveloped region, due to its natural conditions, among other factors, having a characteristic semi-arid climate. In this scenario, development initiatives and programs propagated by the Federal Government directed to the region several political instruments with the intention of promoting the feasibility of large infrastructure projects. Mainly those related to the expansion of electricity generation in Brazil, such as eucalyptus monocultures and hydroelectric plants and dams. There has been a proliferation of forms of confrontation between local populations, state sectors and business segments.

The case of the Irapé Hydroelectric Power Plant, located on the Jequitinhonha River, 2 km below the mouth of the Itacambiruçu river, on the border of the municipalities of Berilo and Grão Mogol, in the Alto Jequitinhonha, with a height of 208 meters, stands out. the highest dam in Brazil and the second highest in Latin America. The licensing process lasted 15 years, due to the high resistance of the directly affected communities, as well as non-governmental organizations (NGOs) in favor of the environment and academic studies. In this conflict, an emphasis must be given to the meanings produced and articulated by two confrontational rationalities: on the one hand, the riverine populations that protect the land as patrimony of the family and community, defended by collective memory and rules of use and sharing of resources; on the other hand, the Electric Sector, including the State and public and private entrepreneurs who, from a market perspective, understand the territory as property, and, as such, a commodity that can be valued monetarily.

It is in this scenario of multiple actors that the existence of 63 socio-environmental conflicts in the RBSE-Phase 2 territory was identified, as shown below, mapped, described and categorized by the Environmental Conflict Mapping Project of the State of Minas Gerais (for more information on conflicts, access project website: <http://conflitosambientaismg.lcc.ufmg.br/observatorio-de-conflitos-ambientais/mapa-dos-conflitos-ambientais>).

Regarding the categorization of conflicts, it was noted in RBSE-Phase 2 the existence of environmental conflicts involving the following typologies: a) agricultural / livestock / forestry activity (monocultures, deforestation, use of agrochemicals); b) infrastructure (energy, dam, sanitation and communication); c) industrial activities; d) agroindustrial activities; e) territorial demand; f) protected areas; g) land use and occupation.

In order to mitigate the existing conflicts, the following actions are implemented according to their classification:

a) Agricultural / livestock / forestry activity: typology of conflict with the second highest number of indications in the territory of RBSE-Phase 2. In this specific case, there are processes of dissemination of monocultures, mainly of eucalyptus, deforestation and contamination by pesticides, which detract from traditional actions and management sustainable use of natural resources. In order to mitigate such conflicts and encourage the promotion of social capital, extension activities of Universities, such as the Federal University of Minas Gerais (UFMG) and the State University of Montes Claros (UNIMONTES), and the State and Federal Public Ministry are carried out in the affected regions in order to strengthen the local leaderships and groups, seeking alternatives that promote the decentralized development of the communities in these regions, through the encouragement of agroextractivism, free trade fairs and the production of handicrafts.

b) Infrastructure: conflict type with the highest number of indications in the RBSE-Phase 2 territory. Infrastructure issues mainly involve sanitation issues in improving the quality of water for human use, and the energy sector in building dams for hydroelectric plants. The problematic of these situations involves the expropriation of families, the extinction of species and the contamination of bodies of water. As measures used to mitigate such conflicts, it is worth mentioning the holding of public hearings with affected communities, the elaboration of the undersigned and the performance of the Public Prosecutor's Office. In this process of combating land expropriation and mitigation of damages, the social movements such as the Movement of Dam Affected People and university groups such as the Group of Studies in Environmental Issues - GESTA / UFMG (Federal University of Minas Gerais).

c) Industrial activities: conflicts mainly related to air and noise pollution and to mining projects. Such environmental conflicts are justified by the impacts caused to both the local population and the environment. In the face of this advance, socio-environmental movements and organizations organize to seek alternatives to minimize impacts and also actions with the Federal Public Prosecutor's Office, aimed at guaranteeing the application of resources from environmental compensation and compliance with certain conditions, in order to solve the problems that the enterprises are causing or in an attempt to compensate damages already caused.

d) Agroindustrial activities: this type of conflict is mainly related to the process of air pollution and watercourses from the manufacture of food, as well as from the corralation of communities by monocultures and their respective activities of transformation of raw materials. As a mitigation process of these damages the social mobilization of the surrounding communities and directly affected, as well as the support of NGOs (non-governmental organization) and governmental environmental monitoring bodies, with the intention of remedying such damages and conflicts, stands out.

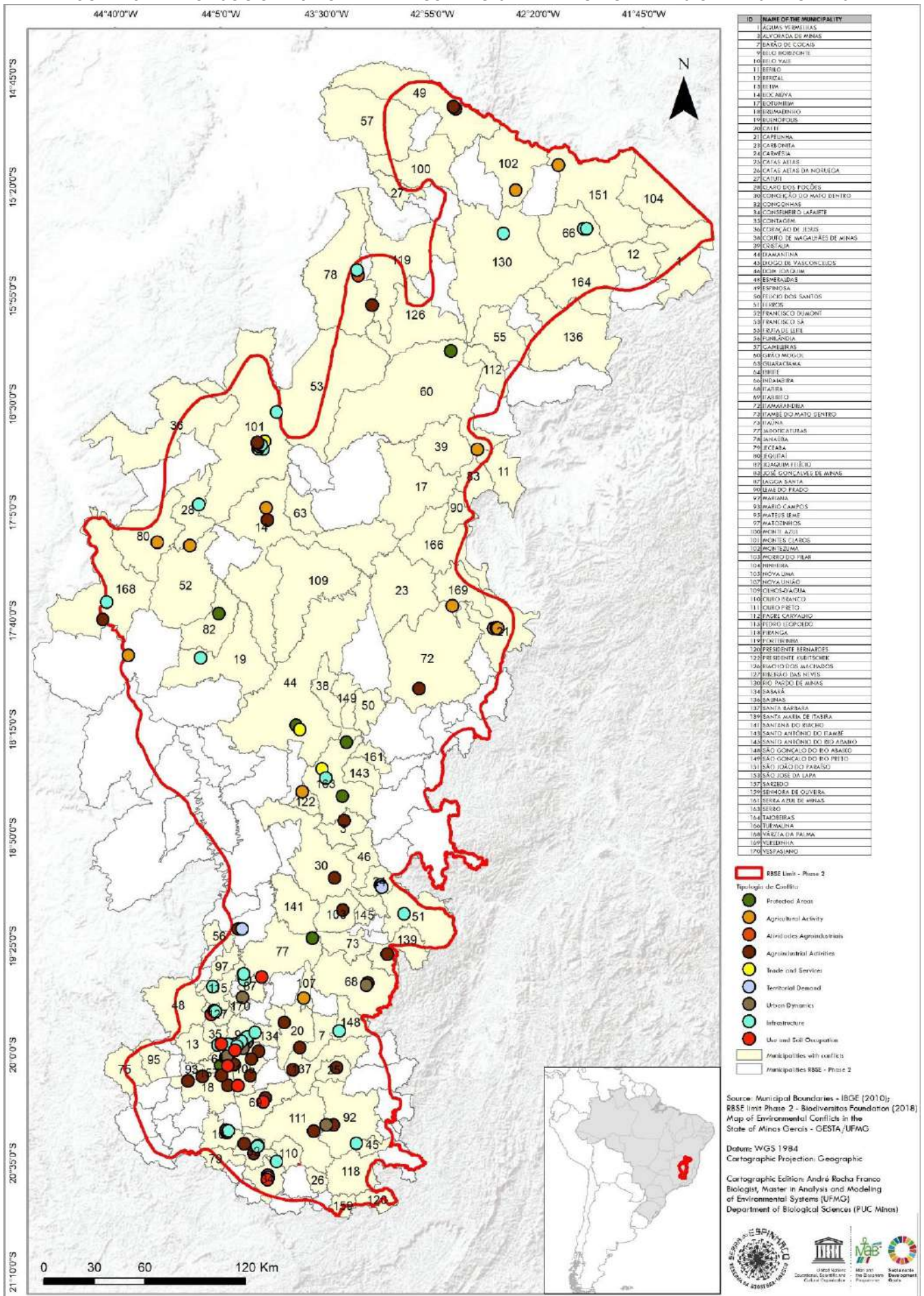
e) Territorial demand: in the context of this type of conflict, the reference involves the relation of lands of traditional communities (farmers and quilombolas, specifically) with processes of implementation of unicades of conservation and recognition and demarcation of the territories traditionally occupied. In the understanding of the historical-cultural importance of the traditional communities for the RBSE, whether in the already delimited portion or in the space that includes its extension, numerous universities belonging to its State Committee and other partner entities develop collaborative programs and projects, in support of the processes of visualization , recognition, exchange and rescue of knowledge and alternative income generation, with emphasis on the actions of Unimontes and UFMG (Federal University of Minas Gerais).

f) Protected areas: the conflicts resulting from overlapping of protected areas in places with the presence of indigenous populations are related to the permanence of communities within and to the use of natural

resources. Strategies used to solve such conflicts, when executed, are compensation to the residents for the concession of land and resettlement in a border region carried out by the environmental body responsible for the management of protected areas, as determined by Law 9,985, dated July 18, 2000, which establishes the National System of Conservation Units of Nature - SNUC (BRASIL, 2000). Another possibility, of lesser viability, for the resolution of conflicts in protected areas involves the reclassification of a Conservation Unit - areas of integral protection becoming areas of sustainable use of natural resources, as in the case of Sustainable Development Reserves.

g) use and occupation of the soil: typology of conflict found mainly in areas close to urban centers with questions aimed at the verticalization of Permanent Preservation Areas, urban zoning, risk areas and irregular occupations. The actions of NGOs (non-governmental organization), environmental entities, the Public Prosecutor's Office, and social movements related to housing rights, seek to mitigate and even eliminate the conflicts resulting from the Use and Land Occupation factor.

FIGURE 26: MAP OF SOCIO-ENVIRONMENTAL CONFLICTS IN THE MUNICIPALITIES OF PHASE 2 OF RBSE.



Source: Municipal Boundaries - IBGE (2010);
 RBSE limit Phase 2 - Biodiversitas Foundation (2018)
 Map of Environmental Conflicts in the
 State of Minas Gerais - GESTA/UFMG

Datum: WGS 1984
 Cartographic Projection: Geographic

Cartographic Edition: André Rocha Franco
 Biologist, Master in Analysis and Modeling
 of Environmental Systems (UFMG)
 Department of Biological Sciences (PUC Minas)



THE CASE MARIANA: THE BREAKING OF FUNDÃO'S BARRAGE, IN BENTO RODRIGUES

It is important to point out that the territory of Biosphere Reserve of Espinhaço Mountain was the scene of the tragic event in the iron ore operation of Samarco Mineração SA, in the municipality of Mariana, Minas Gerais, Brazil, on Thursday, November 5 of 2015, with the disruption of the Fundão tailings dam. The consequences of the tragedy pointed to unprecedented environmental, social and human damages in Brazilian history, covering the entire length of the Doce River, between the states of Minas Gerais and Espírito Santo, to its mouth in the Atlantic Ocean.

In this context and within the logic of the functions of the Biosphere Reserve territory, it is necessary to overcome the logic of maximizing profits by proposing initiatives guided by innovative and creative solutions, encouraged by modern and sustainable conduct. In many cases, it is possible to recognize entrepreneurial investments that treat sustainability as marketing actions, while the basis of productive processes, management and stakeholder relationships are still seen as peripheral issues, based on archaic foundations of the exploratory economy. There are few cases in which relations between companies and the local population are based on mistrust, difficulty of understanding and explicit conflicts.

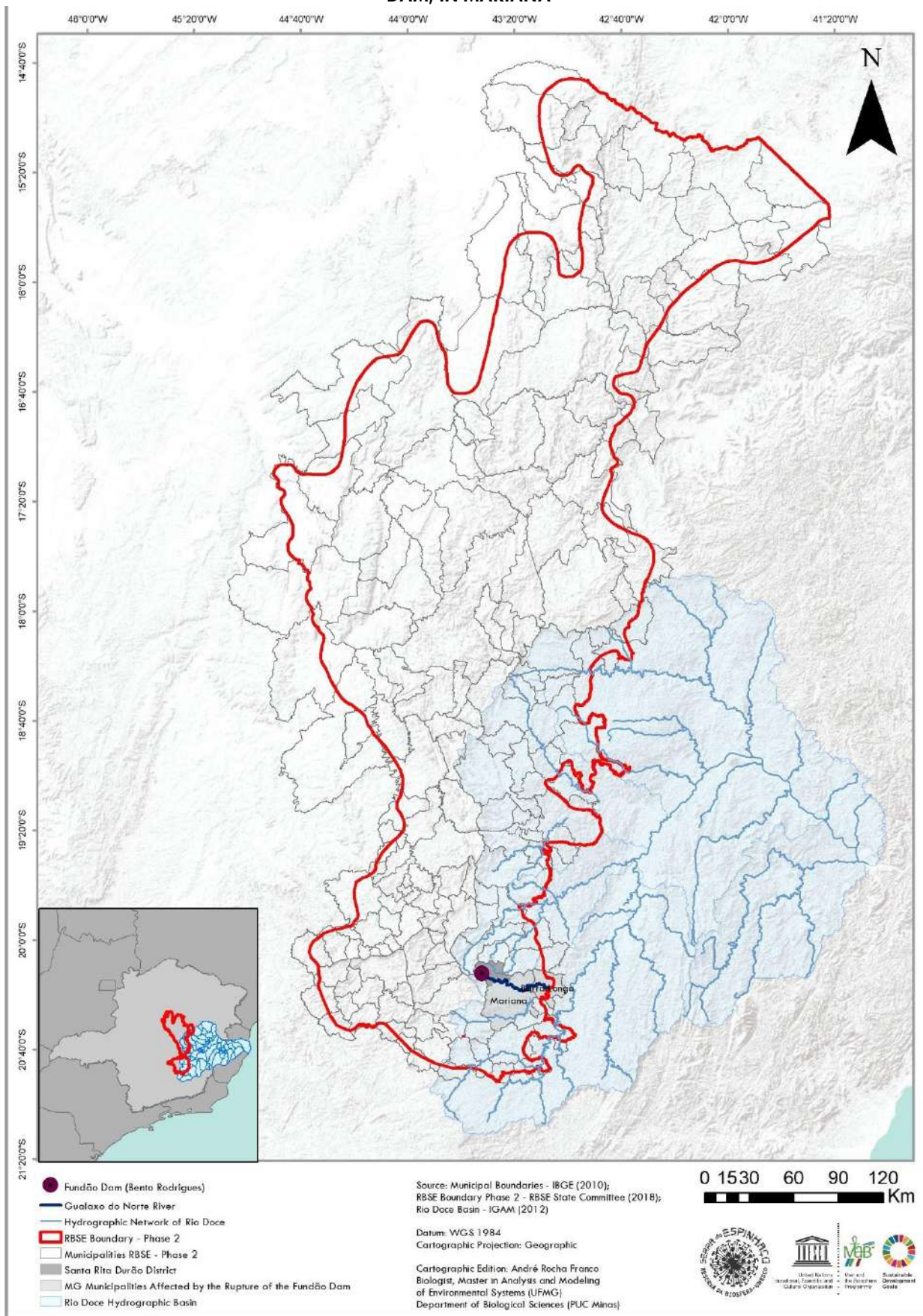
With increasing information regarding global environmental problems, and because the relationship with human activities is a likely fact, it is easier to understand the origin of the collapse of many ecosystems. In this sense, considering that the disagreements provoked by different interests and sectors of society are legitimate situations, it is also worth considering that they constitute an important starting point for a combined action towards a common and greater purpose.

Considering the issues mentioned above, the State Committee of the Biosphere Reserve of Espinhaço Mountain, on November 24, 2015, prepared a letter of interest, which reinforces the recommendation for the immediate installation of a Working Group on Mining and Socio-environmental Responsibility, of Brazilian initiative, with the support of the World Network of Biosphere Reserves and the MaB (Man and the Biosphere) -UNESCO (United Nation Educational, Scientific and Cultural Organization) Program, with the following objectives: Estabelecer um fórum de diálogo entre as diversas partes interessadas;

- To contribute to the avoidance of tragedies such as Mariana by weighing the risks, damages and benefits represented by mining projects according to their scale, nature and location;
- To set up exemplary solutions in mining processes among entrepreneurs, local populations, universities, governments and socio-environmental institutions;
- To participate in environmental damage restoration processes.
- To communicate experiences and lessons learned.

This initiative represents a concrete opportunity for the recognition and creation of leadership and responsibilities, bringing together the various sectors of society in a new cooperation agenda, aiming at actions aligned with the Sustainable Development Objectives (ODS-ONU - United Nations Organization), Statutory Framework of the Global Network of Biosphere Reserves and the Strategies of the MaB (Movement in defense for the Affected people, by barrages) Program (2015-2025).

FIGURE 27: MAP OF THE MUNICIPALITIES OF RBSE PHASE 2 AFFECTED BY THE BREAKDOWN OF THE FUNDÃO DAM, IN MARIANA



TRADITIONAL PEOPLES AND COMMUNITIES



3.2.2 Traditional Peoples and Communities

Traditional Peoples and Communities are culturally differentiated groups that have their own social, cultural and economic conditions, maintaining specific relationships with the territory and the environment in which they are inserted. From a symbiotic relationship between nature, renewable cycles and renewable natural resources build their ways of life respecting the principle of sustainability, since they seek the survival of the present generations under the physical, cultural and economic aspects, as well as ensure the same possibilities for the next generations (DINIZ and others 2016).

Among the various landmarks, acts and legislation on the rights of these peoples, we highlight the decree 6.040, of February 7, 2007, which establishes the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNCTC). Its importance among other factors is due to the state recognition and protection of other culturally differentiated groups, participants in the national civilizing process, besides indigenous and quilombolas. In the state sphere, with regard to Minas Gerais, the State Policy for the Sustainable Development of Traditional Peoples and Communities of Minas Gerais stands out. Bill (PL) number: 883/2011 establishing the said policy in the state and whose general objective is to promote the integral development of traditional peoples and communities, with emphasis on the recognition, strengthening and guarantee of their territorial rights, social, environmental and economic, respecting and valuing their cultural identity, as well as their forms of organization, labor relations and institutions.

FIGURE 28: TIME LINE OF THE RIGHTS OF PEOPLES AND TRADITIONAL COMMUNITIES IN THE WORLD, BRAZIL AND MINAS GERAIS.



SOURCE: CHARTER OF RIGHTS OF THE PEOPLES AND TRADITIONAL COMMUNITIES. MINISTRY OF MINAS GERAIS (MPMG). YEAR: 2014.

In Minas Gerais, it is important to emphasize that the northern municipalities that comprise Phase 2 of RBSE have experienced in the last fifteen years an intensification of processes of struggle and mobilization of groups that claim themselves as traditional peoples and communities. The main focus of these actions is the struggle to defend the traditional way of life and territorial access, where the incursions of these peoples of the semi-arid region of Minas Gerais are due, among other things, to a deep knowledge of nature and its cycles; by the notion of territory or space where the social group reproduces economically and socially; by housing and occupation of the territory for several generations; the importance of subsistence activities; by the importance given to the family, domestic or communal unit and to relations of kinship or *compadrio* for the exercise of economic, social and cultural activities; the importance of the symbologies, myths and rituals associated with hunting, fishing and extractive activities; by the technology used, which is relatively simple, with limited impact on the environment; by self-identification or identification by others of belonging to a distinct culture (DINIZ and others, 2016).

There are many traditional identities in the northern Minas Gerais region that comprise Phase 2 of the RBSE: Indians, *geraizeiro* (inhabitants of the savanna), artisanal fishermen, farmer, flower catchers and quilombolas.

Among the indigenous peoples, the Pataxó ethnic group, located in the municipality of Carmésia, stands out in the RBSE territory. Originated from the South of Bahia, a portion of this community migrated to the state of Minas Gerais in the 1970s when there was considerable dispersion among the Pataxós due to conflicts over land.

As for the quilombola communities, in what refers to the total territory of the RBSE are in total 108 communities certified by the Palmares Cultural Foundation. Among these, 45 are in the municipalities of Phase 2 of RBSE. Quilombola communities are groups of slaves who have been refugees in quilombos, or descendants of black slaves whose ancestors during the period of slavery, they fled from sugarcane mills, farms and small estates, where they executed diverse manual work to form small villages called quilombos.

It is important to emphasize the importance of these groups for their own historical trajectory whose origin is distinguished as the donations of land made from the disintegration of monocultures; purchase of land by the subjects themselves, with the end of the slave system; land obtained in exchange for the provision of services; or areas occupied in the process of resistance to the slave system. In all cases, the territory is the basis of the physical, social, economic and cultural reproduction of the community (Minas Gerais Public Prosecutor, 2014). Following the identity logic of the peoples of African matrices we have the *terreiro* people. A set of populations linked to religious communities by ties of kinship or initiation that are defined by belonging to the spaces of worship organizations, as well as their internal or external dependencies and the bond with nature, and these places are considered sacred.

FIGURE 29: MAP OF THE TRADITIONAL QUILOMBOLA COMMUNITIES CERTIFIED BY THE PALMARES CULTURAL FOUNDATION, LOCATED IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.

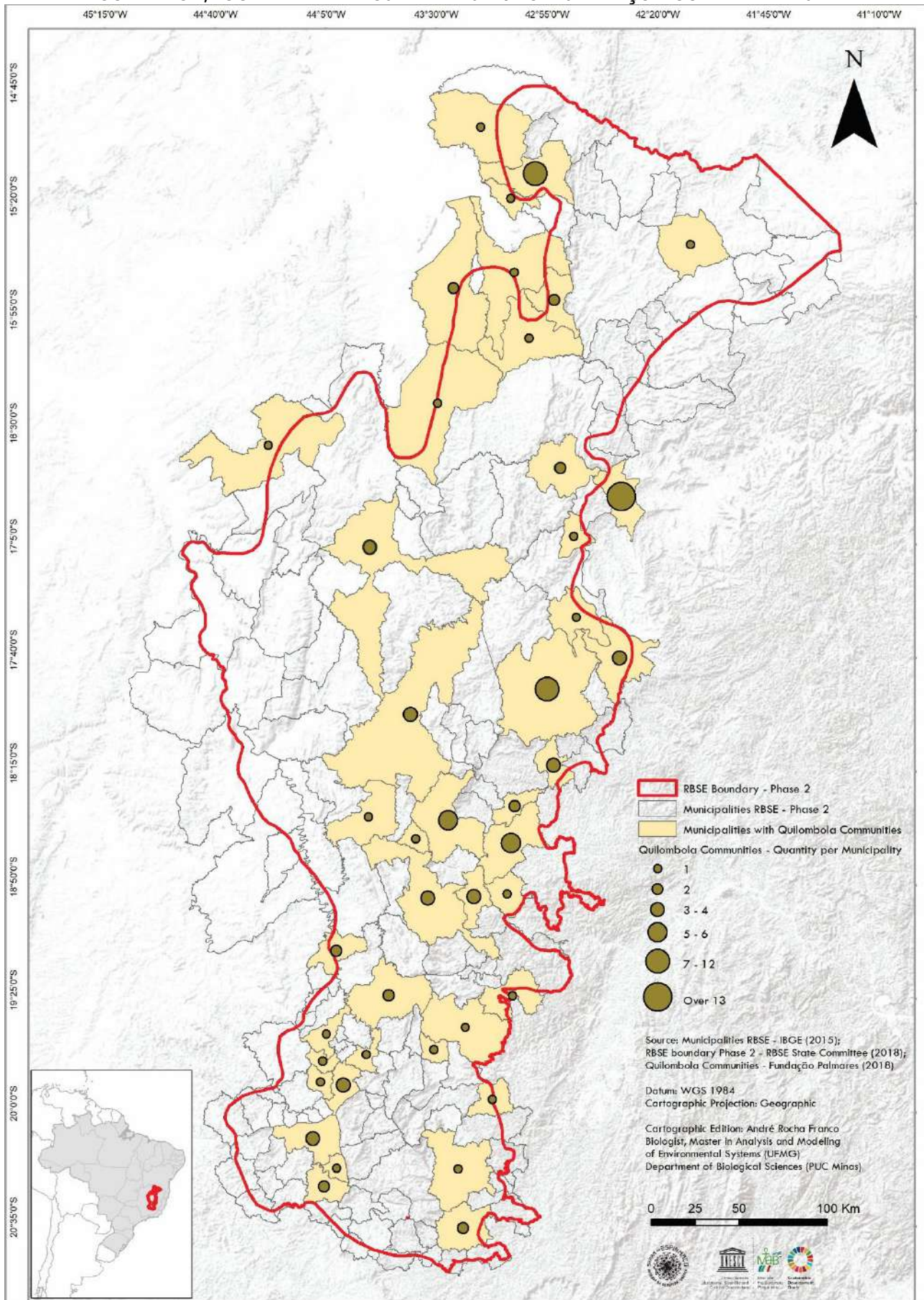


TABLE 22: QUILOMBOLA COMMUNITIES CERTIFIED BY THE PALMARES CULTURAL FOUNDATION (FCP) RESIDENTS IN MUNICIPALITIES OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2 (HIGHLIGHT IN RED COLOR FOR THE NEW MUNICIPALITIES OF RBSE PHASE 2).

CITY	NAME OF THE COMMUNITY	NUMBER OF THE LAWSUIT IN THE FCP (Palmares Cultural Foundation)	DATE OF THE OPENING OF THE LAWSUIT
BELO HORIZONTE	LUÍZES	01420.001223/2004-48	30/11/2004
BELO HORIZONTE	MANGUEIRAS	01420.003004/2005-84	05/12/2005
BELO HORIZONTE	MANZO NGUNZO KAIANGO	01420.000457/2007-11	05/03/2007
BELO VALE	BOA MORTE	01420.000135/1998-92	15/04/1998
BELO VALE	CHACRINHA	01420.000089/2007-19	18/01/2007
BERILO	ALTO CAITITU	01420.001722/2006-05	18/07/2006
BERILO	MUNIZ	01420.001722/2006-05	18/07/2006
BERILO	CAITITU DO MEIO	01420.001721/2006-52	18/07/2006
BERILO	MOCÓ DOS PRETOS	01420.001723/2006-41	18/07/2006
BERILO	VILA SANTO ISIDORO	01420.001843/2006-49	01/08/2006
BERILO	ÁGUA LIMPA DE CIMA	01420.002045/2006-34	10/07/2006
BERILO	QUILOMBOLAS	01420.002064/2006-61	23/08/2006
BERILO	ÁGUA LIMPA DE BAIXO	01420.002063/2006-16	23/08/2006
BERILO	MORRINHOS	01420.015696/2013-13	09/12/2013
BERILO	BREJO	01420.015525/2015-56	15/12/2015
BERILO	CRUZEIRO	01420.006976/2013-31	21/06/2013
BERILO	TABULEIRO	01420.006975/2013-96	21/06/2013
BERILO	ROÇA GRANDE	01420.012167/2016-19	24/11/2016
BERILO	VAI LAVANDO	01420.001277/2007-56	22/05/2007
BERILO	BARRA DO RIBEIRÃO E SANIM	01420.012863/2016-17	12/12/2016
BERILO	LAGOINHA	01420.002383/2017-29	
BOCAIÚVA	MACAÚBA PALMITO	01420.006059/2015-18	22/05/2015
BOCAIÚVA	MACAÚBA BELA VISTA	01420.006059/2015-18	22/05/2015
BOCAIÚVA	MOCAMBO E SÍTIO	01420.006060/2015-42	22/05/2015
BOCAIÚVA	BORÁ	01420.009352/2016-18	02/05/2016
BOM JESUS DO AMPARO	FELIPE	01420.002148/2012-42	28/02/2012
BRUMADINHO	SAPÉ	01420.001980/2005-01	23/08/2005
BRUMADINHO	RIBEIRÃO	01420.002947/2010-57	13/09/2010
BRUMADINHO	MARINHOS	01420.003089/2010-68	15/09/2010
BRUMADINHO	MARINHOS E RODRIGUES	01420.003089/2010-68	15/09/2010
CAPELINHA	SANTO ANTÔNIO DO FANADO	01420.010966/2015-61	22/09/2015
CAPELINHA VEREDINHA	VENDINHA, GALEGO E CÓRREGO DOS MACACOS	01420.013544/2016-29	27/12/2016
CAPELINHA E ANGELÂNDIA	FANADINHO E CANOAS	01420.001297/2010-22	14/06/2010
COLUNA	FURTUOSO	01420.000193/2010-09	10/02/2010
COLUNA	VARJÃO	01420.000193/2010-09	10/02/2010
COLUNA	PITANGUEIRAS	01420.000192/2010-56	10/02/2010
COLUNA	SUASSÚ	01420.000192/2010-56	10/02/2010

CONCEIÇÃO DO MATO DENTRO	BURACO	01420.004988/2011-69	29/04/2011
CONCEIÇÃO DO MATO DENTRO	CUBAS	01420.004988/2011-69	29/04/2011
CONCEIÇÃO DO MATO DENTRO	TRÊS BARRAS	01420.004988/2011-69	29/04/2011
CONTAGEM	ARTUROS	01420.001226/2004-81	30/11/2004
CORAÇÃO DE JESUS	SÃO GERALDO	01420.008801/2015-20	03/08/2015
CRISTÁLIA	PAIOL	01420.000185/2008-30	17/04/2007
CRISTÁLIA	BARREIRO	01420.003091/2010-37	15/09/2010
DIAMANTINA	MATA DOS CRIoulos	01420.006655/2010-93	16/11/2010
DIAMANTINA	VARGEM DO INHAÍ	01420.005421/2011-18	30/04/2011
DIAMANTINA	QUARTEL DO INDAIÁ	01420.000922/2007-13	19/04/2007
DOM JOAQUIM	CÓRREGO CACHOEIRA	01420.009699/2013-18	13/08/2013
DOM JOAQUIM	RIBEIRÃO	01420.009699/2013-18	13/08/2013
DOM JOAQUIM	XAMBÁ	01420.009699/2013-18	13/08/2013
FRANCISCO SÁ	POÇÕES	01420.001244/2006-25	30/05/2006
GAMELEIRAS JAÍBA PAI PEDRO PORTEIRINHA CATUTI JANAÚBA MONTE AZUL	GORUTUBA	01420.001250/2004-11	02/12/2004
GOUVEIA	ESPINHO	01420.001893/2010-11	12/08/2010
INDAIABIRA	BREJO GRANDE	01420.000078/2006-40	16/01/2006
ITABIRA	MORRO DE SANTO ANTÔNIO	01420.008808/2010-37	20/12/2010
ITAMARANDIBA	SÃO GIL	01420.003073/2010-55	14/09/2010
ITAMARANDIBA	SÃO GIL II	01420.003073/2010-55	14/09/2010
ITAMARANDIBA	TABATINGA	01420.005957/2010-44	22/10/2010
ITAMARANDIBA	CHICO ALVES	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	GANGORRA	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	VENENO	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	ASA BRANCA	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	CORREGO FUNDO	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	GASPAR	01420.004640/2011-71	17/04/2011
ITAMARANDIBA	CAPOEIRA GRANDE	01420.004640/2011-71	17/04/2011
JABOTICATUBAS	MATO DO TIÇÃO	01420.000166/2006-41	01/02/2006
JABOTICATUBAS	AÇUDE	01420.000134/2006-46	27/01/2006
JANAÚBA	BEM VIVER DE VILA NOVA DAS POÇÕES	01420.001448/2008-28	27/05/2008
JEQUITIBÁ	DR. CAMPOLINA	01420.000434/2006-25	07/03/2006
JEQUITIBÁ	CAMPO ALEGRE	01420.007610/2016-21	08/08/2016
LEME DO PRADO	PORTO CORIS	10680.002500/1998-61	27/01/1998
MARIANA	VILA SANTA EFIGENIA	01420.003941/2010-05	16/09/2010
MATERLÂNDIA	BUFÃO	01420.015689/2011-50	25/11/2011
MATERLÂNDIA	BOTELHO	01420.006583/2012-46	18/05/2012
MOEDA	TAQUARAÇU	01420.006122/2012-73	15/05/2012
MONTE AZUL	PACUI	01420.008349/2013-34	18/07/2013
MONTE AZUL	POÇÕES	01420.008349/2013-34	18/07/2013

MONTE AZUL	LARANJEIRA	01420.012492/2013-21	16/07/2013
MONTE AZUL	BUQUEIRÃO	01420.012492/2013-21	16/07/2013
MONTE AZUL	PESQUEIRO	01420.012492/2013-21	16/07/2013
MONTE AZUL	SOCÓ VELHO	01420.012492/2013-21	16/07/2013
MONTE AZUL	SOCÓ VERDE	01420.012492/2013-21	16/07/2013
MONTE AZUL	TIRA BARRO	01420.012492/2013-21	16/07/2013
MONTE AZUL	LÍNGUA D'ÁGUA	01420.012495/2013-64	11/07/2013
MONTE AZUL	ROÇADO	01420.012495/2013-64	11/07/2013
MONTE AZUL	SÃO SEBASTIÃO	01420.012495/2013-64	11/07/2013
PEDRO LEOPOLDO	POVOADO DE PIMENTEL	01420.000721/2010-11	07/03/2010
PIRANGA	SANTO ANTÔNIO DE PINHEIROS ALTOS	01420.001525/2008-40	03/06/2008
PIRANGA	SANTO ANTÔNIO DO GUINÉ	01420.000462/2009-95	10/03/2009
PRESIDENTE KUBITSCHEK	RAIZ	01420.012772/2014-10	07/10/2014
RIACHO DOS MACHADOS	PEIXE BRAVO	01420.002394/2008-18	12/08/2008
RIBEIRÃO DAS NEVES	IRMANDADE DO ROSARIO DE JUSTINÓPOLIS	01420.001750/2015-13	10/02/2015
RIO PIRACICABA	CAXAMBU	01420.010616/2011-71	11/08/2011
SABINÓPOLIS	CÓRREGO MESTRE	01420.000543/2010-29	05/03/2010
SABINÓPOLIS	SÃO DOMINGOS	01420.001541/2010-57	18/06/2010
SABINÓPOLIS	SANTA BÁRBARA	01420.004642/2011-61	05/11/2010
SABINÓPOLIS	MARITACA	01420.009606/2011-93	31/12/1969
SABINÓPOLIS	SESMARIA	01420.007316/2013-77	08/01/2013
SABINÓPOLIS	BARRA/SANTO ANTÔNIO	01420.003040/2015-10	09/03/2015
SANTA LUZIA	PINHÕES	01420.001091/2017-79	30/01/2017
SANTA MARIA DE ITABIRA	BARRO PRETO	01420.000989/2006-77	01/02/2006
SENHORA DO PORTO	MOINHO VELHO	01420.016351/2013-87	19/12/2013
SERRANÓPOLIS DE MINAS	BRUTIÁ	01420.001245/2008-31	13/05/2008
SERRANÓPOLIS DE MINAS	CAMPOS	01420.001246/2008-86	13/05/2008
SERRO	VILA NOVA	01420.005185/2012-11	22/03/2012
SERRO	SANTA CRUZ	01420.005192/2012-12	23/03/2012
SERRO	QUEIMADAS	01420.005188/2012-46	10/04/2012
SERRO	BAÚ	01420.001509/2007-76	14/06/2007
SERRO	AUSENTE	01420.005183/2012-13	18/03/2012

SOURCE: ELABORATED BY THE AUTHORS WITH DATA OF THE CULTURAL FOUNDATION: PALMARES (2018) - WWW.PALMARES.GOV.BR.



HISTORY AND CULTURE

" I say: the real is not on the way out, nor on the arrival: he makes himself available to us at the crosswalk. "

'Digo: o real não está na saída nem na chegada: ele se dispõe para a gente é no meio da travessia'.

Excerpt from the book *Grande Sertão: Veredas*, by the Brazilian writer João Guimarães Rosa.

Literal translation: 'I say: the real is not on the way out or on arrival: it is available for us in the middle of the crossing'.

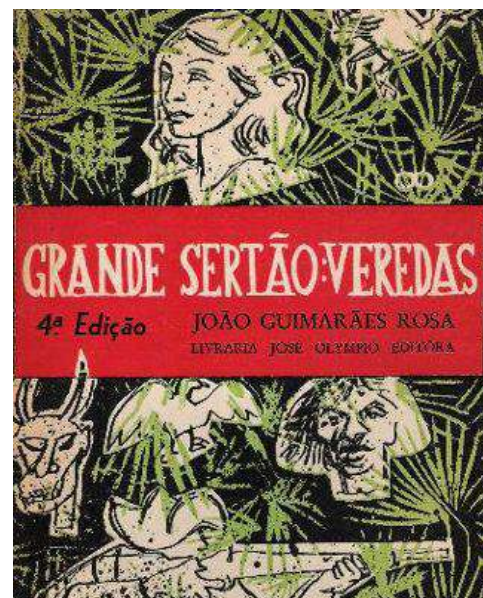
Regarding artisanal fishermen from northern Minas Gerais, the activity traditionally presents itself as an economic base of great importance for the population, once the fish is used in food and in the generation of income. The threat of this activity is highlighted by the process of environmental degradation that is increasingly alarming due to the large enterprises that are being installed along the valleys and water courses, which causes the pollution of the rivers and consequently the reduction of water quality and quantity.

Still related to the historical uses of the water stand out the geraizeiros. They are characteristic peoples of the regions where the identity sign is bound to the natural formation of the general ones, configured by the plateaus, slopes and valleys of the cerrado regions, where the crops are realized taking advantage of the fertility and the humidity of the ebbing. The geraizeiros (inhabitants of the savanna) are emblematic in the area of expansion of the RBSE, occupying traditionally the general places of the savanna, mainly in what concerns to the municipalities of Grão Mogol.

Another emblematic population in the Serra do Espinhaço, both by its traditional characteristic and by the numerous territorial conflicts, are communities of pickers of evergreen flowers. Cited above, it is a unique category among other factors because it is a symbol of resistance and for its submission to FAO (Food and Agriculture Organization of the United Nations) as World Agricultural Heritage, an application prepared in partnership by the Commission in Defense of the Rights of the Extractive Communities of Espinhaço Mountain in Minas Gerais (Codecex), by the government of Minas Gerais, by the prefectures where the communities are located and by the universities.

The faiscaidores are a category of individuals who live from the practice and technique of the traditional garimpo in search of gold substances in the river banks and beds of the rivers, dispensing the mechanical apparatus. The veredeiros (farmers), in turn, occupy, use and preserve traditionally the veredas, subunit of the closed / general biome. They are historically a reference in the Minas Gerais semiarid region and have become reference for important works of Brazilian literature such as, "Grande: Sertão Veredas", by João Guimarães Rosa.

FIGURE 30: FIGURE A) GRANDE SERTÃO - VEREDAS BY POTY (CROSSING); FIGURE B) BOOK COVER: GRANDE SERTÃO: VEREDAS, BY JOÃO GUIMARÃES ROSA (4TH EDITION) - BOOK PUBLISHING: JOSÉ OLYMPIO



SOURCE – PICTURE A) GRANDE SERTÃO - VEREDAS POR POTY (TRAVESSIAS); PICTURE B: BOOK SHOP JOSÉ OLYMPIO EDITORA

3.2.3 Tourism

Tourism activity has been showing positive and constant growth rates over the last years, consolidating itself as an economic sector of great importance for the state of Minas Gerais. This growth does not occur uniformly in all regions, but has shown great potential and vitality.

The tourism activity, since well structured and organized, has positive and multiplier effects in several other sectors of the economy, contributing to the formalization and strengthening of a whole chain of direct and indirect products and services.

It was created in 1999, the **Secretariat of State for Tourism (SETUR)** has the purpose of planning, coordinating and promoting the actions of tourism, aiming at its expansion, improving the quality of life of the communities, generating employment and income and publicizing the tourism potential of the State. Considering the particularities and the natural and historical richness of Minas Gerais, seen by many as a synthesis region of Brazil, Ecotourism, Rural Tourism, Cultural and Religious Tourism represent an important asset for the RBSE territory. Culture and nature, therefore, represent assets to be better exploited in the perspective of sustainable development, respecting local capacities and vocations - challenges for the management and sustainable development of the activity - that can add values to the territories.

Within the scope of Phase 2 of the RBSE, the tourist potential of the north of Minas Gerais stands out. Montes Claros, the most developed municipality in the region, presents outstanding elements for gastronomic tourism, through culinary techniques, historical knowledge and representative dishes (such as the meat of the sun, the rice with pequi, the rustic chicken with pirão - manioc flour porridge made generally stemmed broth seasoned with a cooking vegetables and / or meat (fish, poultry or red meat animals)) that attract visitors during the year. In addition, it is important to emphasize, as an inducing factor in tourism, the traditional festivals of the region, such as Folia de Reis, the coronations of the Blessed Mother, processions, reigns, sailors, caboclinhos and shepherdesses, which carry an important and expressive legacy cultural history of northern Minas Gerais.

Still referring to the gastronomic value of the north of Minas, it is fundamental to highlight the production of cachaça, a drink that represents part of the Brazilian history and culture, in the municipality of Salinas, whose annual production is close to 5 million liters, with 50 brands being marketed throughout the country and abroad, and is responsible for boosting the economy.

Still referring to the gastronomic value of the north of Minas, it is fundamental to highlight the production of booze, a drink that represents part of the Brazilian history and culture, in the municipality of Salinas, whose annual production is close to 5 million liters, with 50 brands being marketed throughout the country and abroad, and is responsible for boosting the economy. **In this sense, it must be noted that in Phase 2 of the RBSE were added Conservation Units of Integral Protection (Core Zones) and Conservation Units of Sustainable Use, composing a true mosaic of protected areas in the north of Minas Gerais and a considerable increase in the natural territory conserved in the RBSE, with great potential for implementation of actions of ecotourism and community-based tourism.**

Regarding the tourist potential and logistical support of the other municipalities incorporated to Phase 2 of the RBSE, it is important to highlight the unique characteristics of the municipalities of the Metropolitan Region of Belo Horizonte:

- Confins, by the presence of the Tancredo Neves International Airport and of representative archaeological and paleontological sites and the plateaus of the dolines (characteristic slump of karst relief).

- Lagoa Santa, for the presence of a rich tourist-cultural, archaeological, paleontological collection. This collection can be exemplified in the protected territory of its conservation units, such as Sumidouro State Park (with the calcareous formations of the Lapinha Grotto and the Arruda Cave and with rock paintings dating back 4,000 years) and the Environmental Protection Area (APA), Carste Lagoa Santa, which houses the Ramsar Lund-Warming Site, which favors the adoption of measures necessary to implement the commitments made by the country to the Ramsar Convention and to obtain technical and financial resources for its protection and management . This region is also of great archaeological importance, as fossils of the first human being that might have lived in the Americas - Luzia.

- Pedro Leopoldo, which maintains the geophysical characteristics of the previous municipalities, showing prominent places, such as the archaeological site of Lapa Vermelha IV (suggested by local residents as the true place where Luiza's skull was found), territories with cave paintings in line shape. The municipality, too, was the birthplace of the medium Chico Xavier, whose work (photos, texts and articles) is exposed in the memorial: "A Casa de Chico Xavier". ("The House of Chico Xavier").

Below, we present the main typologies and inductive elements of tourism in the RBSE, with emphasis on the portions incorporated in Phase 2 of RBSE.

Types of Tourism:

A) Ecological Tourism or Ecotourism;

B) Cultural Tourism;

B.1) Archaeological Tourism or Archeology.

B.2) Registered Goods

B.3) Geotourism.

C) Gastronomic Tourism;

D) Religious Tourism;

E) Rural Tourism or Agrotourism.



ECOTOURISM



A) ECOLOGICAL TOURISM OR ECOTOURISM

The Biosphere Reserve of Espinhaço Mountain, due to its composition of relief and geomorphology and its innumerable natural beauties, presents numerous paths and trails that attract tourists throughout the country and abroad. Among the ways of travelers, the implementation of the Trail **Transespinhaço**.

The **Transespinhaço** is a long-distance track project that will be approximately 700 km long and will connect conservation units of Espinhaço Mountain, initially between the municipalities of Belo Horizonte and Diamantina city.

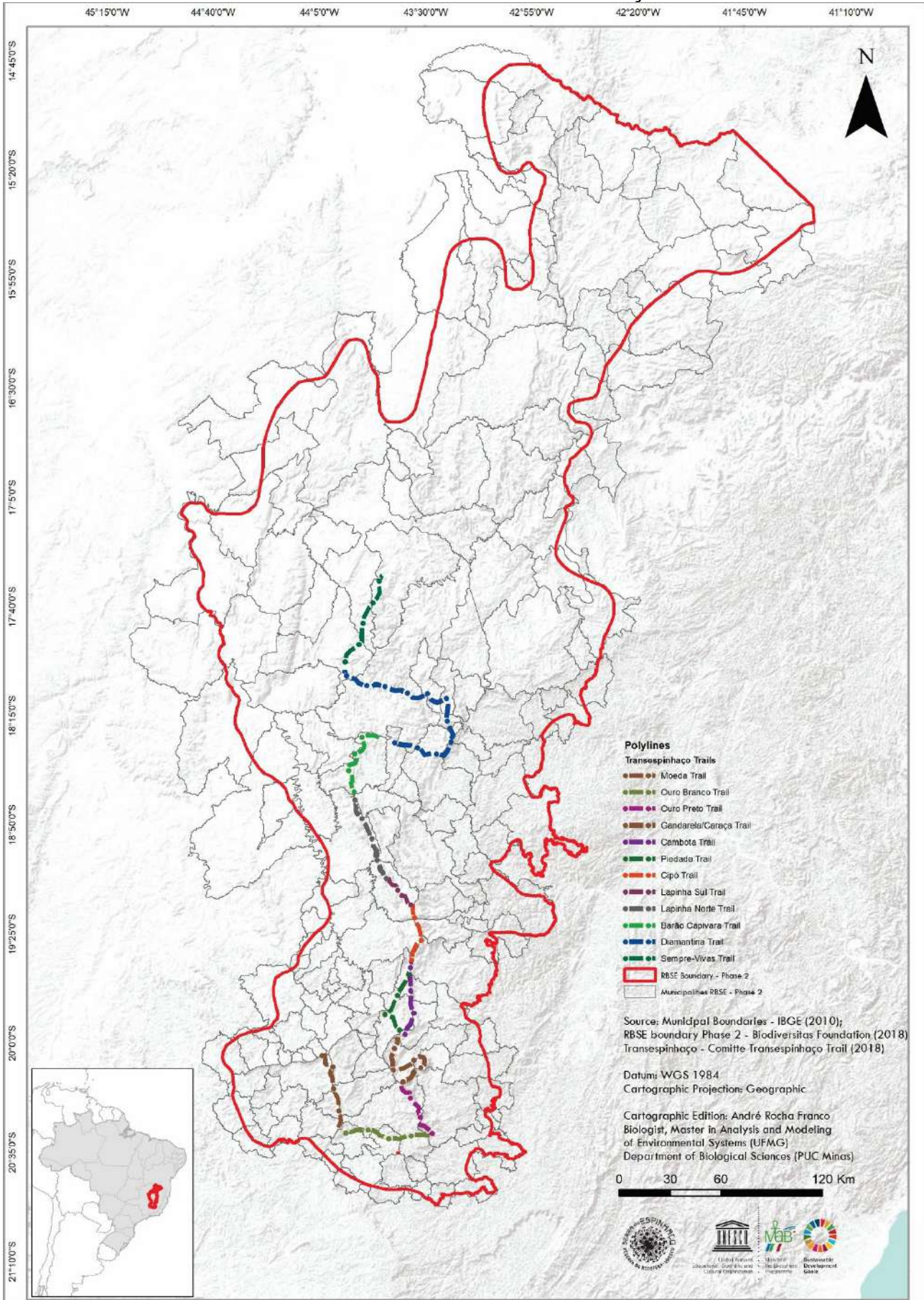
The Trail is being implemented by the Chico Mendes Institute for Biodiversity Conservation, with support from volunteers and partners. It will have a route of 700 kilometers connecting conservation units, through the Espinhaço Mountain, and several municipalities of Minas Gerais. The Trail was announced during the 1st Seminary of the Long Course of Minas Gerais, which took place on June 16, in the auditorium of the Institute of Geosciences of UFMG (Federal University of Minas Gerais), Belo Horizonte, Minas Gerais. During the event, the first working groups were formed, which will be responsible for initially articulating and implementing three sectors of the trail, which involve the Cipó Mountain and the National Park and the Sempre Vivas National Park.

Transespinhaço will benefit the Sempre Vivas National Park and the conservation units of the Mosaic of Units of Conservation of the Southern Espinhaço, that already discussed strategies for the connection of these registered areas.

Public use as a conservation tool is already proven internationally and the Transespinhaço Trail is another step towards the consolidation of actions to develop the local economy, generating income and functioning as a conservation strategy for the species.

It must be noted that in August 2018, the Transespinhaço route received the first signpost - the Alto Palácio and Serra dos Alves crossing is 40 kilometers long, usually covered for 3 days, by hikers.

FIGURE 31: TRAFFIC MAP OF TRANSESPINHAÇO.





CULTURAL TOURISM



B) CULTURAL TOURISM

Cultural tourism comprises tourism activities related to the experience of the set of significant elements of historical and cultural heritage and cultural events, valuing and promoting the material and immaterial goods of culture. (MINISTRY OF TOURISM, 2010, page 15).

Cultural tourism is that form of tourism that aims, among other purposes, knowledge of monuments and historical and artistic sites. It has a really positive effect on them as much as it contributes to their own ends, their maintenance and protection. This form of tourism justifies in fact the efforts that such maintenance and protection demand of the human community, due to the socio-cultural and economic benefits that it entails for the entire population involved. (ICOMOS - International Council of Monuments and Sites, 1976, page 2).

B.1) Archaeological Tourism or Arqueotourism

According to Manzato (2007), archaeological tourism, or "archaeotourism", consists of the process of displacement and permanence of visitors to places called archaeological sites, where the remains of ancient societies are found, whether prehistoric and / or historical, subject to terrestrial or underwater visitation.

Archeological tourism, according to Wildmer (2009, page 69), is characterized by the voluntary and temporary displacement of individuals to places where material remains are representative of the evolutionary process of man on the planet, motivated by the interest in knowledge of aspects pertinent to past cultures. Among "places where material remains" can be included, therefore, archaeological sites and also institutions, such as museums.

The Biosphere Reserve of Espinhaço Mountain, in this context, represents a territory that shelters rich archaeological sites with limpets, cave paintings, quartzite caves, rupestrian corridors. More than 11,000 years ago, prehistoric groups headed to the southern portion of Espinhaço Mountain, between the municipalities of Diamantina and Buenópolis, leaving an important cultural legacy, between shelters, hunting territories and ritualistic practices, in a seasonal search for food. This mosaic of historical remains represents a significant part of the formation of the peoples of Minas Gerais, preserving elements of the indigenous societies, the African matrix populations and the colonizers who sought gold and diamonds in the 18th and 19th centuries.

FIGURE 32: MAP OF ARCHAEOLOGICAL SITES IN THE MUNICIPALITIES OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.

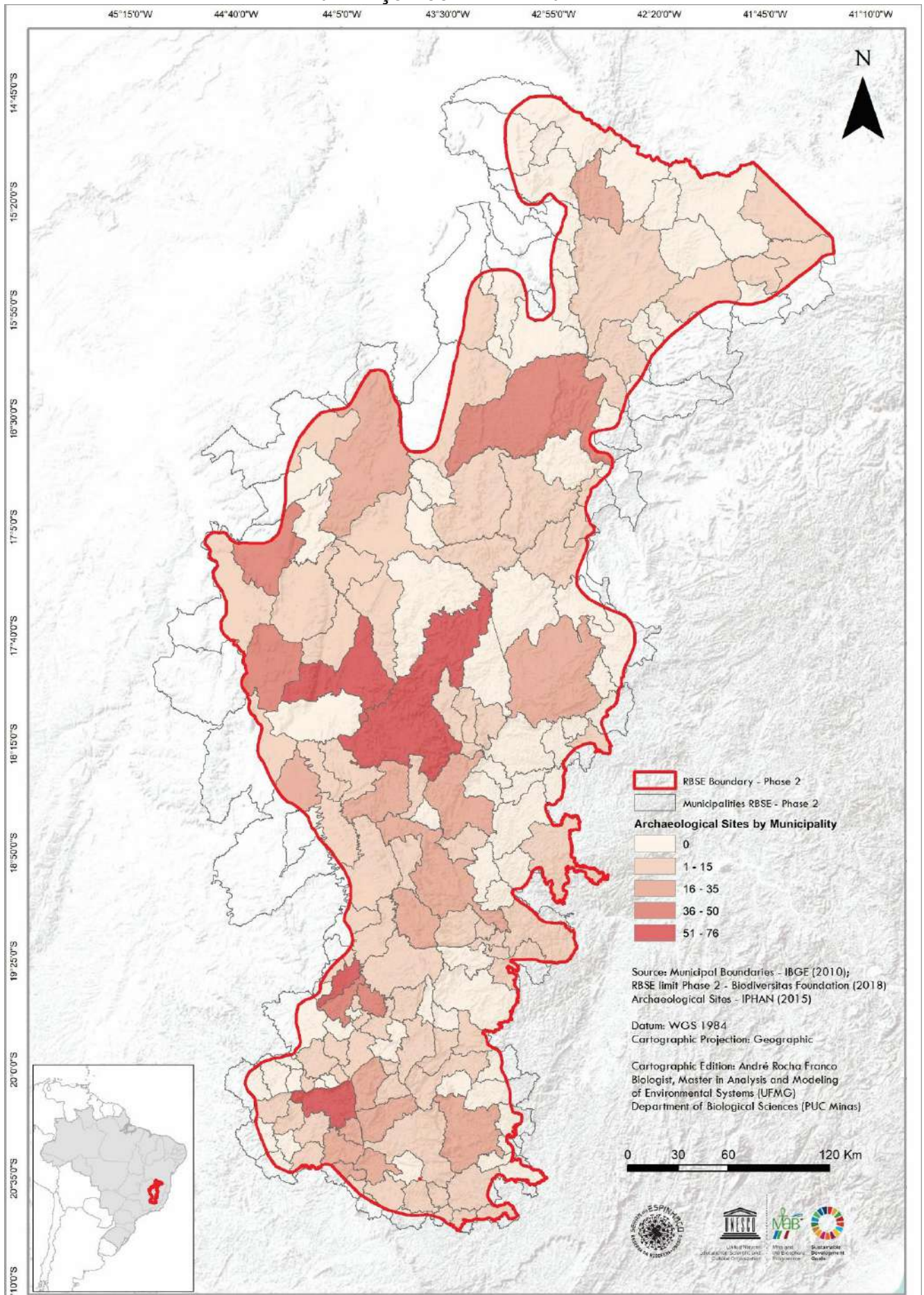


TABLE 23: ARCHAEOLOGICAL SITES LOCATED IN THE MUNICIPALITIES OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2 (HIGHLIGHT IN RED COLOR FOR THE NEW MUNICIPALITIES OF RBSE PHASE 2).

CITY	ARCHAEOLOGICAL SITES
ÁGUAS VERMELHAS	Água de Barro, Boa Vista I, Curral de Dentro
BOCAIÚVA	Abrigo do Bi, Gruta Antiga de Terra Branca, Lapa do Arrenegado, Lapa do Cassimiro
BONFIM	Bálsamo, Caetano José 1, Caetano José II, Lavapés 2, Lavapés I
BOTUMIRIM	Abrigo I da Vargem da Estiva, Abrigo II da Vargem da Estiva, Barra do Gigante, Barra do Noruega, Lapa da Pindaíba, Lapa do Bugre I do Ribeirão Gigante, Lapa do Noruega, Pedra de Bugre, Pedra do Bugre da Vargem da Estiva, Pedras Pintadas da Fazenda Olhos d'água, Sítio dos Guimarães, Três Barras
CARBONITA	Grota do Tamboril
CONFINES	Abrigo do Galinheiro, Busca Vida, Lapa Limeira, Lapa Mortuária, Seo José dos Confins
CONGONHAS	Bichento, Bom Jesus, Carvalho, Cascalheira, Casquinha, Chuvisco, Cruzeiro, Escancarado, Esmeril, Esmeril-Aqueduto, Fazenda Simão, Marimbondo, Pasto do Paulo, Pastorzinho, Pé de Mexerica, Pinheiro, Relâmpago, Sítio Histórico de Mineração Morro das almas
CORAÇÃO DE JESUS	Abrigo do Topo, Caverna do Espigão, Gruta das Tesouras, Gruta do Sol, Gruta dos Condutos, Gruta dos Meninos Lapa das Tartarugas, Lapa do Salitre, Lapa do Sobradinho, Lapa Madame Cassou, Panela do Tapuia, Sítio Calionguê Sítio da Lagoa
CORONEL MURTA	Sítio de Ouro Fino
CRISTÁLIA	Abrigo da Barra do Itacambiraçu, Abrigo da Barra do Itacambiruçu, Abrigo da Vargem do Monjolo I, Abrigo da Vargem do Monjolo II, Alecrim, Andrade, Barrancão, Engenho, Fazenda de Luis Cardoso, Lapa do Bugre, Lapa do Bugre II, Lapa do Cipriano, Lapa do Marciano, Lapa dos Peixes, Matão, Pedra Santa, Porteira, Sals I, Sals II, Sítio da Pedra Alta
DIVISÓPOLIS	Estiva, Fazenda dos Paulistas, Mata dos Coqueiros
FRANCISCO SÁ	Morro da Abelha, Sítio do Angico
GRÃO MOGOL	Abrigo da Barra da Ventania, Abrigo da Barra do Ventania, Abrigo da Lia, Abrigo do Funil do Itacambiruçu, Abrigo do Ribeirão Extrema, Abrigo do Taquaral e atelier de lascamento, Abrigo do Tamboril, Abrigo I da Ponte Nova do Ventania, Abrigo II da Ponte Nova do Ventania, Atelier de Lascamento da Ponte Nova do Rio Ventania, Escurinha I, Escurinha II, Lapa da Babilônia, Lapa da Barra de São

	Lourenço, Lapa da Joana, Lapa da Maria Nunes, Lapa do Buriti, Lapa do Elvio Gonçalves, Lapa do Gigante, Lapa do Joaquim Campos, Lapa do Louro, Lapa do Mateus, Lapa do Poço do Ventania, Lapa do Rato I, Lapa do Rato II, Lapa do Rato III, Lapa do Veado Listrado, Lapa do Ventania, Lapa do Ventania I, Lapa do Zé Maria, Lapa Maria das Neves, Lapão da Fazenda Pedra Preta, Lapão da Fazenda Pedra Preta, Pedra da Extrema, Pedra do Altino, Pedra do Bode, Pedra do Jambeiro II, Pedra do Jambeiro III, Pedra Pintada, Sítio do Vau da Limeira, Vargem do Quartel I, Vargem do Quartel II, Vau do Limeira
JANAÚBA	Abrigo da Onça, Lapa do Bico da Pedra, Lapa do Poço do Defunto
JOSÉ GONÇALVES DE MINAS	Barra de Minas, Barra do Canoas
LAGOA SANTA	Abrigo do Bodão, Abrigo do Galinheiro, Arruda, Bite, Bitu, Cachorro Branco, Coqueirinho, Fazenda Alpercata, Fazenda Fidalgo, Fazenda Moinho, Gruta da Lapinha, Jacques I, Jacques II, João Bosco, Lapa do Jessé, Lapa do Salitre, Lapa dos Micos, Lapa Mortuária de Confins, Lapa Vermelha de Lagoa Santa, Lapinha I, Lapinha II bis A, Lapinha II bis B, Lavarjão, Lund, Macaúba, Olhos d'Água, Pastinho, Pedra Falsa, Poço Azul, Quebra Cangalha, Quebra Cangalha, Quebra Prato, Sítio aqueduto do elmo, Sítio Cerâmico do Bene, Sítio Cerâmico Nilo Abreu, Sítio do Padre, Sobradinho, Tamboril II, Tiãozinho Fernandes, Vaca Prenha, Vargem da Lapa, Vargem da Lapa, Viana
LEME DO PRADO	Abrigo do Tamboril, Barra do Corrente, Cemitério dos Coelho, Comunidade de Porto dos Cori / Casa de Germano Coelho, Fazenda do Sobrado, Fazenda dos Coelho
MATOZINHOS	Abrigo da Mata da Cauaia, Abrigo de Caieiras, Abrigo do Poções I, Abrigo dos Ideogramas, Abrigo Gameleira Açude do Barbosa, Angico, Bebedouro, Caetano Sítio, Cainhanga, Cerca Grande I, Cerca Grande II, Cerca Grande III, Cerca Grande V, Cerca Grande VI, Cerca Grande VII, Complexo Minerário da Lagoa dos Aracas, Criciúma I e II, Experiência da Jaguará, Ferradura, Gruta de Caieiras, Império da Jaraguá, Janelas de Cerca Grande, João Bárbara, Julião, Lapa das Boleiras, Lapa do Ballet, Lapa do Caetano, Lapa do Chapéu, Lapa do Ouro, Lapa do Santo, Lapa do Santo, Mandioccal, Pasto do Topo, Pasto do Topo, Pedra Esquecida, Pedra Pesada, Peri-Peri, Poções I, Poções II, Poções IIa, Poções IIIb, Poções III, Porco Preto, Quintalinho, Riacho Dantas, Salitre (Caianga), Santo Antônio do Mocambo, Santo Antônio II, Santo Antônio II, Seu Neném I, Seu Neném II, Seu Neném III, Sumidouro da Varginha da Cauaia, Vargem da Pedra, Vargem Formosa, Vereda 1, Vereda 2, Vereda 3, Vereda 4, Vereda 5, Vereda 6
MONTES CLAROS	Cachoeira do Bananal, Cana Verde, Fazenda Quebrada I, Fazenda Quebrada II, Gruta do Salitre, Lapa d'Água Lapa da Bandeirinha, Lapa da Chica Doida, Lapa da Divisa, Lapa da Mandinga, Lapa das Cabeceiras I, Lapa das Cabeceiras II, Lapa das Garças, Lapa do Bolívar I e II, Lapa do Pilão, Lapa do Tião, Lapa Pequena, Lapa Pintada, Lítico I, PIMO 01, PIMO 02, PIMO 03, PIMO 04, PIMO 09, PIMO 11, Sítio Arqueológico Carrapato, Sítio das Lages, Sítio do Engenho
NINHEIRA	Barro Negro, Cana Furada, Córrego da Mangeira, Espinheiro, Pau Seco, Pedra Canga, Pedra Moleira, Ponta de pedra, Rubião
PEDRA AZUL	Sítio Toca dos Caboclos
PEDRO LEOPOLDO	Abrigo do Sumidouro, Abrigo Lagoa Funda, Abrigo Leste, Base, Baú, Campinho, Carroção, Eucalipto, Fazenda da Salmoura I e II, Fazenda da Salmoura III e IV, Fazenda Ribeira, Fazenda Tamboril, Gruta Cheirosa, Lagoa Funda, Lapa da Pia, Lapa da Ribeira, Lapa do Bau, Lapa do Carroção, Lapa do Sumidouro I, Lapa do Sumidouro II, Lapa Vermelha I, Lapa Vermelha I bis, Lapa Vermelha II, Lapa Vermelha IV, Lapa Vermelha Soleil, Lapa Vermelha VI, Limeira, Mãe Rosa, Marciano, Ronaldo Nascimento, Samambaia I, Samambaia II, Samambaia III,

	Sítio do Engenho, Sumidouro - Lago S. do Rochedo, Tamboril, Valetão
PIRAPORA	Ilha das Velhas, Ilha do Engenho, PIMO 05
PRUDENTE DE MORAIS	Abrigo das cerâmicas, Abrigo Lapa Preta, Capão das Éguas, Dolina da Bebida, Escrivania, Gameleira, Gruta da fazenda Paraíso, Lagoa Verde I, III e V, Lapa da Pia (2), Limeira, Mato Seco, Vice Rei
RIO PARDO DE MINAS	Abrigo do Curro, Abrigo João do Rego, Sítio do Curral das Éguas, Sítio do Pau d'Arco
SANTO ANTÔNIO DO RETIRO	Pau d'Arco I, Pau d'Arco II, Pau d'Arco III, Pau d'Arco IV, Pau d'Arco IX, Pau d'Arco VI, Pau d'Arco VII, Pau d'Arco VIII, Pau d'Arco X, Pau d'Arco XI, Pau d'Arco XII, Pedra Grande, Pedreiras I, Pedreiras II, Pedreiras V
TURMALINA	Barra do Peixe Cru, Canabrava, Fazenda do José do Socorro, José do Socorro, Lapa da Ponte do Funil, Lapa do Veado, Peixe Cru Sítio Cerâmico do Canabrava
VESPASIANO	Gruta de Carrancas I, Gruta de Carrancas II, Lapa do Urubuz

CNSA (National Register of Archaeological Sites)/SGPA (Archaeological Heritage Management System) OF THE IPHA (Institute of National Historical and Artistic Heritage)

B.2) Registered Goods and Tourism

The registered cultural heritage concerns cultural, material or immaterial goods, which, due to their historical, artistic, aesthetic, affective, symbolic value, among others, received some kind of protection by the public power, such as registration, registration immaterial, the inventory or other forms of precaution provided for in the legislation. A registered cultural property is under a special regime of guardianship by the State, since it has been assigned a social value (IEPHA - State Institute of Historic and Artistic Patrimony, 2018).

The protection is the instrument of recognition and protection of the best known cultural patrimony, and can be done by the federal, state and municipal administration. At the federal level, decree-law, number 25, of November 30, 1937, established the first legal instrument for the protection of the Brazilian Cultural Heritage and the first of the Americas, whose fundamental precepts remain current and in use until our days (IPHAN - Institute of National Historical and Artistic Heritage, 2018).

The act of safeguarding the cultural heritage, in this context, establishes an intrinsic relation with the tourist activity. It is a strategy of valorization and dissemination of local, regional and national memory, bringing elements of tradition, past, history of peoples and places and identity issues, stimulating a sense of belonging to a particular region.

In the map and table below, we describe the described assets by the State Institute of Historical and Artistic Heritage of Minas Gerais (State Institute of Historic and Artistic Patrimony / Minas Gerais), whose purpose is to research, to protect and promote the cultural, historical, natural and scientific heritage, of a material or immaterial nature, of conservation interest in the State of Minas Gerais, under the terms of state legislation.

FIGURE 33: MAP OF THE REGISTERED GOODS TAKEN BY IEPHA (STATE INSTITUTE OF HISTORIC AND ARTISTIC PATRIMONY) IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.

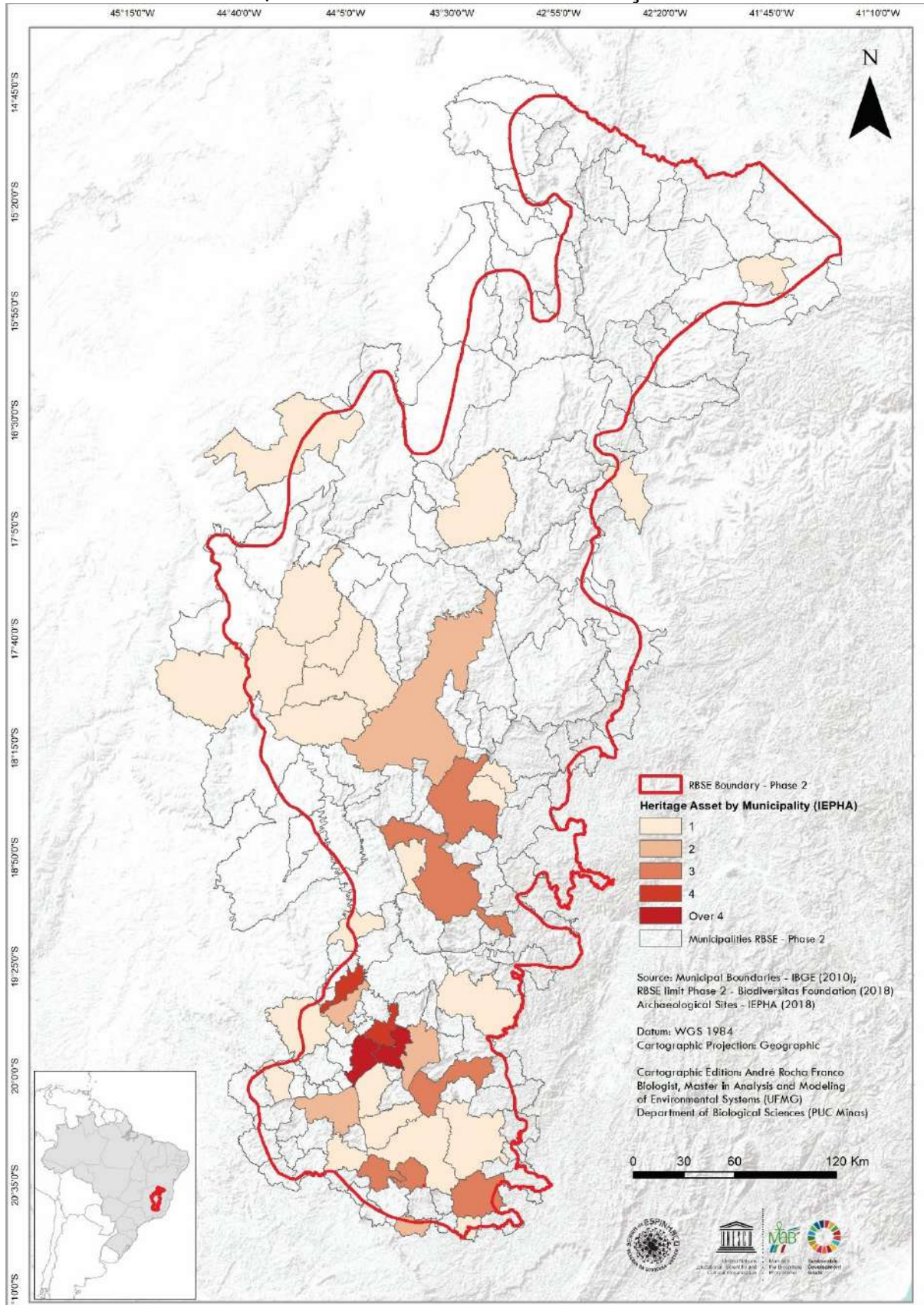


TABLE 24: REGISTERED GOODS BY IEPHA (STATE INSTITUTE OF HISTORIC AND ARTISTIC PATRIMONY) BY BIOSPHERE RESERVE MUNICIPALITIES OF ESPINHAÇO MOUNTAIN- PHASES 1 AND 2 (HIGHLIGHT IN THE RED COLOR FOR THE NEW MUNICIPALITIES OF RBSE PHASE 2

CITIES	QUANTITY OF REGISTERED GOODS	REGISTERED GOODS
AUGUSTO DE LIMA	1	Cabral Mountain
BELO HORIZONTE	29	Building of the Academy of Letters of Minas Gerais/ Collection of the Teacher Reference Center / / Former headquarters of BEMGE / Building of the former Deliberative Council and City Hall of Belo Horizonte / Building of the Public Archive of Minas Gerais (APM) / Building of the Public Automobile of Minas Gerais / Church: Sagrado Coração de Jesus/ Building of the Institute of Education of Minas Gerais / House Juscelino Kubitschek / Cathedral of the Blessed Mother of Boa Viagem / Building of the Mortuary of the Bom Fim Cemetery / Building of the Museum of Minas Gerais / Palace of Justice: Rodrigues Campos / Palace of Liberty / Américo René Giannetti Municipal Park / Memorial Monument of the Centenary of National Independence / Landscaped and architectural complex of the square: Rui Barbosa (Station Square) / Liberty Square / Floriano Peixoto Square and the building of the 1st Battalion of the Military Police of the State of Minas Gerais / Hugo Werneck Square, Hilda Brandão Maternity Hospital and Borges da Costa Hospital / Raul Soares square / Building of the Cine-Teatro Brasil / Building of the Olegário Maciel State School / Building of the Barão de Macaúbas State School / Building of the Pedro II State School / Building of the Barão do Rio Branco State School / Building of the former Secretariat of Culture / Building of the Music Conservatory of UFMG (Federal University of Minas Gerais) / Architectural complex of Pampulha
BELO VALE	1	Farm: Boa Esperança
BERILO	1	House of the Inconfident:Domingos de Abreu Vieira
BONFIM	1	Building of the Mortuary of the Bonfim Cemetery
BRUMADINHO	2	Farm: Boa Vista dos Martins / Historical and landscape assembly of Calçada Mountain
BUENÓPOLIS	1	Cabral Mountain
CAETÉ	2	House of João Pinheiro (Solar do Tinoco) / Landscape Assembly of Serra da Piedade
CONCEIÇÃO DO MATO DENTRO	3	Main church: Nossa Senhora Aparecida / Chapel: Nossa Senhora dos Passos / Historical Core of Córregos
CONGONHAS	3	Chapel: Nossa Senhora da Soledade / Main church: Sant'Ana / Architectural and Landscape Assembly: Romarias
CONGONHAS DO NORTE	1	Main church: Sant'Ana
CORAÇÃO DE JESUS	1	Church: Sagrado Coração de Jesus
DIAMANTINA	2	Serra dos Cristais / Architectural and Landscape Assembly of Biribiri
ESMERALDAS	1	Architectural and Landscape Assembly of the farm: Santo Antônio
FRANCISCO DUMONT	1	Cabral Mountain
ITABIRA	1	Peak: Itabirito or Itabira
ITABIRITO	1	Peak: Itabirito or Itabira
ITACAMBIRA	1	Main church: Santo Antônio de Itacambira
JEQUITIBÁ	1	Main church: Santíssimo Sacramento
JOAQUIM FELÍCIO	1	Cabral Mountain
LASSANCE	1	Cabral Mountain
MARIANA	1	District Historical Core of Santa Rita Durão
MATEUS LEME	1	Main church of Santo Antônio
MATOZINHOS	4	Architectural and Landscape Set of Jaguara Farm / Chapel: Nosso Senhor Bom Jesus de Matozinhos / Archaeological and Landscape Set of Poções / Ruins of the Church Senhor Bom Jesus de Matozinhos

NOVA LIMA	1	Architectural and Landscape Set of Serra da Calçada
OURO BRANCO	3	Farm: Carreiras / Mountain: Ouro Branco / Farm: Pé-do-Morro and Chapel: Santana
OURO PRETO	1	Farm: São José do Manso
PEDRO LEOPOLDO	2	Lake and Lapa do Sumidouro / Quinta do Sumidouro
PIRANGA	3	Church of Santo Antônio / Chapel of Nossa Senhora do Rosário / Ruins of the Chapel: Nossa Senhora do Rosário
SABARÁ	5	Chapel of Nossa Senhora do Rosário / Church Nossa Senhora da Assunção da Lapa / Ermida de Santa Efigênia / Architectural and Landscape Set of Vila Elisa, Working village and Old Factory of Textiles of Marzagão / Landscape Set of Serra of Piedade Mountain
SANTA BÁRBARA	3	Historical Center of the District of Brumal / Historic Center of Santa Bárbara / Caraça Mountain
SANTA LUZIA	4	Monastery of Macaúbas / Basilica of Santa Luzia / Casa da Rua Direita / Historic Center of Santa Luzia
SANTANA DOS MONTES	2	Farm: Posse / Farm: Fonte Limpa
SANTO ANTÔNIO DO ITAMBÉ	1	Itambé Peak
SENHORA DE OLIVEIRA	1	Main church: Nossa Senhora de Oliveira
SERRA AZUL DE MINAS	1	Itambé Peak
SERRO	3	Main church: São Gonçalo / Main church: Nossa Senhora dos Prazeres / Itambé Peak

SOURCE: ELABORATED BY THE AUTHOR WITH DATA EXTRUDED FROM IEPHA - State Institute of Historic and Artistic Patrimony (2018).

B.3) Geotourism

Geological heritage is a segment that encompasses elements that make up geodiversity, such as its rupestrian outcrops, occurrence of fossils, minerals and geological structures as well as the landscapes that present a didactic, scientific, cultural or tourist significance.

Geotourism in turn, is one of the typologies of tourism that has as a characteristic the presence of elements of the geopatrimony and the geological and paleontological sites as the main attraction in the place to be visited. (Lopes, 2011). The main idea of this activity is to add scientific knowledge to the natural heritage, valuing and making possible a visitation in a balanced way. Ruchkys (2007) points out, in turn, activity as a segment of tourism that has the geological heritage as its main attraction and seeks its protection through the sensitization of the tourist, using for this the interpretation to make it accessible to the lay public, in addition to promoting its dissemination and the development of earth sciences.

In this sense, based on a movement of geoconservation, maintenance and valorization of the geological heritage, Geotourism also aims to promote sustainable development for the regions in which these elements are inserted.

Within this promising segment of the tourist activity, several sites, recognized by SIGEP (Brazilian Commission of Geological and Paleobiological Sites), in the RBSE - both Phase 1 and Phase 2 - are integrated, which have as main characteristic elements that make up the national geological heritage. They are listed in the table below.

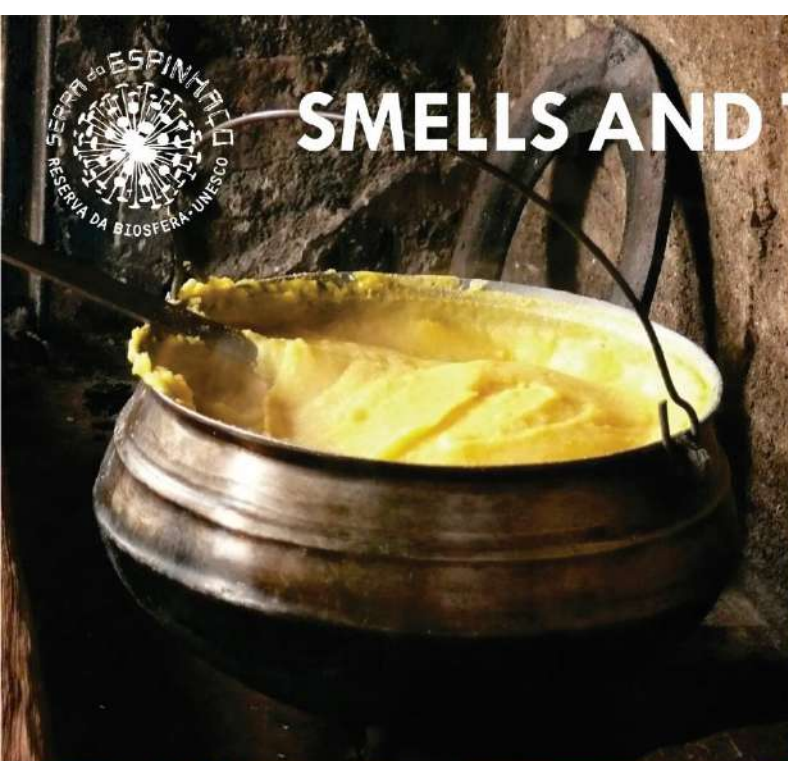
TABLE 25: GEOLOGICAL AND PALEANTOLOGICAL SITES LOCATED IN THE MUNICIPALITIES OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2 (HIGHLIGHT IN RED COLOR FOR THE NEW MUNICIPALITIES OF RBSE PHASE 2)

NAME OF THE FARM	CITY	SITUATION
Gandarela Basin	Caeté, Itabirito, Mariana, Nova Lima, Ouro Preto, Raposos, Rio Acima, Santa Bárbara	Approved proposal
Canyon do Talhado	Porteirinha	Publication - Volume 2
Carste de Lagoa Santa	Lagoa Santa, Pedro Leopoldo, Matozinhos, Funilândia, Confins	Publication - Volume 2
Monjolos Caves	Monjolos	Not suggested to SIGEP (Brazilian Commission of Geological and Paleobiological Sites)
Caves of the Gandarela mountain	Santa Bárbara, Caeté	Not suggested to SIGEP (Brazilian Commission of Geological and Paleobiological Sites)
Conglomerate: Diamantífero Sopa	Diamantina	Publication - Volume 1
Gruta do Centenário	Mariana	Publication - Volume 1
Cave: Salitre	Diamantina	Not suggested to SIGEP (Brazilian Commission of Geological and Paleobiological Sites)
Lapa de Antônio Pereira	Ouro Preto	Cancellation
West edge marble of Cipó Mountain	Jaboticatubas, Santana do Riacho	Not suggested to SIGEP (Brazilian Commission of Geological and Paleobiological Sites)
Mina de Passagem	Mariana	Approved proposal
Onça Mountain	Crucilândia	Suggestion
Pedra Rica Mountain	Grão Mogol	Publication - Volume 2
Pedreira Mountain	Santana do Riacho, Conceição do Mato Dentro, Itambé do Mato Dentro, Morro do Pilar, Jaboticatubas, Taquaraçu de Minas, Itabira	Suggestion
Itabira Peak	Itabirito	Publication - Volume 2
Itacolomi Peak, Itacolomi State Park	Ouro Preto	Suggestion
Itambé Peak	Serro	Publication - Volume 3
Mountains: Piedade, Quadrilátero Ferrífero	Caeté e Sabará	Publication - Volume 2
Valley: Glacial Do Galvão	Diamantina	Cancellation

SOURCE: BRAZILIAN COMMISSION ON GEOLOGICAL AND PALEOBIOLOGICAL SITES (2015); STÁVALE (2012).



SMELLS AND TASTES



C) GASTRONOMIC TOURISM

The Tourist Circuits host a number of municipalities in the same region, with cultural, social and economic affinities that unite to organize and develop the regional tourist activity in a sustainable way, consolidating a regional identity.

RBSE has 9 consolidated Tourism Gastronomic Circuits:

- Belo Horizonte Circuit - Municipality of Belo Horizonte;
- Diamantes Circuit - Municipalities of Diamantina and Serro;
- Gold Circuit - Municipalities of Barão de Cocais, Catas Altas, Congonhas, Itabirito, Mariana, Nova Lima, Ouro Preto, Sabará;
- Guimarães Rosa Circuit - Municipality of Curvelo;
- Cabral Mountain Circuit - Municipalities of Augusto de Lima, Buenópolis, Claro dos Poções, Joaquim Felício;
- Cipó Mountain Circuit - Conceição do Mato Dentro, Itambé do Mato Dentro, Santana do Riacho;
- Serras de Minas Circuit - Guaraciaba Municipality (incorporated in this phase of RBSE);
- Circuit: Veredas do Paraopeba - Municipalities of Bonfim, Brumadinho, Igarapé, Itaguara, Jeceaba, Juatuba, Mário Campos, São Joaquim de Bicas;
- Circuit Villas and Farms - Municipalities of Conselheiro Lafaiete, Itaverava, Santana dos Montes.

The definition of Inductive Destinations of Regional Tourism Development complements this strategy by strengthening those destinations that have basic infrastructure and tourism and qualified attractions, which are characterized as receiving nucleus and / or distributor of tourist flows.

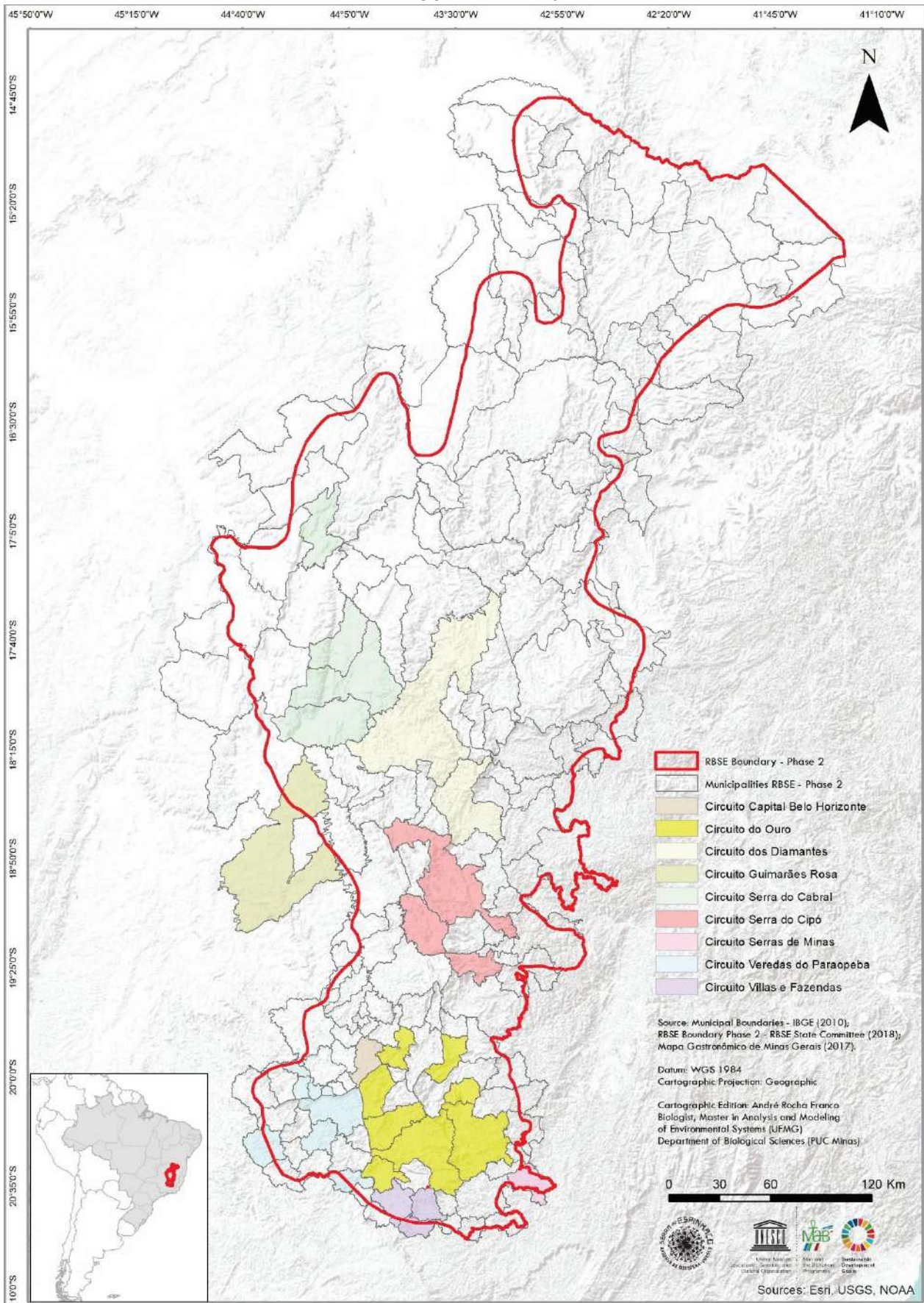
In Minas Gerais, 7 of these destinations are present in the RBSE (3 of national character and 4 of state scope).

In the scope of the Estrada Real, this one has 57 (fifty and seven) municipalities inserted in the limits of the RBSE, with several tourist attractions, like the destination "Entre Serras: da Piedade ao Caraça"; the Program: Vivendo a Estrada Real (Living the Royal Road), (V.E.R.); the Circuito do Ouro (Gold Circuit); and the CRER Project - Religious Road of the Royal Road (tourist route totally based on the concept of Caminho de Santiago de Compostela, located in Spain). Likewise, the Solidarity Tourism Program is an example of this tourism potential that the regions seek to develop, acting as a propeller of sustainable development in the generation of work and income for the communities, valuing the "way of being" and the "know-how" ", The popular culture and the natural beauties of the communities. The initiatives work the region's economic and social development from its richest nature: its exuberant nature, its ancient cultures, its history and traditions, its gastronomy, its hospitality, its handicrafts, its welcoming people and, above all, its vast history.

Even considering this advance and dynamism in the region of the RBSE, a large part of its population still needs the support of policies and social programs implemented by the public power, whether in

assistance, orientation or training for the market or fomenting entrepreneurship, aiming to generate income and work from the local alternatives and potentialities. In this context, the municipalities of the north of Minas Gerais, incorporated into Phase 2 of the RBSE, whose historical-cultural and natural heritage is very rich, are still incipient and not so widespread.

FIGURE 34: MAP OF TOURIST CIRCUITS OF MUNICIPALITIES OF BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2





BELIEFS AND RELIGIONS



D) RELIGIOUS TOURISM

Since 2011, SETUR (State Secretariat of Tourism of Minas Gerais) has been working and investing in the religious tourism segment, since Brazil is the 3rd country to send tourists to Santiago, behind only Spain and France. According to research by the Institute of Economic Research Foundation (FIPE), in 2010, 8.1 million domestic trips were carried out by faith, representing 3.6% of all trips made in Brazil. In Minas Gerais alone, according to the Ministry of Tourism, there were 3.94 million trips of this type.

The Sanctuary: Basílica Nossa Senhora da Piedade and the State Natural Monument of Piedade Mountain received, in 2017, more than 500 thousand visitors, approximately, and the Sanctuary of Caraça Mountain, 70 thousand. There are almost 600,000 faith-motivated visitors who move from their homes to these destinations. These two destinations are within the RBSE territory and make up the “Roteiro Entre Serras: of the Piedade ao Caraça”.

This way, SETUR (State Secretariat of Tourism of Minas Gerais) / Minas Gerais has been active in this territory for some years in two specific actions: the reform of the Piedade Mountain Sanctuary as well as the implementation of the CRER (Royal Road Religious Path). The renovation of the Sanctuary of Piedade Mountain located in Caeté, consisted of general restoration works, accessibility interventions and implementation of bilingual tourist signage with educational, warning, indicative and informative panels. The work was done through an agreement signed between the parties in an approximate total value of R \$ 2,260,000.00 reais (brazilian currency).

The CRER project - Religious Road of the Royal Road is a touristic route totally based on the concept of the Caminho de Santiago de Compostela (Way of Santiago de Compostela), located in Spain. The CRER uses the Royal Road as its main axis, but with some adaptations. The Way starts from Serra da Piedade, passes through the Caraça Sanctuary and continues to the National Sanctuary of Aparecida in the State of São Paulo. The intention is to make this route a great tourist product for pilgrims who want to complete the great tourist route.

For this, a Tourist Guide of the religious path was elaborated, a passport where the pilgrim can go stamping his passport in all the municipalities or points of passage and a certificate for who has all the stamps in the passport that, arriving at the end of the route, in both ends, one can pick up the certificate that has completed the path.

It was also implemented indicative signposting through totems, informative with indication of the locality, distances of the next destinies, spreadsheet of mileage and altimetric profiles of the way, as well as forcycles and warning plates.

FIGURE 35: BROCHURE OF THE PROJECT CRER.NTE: SETUR-MINAS GERAIS

Certificate

Passport

Touristic Guide

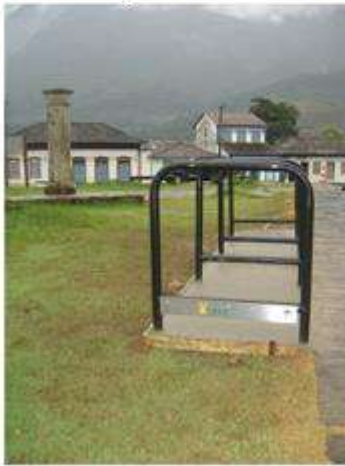


FIGURE 36: IMPLEMENTED INTERVENTION PHOTOS OF THE CRER PROJECT.

Indicative signaling (totem)



Bicycle racks



Information signage

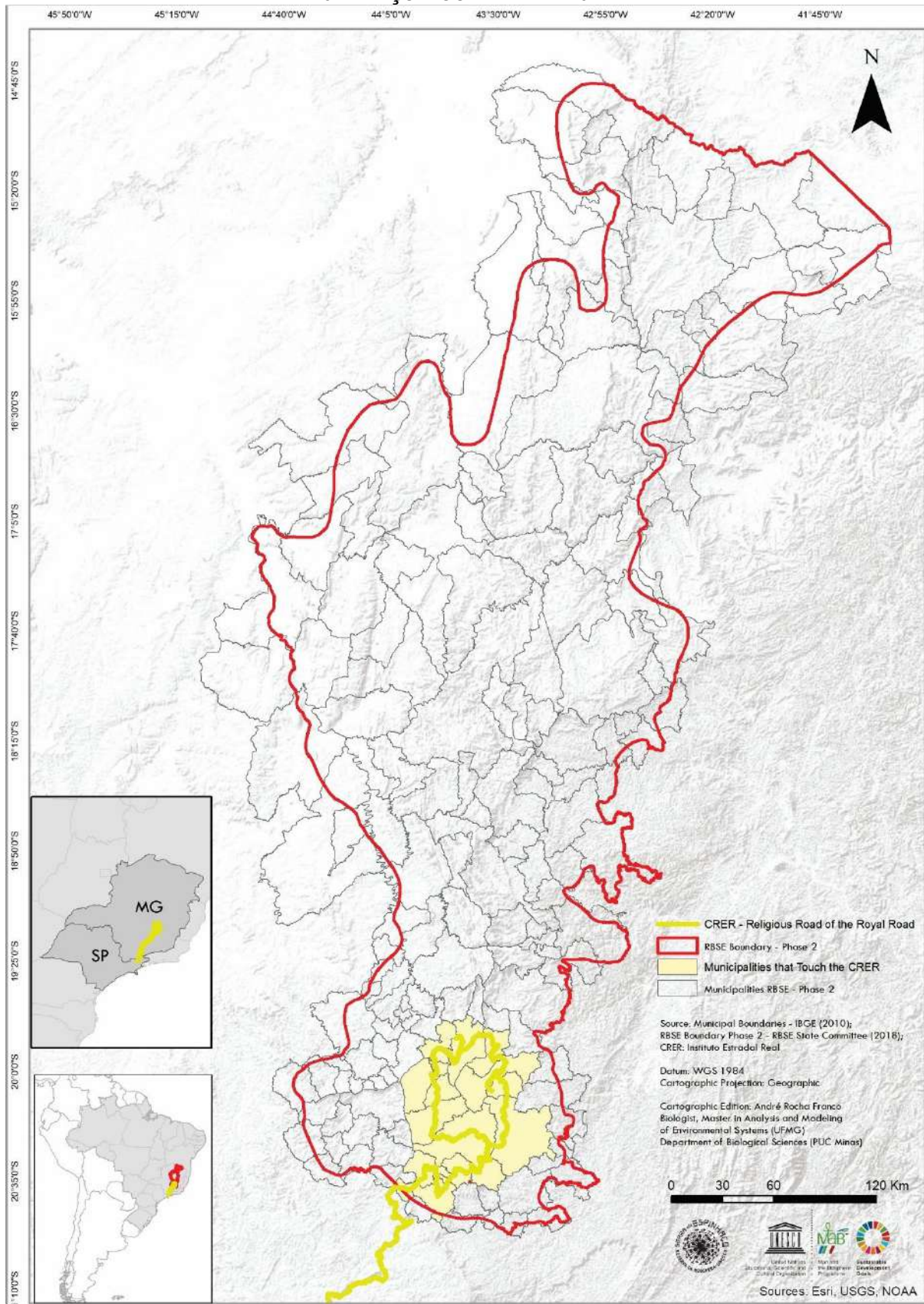


Warning signs



SOURCE: COLLECTION SETUR-MINAS GERAIS

FIGURE 37: MAP OF THE RELIGIOUS PATH OF THE ROYAL ROAD IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.



E) RURAL TOURISM OR AGROTOURISM

The Brazilian rural environment has been undergoing great transformations, mainly in relation to the production and labor relations that result from among other factors of the process of intensification of globalization and modernization of agriculture. In this context activities that historically are associated with the rural environment have been facing problems from the increasing disaggregation of traditional forms of articulation of production. (Brazil, 2010) At the same time the environment and consequently spaces seen as natural have acquired an important role and the inhabitants of these regions come to see the rural and the natural as forms of refuge and leisure.

In this context, the rural environment includes new economic, social and environmental functions, allowing rural communities to remain in the countryside. In this scenario of rediscovery, the possibility arises of income from non-agricultural activities, as is the case of tourism.

According to the World Tourism Organization, the Rural Tourism segment has great potential, and it is estimated that at least 3% of all tourists in the world guide their trips from this type of activity. In addition to the possibility of generating additional income for local communities, Rural Tourism can contribute to the economic and social revitalization of the regions, valuing local assets and products, conserving the environment, attracting public and private investments in infrastructure for the places where it is developed. (Neves, 2016).

According to Graziano da Silva (1998, page 14), Rural Tourism can be defined as "all the activities practiced in the non-urban environment, which consists of leisure activities in the rural environment in various modalities defined based on the offer: Rural Tourism, Tourism Ecotourism or Ecotourism, Adventure Tourism, Business Tourism and Events, Health Tourism, Cultural Tourism, Sports Tourism, these activities complement each other or not. " The Brazilian Ministry of Tourism defines it as "the set of tourism activities developed in rural areas, committed to agricultural production, adding value to products and services, rescuing and promoting the cultural and natural heritage of the community." (BRAZIL, 2003, page 11).

In the Southern Espinhaço, examples of this tourist base can be seen in the city of Serro, rich in churches, colonial houses, stone streets and mainly the production of artisanal cheese from Serro. The artisanal way to prepare the cheese comes from a technique developed in Serra da Estrela in Portugal and occurs about 300 years ago. In addition, Serro cheese was recognized as State Intangible Heritage by the State Institute of Historic and Artistic Patrimony (IEPHA) in Minas Gerais in 2002, and Intangible Heritage of Brazil in 2008. (Melo, 2014). In addition, the artisanal mode of production of raw milk cheese in the Serro (city) region was recognized and certified in 2011 by the Indication of Provenance (IP), granted by the National Institute of Industrial Property (INPI).

Another city that deserves to be highlighted is Santana dos Montes, surrounded by Espinhaço mountain, besides presenting Atlantic Forest reserves with species of fauna and flora of rare beauty, by the Historical and Artistic Heritage of Minas Gerais and Permanent Preservation areas. The city had in rural tourism the great responsibility for its development. (Neves, 2016).

Member of the Circuito do Ouro (Gold Circuit), formed by cities of Minas Gerais that are close to Belo Horizonte, which represent the diversity of Minas Gerais, the city of Itabira, formed by old

houses and old big houses, many of them with adobe masonry seal and wattle and daub on the rocks on the rocks, integrates this form of tourism. A highlight is given to the district of Ipoema, which in addition to the Tropeiro Museum, has as its headquarters the State Park: Mata do Limoeiro, composed by waterfalls and trails.

The Salinas' booze, also certified as Geographical Indication, and the agroextractivism of pequi (brazilian fruit), native fruit of the Brazilian Savanna and typical of the culinary in the hinterland, move rural tourism in the north of Minas Gerais by providing the region with national recognition, attracting visitors and generating new income opportunities for rural families and cooperatives.

3.2.4 Local Productive Arrangements (APLs)

Local Productive Arrangements (APLs) are agglomerations of companies and enterprises, located in the same territory, that present productive specialization, some type of governance and maintain ties of articulation, interaction, cooperation and learning among themselves and with other local actors, such as: government, business associations, credit institutions, teaching and research.

Until the last census, held in 2015, there were 677 APLs (Local Productive Arrangements) recognized by the Permanent Working Group for Local Productive Arrangements (GTP APL), being present in all regions of Brazil:

- Northeast:210 APLs;
- Southeast:170 APLs;
- North: 123 APLs;
- Midwest: 91 APLs;
- South: 83 APLs.

In the maps and table below, we present the 69 Local Productive Arrangements existing in the municipalities of RBSE Phase 2, according to a survey of the BRAZILIAN OBSERVATORY OF LOCAL PRODUCTIVE ARRANGEMENTS. This production model is in line with the Strategic Objectives of the MaB (Man and the Biosphere) Program 2015-2025, with emphasis on the process "to contribute to building healthy and fair economies and societies with prosperous human settlements in harmony with the Biosphere."

FIGURE 38: MAPS OF LOCAL PRODUCTIVE ARRANGEMENTS (APL) IN THE RBSE PHASE 2. MAP 1 - APICULTURE; MAP 2 - BIOTECHNOLOGY; MAP 3 - CLOTHING.

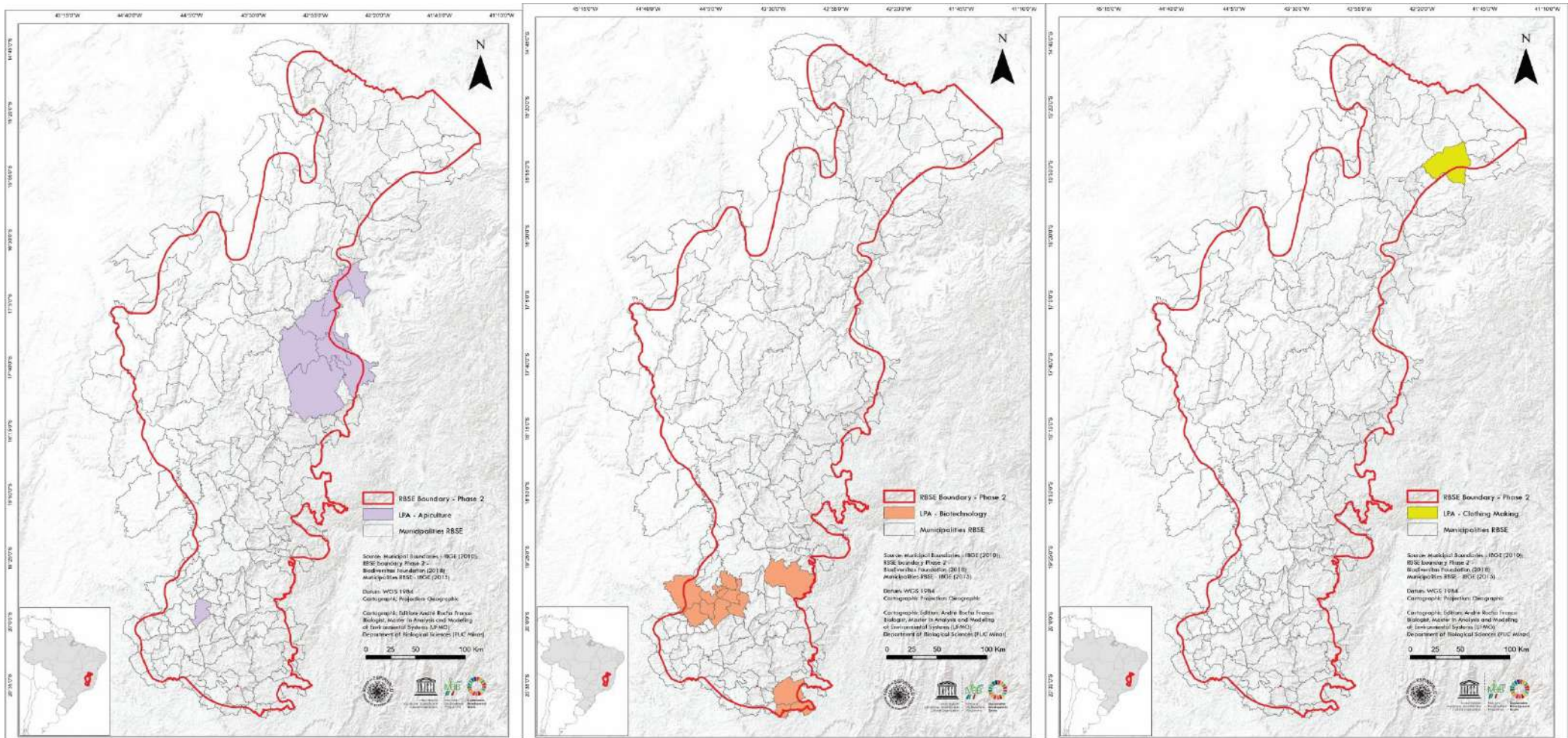


FIGURE 39: MAPS OF LOCAL PRODUCTIVE ARRANGEMENTS (APL) AT RBSE PHASE 2. MAP 1 - FOOTWEAR CONFECTION; MAP 2 - FURNITURE MANUFACTURING; MAP 3 - BEVERAGE PRODUCTION.

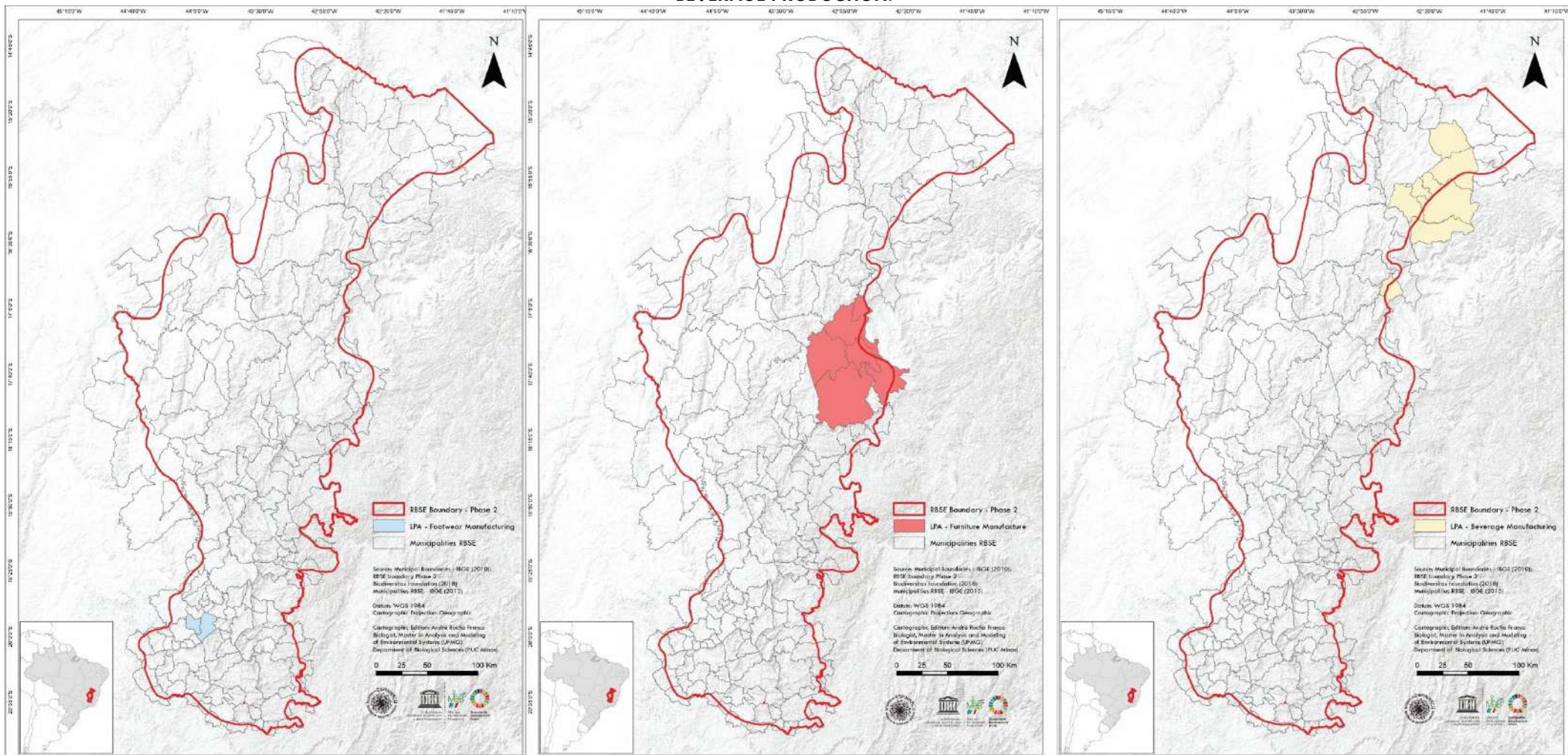


FIGURE 40: MAPS OF LOCAL PRODUCTIVE ARRANGEMENTS (APLs) AT RBSE PHASE 2. MAP 1 - GEMS AND JEWELS; MAP 2 - PHYTOTERAPIC; MAP 3 - FRUIT PRODUCTION.

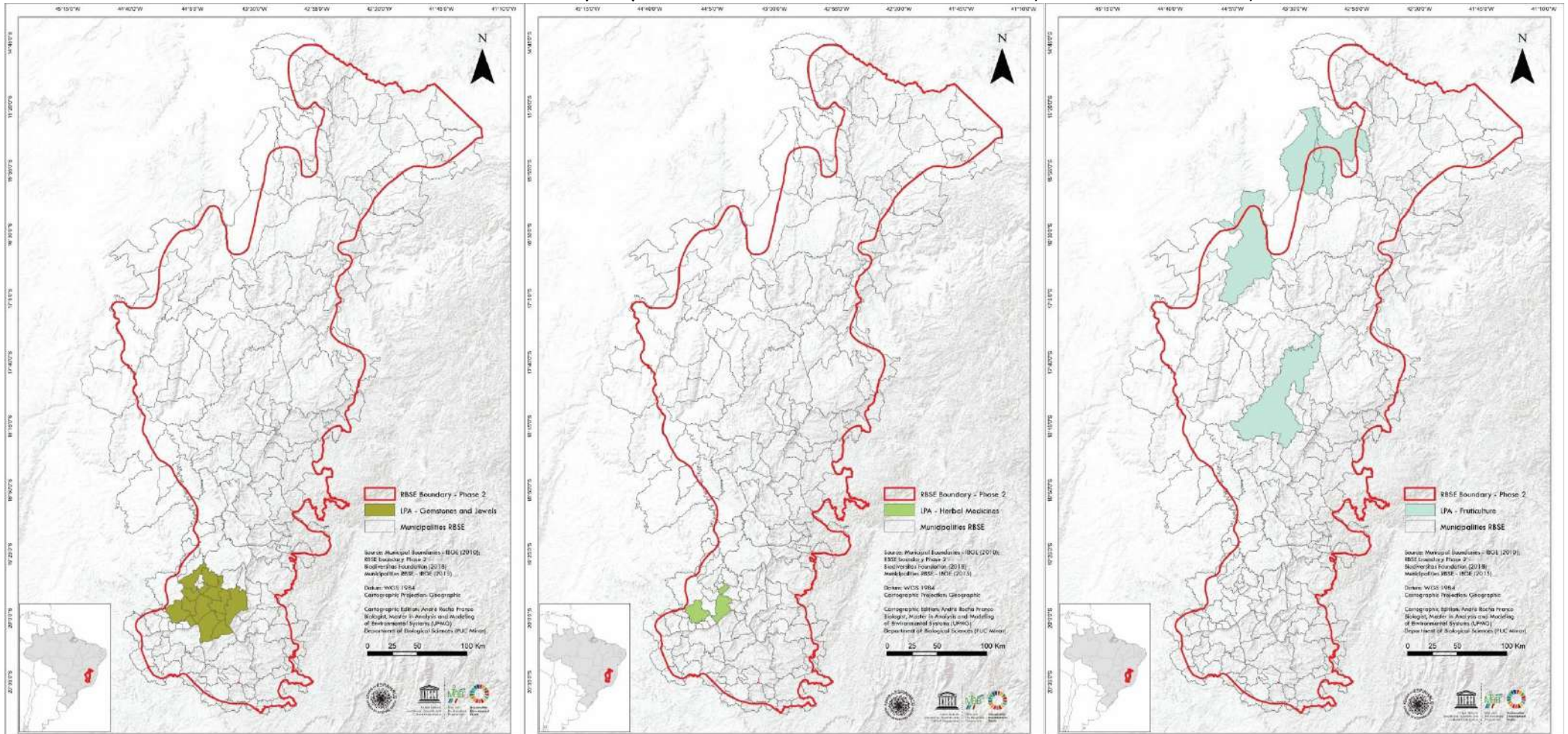


FIGURE 41: MAPS OF LOCAL PRODUCTIVE ARRANGEMENTS (APLs) AT RBSE PHASE 2. MAP 1 - INFORMATION TECHNOLOGY SERVICES; MAP 2 - PIG FARMING; MAP 3 - METALMECHANICAL.

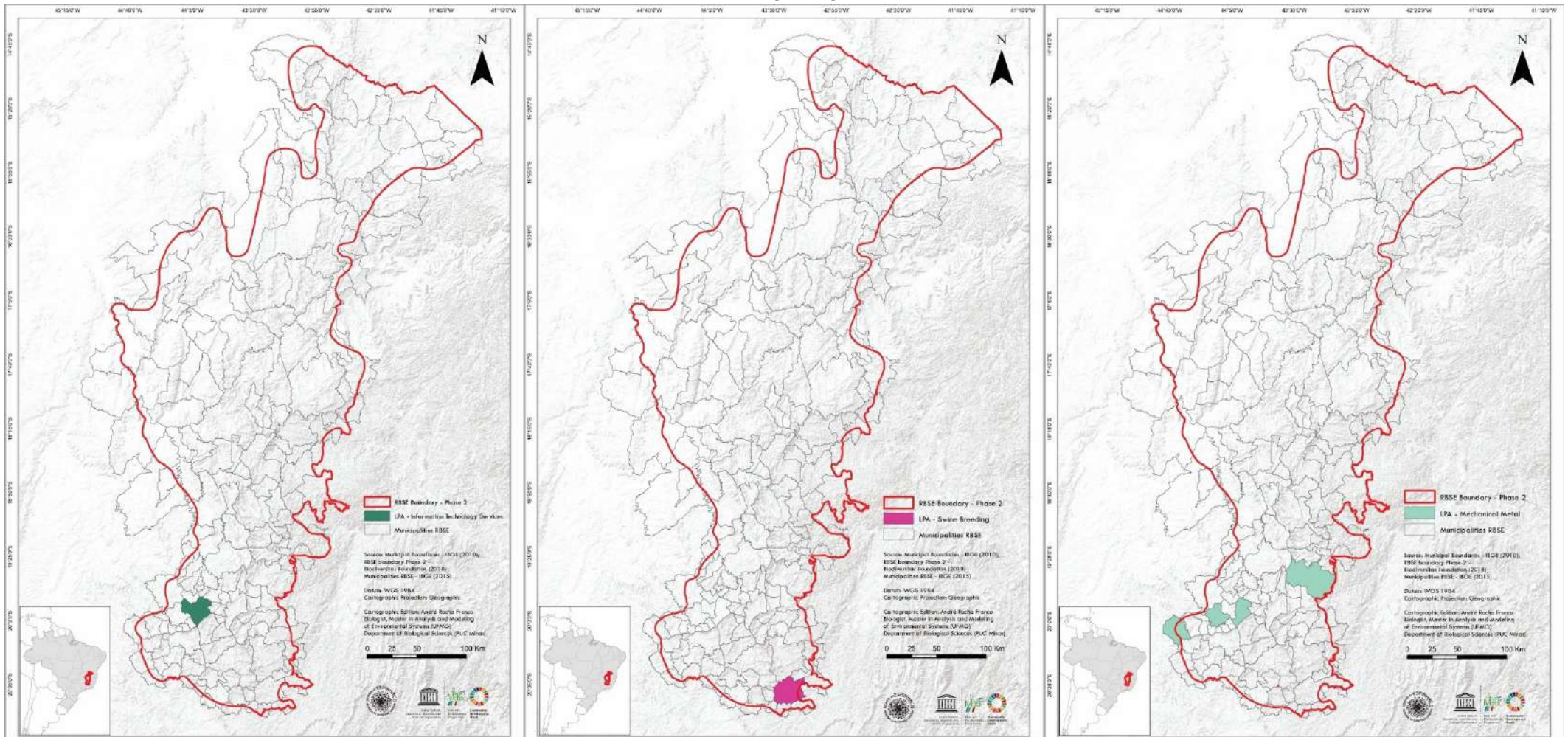


TABLE 26: LIST OF LOCAL PRODUCTIVE ARRANGEMENTS (APLs) OF THE BIOSPHERE RESERVE MUNICIPALITIES OF ESPINHAÇO MOUNTAIN - PHASE 2 (HIGHLIGHT IN RED COLOR FOR THE NEW MUNICIPALITIES OF RBSE PHASE 2).

ID	NAME OF THE APL (Local Productive Arrangements)	POLO CITY	CITIES	PRODUCTIVE SECTOR
1.	Mel e Própolis da Região Metropolitana de Belo Horizonte	Belo Horizonte	Belo Horizonte	Apiculture
2.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Berilo	Apiculture
3.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Capelinha	Apiculture
4.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Carbonita	Apiculture
5.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Itamarandiba	Apiculture
6.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	José Gonçalves de Minas	Apiculture
7.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Leme do Prado	Apiculture
8.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Turmalina	Apiculture
9.	Apicultura no Alto e Médio Jequitinhonha	Turmalina	Veredinha	Apiculture
10.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Belo Horizonte	Biotechnology
11.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Betim	Biotechnology
12.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Contagem	Biotechnology
13.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Esmeraldas	Biotechnology
14.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Itabira	Biotechnology
15.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Lagoa Santa	Biotechnology
16.	Tecnologia de Alimentos da Zona da Mata	Viçosa	Piranga	Biotechnology
17.	Tecnologia de Alimentos da Zona da Mata	Viçosa	Presidente Bernardes	Biotechnology
18.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Ribeirão das Neves	Biotechnology
19.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Sabará	Biotechnology
20.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Santa Luzia	Biotechnology
21.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	São José da Lapa	Biotechnology
22.	Tecnologia de Alimentos da Zona da Mata	Viçosa	Senhora de Oliveira	Biotechnology
23.	Bioteχνologia da Região Metropolitana de Belo Horizonte	Belo Horizonte	Vespasiano	Biotechnology
24.	Lingerie de Taiobeiras	Taiobeiras	Taiobeiras	Clothing
25.	Cachaça do Norte de Minas	Salinas	Fruta de Leite	Manufacture of beverages
26.	Cachaça do Norte de Minas	Salinas	Indaiabira	Manufacture of beverages
27.	Cachaça do Jequitinhonha e Mucuri	Araçuaí	José Gonçalves de Minas	Manufacture of beverages
28.	Cachaça do Norte de Minas	Salinas	Novorizonte	Manufacture of beverages
29.	Cachaça do Norte de Minas	Salinas	Rubelita	Manufacture of beverages
30.	Cachaça do Norte de Minas	Salinas	Salinas	Manufacture of beverages
31.	Cachaça do Norte de Minas	Salinas	Taiobeiras	Manufacture of beverages
32.	Calçados e Bolsas da Região Metropolitana de Belo Horizonte	Belo Horizonte	Belo Horizonte	Manufacture of footwear
33.	Calçados e Bolsas da Região Metropolitana de Belo Horizonte	Belo Horizonte	Contagem	Manufacture of footwear
34.	Móveis do Jequitinhonha	Turmalina	Capelinha	Manufacture of furniture
35.	Móveis do Jequitinhonha	Turmalina	Carbonita	Manufacture of furniture
36.	Móveis do Jequitinhonha	Turmalina	Itamarandiba	Manufacture of furniture

37.	Móveis do Jequitinhonha	Turmalina	Leme do Prado	Manufacture of furniture
38.	Móveis do Jequitinhonha	Turmalina	Turmalina	Manufacture of furniture
39.	Móveis do Jequitinhonha	Turmalina	Veredinha	Manufacture of furniture
40.	Plantas Medicinais e Fitoterápicos de João Monlevade	João Monlevade	Belo Horizonte	Herbal medicines
41.	Plantas Medicinais e Fitoterápicos de Betim	Betim	Betim	Herbal medicines
42.	Plantas Medicinais e Fitoterápicos de Betim	Betim	Vespasiano	Herbal medicines
43.	Mudas e Flores de Diamantina	Diamantina	Diamantina	Floriculture
44.	Fruticultura do Norte de Minas	Jaíba	Janaúba	Floriculture
45.	Fruticultura do Norte de Minas	Jaíba	Montes Claros	Floriculture
46.	Pequi de Montes Claros	Montes Claros	Montes Claros	Floriculture
47.	Fruticultura do Norte de Minas	Jaíba	Nova Porteirinha	Floriculture
48.	Fruticultura do Norte de Minas	Jaíba	Porteirinha	Floriculture
49.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Belo Horizonte	Gems and Jewelry
50.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Betim	Gems and Jewelry
51.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Caeté	Gems and Jewelry
52.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Contagem	Gems and Jewelry
53.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Ibirité	Gems and Jewelry
54.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Lagoa Santa	Gems and Jewelry
55.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Nova Lima	Gems and Jewelry
56.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Pedro Leopoldo	Gems and Jewelry
57.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Raposos	Gems and Jewelry
58.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Ribeirão das Neves	Gems and Jewelry
59.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Rio Acima	Gems and Jewelry
60.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Sabará	Gems and Jewelry
61.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Santa Luzia	Gems and Jewelry
62.	Gemas, Jóias e Bijuterias da Região Metropolitana de Belo Horizonte	Nova Lima	Vespasiano	Gems and Jewelry
63.	Metalmeccânico de Belo Horizonte	Belo Horizonte	Belo Horizonte	Metal-mechanic
64.	Metalmeccânico de Betim	Betim	Betim	Metal-mechanic
65.	Metalmeccânico de Itabira	Itabira	Itabira	Metal-mechanic
66.	Fundição do Centro-Oeste de Minas	Cláudio	Itaúna	Metal-mechanic
67.	TICs da Região Metropolitana de Belo Horizonte	Belo Horizonte	Belo Horizonte	Information Technology Services
68.	TICs da Região Metropolitana de Belo Horizonte	Belo Horizonte	Contagem	Information Technology Services
69.	Suinocultura da Zona da Mata	Ponte Nova	Piranga	Pig farming

SOURCE: BRAZILIAN OBSERVATORY OF LOCAL PRODUCTIVE ARRANGEMENTS - APLs - Local Productive Arrangements (2014).

3.2.5 Payment for Environmental Services at RBSE

In Brazil, a variety of mechanisms to promote environmental conservation have been applied in different circumstances. The states have sought autonomously to establish incentive policies for the conservation and maintenance of green areas and natural vegetation. Among these measures are the implementation policies of Payment for Environmental Services (PSA) programs. According to Wunder (2005) the PSA, can be defined as a voluntary transaction in which an ecosystem service or land use that secures an ecosystem service is purchased by at least one buyer of at least one ecosystem service provider with the quantity and quality of service agreed as conditions in the transaction.

Wunder (2005) sintetiza a definição de Pagamentos por Serviços Ambientais como:

- (a) A voluntary transaction in which,
- (b) A well-defined environmental service (or likely land use to ensure that service)
- (c) It is purchased by at least one buyer.
- (d) From at least one service provider
- (e) If, and only if, the provider ensures the provision of the service (conditionality). (ENGEL, 1999, page 664).

In the state of Minas Gerais, the municipalities of Extrema and Montes Claros were pioneers in the implementation of local PSA (Payment for Environmental Services) programs. Other examples of this same program in municipalities that integrate the RBSE are highlighted in the table below.

TABLE 27: LIST OF PAYMENT PROGRAMS FOR ENVIRONMENTAL SERVICES CARRIED OUT IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.

CREATION DATE	PROGRAM	GOAL	MUNICIPALITIES INVOLVED
1995	Ecological ICMS (Tax on Operations related to the Circulation of Goods and Provision of Interstate and Intermunicipal Transportation and Communication Services)	Its objective is to compensate municipalities that have portions of their territory committed to conservation units that imply land use restrictions, and to encourage the creation, implementation and maintenance of these conservation units by the municipalities themselves, contributing to decentralize and consolidate the protection policy ecosystems.	All municipalities of Minas Gerais
2006	Eco-credit ¹	Environmental credit that rewards and encourages rural producers for the preservation and recovery of areas of relevant environmental interest in their property	Montes Claros
2007	Cantos do Mundo / AMA (Association of Residents, Farmers and Beekeepers) Project ²	Beneficiation of 550 hectares in 36 properties near the National Park of Cipó Mountain, aiming at the formation of connectivity areas, among forest remnants.	Conceição do Mato Dentro, Itambé do Mato Dentro, Morro do Pilar, Santana do Riacho and Santo Antônio do Riacho
2007/2008	Bolsa Verde (Green Exchange)	Law 17,727 / 2008 and Decree 45.113 / 2009 provide that the state will grant financial incentives for rural landowners and squatters for the identification, recovery, preservation and conservation of areas necessary for protection of riparian formations and the recharge of aquifers, as well as areas necessary for the protection of biodiversity and especially sensitive ecosystems.	Todos os municípios de Minas Gerais
2010	Sustainable Rural Development Project in the Santo Antônio River Basin ³	Intervention in 7,200 hectares (5,040 hectares for intensive restoration, 1,440 hectares with enrichment and 720 hectares with natural regeneration)	Alvorada de Minas, Conceição do Mato Dentro, Congonhas do Norte, Dom Joaquim and Serro
2011	Project: The headwaters of the Rio Doce ⁴	Recovery of 1,000 hectares in 40 properties.	Presidente Bernardes e Senhora de Oliveira
2013	Project: Oásis ⁵	To establish biodiversity conservation mechanisms in Moeda mountain region, focuses on the conservation of natural areas and their consequent benefits to the availability and quality of water in the region.	Brumadinho (Moeda Mountain)
2014	Program: Water Producer of the basin: Ribeirão Candidópolis	To contribute to the reduction of erosion and sedimentation in the Candidópolis stream, one of the main water supply sources of the city and where the Capture Station of Pure Water is located.	Itabira

¹ It integrates the Bolsa Verde Law (Law, number 17.727/ 2008)

² Project resulting from an association between NGO 4 Cantos do Mundo, in partnership with the Association of Residents, Farmers and Apiarists (AMA) of Lapinha.

³ Initiative led by the Instituto BioAtlântica (IBio) with the financial support of Anglo American, and the community mobilization and technical support of the Espinhaço Institute.

⁴ Implemented by the Xopotó Institute.

⁵ Project resulting from a technical cooperation between the Grupo Boticário Foundation, the Public Ministry of Minas Gerais and the Mining Association of Environmental Defense (Amda).

2014	Project: O Guardião dos Igarapés ⁶	Promotion of increased production and improvement of water quality in the municipality of Igarapé - Minas Gerais, from the recovery and preservation of water systems in the Córrego Estiva Sub-basin, a contributor to the Serra Azul System of public water supply of the Metropolitan Region of Belo Horizonte, through the environmental management of the properties.	Igarapé
2014	Project: Preservar para Não Secar	The project: "Preservar para não Secar" ("Preserving not to Dry") encourages rural owners to conserve important areas for the maintenance of the springs. The program was regulated by Municipal Decree 1,802 / 2014. The value of the bonus - which is divided among the participants, considering the size of the fenced and protected area - comes from the Special Fund for Environmental Management (Fega), existing in Itabira.	Itabira

⁶ It is part of the Water Producer Program of the National Water Agency (ANA).

3.2.6 – Initiatives coordinated by the FAEMG (Federation of Agriculture and Livestock of the State of Minas Gerais) System in the territory of Phase 2 of RBSE

The FAEMG - Federation of Agriculture and Livestock of the State of Minas Gerais - is composed of FAEMG (Federation of Agriculture and Livestock of the State of Minas Gerais), the National Rural Apprenticeship Service (SENAR), Instituto Antônio Ernesto de Salvo (INAES) and the Trade Unions. It must be noted that FAEMG is an active member of the RBSE State Committee.

Below, some outstanding actions performed by the FAEMG System in the RBSE territory are presented.

3.2.6.1 –Actions in the Territory

A) Monitored Sustainability

The sustainability of rural production is a theme mobilized by INAES. In this sense, the Institute developed the Management Platform for Sustainability Indicators in Agricultural Properties. It is a set of software that assesses, in a simple way, environmental, economic and social aspects of the farms, determining the level of sustainability in which they are found. The objective is to promote rural development on a sustainable basis, in an integrated way, through the continuous improvement of the management of rural establishments.

The project was based on the ISA (Sustainability Indicators in Agroecosystems) instrument. There are 21 indicators, aggregated into seven sub-indices: economic balance sheet, social report, establishment management, soil productive capacity, water quality, production systems management and agricultural landscape ecology.

The UN (United Nations) Steering Committee analyzes the possibility of adopting the platform in the Sustainable Steel Project, of which the SYSTEM FAEMG (Federation of Agriculture and Livestock of the State of Minas Gerais) is a partner.

B) Program: Rural Tourism Agent

The first module of the Rural Tourism Agent program in the region of Ouro Preto occurred on July 30, 2018 and surpassed the expectations of the new students of the **do Senar (National Rural Apprenticeship Service) of Minas Gerais**. At the beginning, the group learned notions of rural tourism activity, its modalities and the profile of the people of the great centers that often seek quiet places and present everything that the countryside has in abundance. In addition, the students visited rural properties with potential for agrotourism and projects that already receive visitors.

The group is composed of representatives of Itabirito, the State Park of Itacolomi and Ouro Preto. "The class is extremely capable, interested and wants to change the region. Among the proposals of the module, we went to the historical center of Ouro Preto. The final activity was to become a tourist for the guides there and to question the itineraries for the districts. The activity gives them scope to create actions to change this scenario. This is their challenge," explained course instructor and tourist, Fernanda Silva.

C) Rural Tourism Course in Diamantina

In order to better serve the tourists who are looking for the Sempre Vivas National Park in the Jequitinhonha Valley, 12 people from the city of Diamantina participated in the Rural Tourism / The Art of Driving in Tracks and Routes of **Senar** (National Rural Apprenticeship Service) of Minas Gerais, promoted in partnership with the Union of Rural Producers of Diamantina.

In a workload of 32 hours, the tourist and instructor Cláudio Silva Ramos taught about the productive chain; socioeconomic, environmental and cultural impacts of tourism; role, profile, posture and behavioral skills of drivers and, above all, planning and analysis of tracks and routes.

FIGURE 42: IMAGE OF THE COURSE OF RURAL TOURISM OCCURRED IN THE SEMPER-VIVAS NATIONAL PARK.



SOURCE: SYSTEM FAEMG (Federation of Agriculture and Livestock of the State of Minas Gerais) (2018).

According to Jader Vinicius Brant Coelho, mobilizer of the event, the participants' perspective is to generate income for them and for the district of São João da Chapada, where the Park is located. He also underscored the support of the Chico Mendes Institute for Biodiversity Conservation (ICMBio) and the Diamantina City Hall for the achievement of the course. "They are partners who always seek to improve drivers to receive visitors, with quality and safety."

Environmental education for sustainable tourism, elaboration and marketing of roadmaps and notions of decision-making and associativism were also part of the content of the classes.

3.2.6.2 Programs

A) "Our Environment"

The program has four axes: environmental management in rural property, institutional, monitoring and communication. Through it we have developed soil and water conservation actions, as well as knowledge, training and training events.

SENAR MINAS took an important step in this line and made available the Course of recovery and protection of headwaters. The farmer is able to manage his own water, learning how to work the land where the water's eye is located, improving the infiltration of water resources and their storage in the soil, and adopting agricultural practices that prevent the occurrence of erosion and silting. Since June 2015, 1,680 events have already been held, training approximately 12,000 trained people.

The System also invested in the dissemination of knowledge for a more sustainable production. To this purpose, it has offered training and agricultural mechanization, afforestation and reforestation with native species and implantation of seedlings nurseries.

B) "Professional of the Future "

One of the highlights of SENAR MINAS is programs aimed at training young people, such as Minas Jovem Rural, which seeks to support the succession process in family agriculture, preparing those who want to take up business in the field. The initiative contemplates three axes: the formation of the citizen for the agribusiness and the preparation of leaderships.

The Jovem no Campo (Youth in the Field) Program was also consolidated in 2015 and has reached the goal of collaborating with the youth's insertion in the labor market, offering an entrepreneurial vision of the business and, thus, stimulating the economy in the countryside, with the consequent reduction of the rural exodus.

The program is aimed at young people between the ages of 15 and 24 who are incomplete, who have already completed or are regularly enrolled in elementary, middle or EJA (Youth and Adult Education Program), in addition to having a bond and affinity with the environment rural.

Initially, a survey is made on the local reality and the participants. From this information, SENAR structures the Program in modules, determining the workload according to the area of occupation to be addressed.

The structure of the program is divided into two groups: Basic, focusing on the development of basic skills; and specific, with approach of technical and specific contents of each occupation.

The contents covered in the program are developed according to the local reality and the needs and interests of the clients.

C) "Program: Family in the Square "

The program aims to provide leisure, culture and entertainment to rural communities, through artistic, cultural and sports activities.

- Place of the course: in squares, preferably in rural community;
- Number of Participants: minimum of 400 people;
- Duration: 8 hours on Sunday.

FIGURE 43: PICTURES OF THE PROGRAM: " FAMÍLIA NA PRAÇA" ("FAMILY PROGRAM IN THE SQUARE")



D) Program: SENAR – “Encontro das Famílias Rurais” (“Meeting of Rural Families”)

The objective is to bring together in the municipality people from rural communities - preferably participants in SENAR MINAS courses - with the purpose of discussing topics such as Associativism, Entrepreneurship, Environment and Health, among others. Also promoted are handicraft workshops and the exhibition of products made by the community.

E) Program SENAR – “Agente de Turismo Rural” (“Rural Tourism Agent”)

It aims to strengthen activity in the field. Through the program, it is possible to survey the opportunities and resources, strengths and weaknesses, as well as the infrastructure of the place and the historical, tourist and cultural attractions. The initiative counts with the partnership of FECITUR (Federation of Tourist Circuits of Minas Gerais).

By promoting qualification on services, security, driving, lodging, food and marketing of products and business, the SENAR seeks to awaken in the participants a differentiated view of the tourism potential of the rural area] and to train professionals capable of promoting initiatives that contribute to the development of the field.

The program is divided into six modules, with a total duration of six months. The next meeting, which will have security as the theme, is scheduled for August 27-31. The program is carried out in partnership with the Union of Rural Producers of Mariana.

F) Preventive Health Program

Social Promotion of SENAR brings together a set of activities with an educational focus, which enables the worker, rural producers and their families to acquire knowledge, develop personal and social skills and change attitudes, thus favoring a better quality of life. life and participation in the rural community.

In recent years, SENAR has expanded investments in health and quality of life prevention, with two programs: Rural Man Health and Rural Women's Health, bringing as a proposal, a look at integral health.

In order to carry out the actions of Social Promotion for Preventive Health in the field, SENAR has several partners, ranging from the Municipal Health and Education Secretariats, the Brazilian Society of Urology,

the Side by Side Institute, as well as other local partnerships that help to promote the health care of this population.

These technical-scientific partnerships focus on promoting the health of farmers, rural workers and their families through qualified information on the diseases that most impact the rural population, in order to foster the development of personal skills, changes in attitudes, besides other actions that bring to all those involved, awareness for a better health.

The production of materials in partnership with the Brazilian Society of Urology and Lado a Lado pela Vida Institute has qualified the actions of health education for a better understanding about some diseases and, consequently, changes of habits for a healthier life.



The Rural Women's Health Program aims to contribute to the change and improvement of living conditions and integral health of rural women, with health education actions and broadening access to services available in the Unified Health System (SUS), in partnership with Health Secretariats, Secretariats of Health and city halls.

The actions focus on health education, with prevention, early diagnosis, vaccination, gender issues, domestic violence, prevention of cervical cancer, breast cancer, sexually transmitted diseases, among others, in order to promote the control of risk factors that directly affect the health of rural women.

This program aims to sensitize and empower rural women to make correct choices in order to promote physical and mental health, as well as changes in behavior that impact on individual and collective quality of life.



The Rural Man Health Program aims to generate education opportunities for health promotion and prevention of diseases of rural men, thus contributing to the improvement of the quality of life.

Social and structural vulnerability to the integral health of man is present in rural areas. Therefore, the actions must be of a general and extended nature, with partnerships that enable joint actions, taking advantage of what already exists, which allows the sum of available resources that complement efforts.

The actions focus on health education, with prevention, early diagnosis, vaccination, gender issues, domestic violence, prevention of prostate cancer, penile cancer, sexually transmitted diseases, among others, with the aim of promoting control of risk factors that directly affect the health of the rural man.

In this sense, the partnership that SENAR has established with the Brazilian Society of Urology-SBU for the Rural Man Health Program has been fundamental for the development of social promotion actions, which SENAR has as its mission, promoting access to prostate cancer, health education for the promotion of personal hygiene habits, prevention of penile cancer and sexually transmitted diseases, among others, and consequently changes in attitudes towards a healthier life.

3.2.7 SYSTEM: FIEMG (Federation of Industries of the State of Minas Gerais)

The Federation of Industries of Minas Gerais System represents the industrial sector in the State and works to contribute effectively to the mining industry, seeking results that sustain its competitiveness.

This is possible through the services and products offered by the five companies that comprise it: the Federation of Industries of the State of Minas Gerais (FIEMG), the Industrial and Business Center of Minas Gerais (CIEMG), the Social Service of Industry (SESI), National Industrial Learning Service (SENAI) and the Euvaldo Lodi Institute (IEL). Together, these companies offer mining industry strategies for industrial development.

FIEMG (Federation of Industries of the State of Minas Gerais), a member of the RBSE State Committee, has several programs that seek to balance the economic, social and environmental dimensions of sustainable business creation, with emphasis on:

1. Water Resources Management
2. Minas Gerais Water Resources Network of the Industry

The sector acts directly in the main Councils, Hydrographic Basin Committees of State and Union domain, Technical Chambers and Groups of Works.

In order to align the positioning and qualify the representatives of the industrial sector in the State System of Management of Water Resources - (SEGRH), the network was created in 2013 and is coordinated by FIEMG. It is made up of Industries, Minerals, Associations and Trade Unions and aims to:

3. Solid waste management

Two free programs are offered to the industries:

- a) Waste Bag (SIBR)

It offers, in a practical and free way, through its web page on the Internet, the opportunity to negotiate in real time various waste, adding value to them and avoiding expenses with final disposal.

b) Minas Gerais Program regarding Industrial Symbiosis (PMSI)

Developed by FIEMG in partnership with the State Environment Foundation (FEAM) and with the Minas Gerais Waste Reference Center (CMRR) the Minas Gerais Industrial Symbiosis Program (PMSI) is the Brazilian version of the British National Industrial Symbiosis Program (NISP), whose goal is to promote profitable interactions between companies in all industry sectors.

In practice, the Program establishes business from the resources used in the production processes. That is, energy, water and materials from industries can be recovered, reprocessed and reused by other companies.

The PMSI (Minas Gerais Program regarding Industrial Symbiosis) occurs mainly through Workshops, where the companies are put in touch for a business round. Another form of participation is through direct contact with FIEMG.

4. Environmental Law:

The FIEMG (Federation of Industries of the State of Minas Gerais) business advisory seeks to promote the environmental compliance of the industrial sector, strengthen industrial representation in the constituted powers and represent the interests of industry in the creation and discussion of environmental standards.

One of FIEMG's products is the Minas Gerais Industry Panel.

The Minas Gerais Industry Panel is a monthly periodical elaboration of the FIEMG Economic Advisor, which aims to portray the level of industrial economic development systematized by the regional FIEMG (Alto Paranaíba, Center-West, North, Pontal do Triângulo, Rio Doce, Headquarters, South, Vale do Aço, Jequitinhonha Valley, Paranaíba Valley, Rio Grande Vasley and Zona da Mata).

By compiling economic data extracted from official sources, the Mining Industry Panel outlines the structure and performance of the state economy by presenting indicators and regional variables such as the number of companies and sectors, ICMS (Goods and Services Circulation Tax) tax collection, trade balance, exported and imported products, employment level, among others.

Full data can be accessed at: <https://www7.fiemg.com.br/fiemg/produto/painel-da-industria-mineira>.

3.2.7.1 Other Projects Underway in the RBSE Territory

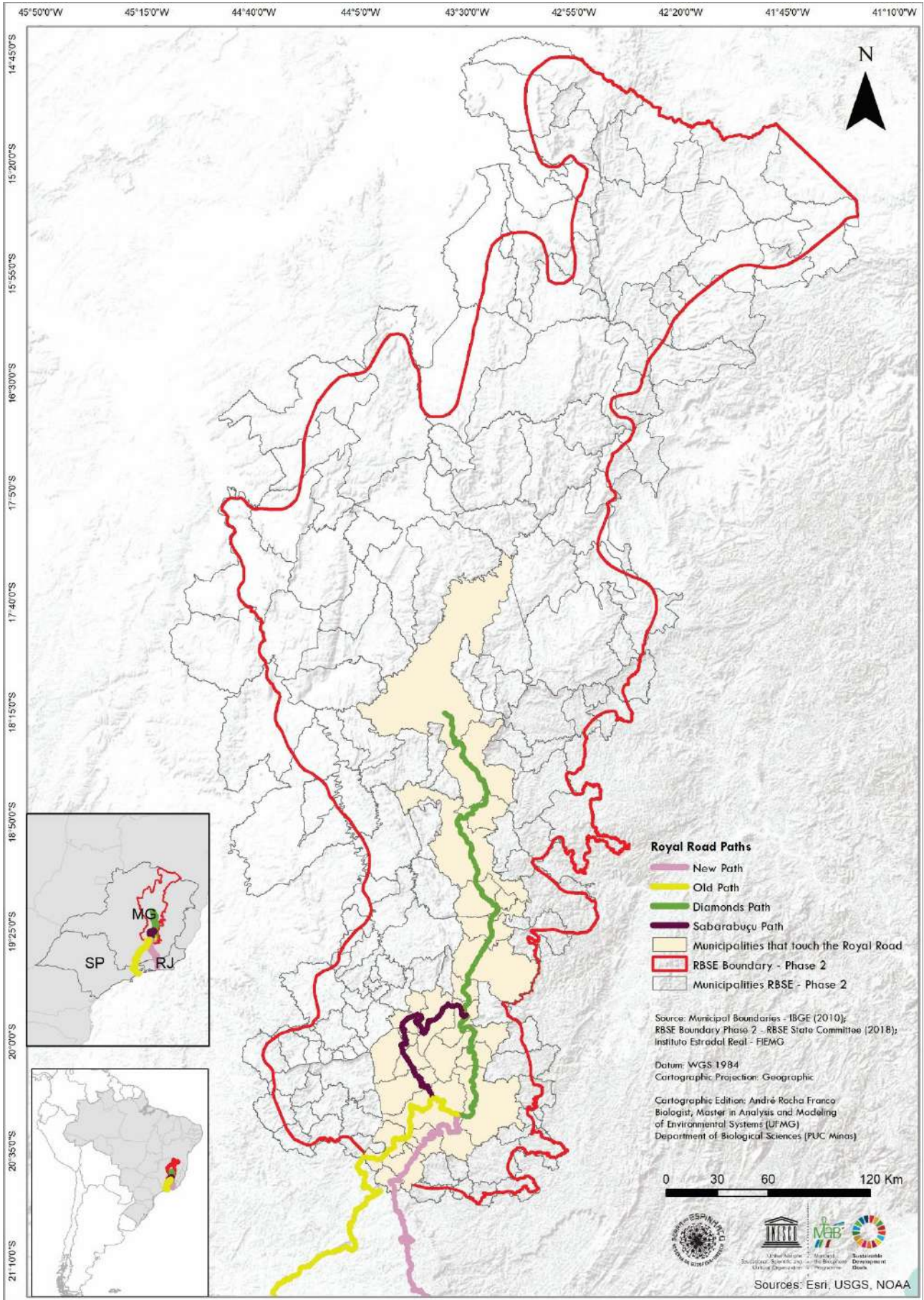
A) *The Royal Road and the RBSE: Historical Paths and Development Promoters of Minas Gerais*

Created in 1999 and linked to the FIEMG System, the Estrada Real Institute (IER) aims to organize, promote and manage the Royal Road (RO) tourism product.

The Royal Road is an old road, opened more than 300 years ago by the Portuguese Crown and today is the largest tourist route in the country. They are more than 1,630 km long, passing through Minas Gerais, Rio de Janeiro and São Paulo. One of the strongest points of the Royal Road is the signage through its landmarks. There are a total of 1,926 landmarks on its main axis and, within the limits of the study area, there are several landmarks set up to mark the tourist route. In this way, the IER (Royal Estate Institute) works the tourist route by four paths represented in the figure below.

The map spatializes the four paths within the boundaries of the RBSE. In this way it is perceived that all four are inserted in the Reserve, with the following situation, the Diamonds and Sabarabuçu entirely within the limits; and Caminho Novo and Velho begin within the RBSE and continue to the states of Rio de Janeiro and São Paulo. It is true to say that the Royal Road is closely related to the Serra do Espinhaço, since the latter was the great inductor of the official axes of occupation of the territory of Minas Gerais, especially at the time of opulence of gold and diamonds in Brazil.

FIGURE 44: MAP OF THE ROADS OF THE ROYAL ROAD AT RBSE - PHASE 2.



The Royal Road has 59 (fifty-nine) municipalities inserted in the limits of the Biosphere Reserve of Espinhaço Mountain, with several tourist attractions.

The IER (Royal Estate Institute) publishes several packages marketed by various agencies, operators and tourist receptions. There are altogether 76 packages promoted by IER (Royal Estate Institute) on its website. There are several regional tourist itineraries to be visited that can be consulted through the link <http://www.institutoestradaareal.com.br/planning-sua-viagem/passeios-sugeridos>. The events, news and services related to Royal Road can be found on the website <http://www.institutoestradaareal.com.br/>.

Scripts:

Caminho Novo: <http://www.institutoestradaareal.com.br/roteiros/novo>

Caminho Velho: <http://www.institutoestradaareal.com.br/roteiros/velho>

Caminho dos Diamantes: <http://www.institutoestradaareal.com.br/roteiros/diamantes>

Caminho do Sabarabuçu: <http://www.institutoestradaareal.com.br/roteiros/sabarabucu>

Caminhos:

Caminho Novo: <http://www.institutoestradaareal.com.br/caminhos/novo/>

Caminho Velho: <http://www.institutoestradaareal.com.br/caminhos/velho/>

Caminho dos Diamantes: <http://www.institutoestradaareal.com.br/caminhos/diamantes/>

Caminho do Sabarabuçu: <http://www.institutoestradaareal.com.br/caminhos/sabarabucu/>

INDUSTRIAL SECTOR

The industrial sector has the mission to lead the process of sustainable development of the Industry in Minas Gerais, strengthening its competitiveness and seeking the continuous improvement of the socioeconomic conditions of the state and the country. One of the ways to achieve sustainable development is responsible and integrated business management, considering the economic, social, environmental and cultural aspects.

According to the Federation of Industries of the State of Minas Gerais (FIEMG), the following practices were adopted through this management model:

1. Promotion of the proactive business participation with society and public institutions,
2. Contribution to good governance,
3. Promotion of continuous improvement in the efficient consumption of raw materials and inputs,
4. Promotion of sustainable energy and water consumption in all activities,
5. Strengthening of the solid waste policy, regarding its use as a raw material for other productive processes, preserving the extraction of natural resources.

6. Collaboration with the effort to reduce the emission of greenhouse gases (GHG),
7. Encouragement of actions to respect local values and knowledge and the preservation of cultural heritage and natural resources.
8. Valuing the hiring of labor, products and services by promoting the quality of the network of regional suppliers and strengthening the dynamics of inclusive businesses.
9. Guarantee of the quality of life, improving the standards of housing, food, health, sports, leisure, culture and communication and promoting the improvement of working conditions.
10. Contribution in an effective way to guarantee access to education, improving the standards of training, qualification and professional development, always with an emphasis on sustainability issues.
11. Establishment of communication channels and partnerships to stimulate interaction with the external public,
12. Encouragement and strengthening of brands linked to entrepreneurship.
13. Encouragement of research and development of new technologies, with the objective of reducing or eliminating adverse impacts on the environment, climatic stability, biodiversity and health.
14. Promotion of initiatives that reward the best practices in management, improvement of processes and the continuous search for the improvement of competitiveness, quality and sustainability.

FACILITIES AND SUPPORT SERVICES TO THE COMMUNITY.

SENAI – National Service of Industrial Learning

SENAI is one of the largest centers for the generation and dissemination of knowledge applied to the development of industry in Brazil and Minas Gerais. Created in 1942, SENAI is part of the National Confederation of Industry (CNI) and the Federation of Industries of the State of Minas Gerais (FIEMG).

With the support of several industrial areas, SENAI is responsible for the professional training of human resources for industry, the provision of services such as technical and technological assistance to the productive sector, laboratory services, applied research and technological information. Thanks to the flexibility of its structure, it has become the largest professional education complex in Latin America.

SENAI, through the development of its programs, projects and activities, offers adequate services to the different needs of the industry and contributes to its strengthening and the full and sustainable development of the country.

SENAI has several products, among them: distance education, PRONATEC, technical courses, professional initiation, professional development, SENAI mobile school, industrial learning, basic professional qualification.

All courses and products can be consulted through the link <http://www7.fiemg.com.br/senai>.

3.3 KNOWLEDGE AND PARTICIPATORY MANAGEMENT

Goal: support for demonstration projects; education and environmental training; research and monitoring related to local, regional, national and global demands for conservation and sustainable development.

The experience accumulated over 13 years in the RBSE in relation to participatory management mechanisms signaled some challenges that will have to be faced in the expansion of the Reserve. The first challenge refers to the process of interlocution with new groups in view of the relatively immobilized performance of the current Steering Committee. This will require a process of decentralization already begun in some programs. The articulation of the North Espinhaço - Phase 2 will occur from the mobilization of the Conservation Units of the Mosaic of Espinhaço Protected Areas (Alto Jequitinhonha- Cabral Mountain) constituted in 2015 by a wide network of stakeholders.

The second challenge is related to the dissemination of the Biosphere Reserve of Espinhaço mountain and the MaB-UNESCO (Man and the Biosphere) Program. In this case, access to general information and reference documents has been made easier with initiatives related to digital media. There were already initiatives to publicize Espinhaço in social networks, but only in 2016 was it possible to launch the RBSE website. With the approval of the periodic review in 2015 also a printed material on the 10 years of the Reserve was released. With these tools added to the others already made it more feasible the work of dissemination and mobilization of new partners.

The third challenge is directly related to the agenda of the MaB-UNESCO Program (Man and the Biosphere), the Biosphere Reserves and their importance to regional and national governments. Fortunately, over the past three years, the Federal Government has advanced considerably. COBRAMAB (Brazilian Commission of the Man and the Biosphere Program) regained its routine of meetings and the Brazilian Ministry of the Environment resumed its participation in the international agenda. Internally, it was also possible to observe significant activities between the Brazilian government and the Brazilian Network of Biosphere Reserves. The results of this new scenario allowed for more consistent practices in each of the Brazilian Reserves. In Espinhaço it was not different, with a more intense agenda, if financial investments were not yet verified by the federal instance, at least the institutional support brought more motivation, for example, to elaborate this proposal of Phase 2.

As far as the state government is concerned, there is still no financial support for the RBSE, however, the governmental institutions participating in the Steering Committee have been essential for participatory construction. This is due to its capillarity in the municipalities of the Reserve, either through institutional technical support or through the proposal of normative instruments aligned with the principles of the MaB (Man and the Biosphere) -UNESCO (United Nation Educational, Scientific and Cultural Organization) Program.

It is also important to highlight the challenge of putting Espinhaço on the academic agenda. Scientific knowledge about the ecosystems covered in the territory was, to some extent, significant when dealing specifically with the Atlantic Forest biome or Savanna (Biodiversity conservation hotspots), but extremely insipient in relation to the ecotones found in the mountain range or in the Rupestrian Mountains.

Surprisingly the scientists adopted a new posture, almost immediately, from the recognition of Espinhaço as a Biosphere Reserve. Without the need for further clarification on the meaning of the Reserve and its recognition with UNESCO, the idea of a territory unifying the mountains, a natural corridor of biodiversity and its direct relationship with human occupation and cultural identity, has resonated in the academic and has led to an effective participation of scientists in the RBSE.

The Phase 2 proposal comes with the main objective of filling a knowledge gap regarding the territorial sequence of Espinhaço mountain range in the northern sector of the state of Minas Gerais. Far from the great economic centers, university and administrative capital, the region houses treasures still little known. With the recognition of Phase 2, greater attention will be required to a neglected site, devoid of investment, but with a high level potential.

Institutional strengthening of the regional partners will be a great gain. With the participation of several groups from the third sector, universities and public agencies of the region in the elaboration of this proposal, some results, such as the creation of Botumirim State Park, anticipate the success of this mobilization. Initiatives previously isolated in several municipalities also gain greater importance when integrated into efforts to recognize the Northern Spine as a second phase of the Biosphere Reserve of Espinhaço Mountain.

Therefore, it is worth emphasizing that all the efforts of involving several actors in the elaboration of this proposal and consequently for a more participative and decentralized future management contribute to an even greater appreciation of Espinhaço Mountain. New elements are aggregated, such as the traditional communities of the "Geraizeiros", new conservation units, connectivity of unique ecosystems, logistic support to researchers, mobilization of municipalities, material and immaterial heritages, among others.

An interesting finding concerns a new scientific interpretation provided by RBSE. The researchers, especially in the biotic area, began to recognize the Espinhaço territory in its entirety, highlighting the Biosphere Reserve of Espinhaço Mountain, as the integrating axis of their investigations.

According to data presented in this document, prior to the RBSE's recognition in 2005, the scientific researches dealing with one of the Espinhaço Mountain Chain, as "Cipó Mountain", the "Moeda Mountain", the "Caraça Mountain", the "Rola-Moça Mountain", the "Intendente Mountain", the "Cabral Mountain", among others, presented an isolated overview of the information. From 2005, researchers, even with specific interests in one of these locations, started to mention a more comprehensive, integrated and integrated context of the territory as a whole.

This identity has also been observed in the management of Protected Areas of Integral Protection (core areas of RBSE). Management Plans and Management Plans also consider in the scope of the local actions all the characteristics of the Espinhaço mountain range, integrally. This new approach has allowed the sum of efforts, synergy and mutual collaboration presented through a more systemic view, taking over the Biosphere Reserve of Espinhaço Mountain as a strategic territory for the development of scientific research, as a unit of planning for decision-making regarding the processes of environmental regulation and as an axis of strengthening of the cultural identities that appear in different regions of the RBSE.

With the approval of the Action Plan of the Biosphere Reserve of Espinhaço Mountain in 2010, institutions representing different sectors within the territory can already construct complementary strategies, even if the nature of their activities is different. Considering this new paradigm, the RBSE Committee has been providing opportunities for joint work and exchanges between municipal, state and federal governments, NGOs, universities, the productive sector, local communities and other Biosphere Reserves.

Given this scenario, it is important that actions aimed at the conservation and development of the RBSE are perpetuated in the long term, including the incorporation of new regions that have not yet been included in the Reserve, which will contribute to its strengthening and effective protection of its natural resources and historical-cultural attributes. Thus, considering the diversity and integration of spatial, institutional, economic, communication, management and conservation attributes of natural and cultural heritage, we have the desired security for the proposal of Phase II of the Biosphere Reserve of Espinhaço Mountain. As examples of this strengthening, initiatives that illustrate the issues of knowledge and participatory management are presented below.

A) SITUATIONAL DIAGNOSIS OF MUNICIPAL PROTECTED AREAS INSERTED IN BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.

The updating of the studies and knowledge about the state of the management of the Municipal Conservation Units with the accomplishment of the Situational Diagnosis of the Municipal Protected Areas Inserted in the Biosphere Reserve of Espinhaço Mountain.

FIGURE 45: COVER OF SITUATIONAL DIAGNOSTIC DOCUMENT OF THE INSERTED MUNICIPAL PROTECTED AREAS IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.



This 530-page document was carried out in partnership by the RBSE State Committee and the IABS (Brazilian Institute of Development and Sustainability), with the support of the Minas Gerais Public Prosecutor's Office and the municipal governments of 94 municipalities of RBSE, which favored a more reasoned cartography at the municipal level, in addition to being able to strengthen communication processes. Among the 94 municipalities that compose the Serra do Espinhaço Biosphere Reserve (Phase I), 48 declared that there are Protected Areas in their territory, totaling 111 Municipal Protected Areas in the Biosphere Reserve of Espinhaço Mountain, this way: - 1 "Area of the Headwaters", 5 "Areas of Environmental Preservation", 40 "Areas of Environmental Protection", 1 "Area of the spillway", 2 "Particular Areas of Environmental Preservation", 1 "Ecological Station", 7 "Natural Monuments", 1 "Ecological Reserve Park", 8 "Ecological Parks", 1 "Forest Park", 42 "Parks" and 2 "Biological Reserves".

Due to the relevance of Protected Areas and their implementation, this work deserves to be highlighted, since these Areas must be considered not only with their limits summarized by decrees, but also taking into account their importance in the management and the fulfillment of the objectives for which they were created, and must always work with the levels of governance and participation of the surrounding community.

Even with all the difficulties encountered in the creation, implementation and management process, state and federal Protected Areas are usually better established than municipal ones (regarding legal aspects, defined limits, management and prepared management plans), the Municipal Protected Areas are therefore not less important than the others. These Areas are essential for the conservation of water resources and biodiversity, for the establishment of ecological corridors, for mosaic proposals, among several other environmental benefits that generate direct and indirect benefits for society.

For a more efficient management of RBSE, it is essential to consider all scales of governances Protected Areas inside, because Brazil has a vast territory, from north to south, with a wide range of actors, social processes and natural landscapes. In this context, there is a lack of knowledge about the legal and administrative status of municipal Protected Areas in the RBSE. These areas are strategic to strengthen the reserve in several dimensions: whether in institutional relations at the local level, either by representation in decision-making, either for their intrinsic and existence values. The challenge of this work starts with the effective contribution to the information management and the possibility of mutual and necessary approximation between the RBSE and the municipalities. This project is aiming to contribute to the mapping of gaps, potential and possibilities of positive convergence to full structuring of municipal protected areas, raising information on implementation, structuring, management, programs and projects in these areas of RBSE. The strategy is that the results are an opportunity for municipalities to appropriate this territory, especially those serving the mission to save and promote the development and conserve natural and cultural resources so unique, in Minas Gerais and Brazil.

With this proposal of Phase II of the RBSE, it is intended to expand the diagnosis of Municipal Conservation Units to the other municipalities to be included in the new territory.

Within the framework of the RBSE zoning, it is also important to note that municipal conservation units fall under the Phase II of the RBSE as a buffer zone. The process of mobilization and dialogue with the municipalities that holds these conservation units will indicate, especially for the proposal of Phase III of the RBSE, a possible zoning review, making them as Core Zones.

B) SHARED MANAGEMENT OF THE RBSE: THE REGIONALIZATION OF THE RBSE THROUGH THE MOSAICS OF PROTECTED AREAS OF THE ESPINHAÇO MOUNTAIN

The engagement of the State Committee of the RBSE, articulating, in a participatory manner and also in the conduction of other shared management tools, such as the active participation of member institutions in the Mosaic of Espinhaço: "Alto Jequitinhonha-Cabral Mountain", as well as being one of the strategic actors in the recognition of the Mosaico Espinhaço Meridional: "Cipó Mountain". This action is strategically configured: in the Plan of Action of the RBSE, mainly for the promotion of cooperation between conservation units of the Mosaic regions, both located within the limits of the RBSE; in strengthening the identity of the RBSE together with the strategies shared with those mosaics; in the possibility of monitoring actions of the RBSE in a more close and participative way, with the taking and treatment of data of management and scientific and traditional knowledge, with the communities residing in the RBSE, among other strategic actions.

The integrated and participatory management fostered by mosaics allows the sharing of information among the institutions involved, the promotion of partnerships and the establishment of greater political force to raise funds and assert conservationist interests. At the same time, financial and human resources can be optimized in the processes of inspection, environmental education and communication in the sharing of physical structure and logistics.

Mosaics can also, through participatory management processes and the enhancement of territorial identity, contribute to the reduction of conflicts between residents and protected areas and promote the development of actions and projects of common interest, especially favoring small communities within them (Pinheiro, 2010).

The strengthening of management in different regions of the Biosphere Reserve is now a strategy of the RBSE Action Plan, and the Mosaics of Protected Areas are considered the most promising identity for the implementation of this management. For the proposal of Phase II of the Biosphere Reserve of Espinhaço Mountain, this lesson is taken as to the engagement of the RBSE State Committee, articulating, in a participatory manner and also in the conduction of other shared management instruments, such as the active participation of member institutions in the Mosaico Espinhaço - Alto Jequitinhonha - Cabral Mountain (recognized in 2007), in the region of Diamantina (City recognized as World Heritage of UNESCO - United Nation Educational, Scientific and Cultural Organization).

The Mosaic of Protected Areas that covers the regions of Alto Jequitinhonha and Cabral Mountain is, to date, the only one implanted in the Biosphere Reserve of Espinhaço Mountain. It is extended nearly 2 million hectares, distributed in 25 municipalities, and brings together 19 Conservation Units (UCs) for Integral Protection and Sustainable Use. The Mosaic region possesses an expressive biological diversity, coupled with a rich socio-cultural diversity, with a predominance of extractive culture, and it aggregates a set of areas identified as irreplaceable and priority for conservation along the entire length of the Espinhaço Mountain Chain (Silva and others, 2008).

In such regions, it is highly desirable to build socioenvironmental management mechanisms that foster the long-term planning of human activities and the implementation of sustainable development models. Mosaics of protected areas can fulfill this role, since they aim at the integrated and participatory management of conservation units that are close and overlapping, with the objective of making the presence of biodiversity compatible, valuing sociodiversity and responsible development on a regional scale, which is reflected in the purposes and strategies of the RBSE Action Plan. If, on the one hand, conservation units are not capable of preserving all the biological, historical and regional geographic wealth, on the other hand, acting together in the context of mosaic, they become elements that induce the process of territorial management planning. Therefore, in seeking to fulfill its objectives, the Mosaico Jequitinhonha Cabral also acts as a gear, to strengthen the management of the Biosphere Reserve.

By 2015, the Biosphere Reserve Committee of Espinhaço Mountain created, officially, the first region through mosaics. This process is in the stage of detail with the actors of the region, according to RBSE and MaB (Man and the Biosphere) / UNESCO (United Nation Educational, Scientific and Cultural Organization) premises. This premise is necessary, either by the various potentials already established in a cooperative way between Conservation Units, by the size of the RBSE itself and by the capillarity to make management in a participatory and decentralized way.

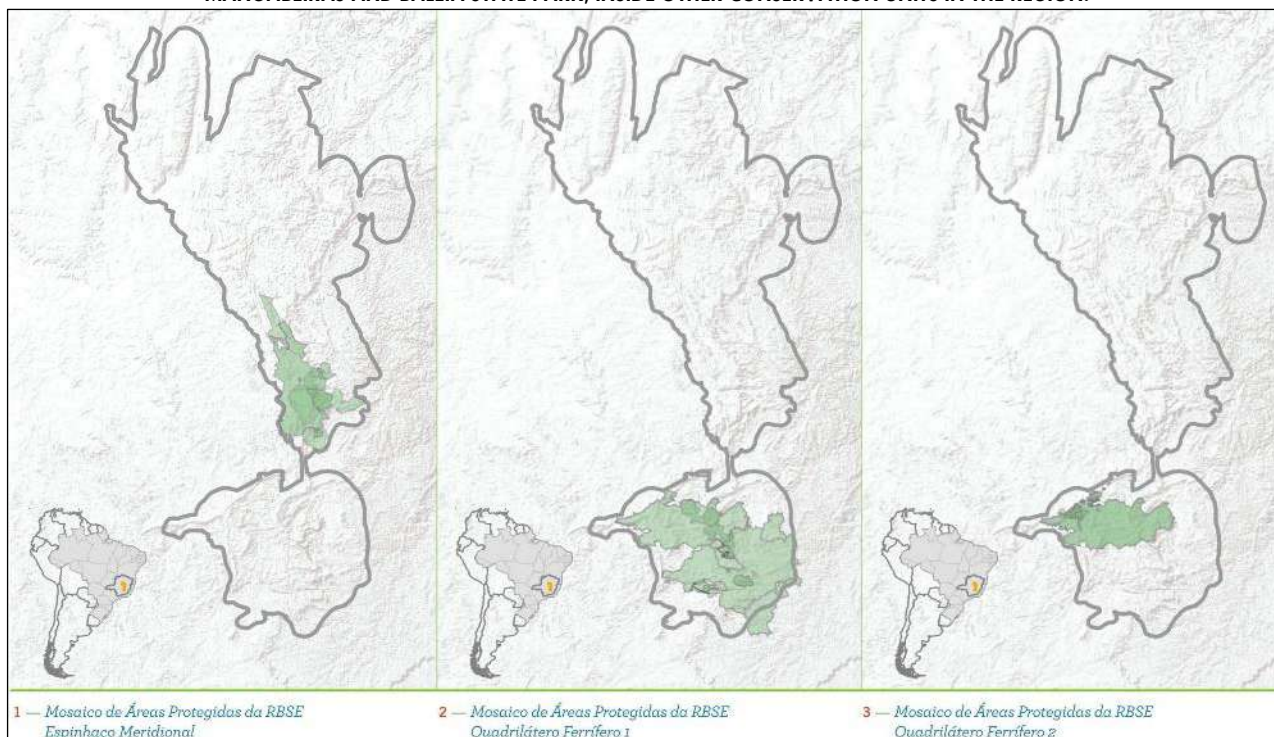
In continuation of the RBSE shared management action through the Mosaics, the RBSE State Committee, together with the ICMBio (Chico Mendes Institute for Biodiversity Conservation) and the Minas Gerais State Forestry Institute (IEF), is one of the proponents of the document technical and articulation of the recognition of the Mosaico Espinhaço Meridional - Cipó Mountain, in 2018, with the Ministry of Environment. This action is strategically configured in the RBSE Action Plan, mainly through the promotion of cooperation between conservation units in the Mosaic regions, both in the RBSE; in strengthening the identity of the RBSE together with the strategies shared with those mosaics; with the possibility of monitoring actions of the RBSE in a closer and participative way; with the taking and processing of management data and scientific and traditional knowledge, with the communities residing in the RBSE.

For this, the regions with potential for the recognition of Protected Area Mosaics that can attend the collaborative process in the RBSE co-management have been identified, based on the successful experience of the Mosaic: Alto Jequitinhonha – Cabral Mountain. The potentialities and discussions in progress stand out: Mosaic of Protected Areas of the RBSE - Espinhaço Meridional - Cipó Mountain - recognized by the Ministry of the Environment by means of Administrative Rule No. 368 of September 13, 2018: 21 Conservation Units of the three spheres of government, two federal units, two state, ten municipal and 10 private units (RPPN - Private Reserve of Natural Heritage). As for the management groups, there are seven units of Integral Protection and seventeen of Sustainable Use and, in relation to the categories defined by SNUC (National System of Conservation Units of Nature). There are six Parks (one federal, two state, three municipal), one Natural Monument (municipal), seven Environmental Protection Areas (one federal, six municipal), and eight Private Natural Heritage Reserves (one recognized at federal level and seven at the state level).

The following areas and proposed new acknowledgments must be highlighted, following the approval of the 1st RBSE Periodic Review and the RBSE Phase II.

Mosaic of Protected Areas of RBSE - Iron Quadrangle region1 (in phase of articulation): State Parks of Itacolomi and Ouro Branco Mountain, Uaimií State Forest, Tripuí Ecological Station, Major Seminary of Mariana, RPPN (Private Reserve of Natural Heritage) of the Caraça, Natural Monument of Piedade Mountain and National Park of Gandarela, RPPNs (Private Reserve of Natural Heritage) of the region and other Conservation Units.

FIGURE 46: MOSAIC OF RBSE PROTECTED AREAS - IRON QUADRANGLE REGION 2 (ONGOING): ROLA-MOÇA MOUNTAIN STATE PARK, RPPN (PRIVATE RESERVE OF NATURAL HERITAGE) MATA DO JAMBREIRO AND OTHER RPPNS (PRIVATE RESERVE OF NATURAL HERITAGE), ECOLOGICAL STATION OF FECHOS, MUNICIPAL PARKS OF CURRAL MOUNTAIN, MANGABEIRAS AND BALEIA STATE PARK, INSIDE OTHER CONSERVATION UNITS IN THE REGION.



In the Metropolitan Region of Belo Horizonte, the Municipal Parks Mangabeiras and Curral Mountain, the Municipal Park, the RPPN (Private Reserve of Natural Heritage) Mata do Jambreiro, along with the Baleia and Rola Moça State Parks, among other areas, represent well the reality of cooperation between RBSE conservation units.

Mosaic of Protected Areas of RBSE - Northern Espinhaço - Covering conservation units in the northern region of RBSE, mainly in the north of Minas Gerais, where it is proposed to Phase II.

As a highlight and considering the commitment of the Brazilian government to assume the reserves of the Biosphere as territorial units for planning, and thus includes the Biosphere Reserve of Espinhaço Mountain, in the National Landscape Connectivity Program - Conecta (decree number: 75, of March 26, 2018). In this sense, it is proposed for Phase II the creation, within the scope of the State Committee of the RBSE, of the PROGRAM: CORRIDORS OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN: CONNECTING NATURAL AND CULTURAL LANDSCAPES. RBSE is a natural ecological corridor and provider of large ecosystem services, and acting as a space for strategic governance, has, through the RBSE - Corridors of Espinhaço Program, the main objective, to interconnect the mosaics of protected areas within them and among them, promoting culture and conservation through forest restoration, local productive arrangements, tourism, among other strategies, developing the functions of the RBs (Biosphere Reserve) of the MaB (Man and the Biosphere) Program.

FIGURE 47: MEETING OF THE BRAZILIAN RESERVE NETWORK OF THE BIOSPHERE, WITH THE AGENDA REGARDING CORRIDORS AND PLAN OF ACTION OF THE NETWORKS.



SCIENTIFIC KNOWLEDGE

The Biosphere Reserve is based on some strategic sectors for the development of research in the territory. The understanding is that all the representative actors in the State Committee of the Biosphere Reserve of Espinhaço Mountain contribute actively to research and education in the territory.

In this context, we highlight some exemplary actions for the promotion of local strengthening, in traditional communities, physical and biological research, agricultural research, as well as management of protected areas and water resources.

Below we present the profile of the institutions and their productions that have guided the territory policies and support to the Management Committee of the Biosphere Reserve.

TABLE 28: RESEARCH INSTITUTIONS THAT MAY HAVE PUBLICATIONS IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN, AFTER ITS RECOGNITION IN 2005 UNTIL 2015.

Research Institutions	Research Areas – Publications				Grand total
	Abiotic	Biodiversity	Integrated Monitoring	Socioeconomic s	
Academy of Sciences of the Czech Republic		1			1
American Museum of Natural History		1			1
Research Institute: Bicho do Mato		1			1
Biotropics: Wildlife Research Institute	1	1	1		3
Research Center: René Rachou		1		1	2
Federal Center for Technological Education of Minas Gerais		1	1	1	3
Department of Intersectoral Alliances of Minas Gerais		1			1
University center: UNA		1			1
University center of Vila Velha	1				1
Folklore Commission of Minas Gerais				1	1
International Conservation	1	1	1	1	1
CPRM - Geological Survey of Brazil	3				3
Embrapa (Brazilian Agricultural Research Corporation)	2	2			4
Faculty Of Administrative Studies Of Minas Gerais			1		1
University: Kennedy	1				1
University: Pedro Leopoldo	1				1
University: Presidente Antônio Carlos de Congonhas		1			1
Universities: FAESA		1			1
Foundation Technological Center of Minas Gerais		1			1
Foundation of Municipal Parks of Belo Horizonte				1	1
Foundation for Research Support of the State of São Paulo		1			1
Fundation: Getúlio Vargas		1			1
Fundation: Oswaldo Cruz		1			1
Fundation: Pró-Natureza		1			1
Institute: Butantã		1			1
Chico Mendes Institute for Biodiversity Conservation		2			2
Institute of Biosciences		1		1	2
Institute of Botany of the Secretariat of the Environment		1			1
Darwinion Botany Institute		1			1
Institute of Botany of São Paulo		11			11
Botanical Garden Research Institute of Rio de Janeiro		10			10
Institute: Carste	1				1
Federal Institute of Education, Science and Technology of Espírito Santo		1			1
Federal Institute of Minas Gerais			1		1
Federal Institute of Espírito Santo	1				1
National Institute of Colonization and Agrarian Reform			1		1
National Institute of Space Research	2		1		3
Polytechnic Institute of Coimbra		1			1
Institute: Pristino	1				1
National University of La Plata	1				1
National University of the Northeast		5			5
National Observatory	1				1
Pontifical Catholic University of Minas Gerais	3	23	5	11	42
Pontifical Catholic University of São Paulo				1	1
Pontifical Catholic University of Rio Grande do Sul		2			2

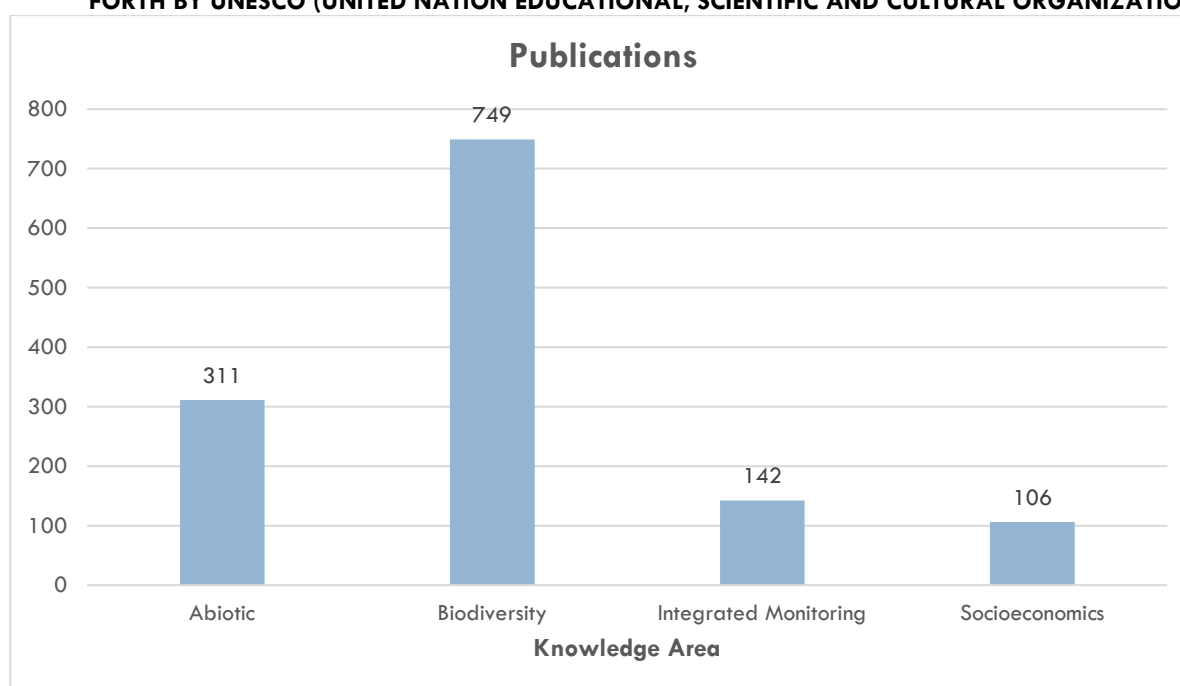
City hall of the city: São Paulo, Herbário Municipal		1			1
Rhodes University	2				2
Royal Swedish Academy of Sciences		1			1
SEMAD-IEF e IGAM/MG			1	1	2
Smithsonian Institution		1			1
Stockholm Environment Institute		1			1
Technische Universität Clausthal	1		1		2
The New York Botanical Garden		1			1
Universidad Internacional de Andalucía		1			1
University of Brasília	3	7	4		14
University of Costa Rica		1			1
University of São Paulo	11	64	2	2	79
State University of Bahia		1			1
State University of Minas Gerais	1		1		2
State University of Mato Grosso		1			1
State University of Rio de Janeiro	1	4			5
State University of Vale do Rio dos Sinos	1				1
State University of Campinas	4	16		2	22
State University of Feira de Santana		23			23
State University of Montes Claros		6	4	1	11
State University of Roraima			1		1
State University of Santa Cruz				1	1
State University of São Paulo	5	20			25
Federal University of Bahia		3			3
Federal University of Alfenas			1	1	2
Federal University of Brasília	1	1			2
Federal University of Espírito Santo		1			1
Federal University of Goiás		2			2
Federal University of Juiz de Fora	1	13			14
Federal University of Lavras	2	9	4	1	16
Federal University of Minas Gerais	77	143	25	11	256
Federal University of Ouro Preto	32	35	11	9	87
Federal University of Pelotas				1	1
Federal University of Pernambuco	4		1		5
Federal University of Santa Catarina		1	1	1	3
Federal University of Santa Maria		3	1		4
Federal University of São Carlos		1	1		2
Federal University of São Paulo	3	10	1	1	15
Federal University of Uberlândia	1	14		2	17
Federal University of Viçosa	4	50	5	5	64
Federal University of Juiz de Fora		1			1
Federal University of ABC		1			1
Federal University of Espírito Santo	1	3			4
Federal University of Paraná		4			4
Federal University of Recôncavo da Bahia		2			2
Universidade Federal do Rio de Janeiro	1	35			36
Federal University of Rio Grande do Norte		5			5
Federal University of Rio Grande do Sul	5	4			9
Federal University: Vales do Jequitinhonha e Mucuri	18	29	3	12	62
Federal University: Fluminense	1				1
Federal University: Rural do Rio de Janeiro	1	2			3
Federal Rural University of the Semi-Arid		1			1
Federal University of Juiz de Fora		1			1
University: Fundação Mineira de Educação e Cultura				1	1
University: São Marcos				1	1
University: Vale do Rio Doce	1	1	1		3
Universidade Estadual de Feira de Santana		1			1
Universität Frankfurt am Main, Germany	1				1
University of Leipzig		1			1
University of Richmond		1			1

University of Stockholm		1			1
University of Würzburg	1				1
Vale – Mineral Exploration Management of Ferrous Products	2				2
TOTAL					960

As a synthesis of the great potential and its actions oriented to the RBSE Action Plan, several studies have been carried out for the Biosphere Reserve of Espinhaço Mountain in the last ten years, and it is possible to highlight works of great importance for the management of the Reserve, which include publications from the description of new species, the soil mapping and the geological history of Espinhaço Mountain, among other strategic themes.

In the chart below, we present the publications categorized according to the table of variables of UNESCO.

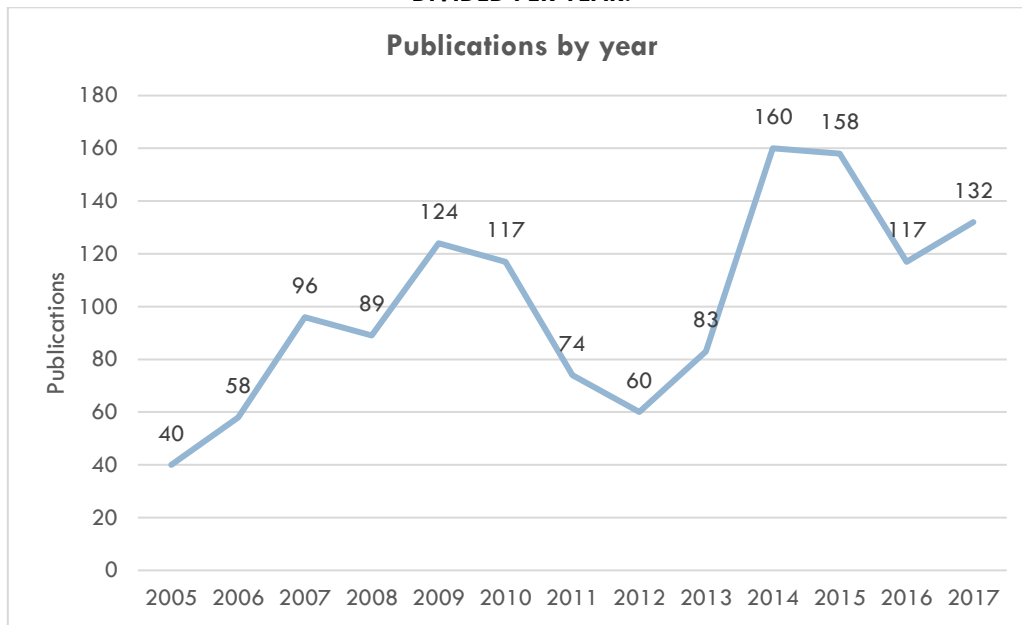
CHART 1: PUBLICATIONS MADE IN RBSE PHASE 2, IN THE LAST THREE YEARS (2005-2017), VARIABLE DIVIDES SET FORTH BY UNESCO (UNITED NATION EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION).



Approximately **1308 publications** of high quality were produced, involving themes related to the Biosphere Reserve of Espinhaço Mountain, in the last 13 years. These surveys provided an extensive scientific database of important articles.

It is also noteworthy are the specific researches with their reports through the National Action Plans for the Conservation of Threatened Species of Extinction or of Speleological Patrimony (PAN's); the work developed by the Biodiversitas Foundation, the Institute of International Conservation and the Biotropics Institute, as well as the recent publication of the Prístino Institute, *The Peixe Bravo River Valley: iron islands in the hinterland of Minas Gerais* (Organized by Flávio Fonseca do Carmo and Luciana Hiromi Yoshino Kamino. - Belo Horizonte: 3i Editora, 2017. 208 pp. ISBN 978-85-9548-026-1), which, along with other variables, have greatly oriented Phase number II of Expansion of the Biosphere Reserve of Espinhaço Mountain.

GRAPH 2: PRODUCTIONS AND PUBLICATIONS DONE IN THE RBSE, IN THE LAST THREE YEARS (2005-2017), DIVIDED PER YEAR.



It is important to emphasize the fundamental role of Conservation Units, which incorporate the Nucleus and Damping Zones of the Biosphere Reserve, as strategic spaces for the development of research and dissemination to the communities in general, be it technical-academic or tourists and residents of these areas.

TRADITIONAL KNOWLEDGE

The traditional knowledge about the use of fauna and flora organisms in the RBSE territory can be pointed out as an important mechanism for the conservation of ecosystems. It must be noted that, due to the high number of native inhabitants living in Espinhaço Mountain, the accumulated knowledge of management systems allows these communities to use resources, causing the minimum possible impact, thus ensuring their continuity.

It is highlighted, in this context, the National System of Conservation Units (BRASIL, 2000), established by law, number: 9.985, of July 18, 2000, for the direct involvement of resident populations around Conservation Units during the elaboration of their Conservation Plans. Management, including providing conditions, where appropriate, to strengthen socioeconomic conditions and local empowerment.

Diegues (2001) also stresses the emergence of a new strand for conservation theory - ethnoconservation. This line of thinking aims at the creation of new conservation strategies that will guide mechanisms for the protection of biodiversity allied to cultural diversity, since the union of scientific thinking with traditional knowledge (developed by traditional populations) would appear as an important link towards a "New naturalism.

Within the scope of the RBSE, the work related to agroecology and ethno-science (ethnobotany, ethnozoology, ethno-geomorphology, ethnocartography, ethnopharmacology) with Conservation Units is highlighted as a way of incorporating local knowledge and traditional knowledge as a way to improve the instruments environmental management in protected areas.

TABLE 29: WORKS CARRIED OUT THAT TREAT THE INCORPORATION OF SCIENTIFIC, TRADITIONAL AND LOCAL KNOWLEDGE IN MANAGEMENT PRACTICES IN THE RBSE.

TITLE	CLASSIFICATION	INSTITUTION	YEAR
Traditional Management in the Savanna	Theoretical Essay	Federal Fluminense University	2007
Grants for the Development of the Plan for the Sustainable Management of Medicinal Plants of the APA (Environmental Protection area) : Farm: Capitão Eduardo, Belo Horizonte, Minas Gerais	Monograph (Course Completion Work)	Federal University of Lavras	2010
Ethnozology as an instrument for the conservation of the fauna of the Ouro Branco Mountain in Minas Gerais	Article	Federal University of Ouro Preto	2011
Participatory biomonitoring, with aquatic insects as bioindicators of water quality, carried out with students of the Municipal School José Pedro Gonçalves, Community of Parauninha, Conceição do Mato Dentro, Minas Gerais	Article	Pontifical Catholic University of Minas Gerais	2011
Knowledge and Uses of Land Fauna by Rural Residents of Ouro Branco Mountain, Minas Gerais, Brazil	Article	Federal University of Ouro Preto	2012
Spatialization of the Speleological Heritage of the Biosphere Reserve of Espinhaço Mountain: selected geosites and their importance for geoconservation	Dissertation	Federal University of Minas Gerais	2012
Ethnocartography and Analysis of the Values of Geodiversity with Traditional Artisan Communities in soapstone of the Iron Quadrangle region - Minas Gerais.	Dissertation	Federal University of Minas Gerais	2014
The Ecoregions of the Biosphere Reserve of Espinhaço Mountain: Elements for the Strengthening of Biodiversity Conservation.	Article	Federal University of Minas Gerais	2015
Incorporating Local Ecological Knowledge in Conservation of the Lizards of Ouro Branco Mountain, Minas Gerais, Brazil	Article	Federal University of Ouro Preto	2015
The use of model as a pedagogical tool in educational management: the example of the Biosphere Reserve of Espinhaço Mountain, Minas Gerais, Brazil	Article	Federal University of Minas Gerais	2015
Territoriality and Belonging: the Local View on the Itambé Peak State Park, Espinhaço Mountain- Minas Gerais	Dissertation	Federal University of Rio de Janeiro	2015
The seals of Unesco as management alternatives for the cultural and natural heritage of Espinhaço Mountain, Minas Gerais, Brazil.	Article	Federal University of Minas Gerais	2017
Possibilities of disinfection and recategorization in conservation units of integral protection: conservation units of the central portion of the Espinhaço Mosaic (Minas Gerais / Brazil)	Article	Federal University of Minas Gerais	2017
The geotourist profile of the Itacolomi State Park, Ouro Preto and Mariana (Minas Gerais)	Article	Federal University of Ouro Preto State University of Ponta Grossa	2017

ENVIRONMENTAL EDUCATION AND SUSTAINABILITY

Some places are highlighted: research centers, university departments and Conservation Units that have, in their reference documents and institutional plans, the Espinhaço Mountain as a priority axis of action. In this context, the following institutions (formal and non-formal education) that develop and / or developed work on Environmental Education and Sustainability in the area of the Biosphere Reserve:

TABLE 30: MAIN INSTITUTIONS AND THEIR PROJECTS OF ENVIRONMENTAL EDUCATION AND SUSTAINABILITY IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.

ACTIVE INSTITUTIONS	PROGRAMS - PRODUCTIONS	YEAR
Municipal Secretariat of Environment of Belo Horizonte	Sala Verde L: Extension Center in Environmental Education	2005
Community Foundation of Faculty of Itabira, Minas Gerais	The role of environmental education in the perception of tourists of the Private Reserve of Natural Heritage - Caraça Sanctuary, Minas Gerais, on the maned wolf (<i>Chrysocyon brachyurus</i> Illiger, 1815) (carnivorous, canidae)	2006
Pontifical Catholic University of Minas Gerais	Environmental Education and Conservation through the mammal species of the RPPN Sanctuary of Caraça	2006
Pontifical Catholic University of Minas Gerais and RPPN (Private Reserve of Natural Heritage) Caraça Sanctuary	Political Educational Project: Sala Verde Caraça	2006
Pontifical Catholic University of Minas Gerais	The influence of tourism on the distribution of mammal footprints in the RPPN Caraça Sanctuary, Minas Gerais	2006
Foundation of Municipal Parks of Belo Horizonte and University: Estácio de Sá	Environmental education in Mangabeiras park	2007
Pontifical Catholic University of Minas Gerais	Philosophical Environmental Educational Project in the Caraça Sanctuary and surrounding communities	2007
Foundation of Municipal Parks of Belo Horizonte and Federal University of Minas Gerais	Mapping of the urban climatic units and heat islands of the municipality of Belo Horizonte-Minas Gerais	2008
Pontifical Catholic University of Minas Gerais	Environmental Education directed to the rural community of Ibirité around the Rola Moça State Park	2008
Foundation of Municipal Parks of Belo Horizonte and Pontifical Catholic University	Proposal of an interpretive trail for the visually impaired in Mangabeiras Park	2009
Foundation of Municipal Parks of Belo Horizonte and University Center of Belo Horizonte-UNI BH	Urban Fauna: the view of elementary school students about the importance of their conservative status	2011
Foundation of Municipal Parks of Belo Horizonte and CEFET (Federal Center for Technological Education) - Minas Gerais	Environmental education and the creation of an awareness game	2011
Municipal Secretariat of Environment of Belo Horizonte	Environment Program - Waste, energy and water management	2012
Federal University of the Jequitinhonha Valley and Mucuri and the Biotropic Institute	Local knowledge and perception of nature as an environmental education tool in communities neighboring the State Park of Rio Preto, Minas Gerais	2012
Federal University of the Jequitinhonha and Mucuri Valleys	Perception and environmental education for the conservation of water resources and the biodiversity of an aquatic ecosystem	2014
Gerdau	Germinar: Environmental Education Program	1990 - Atual
Association of Defense of the Environment of Minas Gerais (AMDA)	Project: Jambreiro	1997 - 2010
Anglo Gold Ashanti	Center for Environmental Education (CEA) - Nova Lima (Minas Gerais)	2000 - Atual
Secretariat of State for Education, Federal University of Minas Gerais	Project: Manuelzão vai à Escola	2005 - 2014
Group: Verde Ghaia (Institute: Oksigeno)	Eco- trainings focusing on the valorization of the biodiversity of the region and environmental compensation of Espinhaço Mountain.	2006-2010
Pontifícia Universidade Católica de Minas Gerais	Structural Project of the Socio-environmental Extension Network in Mineral-metallurgical Regions: APA (Environmental Protection area) South, its mosaic of Conservation Units and surrounding communities.	2008 - 2009

Federal University of Jequitinhonha and Mucuri Valleys and Biotropic Institute	Caravan of Sciences: Knowing the Biodiversity of the Espinhaço Mountain Chain	2008 - 2009
Company: Vale do Rio Doce	Center for Research and Conservation of Biodiversity of the Iron Quadrangle region -CeBio	2008 - Atual
Pontifical Catholic University of Minas Gerais	Environmental Education Project for Parauninha Water Resources: Ribeirinha Communities as Environmental Citizens Sustainability Promoters in the Region of Intendente Mountain State Park	2009 - 2010
Federal University of Jequitinhonha and Mucuri Valleys and Biotropic Institute	Inclusion of local communities in the creation and implementation process Mosaic of Espinhaço Conservation Units: Alto Jequitinhonha - Cabral Mountain	2009 - 2010
Pontifical Catholic University of Minas Gerais	Social Network for the Valorization of Environmental and Cultural Heritage in the Region of the Biosphere Reserve of Espinhaço Mountain, Surroundings of the Intendente Mountain State Park	2009 - Present
Federal University of Jequitinhonha and Mucuri Valleys and Biotropic Institute	Environmental Education in communities located around Conservation Units of the Diamantina Plateau, Minas Gerais	2010 - 2013
Campinas State University	Looks at the savanna: ecotourism as an experience and knowledge of the environment	2011 - 2012
Pontifical Catholic University of Minas Gerais	Social Network for the Valorization of Environmental and Cultural Heritage in a Region of the Biosphere Reserve of Espinhaço Mountain, surroundings of the Intendente Mountain State Park - Description: Project of environmental education and conservation of environmental and cultural heritage aimed at children, youth and adults of the community of Parauninha	2011 - 2015
Federal University of the Jequitinhonha and Mucuri Valleys	Environmental Legislation and Tourism Offices for Communities in the Surroundings of the Biribiri State Park	2011 - 2012
Federal University of Minas Gerais	Participatory monitoring of water quality in the metropolitan area of Belo Horizonte (Minas Gerais): the use of benthic macroinvertebrates as bioindicators in teaching	2013 - 2014
Biotrópicos Institute, Federal University of the Jequitinhonha and Mucuri Valleys	Center for Environmental Education: Sala Verde Diamantina	2013 - Atual
RPPN Brumas do Espinhaço	Design RPPN Brumas do Espinhaço - preserving fragile ecosystems. Investment in the protection of the RPPN (fencing, porters, radio communication), in the awareness and guidance of the visiting public (signage / interpretation system and educational folder) and protection against erosion on the trail to the waterfall	2014 - 2015
Postgraduate Program in Science Teaching, Institute of Exact and Biological Sciences, Federal University of Ouro Preto.	Encyclopedia: Digital geoenvironmental atlas as an instrument of environmental education in the public schools of Minas Gerais.	2017
Federal University of Minas Gerais and Federal University of the Jequitinhonha and Mucuri Valleys	Environmental and tourism legislation workshops for the communities around the Biribiri State Park	2017
Institute: Biotrópicos	Station: Espinhaço	2018 - Atual

The results presented demonstrate a great advance in several fronts of research works, whether they are directly treated for support and guidance of the Action Plan of the Biosphere Reserve of Espinhaço Mountain, or for specific actions to be performed. It is highlighted the expansion of the number of publications, in a historical perspective, the format of cooperation plans and National Action Plans for the territory, whether for the conservation of flora and fauna or for policy guidance and dissemination to the Espinhaço Mountain, through the Geoenvironmental Atlas of the Biosphere Reserve, among others.

Another point that deserves great evidence is the creation of research groups in universities and non-governmental institutions that emphasize projects in Espinhaço Mountain (Pontifical Catholic University of Minas Gerais, Federal University of Ouro Preto, Federal University of Minas Gerais, Federal University of Jequitinhonha Valley and Mucuri). It is highlighted here the Espinhaço Integrated Research Group - GIPE, Institute of Geosciences of UFMG - Federal University of Minas Gerais). These are institutional arrangements for the increase of projects and programs, considering Espinhaço Mountain as a priority area of planning and management.

FEATURED PUBLICATIONS FOR RBSE - PHASE 2

Specific publications related to the RBSE, whether produced by the State Committee, developed by partner institutions or linked to it, are presented here.

- International Conservation Publication -Magazine: Megadiversidade (ANNEX VIII), Volume 4 (276 pages, with 18 articles): Espinhaço Mountain Chain: evaluation of scientific knowledge and conservation priorities (2008), which presents, among other topics of high relevance, the Identification of Irreplaceable Areas for Conservation of the Espinhaço Mountain Chain, in the states of Minas Gerais and Bahia, Brazil.
- Prístino Institute: book Ferruginous Geosystems of Brazil (2015). This publication was the result of the collaboration of 54 renowned researchers representing national and international institutions, with emphasis on regions of the Biosphere Reserve of Espinhaço Mountain. Creation of a socio-environmental data portal of the Biosphere Reserve, with the free availability of thematic information, through the Geoenvironmental Atlas of the Biosphere Reserve of Espinhaço Mountain;
- Biodiversitas Foundation: Adaptation of the Irreplaceable Areas for Conservation of the Espinhaço Chain (Conservation International, 2008), for the priority cut of the Biosphere Reserve of Espinhaço Mountain. From the studies and publication of the Atlas of Priority Areas for the Conservation of Biodiversity of Minas Gerais (2005), it became possible also the zoning of the RBSE. It is important to highlight that, as of 2018, the Atlas of Biodiversity of Minas Gerais is being updated, constituting a strategic public policy for the RBSE studies, in its Phase II.
- Table Book – “Espinhaço Mountain” (2012), Company of the arts: Authors: Miguel Ângelo Andrade and Sérgio Augusto Domingues.
http://issuu.com/reservadabiosferadaserradoespinhaco/docs/livro_serra_do_espinhaco.
- Map of Environmental Conflicts - GESTA, Federal University of Minas Gerais (2007 to 2015) – <http://conflitosambientaismg.lcc.ufmg.br/observatorio-de-conflitos-ambientais/mapa-dos-conflitos-ambientais>

Publications of the Biosphere Reserve Committee of Espinhaço Mountain:

- 2011 – *Instrumentos económicos de gestión ambiental en la Reserva de Biosfera de la Serra do Espinhaço* – Sérgio Augusto Domingues, Cláudia Santiago Karez, Isabella Virgínia Freire Biondini y Miguel Ângelo Andrade - PROGRAMA DE COOPERACION SUR-SUR / SOUTH-SOUTH COOPERATION PROGRAMME - DOCUMENTOS DE TRABAJO / WORKING PAPERS - number 43.

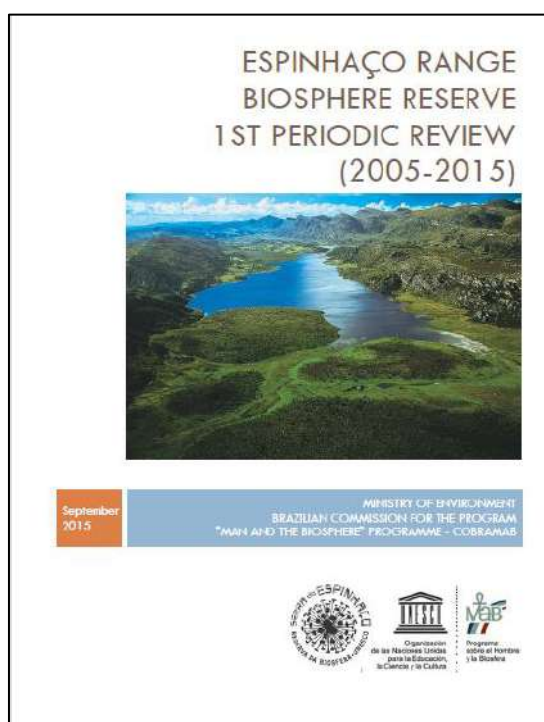
http://issuu.com/reservadabiosferadaserradoespinhaco/docs/instrumentos_econ__micos_de_gesti__

- 2012 – Publication - Payment for Environmental Services at RBSE

WORLD OF SCIENCE (Vol. 10, No. 1 - January–March 2012) - "Putting a price on conservation" - A World of Science, Vol 10 N°1.

2015- 1^a Periodic Review of the Biosphere Reserve of Espinhaço Mountain (<http://rbse.com.br/institucional/#revisao-periodica>)

FIGURE 48: LAYER OF THE FIRST PERIODIC REVIEW OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.



2017 - RBSE website (www.rbse.com.br) which provides an updated database of geoenvironmental data, UNESCO and RBSE reference documents, important links, photographs and memoirs of the RBSE State Committee.

2017- Magazine of the Biosphere Reserve of Espinhaço Mountain (<http://rbse.com.br/institucional/#revista-rbse>).

FIGURE 49: LAUNCHING THE BIOSPHERE RESERVE WEBSITE AND MAGAZINE OF ESPINHAÇO MOUNTAIN.



PUBLIC POLICIES AND THE BIOSPHERE RESERVE TERRITORY OF ESPINHAÇO MOUNTAIN

Important action by the State Committee of the Serra do Espinhaço Biosphere Reserve is the participation, in different spheres of government, for the recognition of RBSE as strategic territory for environmental planning. In this sense, RBSE is used, at different levels of decision, as a territory for the definition of public policies for conservation, development and environmental regulation. The incorporation of the RBSE territory into Brazilian and Minas Gerais state policies deserve special mention: in the National Action Plans for Endangered Species; in the National Landscape Connectivity Program - Conecta (decree, number 75, March 26, 2018); and as a locational criterion of Minas Gerais, in the Environmental Licensing processes of projects with potential environmental impact (COPAM - State Council for Environmental Policy, Normative Resolution 217/17).

NATIONAL PLANS OF THREATENED SPECIES (PANs)

The consolidation and improvement of scientific data platforms, such as those generated by the public policy for biodiversity conservation, through the NATIONAL ACTION PLANS OF THREATENED SPECIES (PANs), coordinated by Chico Mendes Institute for Biodiversity Conservation (ICMBio) and agreed upon with society. The PANs identify and guide priority actions to address threats that threaten populations of natural species and environments and then protect them. Within the scope of the RBSE, 15 National Action Plans are developed. They are described below:

- July 5, 2013; National Action Plan for the Conservation of the savanna and Pantanal Birds: decree Ministry of the Environment, number 34, March 27, 2014; National Action Plan for the Conservation of Pato-Mergulhão: Decree of the Ministry of the Environment, number 44, April 8, 2014; National Action Plans for the Conservation of Birds of Prey and Galliformes (2006); National Action Plan for the Conservation of Galiforms (2008); National Action Plan for the Conservation of Lepidoptera: decree of the Ministry of the Environment, number 92, of August 27, 2010;

National Action Plan for the Conservation of the Jaguar: decree of the Ministry of the Environment, number: 63, June 9, 2014; National Action Plan for the Conservation of Cactaceae: Ministry of the Environment, number: 84, of 27 August 2010; National Action Plan for the Conservation of Mammals of the Central Atlantic Forest: decree of the Ministry of the Environment, number 134, December 23, 2010; National Action Plan for Conservation San Francisco Caves: Decree of the Ministry of the Environment, number: 18, of February 17, 2012; National Action Plan for the Conservation of Sempre-Vivas: Decree of the Ministry of the Environment number 22, of February 17, 2012; National Action Plan for the Conservation of the Leopard: Ordinance decree of the Ministry of the Environment, number: 76, June 27, 2014; National Action Plan for the Conservation of the Guineafowl: (in the process of preparation); National Action Plan for the Conservation of the maned wolf: Decree of the Ministry of the Environment, number: 31, 27 March 2014; National Action Plan for the Conservation of Herpetofauna of Espinhaço mountain: decree of the Ministry of the Environment, number 24, of February 17, 2012; National Action Plan for the Conservation of Flora Threatened with Extinction of Espinhaço Southern Mountain: Ministry of the Environment, number 43, January 31, 2014.

Noteworthy are the following PANs (National Action Plan):

- National Action Plan for the Conservation of Endangered Species and Amphibians in Espinhaço Mountain - PAN Herpetofauna of Espinhaço Mountain (decree, number 24, February 17, 2012 - ICMBio);
- National Plan for the National Conservation of Threatened Species of the Southern Espinhaço (National Center for the Conservation of Flora CNCFlora);
- National Action Plan for the Conservation of Brazilian Eriocaulaceae - Sempre Vivas - PAN (National Action Plan)
- The National Plan of Action for the Conservation of the Faveiro-de-Wilson (decree, number: 401, dated November 11, 2009, and updated by the decree number 43 of the Ministry of the Environment, dated January 31, 2014).

NATIONAL LANDSCAPE CONNECTIVITY PROGRAM – CONECTA

"BIOSPHERE RESERVE CORRIDORS PROGRAM OF ESPINHAÇO MOUNTAIN: CONECTANDO PAISAGENS NATURAIS E CULTURAIS" (CONNECTING LANDSCAPES NATURAL AND CULTURAL ONES)

The commitment of the Brazilian government to assume the Biosphere Reserves as territorial units for planning in the National Program for Connectivity of Landscapes - Conecta (decree number: 75, March 26, 2018), and thus includes the Biosphere Reserve of Espinhaço Mountain, is an environmental conservation enterprise of regional scale, considering the territorial diversities of Biosphere Reserves. Within the scope of the Ministry of the Environment, it was defined the following items:

Article 1 Establish the National Program for Connectivity of Landscapes - CONECTA, within the scope of the Ministry of the Environment, with the objective of promoting the connectivity of ecosystems and the management of landscapes in the Brazilian territory, through integrated public policies, providing sustainable development, stimulating the synergy between nature conservation, maintenance of ecological processes and economic and cultural social prosperity and contributing to the reduction of the effects of climate change regarding the environment.

§ 1° The document of the Program, contemplating the content, structural elements, lines of action, the selection of territories, and other guidelines related to institutional arrangements, management model, funding sources and communication strategies, make up the Annex to this ordinance. available on the website of the Ministry of the Environment on the World Wide Web.

§ 2° The CONECTA Program must be implemented in such a way as to strengthen the integrated action between the units of the Ministry of the Environment, seeking the adhesion of the other Ministries in accordance with the thematic lines of the program, or with the areas of action of the projects and subprojects.

§ 3° The organs and entities related to the Ministry of the Environment must consider the guidelines and guidelines, defined in this decree, in the planning of their actions directed to the implementation of the program.

Article 2° - Specific objectives of the CONECTA Program are:

I - To expand and strengthen the management of the System of Conservation Units and other protected areas, so as to ensure connectivity through ecological corridors;

II - To reduce degradation and fragmentation, maintaining or restoring landscape connectivity and facilitating genetic flow among populations;

III - To encourage the adoption of sustainable production and consumption practices, creating business opportunities and incentives for activities that promote environmental conservation and sustainable use;

IV - To promote the integrated management of landscapes through the sustainable use of the territory, favoring the social-environmental development of the traditional peoples and communities and the indigenous and quilombola peoples; and

V - To contribute to the fulfillment of national and international commitments.

Art. 3 The general lines of action of the CONECTA Program contemplate the following Thematic Axes:

I - Environmental conservation;

II - Environmental recovery;

III - Territorial management; and

IV - Sustainable production.

Single paragraph. The details of the program content and the methodology for designing the lines of action, as well as the instruments that comprise it, are included in the Annex to this Ordinance.

Article 4 The CONECTA Program shall be coordinated by a Committee, chaired by the Executive Secretary of the Ministry of the Environment. The members of the CONECTA Program shall be representatives and representatives of each of the units of the Ministry of Environment and related entities:

I - Ministry of the Environment:

a) Executive Secretariat;

b) Secretariat of Climate Change and Forests;

- c) Biodiversity Secretariat;
- d) Secretariat of Water Resources and Environmental Quality;
- e) Secretariat of Extractivism and Sustainable Rural Development;
- f) Secretariat of Institutional Articulation and Environmental Citizenship; and
- g) Brazilian Forest Service - SFB;

II - Related entities:

- a) National Water Agency - ANA;
- b) Brazilian Institute of Environment and Renewable Natural Resources - IBAMA;
- c) Chico Mendes Institute for Biodiversity Conservation - Chico Mendes Institute; and
- d) Rio de Janeiro Botanical Garden Research Institute - JBRJ;

III - invited bodies

- a) Ministry of Agriculture, Livestock and Supply;
- b) Ministry of Foreign Affairs;
- c) Ministry of Defense;
- d) Ministry of Science, Technology, Innovation and Communications; and
- e) National Foundation of the Indian - FUNAI.

Paragraph 1. The Committee may establish Technical Groups, when necessary, for the development of specific actions, projects and subprojects, or to promote the revision or updating of the Program document.

§ 2 Representatives of other governmental and non-governmental bodies and entities may be invited to participate in the work, if the Committee deems it pertinent and necessary.

Paragraph 3. The deliberations of the Committee shall be recorded in minutes and made available on the website of the program;

Paragraph 4. The activities of the Executive Secretariat of the Committee shall be exercised by one of the member institutions, as determined by the committee recorded in the minutes.

Article 5 The Program Committee shall meet at least once a year to approve the Annual Activity Report and the Planning for the subsequent twelve months.

Single paragraph. Within ninety days from the date of publication of this Ordinance, the Committee shall approve the work plan of the Program for the first 12 months.

Article 6 The Program Committee shall be responsible for:

I - To establish procedures, guidelines, criteria and priorities for the implementation of the program;

II - To develop and promote mechanisms to raise funds for the program;

III - Monitor, evaluate and review the program, as well as guide and monitor actions, projects and subprojects;

IV - To support the articulation and participation of federal public administration bodies and state and municipal governments, and guide the articulation with the representatives of society, the private sector and non-governmental entities in the Program;

Article 7 For the development of the CONECTA Program, the Committee, with the operational support of the Executive Secretariat of the Ministry of the Environment, will develop mechanisms and plan fundraising, which may come from:

I - the funding of national and international donations;

II- the allocation of resources resulting from legal obligations such as the conversion of fines and environmental compensation;

III - the supply of goods and services by public or private entities; and

IV - the allocation of resources derived from economic instruments, such as payment for environmental services and others.

Article 8 Participation in the Committee and in any Technical Groups shall be considered as a relevant public service, unpaid.

Article 9 This Ordinance shall enter into force on the date of its publication. (Published in D.O.U. (Official Gazette of the Union) dated March 28, 2011, Section I, Page 160.)

The coordination of the RBSE State Committee was invited by the Ministry of the Environment for the composition of the Technical Group of the Conecta Program, with meeting held on August 27 and 28, 2018.

Between August 22nd and 26th, the coordination of the State Committee of RBSE also participated in an International Seminar "Ecological Corridors and Connectivity of Landscapes", in Foz do Iguaçu, with the presentation of a lecture, followed by discussion.

In the context of the Conecta program, the RBSE proposes for Phase II the creation, within its State Committee, of the "Corridors Program of the Biosphere Reserve of Espinhaço Mountain: Connecting Natural and Cultural Landscapes". RBSE, being a natural ecological corridor and provider of large ecosystem services, and acting as a space for strategic governance, has, through the RBSE - Corredores do Espinhaço Program, the main objective of interconnecting the mosaics of protected areas within them and among them, developing the functions of the RBs of the MaB (Man and the Biosphere) Program.

THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN, AS A LOCAL CRITERION OF ENVIRONMENTAL LICENSING OF POTENTIAL ENTERPRISES ENVIRONMENTAL IMPACT (COPAM - State Council for Environmental Policy - REGULATORY RESOLUTION, NUMBER: 217/17)

Another important achievement for RBSE was the incorporation of the Biosphere Reserves by the government of the state of Minas Gerais, in environmental regulation policies that assumed, in 2017, the Biosphere Reserve of Espinhaço Mountain as a locational criterion of Environmental Licensing of potential environmental impact (Normative Resolution COPAM, number 217/17). In this Normative Deliberation, the State of Minas Gerais establishes criteria for classification, according to the size and polluting potential, as well as the locational criteria to be used to define the modalities of environmental licensing of enterprises and activities that use environmental resources in the State. Accordingly, the State Council for Environmental Policy - Copam, in the use of the attributions granted by item I of article 14 of the State Law, number 21.972, dated January 21, 2016, article 4 of the COPAM Normative Resolution, number 177, of August 22, 2012 and items I and III of article 3 of the State Decree, number: 46.953, of February 23, 2016, DELIBERATES:

CHAPTER I - REGARDING THE ENVIRONMENTAL LICENSING PROCESS

Section I - Regarding the framework of activities and undertakings

Article 1 - The environmental licensing framework and procedure to be adopted will be defined by the relation of the location of the activity or enterprise, with its size and potential pollutant / degrading, taking into account its typology.

Sole paragraph - Environmental licensing shall ensure public participation, transparency and social control, as well as the preponderance of public interest, speed and process economy, prevention of environmental damage and integrated analysis of environmental impacts.

Article 2 - The activities and enterprises listed according to potential pollutant / degrading, size and location criteria, whose classification is defined in classes 1 to 6, are subject to environmental licensing at the state level.

Article 3 - The pollutant / degradative potential of activities and undertakings will be considered as small (P), medium (M) or large (G), as established in Table 1 of the Single Annex of this Normative Deliberation, water and soil.

Article 4 - Porting is considered small (P), medium (M) or large (G), according to the parameters and limits pre-established for each activity or undertaking, according to the activity listings in the Single Annex of this Normative Deliberation.

Article 5 - The framework of the enterprises and activities in classes will be according to the matrix of conjugation of the potential polluter / demeanor and size arranged in Table 2 of the Single Annex of this Normative Deliberation.

Article 6 - The licensing modalities will be established according to Table 3 of the Single Annex of this Normative Deliberation, by means of which the class and locational framework criteria are conjugated, with the exception of renewals.

§1° - Paragraph 1 - The locational framework criteria refer to the relevance and sensitivity of the environmental components that characterize them, being assigned 01 (one) or 02 (two) weights, according to Table 4 of the Single Annex of this Normative Deliberation.

§2° - The weight 0 (zero) will be attributed to the activity or undertaking that does not fit into any of the locational criteria set forth in Table 4 of the Single Annex of this Normative Deliberation.

§3° - In the event of interference of the activity or enterprise in more than one locational criterion, it will have to be considered the one of greater weight.

§4° - The restriction or sealing factors set forth in Table 5 of the Single Annex of this Normative Deliberation do not give weight for the purposes of framing the projects, and must be considered in the approach to environmental studies to be presented, without prejudice to other factors established in specific norms.

§5° - For the purpose of planning the enterprise or activity, as well as verification of the incidence of locational criteria and restriction factors or fence, the entrepreneur can access the computerized system of the Spatial Data Infrastructure of Sisema - IDE-Sisema, in which the data are available georeferenced regarding the criteria and factors in Tables 4 and 5 of the Single Annex of this Normative Deliberation.

The locational framework criteria will be established according to the Table below, taken from the Copam (State Council for Environmental Policy) Normative Deliberation, number: 217, of December 6, 2017.

TABLE 31: LOCAL CRITERIA FOR THE ENVIRONMENTAL LICENSING OF MINAS GERAIS.

LOCAL FRAMEWORK CRITERIA	WEIGHT
Location foreseen in Integral Protection Conservation Unit, in the cases provided for in Law	2
Suppression of native vegetation in priority areas for conservation considered of "extreme" or "special" biological importance, except isolated trees	2
Suppression of native vegetation, except isolated trees	1
Expected location in the buffer zone of the Integral Protection Conservation Unit, or within the 3 km range of its surroundings when there is no buffer zone established by the Management Plan; excluding urban areas.	1
Expected location in Sustainable Use Conservation Unit, except APA (Environmental Protection area)	1
PREVIOUS LOCATION OF BIOSPHERE RESERVE, EXCLUDING URBAN AREAS	1
Predicted location in ecological corridor formally instituted, as defined by law	1
Expected location in areas designated as Ramsar Farms	2
Expected location in drainage area at the upstream of the stretch of water, framed in special class	1
Surface water abstraction in Conflict Area, due to the use of water resources.	1
Predicted location in an area of high or very high degree of cavity occurrence, according to official CECAV-ICMBio data	1

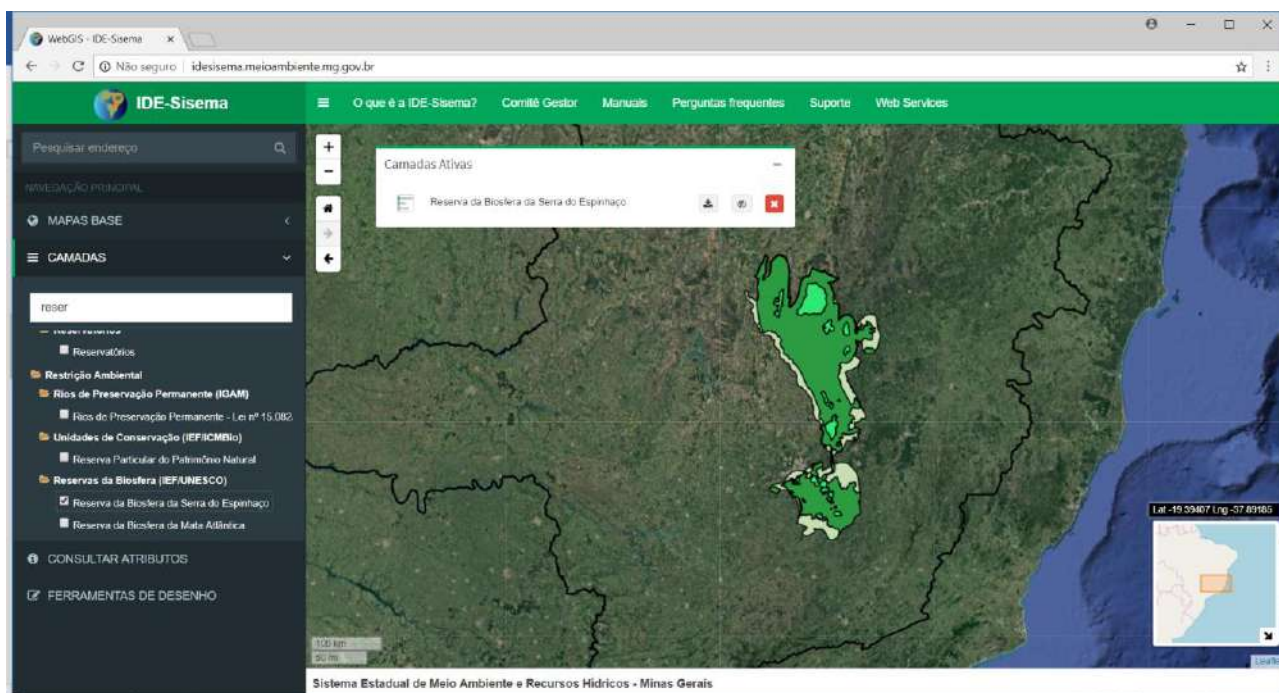
Source: Copam Normative Deliberation, number: 217, of December 6, 2017.

INFRASTRUCTURE PLATFORM OF SPACE DATA OF THE STATE SYSTEM OF ENVIRONMENT AND WATER RESOURCES (IDE-SISEMA)

Thus, as a result of this new public policy that incorporates the limits of the RBSE in the Environmental Licensing process of Minas Gerais, RBSE is also included in the data collection and strategic analysis through the INFRASTRUCTURE PLATFORM OF SPACE DATA OF THE STATE ENVIRONMENT AND WATER RESOURCES SYSTEM (IDE-SISEMA), established by the Joint Resolution SEMAD (State Secretariat for Environment and Sustainable Development) / FEAM (State Foundation for the Environment) / IEF (State Forestry Institute) / IGAM (Minas Gerais Institute of Water Management) number: 2,466 / 2017, which aims to promote the adequate organization of the processes of generation, storage, access, sharing, dissemination and use of geospatial data derived from the activities, programs and environmental and water resources projects developed by the State System of Environment . With RBSE Phase II, the IDE (Spatial Data Infrastructure of the State System of Environment and Water Resources) - System must also

cover the new areas intended for this new phase, thus extending the regions to the locational criterion of potentially polluting enterprises in Minas Gerais.

FIGURE 50: RBSE IN THE CONTEXT OF ENVIRONMENTAL LICENSING AND AVAILABILITY OF DATA FOR ENVIRONMENTAL ANALYSIS IN THE INFRASTRUCTURE PLATFORM OF SPACE DATA OF THE STATE ENVIRONMENTAL SYSTEM AND WATER RESOURCES (IDE-SISEMA).



COMMUNICATION IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN

Contemplating the Lima Plan, in its Strategy D: Comprehensive, modern, open and transparent communication, information and data sharing, RBSE develops strategic mechanisms in its communication processes.

For better understanding, the INTERNAL AND EXTERNAL COMMUNICATION MECHANISMS OF THE BIOSPHERE RESERVE are presented:

I - Through meetings and representations:

Participation in Conservation Unit Councils, Environmental Policy Council of Minas Gerais, Council of the Mosaic of Protected Areas Alto Jequitinhonha, Cabral Mountain, proponent of the Mosaic Southern Espinhaço - Cipó Mountain.

Participation in COBRAMAB (Brazilian Commission of the Man and the Biosphere Program), as representative of higher education institution and research.

Coordination of the Brazilian Network of Biosphere Reserves.

Promotion of 4 ordinary meetings of the State Committee of the Biosphere Reserve of Espinhaço Mountain, in addition to extraordinary meetings, with guidelines defined with at least 30 days notice. Planning and monitoring workshops on the Biosphere Reserve Action Plan.

II- Through publications and documentaries:

- 2005: Publication of Folder Synthesis of the Biosphere Reserve of Espinhaço Mountain.

- VT Espinhaço, 2005. VT broadcast on the largest television station in Brazil, in prime time, in which the recognition of RBSE by UNESCO was announced.

Link: <https://youtube.com/watch?v=gaTxidEvvqM>

2007 - Launch of the documentary "Águas do Espinhaço", with the participation of the team of the France Libertés Foundation, with special attention to Madame Danielle Mitterrand and the production team of Yann Arthus-Bertrand - link to Youtube: <https://www.youtube.com/watch?v=3AC4FLMjpw> (part 1); <https://www.youtube.com/watch?v=vJaSKa113pc> (part 2).

2011- Instrumentos económicos de gestión ambiental en la Reserva de Biosfera de la Serra do Espinhaço - Sérgio Augusto Domingues, Cláudia Santiago Karez, Isabella Virgínia Freire Biondini y Miguel Ângelo Andrade - PROGRAMA DE COOPERACION SUR-SUR / SOUTH-SOUTH COOPERATION PROGRAMME - DOCUMENTOS DE TRABAJO / WORKING PAPERS - No 43. (ANEXO IX).

2012 –World of Science (Vol. 10, No. 1 - January–March 2012) - "Putting a price on conservation" - A World of Science Vol 10 N°1.

Link: https://issuu.com/reservadabiosferadaserradoespinhaco/docs/revista_world_of_science__rb_espinh

2012 – Table Book "Espinhaço Mountain", Company of the Arts. Authors: Miguel Ângelo Andrade and Sérgio Augusto Domingues.

Link: http://issuu.com/reservadabiosferadaserradoespinhaco/docs/livro_serra_do_espinhaco.

2013 and 2015 - Launching of the two editions of the Documentary Book "PARAUNINHA: between mountains, by the waters, with people", in partnership with: Community Association of Parauninha (ASPA), Parauninha Socioenvironmental and Cultural Network, Oi Futuro, PUC Minas, State Institute of Forests of Minas Gerais (IEF-Minas Gerais).

2015 – Atlas Digital Geoambiental da Reserva da Biosfera da Serra do Espinhaço – <http://institutopristino.org.br/atlas/espinhaco/>

2016 – SIGNALING OF PUBLIC ROUTES, MUNICIPALITIES AND RBSE CONSERVATION UNITS: RBSE, through the support of the Public Ministry of the State of Minas Gerais, signaled an important federal highway, BR 040, with RBSE signaling in Conservation Units in this region.

F FIGURE 51: SIGNALING OF PUBLIC ROUTES, MUNICIPALITIES AND RBSE CONSERVATION UNITS.



2017 – Site RBSE – www.rbse.com.br

2017 – Magazine: Reserva da Biosfera da Serra do Espinhaço

2018 – With the sponsorship of Vale S.A and support of the Association of Municipalities of Minas Gerais, it is implanting signs in 22 municipalities of RBSE.

FIGURE 52: SIGN OF THE RBSE IN SÃO GONÇALO DO RIO ABAIXO BIOSPHERE RESERVE MUNICIPALITY OF ESPINHAÇO MOUNTAIN.



III- Through organization and participation in events:

- 2007 - Planning Workshop of the Amazon Biosphere Reserve.
- 2008 - Workshop of Strategies of Shared Management of Territories - MMA (Ministry of the environment) - Brasília.
- 2008 - Participation with UNESCO at the World Congress of Biosphere Reserves in Madrid.
- 2010 - Organization of the International Seminar on Environmental and Ecosystem Services - Ouro Preto - Brazil (Annexed Programming) which included, among other products the LETTER OF OURO PRETO AND CIPÓ-INTENDENTE MOSAIC (Current Mosaic Southern Espinhaço - Cipó Mountain, in phase approval by the Ministry of the Environment).
- 2011 - Participation in Biosphere Reserves & Earth Resources Expert Meeting - UNESCO Headquarters, Miollis Room XIV, Paris, February 15, 2011.
- 2012 - Participation in RIO + 20, in Pavilhão das Águas.

- 2013 - Organization of the International Seminar on Mining and Socio-Environmental Sustainability in Biosphere Reserve, in Belo Horizonte, Minas Gerais.
- 2015 - Participation of the IV World Congress of Biosphere Reserves in Lima, with presentation of a lecture in the side event promoted by UNESCO.
- 2016-2018 - Meetings of the Brazilian Network of Biosphere Reserves (RBSE is the current coordinator of the Brazilian Network of RBs).
- 2018 - Participation, with a lecture, at the International Seminar regarding Ecological Corridors, promoted by the Mata Atlântica Biosphere Reserve, in Foz do Iguaçu, Brazil.
- 2018 - Participation of the Meeting of the Brazilian Network of Biosphere Reserves, at the IX Brazilian Congress of Conservation Units, in Florianópolis, Brazil.
- 2018 - Participation of the Conecta Program Meeting of the Ministry of Environment, in Brasília, Brazil.

FIGURE 53: PARTICIPATION OF THE STATE COMMITTEE OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN AT THE 4TH WORLD BIOSPHERE RESERVE CONGRESS.



FIGURE 54: MEETINGS OF THE BRAZILIAN NETWORK OF THE BIOSPHERE RESERVE.



FIGURE 55: PARTICIPATION OF THE MEETING OF THE BRAZILIAN NETWORK OF BIOSPHERE RESERVES, IN THE IX BRAZILIAN CONGRESS OF CONSERVATION UNITS.



The communication of the actions carried out in the RBSE also occurs through:

- Blog of RBSE: <http://rbse-unesco.blogspot.com.br>.
- Facebook of RBSE: <https://www.facebook.com/ReservaDaBiosferaDaSerraDoEspinaco>.
- E-mail of RBSE: rbsemg@gmail.com.
- Site of the Biosphere Reserve of Espinhaço Mountain: www.rbse.com.br
- Geoenvironmental Atlas of RBSE: <https://www.institutopristino.org.br/atlas/espinaco>

The Biosphere Reserve of Espinhaço Mountain, through its State Management Committee, makes direct communications to the institutions that make up said Committee and other institutions of interest through the institutional email rbsemg@gmail.com, with forwarding of ordinary and extraordinary offices. There is also WhatsApp from Working Groups and the Management Team of the State Committee of the Biosphere Reserve of Espinhaço Mountain.

It is also important to note that the calendar of the RBSE State Committee of regular meetings, with extraordinary meetings, is being fulfilled in full.

- REGARDING THE RBSE'S CONTRIBUTION FOR THE WORLD NETWORK OF BIOSPHERE RESERVES:

The Biosphere Reserve of Espinhaço has been participating since its recognition in forums, working groups and specific meetings with UNESCO and with Biosphere Reserves associated with the World Wide Web.

It is important to highlight publications and participation in seminars, international and regional meetings under the MaB-UNESCO Program. Since its recognition in 2005, representatives of the RBSE Committee have attended seminars and meetings held under the MaB (Man and the Biosphere) -UNESCO Program, in the Brazilian Network of Biosphere Reserves and with support from IberoMaB (Man and the Biosphere) also contributing with publications in magazines, newspapers and books.

- 2006 - Sustainable development – Lecture regarding tourism.

International Seminar: Biosphere Reserves as a tool for sustainable development in mountainous areas. Potentials, conflicts and alternatives - September 11 to 13 - Buenos Aires, organized by the Secretariat of Environment and Sustainable Development of the Chief of Cabinet of Ministers of the Argentine Republic and UNESCO.

- 2007 – Integration between Reservations of the Brazilian Biosphere - Technical support

I Seminary of Biosphere Reserve of Amazônia Central - RBAC - State of Amazonas - Biosphere Reserve Seminar from Central Amazon in the Amazon State - August 28 to 31.

Objectives of the event: to promote understanding about the Biosphere Reserve in the global context; to promote the leveling of information on the performance of the Central Amazon Biosphere Reserve (RBAC) in the national context; promote better integration among the members of the State Council; reassess the CERBAC (Central Amazon Biosphere Reserve Committee) bylaws; to define RBAC integration in relation to projects and programs, such as Ecological Corridors Project, Natural World Heritage Sites, ARPA (Protected Areas Program of the Amazon) and others; to prepare a Plan of Action for CERBAC (Central Amazon Biosphere Reserve Committee) , biennium 2007-2009 and to integrate RBAC (Central Amazon Biosphere Reserve) in the policies of regional development and projects of territorial organization of the State.

- 2008 – Madrid Action Plan.

3rd World Congress of Biosphere Reserves and 20th Session of the International Co-ordinating Council (ICC) of the Man and the Biosphere (MAB) Programme - Madrid, Spain, February 4-9.

- 2008 – Publication regarding exotic and invasive species

Exotic Species Invasoras in the Biosphere Reserves of Latin America and the Caribbean. A technical report to promote the exchange of experiences among Biosphere Reserves and promote the effective management of biological invasions. UNESCO, Montevideo. Editors: Elke Schüttler and Cláudia Santiago Karez.

- 2008 - Meeting of the Brazilian Network of Biosphere Reserves, held at COMBIO - Minas Gerais Biodiversity Congress, on April 22, 2008, in Belo Horizonte, State of Minas Gerais.

- 2008 - Meeting of the Brazilian Network of Biosphere Reserves, Brasília - DF (Federal District), on 07/31. Promotion: Ministry of the Environment, through the Secretariat of Biodiversity and Forests.

2008 - Participation of the Workshop on Shared Territory Management tools: Mosaics of Protected Areas, Ecological Corridors and Biosphere Reserves. Brasília, DF (Federal District).

- 2009 – Lecture - Inventory of Greenhouse Gas Emissions of the State of Minas Gerais.

International Seminar on Ibero-American and Brazilian Biosphere Reserves: Successful Experiences in Conservation, Sustainable Development, Knowledge and Participatory Management, "held from 11 to 14 December in Fortaleza and Crateús, Ceará State.

- 2009 - Meeting with Miguel Clusener Godt at the headquarters in Paris of the Division of Ecological Sciences and Earth UNESCO - September 10.

- 2010 - International Seminar Organization - Ouro Preto Declaration

International Seminar on Biosphere Reserves (RBs), Environmental Services and Sustainability Indicators. April 14 to 17 - Held in the city of Ouro Preto, state of Minas Gerais - Brazil by the RBSE Committee. Event proposed as a milestone in the activities of the International Year of Biodiversity in 2010. This statement guided the deepening of environmental studies for the recognition of the Rupestrian Fields as a Brazilian biome.

- 2010 - Declaration of Puerto Morelos, Mexico.

1st Ibero-American Conference on Biosphere Reserves - November 9-13. Held in Puerto Morelos, Quintana Roo, Mexico.

-- 2011 - Construction of the International GT (Work group) regarding Mining in Biosphere Reserves through participation in Paris, Biosphere Reserves & Earth Resources Expert Meeting - UNESCO Headquarters, Miollis Room XIV, Paris, February 15, 2011.

2011 - Publication: Payment for Environmental Services at RBSE.

Economic instruments of environmental management in the Biosphere Reserve of Espinhaço Mountain - Sérgio Augusto Domingues, Cláudia Santiago Karez, Isabella Virgínia Freire Biondini and Miguel Ângelo Andrade - SOUTH COOPERATION PROGRAM - WORKING DOCUMENTS / WORKING PAPERS - number:43.

- 2012 - Publication of Payment for Environmental Services at RBSE

World of Science (Volume: 10, number: 1 - January-March 2012) - "Putting a price on conservation" - A World of Science Volume: 10, number: 1.

- 2013 - International Seminar Organization - International GT (Work group) regarding Mining in RBs.

International seminar on Socio-environmental Sustainability and Mining in Biosphere Reserves - March 18 to 20 - exchange and integration of good mining practices related to sustainable use, biodiversity conservation and ecosystem services in biosphere reserves, proposed event as a framework of the United Nations International Year for Water Co-operation. Held in the city of Belo Horizonte, state of Minas Gerais - Brazil, by the RBSE Committee with support from the Regional Office IberoMaB.

- 2014 – Project for the organization of the Annals of the International Seminar regarding Mining and Socio-environmental Sustainability in Biosphere Reserves (in progress).

- 2015 - Preparation of the Report of the 1st PERIODIC REVIEW of the Biosphere Reserve of Espinhaço Mountain (2005-2015).

- 2016 - Presentation of a lecture, followed by a roundtable entitled "Articulation and cooperation of national and international mechanisms for shared management of territories", during the National Workshop on Mosaics of Protected Areas (May 10-12) at ICMBio, in Brasilia, Brazil.

- 2016 - Participation in the 4th World Congress of Biosphere Reserves (4WCBR) 'The New Vision for the Decade 2016-2025 - UNESCO Biosphere Reserves for Sustainable Development', in Lima, Peru, with the

presentation of a lecture, followed by a discussion on Mining and Biosphere reserves - side event Working Group on "Biosphere Reserves and Earth Resources".

2018 - RBSE's participation in the Technical Guidelines for Biosphere Reserves (TGBR), Working Group, Data Management and Monitoring, in cooperation with the MAB (Man and the Biosphere) Secretariat.

With regard to the future contribution to the Network, we intend, with Brazilian and international institutional support, a more active participation in forums for decision and structuring of strategies for the full development of activities advocated by MaB (Man and the Biosphere), as well as specific demands that we believe are also strategic, such as Biodiversity Conservation Plans, Traditional Cultures, Communication and Education, and Socio-Environmental Networks.

It is important to emphasize that, for international involvement and participation, the Brazilian Network of Biosphere Reserves in Brazil must be strengthened, in which COBRAMAB (Brazilian Commission of the Man and the Biosphere Program), through the Ministry of the Environment, must directly support the recommended initiatives of the Biosphere Reserves. Action of Biosphere Reserves, making feasible, technically and financially, the support, execution and monitoring of actions. Added to this lack of technical and financial support is the need for the Government of the State of Minas Gerais to assume what determines the Decree of Creation of the State Committee of RBSE.

- REGARDING COLLABORATION WITH BIOSPHERE RESERVES ALREADY EXISTING AT NATIONAL, REGIONAL AND INTERNATIONAL LEVELS:

At the national and regional levels, the following stand out:

- 2006 - Sustainable development - Lecture on tourism.

International Seminar: Biosphere reserves as a tool for sustainable development in mountainous areas. Potential, conflicts and alternatives - September 11 to 13 - Buenos Aires, organized by the Secretariat of Environment and Sustainable Development of the Office of the Cabinet of Ministers of the Argentine Republic and UNESCO.

- 2007 - Integration of Brazilian Biosphere Reserves - Technical support

I Seminar of the Biosphere Reserve of Central Amazonia - RBAC - State of Amazonas Seminar of the Biosphere Reserve of Central Amazonia in the State of Amazonas - August 28 to 31. Objectives of the event: to promote understanding about the Biosphere Reserve in the global context; to promote the leveling of information on the performance of the Central Amazon Biosphere Reserve (RBAC) in the national context; promote better integration among the members of the State Council; reassess the CERBAC (Central Amazon Biosphere Reserve Committee) bylaws; define RBAC integration in relation to projects and programs, such as Ecological Corridors Project, Natural World Heritage Sites, ARPA (Protected Areas Program of the Amazon) and others; to prepare a Plan of Action for CERBAC Central Amazon Biosphere Reserve Committee), 2007 - 2009 biennium and to integrate the RBAC (Central Amazon Biosphere Reserve) into the regional development policies and territorial organization projects of the State.

- 2008 - Meeting of the Brazilian Network of Biosphere Reserves, held at COMBIO

- Minas Gerais Biodiversity Congress, on April 22, 2008, in Belo Horizonte, State of Minas Gerais.
- 2008 - Meeting of the Brazilian Network of Biosphere Reserves, Brasília - DF (Federal District), on 07/31. Promotion: Ministry of the Environment, through the Secretariat of Biodiversity and Forests.
- 2008 - Participation of the Workshop on Shared Territory Management tools: Mosaics of Protected Areas, Ecological Corridors and Biosphere Reserves. Brasília DF (Federal District).
- 2015 - Elaboration of the Report of the 1st PERIODIC REVIEW of Biosphere Reserve of Espinhaço Mountain (2005-2015).
- 2016- Meeting of the Brazilian Network of Biosphere Reserves in Maceió, Alagoas, Brazil.
- 2017 - Meeting of the Brazilian Network of Biosphere Reserves in the Federal District - Brasília, Brazil, at the COBRAMAB Meeting.

FIGURE 56: MEETING OF THE BRAZILIAN BIOSPHERE RESERVE NETWORK IN THE FEDERAL DISTRICT - BRASÍLIA.



- 2017 - Participation, with presentation, of the 1st Workshop on Representation of Biomes Compatible with SCALE 1: 250,000, promoted by the Brazilian Institute of Geography and Statistics - IBGE - Rio de Janeiro, RJ - Brazil.
- 2018 - Meeting of the Brazilian Network of Biosphere Reserves in Florianópolis, Santa, Brazil, at the IX Brazilian Congress of Conservation Units.
- 2018 - Participation in the National Program of Connectivity of Landscapes - CONECTA, instituted through decree number 75, of 03/26/18, and to discuss the concept of landscape connectivity - Brasília, Brazil.
- 2018 - Participation of the round table International Seminar "Ecological Corridors and Landscape Connectivity" - Foz do Iguaçu, Brazil.

It was highlighted the Biosphere Reserve of Espinhaço Mountain, for having in its territory attributes of international scale, such as Mining, Water and Rupestrian Fields, these are, a priori, the themes that have been given priority for the format of international cooperation.

For the mining issue, it is hoped that the International WG (Work group) on Mining Good Practices in Biosphere Reserves Territories will be institutionalized for the publication of a Guide to Good Practices, as

ICMM (International Council on Mining and Metals) proposes, together with other international reference documents, aiming at the conservation of biodiversity, culture and climate improvement, above all. Such a document must in our view, be in line with the premises of MaB (Man and the Biosphere) - UNESCO.

For the Rupestrian Fields question, one must take as an environmental reference of global scale, with high degrees of endemism and species richness, with low resilience. Like the Fynbos in South Africa, one must consider the Rupestrian Mountains as one of the World Centers for Endemism. To do so, we must recognize the Rupestrian Fields as a Brazilian Biome, which implies a discussion with the sectors of Federal, State Governments (since there is an occurrence in more than one Brazilian state) and certainly of other strategic sectors, since it is about an environment distributed in mining sites, urban growth and suffering from forest fires in the highlands of the Biosphere Reserve. To this end, having international support is fundamental, considering even the prominence that this environment represents in relation to areas of endemism, endangered species, and highlighting as unique and threatened areas on the planet.

Another issue of great importance is the water issue. The Espinhaço Mountain, is a large-scale provider of this strategic resource, has in its territory a group of watersheds whose strategic asset, water, can guarantee conservation and development on a national scale. On the other hand, the threats to this potential can be demonstrated by the tendency to scarcity and water stress, determined by several factors. We thus reinforce the interest of the Steering Committee in official participation in the World Water Forum.

Another key cooperation issue is the exchange of good management practices in Biosphere Reserves, offered through the dialogues provided by the World Network of Biosphere Reserves. To this end, the largest participation of the Biosphere Reserve of Espinhaço Mountain in these international forums, such as we have participated, even with the logistical and financial limitations, of these spaces of formation and exchanges.

The potential of conservation, academic and traditional knowledge and development aspects of the RBSE require effective strategies for dimensioning, investigating, monitoring and evaluating the initiatives taking place in the territory.

To this end, its Steering Committee, through extensive institutional capillarity, sought to attract partners and organizations that contributed directly to the planning and management of the RBSE. In this sense, the involvement of 28 institutions (related to the public and private sectors and civil society) in its State Committee and other various partners and stakeholders is highlighted.

Due to the institutional involvement in the RBSE, in the last decade there has been an advance in publications, research projects and university extension, academic works that consider the Espinhaço Mountain, as the guiding axis of the proposed actions.

In order to organize and systematize the diversity of existing initiatives in the RBSE, they stand out as priority initiatives of their Plan of Action:

- Constant updating of a complete and detailed database, with georeferenced information, made available to society in general, as presented in this Periodic Review;
- Creation of a Portal, as a central information and communication tool of the RBSE;
- Creation and refinement of existing communication strategies, such as the blog, social networks, local forums;

In the academic-scientific context, it is important to emphasize, in a historical perspective, initiatives, strategic nuclei and research stations that seek to investigate and disseminate knowledge regarding RBSE:

2008: Formation of the CNPq (National Council for Scientific and Technological Development) Research Group "Vascular Plant Biology of the Espinhaço Chain" - Department of Biological Sciences of the Federal University of the Jequitinhonha and Mucuri Valleys.

The group is formed by researchers with experience in the study of plants of the Espinhaço Chain. The researches of the group are mainly focused on taxonomy and systematic studies, morphology and anatomy, ecology and biology. Therefore, the repercussions of the research results developed by the team, published in scientific publications, congresses, the knowledge about the flora of the region under different aspects.

2008: Formation of the CNPq (National Council for Scientific and Technological Development) Research Group "Ecology and diversity of the animals of the Espinhaço Chain" - Department of Biological Sciences of the Federal University of the Jequitinhonha and Mucuri Valleys

2010: Formation of the Integration Center for Environmental Sustainability - Department of Biological Sciences of PUC Minas

FIGURE 57: LOGOMATE OF THE INTEGRATION CENTER FOR ENVIRONMENTAL SUSTAINABILITY OF THE DEPARTMENT OF BIOLOGICAL SCIENCES OF PUC MINAS.



Currently headquartered at RBSE, located at the PUC Minas Eucharistic campus in Belo Horizonte, Minas Gerais, CISAL is a space that seeks to structure and integrate actions and enhance results for society, with a focus on sustainability.

CISAL develops effective and coordinated teaching, research and extension actions that can contribute to the mitigation, monitoring and control of solutions to environmental problems with the promotion of sustainability, as indicated by the World Conference on Higher Education through national and international reference documents. such as the Madrid Plan and the Seville Strategies for Biosphere Reserves.

2010: Formation of the Espinhaço Integrated Research Group - GIPE (member of the RBSE State Committee) - Institute of Geosciences of the Federal University of Minas Gerais.

FIGURE 58: LOGO OF THE INTEGRATED GROUP OF ESPINHAÇO RESEARCH (GIPE) - IGC-FEDERAL UNIVERSITY OF MINAS GERAIS



Research group associated to the Institute of Geosciences of the Federal University of Minas Gerais, headed by Professors Bernardo Machado Gontijo and Marcelo Fagundes.

GIFE has as its guiding theme the integrated study of the landscape of Espinhaço Mountain, with emphasis on the existing interfaces between protected areas and the production of space. The area of research scope and focus is the Biosphere Reserve of Espinhaço Mountain (RBSE) UNESCO 2005, that is, a large part of Espinhaço Mountain from Minas Gerais (from the Diamantina region to Cipó Mountain) and the Iron Quadrangle region, addressing, as a priority, the following issues:

- Conservation Units: spatialized socio-environmental transformations;
- Study and dynamics of the landscape (s) in the Espinhaço Biosphere Reserve;
- Geoprocessing of the Espinhaço Biosphere Reserve as a support for the study of the landscape and Conservation Units;
- Socio-environmental knowledge: epistemology, instances and dissemination.

2012: Launching of the bi-annual interdisciplinary journal, magazine: Espinhaço

FIGURE 59: VOLUME 7, NUMBER 1 - 2018, FROM THE MAGAZINE: ESPINHAÇO.



Published semi-annually, the journal was launched in the second half of 2012 and is open for the reception of original scientific articles, article translations, book reviews and interviews in the areas of Geography and Geosciences. Espinhaço has an interdisciplinary character and receives contributions from professionals from all areas of knowledge.

2015: Cooperation with the Prístino Institute for the elaboration of the Geoenvironmental Atlas of the Biosphere Reserve of Espinhaço Mountain.

The Prístino Institute is a non-economic private legal entity created to develop research focused on the diagnosis, conservation and rational use of natural heritage.

To contribute to the issue, the Prístino Institute in partnership with public institutions executes a project to make technical information available in areas of strategic importance for Minas Gerais. The information is served through a simple platform and free access in digital atlas format.

FIGURE 60: LINK TO THE GEO-ENVIRONMENTAL ATLAS OF THE BIOSPHERE RESERVE OF ESPINHAÇO - MOUNTAIN [HTTP://INSTITUTOPRISTINO.ORG.BR/ATLAS/ESPINHACO](http://institutoprístino.org.br/atlas/espinhaco).

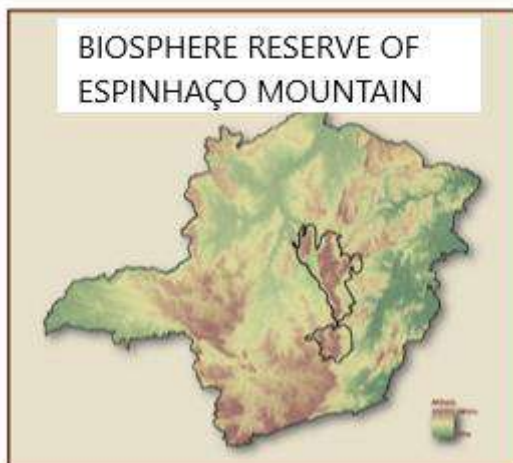


FIGURE 61: MAGAZINE: BIOSFERA RESERVE OF ESPINHAÇO MOUNTAIN - SPECIAL EDITION - 10 YEARS. ([HTTP://RBSE.COM.BR/INSTITUCIONAL/#REVISTA-RBSE](http://rbse.com.br/institucional/#revista-rbse)).



2017 – Launch of the Biosphere Reserve Website of Espinhaço Mountain.

FIGURE 62: BIOSPHERE RESERVE WEBSITE OF ESPINHAÇO MOUNTAIN – WWW.RBSE.COM.BR.



2018 - Installation of the Transespinhaço Trail, integrating the Brazilian System of Long Course Tracks (ICMBio initiative), linking more than 50 conservation units, for 700 km in the RBSE.



FIGURE 63: OFFICE OF PLANNING OF THE LONG TRACK TRACK IN RBSE - TRANSESPINHAÇO.



FIGURE 64: POSTER OF THE 4ND SEMINARY AND TASK FORCE OF SIGNALING OF THE TRAIL: TRANSESPINHAÇO - SECTOR: DIAMANTINA.



In order to improve the management of the Biosphere Reserve, we highlight the work with other Brazilian Biosphere Reserves, especially with the Mata Atlântica Biosphere Reserve, as well as strengthening the dialogue with the Minas Gerais Government Secretariats and the Biodiversity and Forests of the Ministry of Environment. It also strengthens the dialogue with the State Public Ministry, which mediated the partnership between the Biosphere Reserve and the Prístino Institute for the development of the Digital Geo-Environmental Atlas of the Biosphere Reserve of Espinhaço Mountain, in which knowledge has been exchanged, providing information to society in general.

Like other potentialities, they are aligned:

- Espinhaço Complex as by itself a great Ecological Corridor and thus the Corridors Program of the Biosphere Reserve of Espinhaço Mountain is proposed: connecting natural and cultural landscapes
- The Royal Road and the overlap with axes of historical occupation of the RBSE region.
- High diversity and endemism, especially in the Rupestrian Fields ("Bioma" of prominence in Minas Gerais).
- Great scientific interest in studies in the region.
- Ancient and historical traditional cultures.
- Consolidated Conservation Units (ZN).
- Ecological-Economic Zoning of Minas Gerais.
- Large volume of private enterprises and work generation.
- Involvement of organized civil society in public policy processes.
- Large territory encompassing other strategic planning territories (Priority Areas for Biodiversity Conservation, National Action Plans for Conservation, Cultural Territories and Traditional Communities, Tourism Territories, Hydrographic Basins).
- Territory provider of strategic environmental services, with emphasis on biodiversity and water.
- Structured Action Plan.
- Multiple and labor territory.

- Current data and territory with well-defined zoning.

Despite the legal guarantee, through the specific decree and in the determination of these specific government responsibilities, little attention has been paid to meeting this structuring question. On the other hand, non-governmental institutions have provided logistical, technical and budgetary support for the development of actions, according to priorities set forth in the Plan of Action and legitimately established with institutional participation.

4. CRITERIA FOR DESIGNATION AS BIOSPHERE RESERVE

The Espinhaço Mountain is the only mountain range in Brazil. With a total extension of 1200 km on a north-south axis is a complex geomorphological and biodiversity system in a solid rupestrian continuum. In this scenario it is remarkable its performance as Natural Ecological Corridor, meeting of biomes and ecotones, besides promoting the integration of important hydrographic basins of the country.

The Biosphere Reserve, in its Zoning, is demonstrated by the regional and biogeographic identities, namely the Iron Quadrangle, to the south, the Southern Espinhaço, the center and the Espinhaço Diamantino and Northern, to the north. This regionalization has characteristics that comprise, at different times and places, the most recent history of the territory. Thus, having in its Core Zones demonstrative spaces for the development of research and education and its attractor role for tourist plans is one of the possibilities. In this perspective, the Mosaics of Protected Areas, with its advice and regional approach, reinforces, with other aspects of promoting sustainable development.

Throughout its territory, it has a robust set of conservation units at municipal, state and national levels. Its recognition as a Biosphere Reserve has led to joint actions related to the protection of biodiversity, either by stimulating research programs or by articulating conservation units, in proposals for conservation unit mosaics.

The Phase 2 proposal comes at a time when there is a more consistent integration established among the various actors through permanent technical meetings between managers in the core areas, mobilizations with municipal governments, a better understanding of the MaB (Man and the Biosphere)-UNESCO program by the productive sectors and active participation of non-governmental organizations and researchers in the generation of information.

It is possible to affirm that the foundations of the MaB-UNESCO Program and the Objectives of the Sustainable Development have a fertile field to be feasible. The territorial identity of Espinhaço Mountain, its ecological and socio-cultural attributes are already internalized in public policies and scientific bases. This consistent growth in the degree of knowledge about the Reserve has been driving the initiatives that led to the preparation of this second phase proposal.

The criteria used in Phase 1 zoning have undergone an adaptive and evolutionary process. It is not just an extension of the territory, but the just consequence of the continuity of the efforts already begun in the first phase. The Espinhaço Mountain has always been seen with a unique territorial coverage, especially when the focus is on the rupestrian Mountains and mountain ecosystems. Thus the recognition of Phase 1, the referral of this Phase 2 proposal, as well as the future Phase 3 in the state of Bahia, are fractions of a single idea, of a single territory, "divided" only to compose a methodology of work and legitimacy of processes.

The Brazilian Network of Biosphere Reserves is very active, even with a constructive approach to the Brazilian government. It is a positive point when considering that Brazilian legislation allows reserves to act in a legitimate and orderly manner always in consonance with the MaB (Man and the Biosphere) Program. A rich space of exchange opens up so that plans of action are built, aligned with the statutory milestones and their mechanisms of work. In this sense, the RBSE Steering Committee, through its representatives, updates its references with frequent participation in the World Network and in the Ibero-American Network of RBs.

4.1 TO BE INSERTED IN A MOSAIC OF ECOLOGICAL SYSTEMS

Concept: To cover a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.

The Biosphere Reserve is a large Ecological Corridor, configured with a system of environments and provider of strategic ecosystem services. The Biosphere Reserve comprises two important Brazilian biomes: the Atlantic Forest and the savanna, considered the only two Brazilian Hotspots (MYERS, 2000). To the north, the region of Espinhaço Mountain makes contact with the Caatinga biome. With emphasis, it is worth mentioning the importance of the Rupestrian Fields as a phytophysiology of the savanna and that, as a target of conservation and threat, stands out in the Biosphere Reserve.

The Espinhaço Mountain was considered a SPECIAL category in the two workshops on Priority Areas for Biodiversity Conservation in Minas Gerais (1998 and 2004), carried out by Fundação Biodiversitas and Conservation International. Among the 538 species of threatened plants in Minas Gerais, 81 species are in the Atlantic Forest, 19 in the Caatinga, 73 in the savanna and 67%, **351 species occur in the Rocky Mountains.**

In this context, including the Nucleus Areas (Conservation Unit for Integral Protection), we have in the RBSE region an increase in the processes of human occupation, implementation of axes of occupation and large scale projects, especially mining and forestry. In this way, having strong policies and plans for the conservation and development of this vast territory must be guided by territorial planning units, such as the Irreplaceable Areas of Serra do Espinhaço, Economic Ecological Zoning of Minas Gerais, Hydrographic Basin Plans and, in scale, Local Environmental and Productive Zoneamento), Municipal Management Plans and the Management Plan of Protect Areas (PA). In particular, the Zoning of the Biosphere Reserve of Espinhaço Mountain for the definition of shares of the mentioned management instruments, as well as the processes of discussion of implementation of projects of great impact in the territory, presented in the context of the RBSE, compensatory measures and development plans, according to the objectives and guidance documents of MaB (Man and the Biosphere) and aligned with the Sustainable Development Objectives for the development of its functions.

RBSE SHARED MANAGEMENT: RBSE REGIONALIZATION THROUGH THE MOSAICS OF PROTECTED AREAS OF ESPINHAÇO MOUNTAIN

The engagement of the State Committee of the RBSE, articulating, in a participatory manner and also in the conduction of other shared management tools, such as the active participation of member institutions in the Mosaic: Espinhaço: "Alto Jequitinhonha-Cabral Mountain", as well as being one of the strategic actors in the recognition of the Southern Espinhaço Mosaic: "Cipó Mountain". This action is strategically configured: in the Plan of Action of the RBSE, mainly for the promotion of cooperation between conservation units of the Mosaic regions, both located within the limits of the RBSE; in strengthening the identity of the RBSE together with the strategies shared with those mosaics; in the possibility of monitoring actions of the RBSE in a more close and participative way, with the taking and treatment of data of management and scientific and traditional knowledge, with the communities residing in the RBSE, among other strategic actions.

The integrated and participatory management fostered by mosaics allows the sharing of information among the institutions involved, the promotion of partnerships and the establishment of greater political force to raise funds and assert conservationist interests. At the same time, financial and human resources

can be optimized in the processes of inspection, environmental education and communication in the sharing of physical structure and logistics.

Mosaics can also, through participatory management processes and the enhancement of territorial identity, contribute to the reduction of conflicts between residents and protected areas and promote the development of actions and projects of common interest, especially favoring small communities within them (Pinheiro, 2010).

The strengthening of management in different regions of the Biosphere Reserve is now a strategy of the RBSE Action Plan, and the Mosaics of Protected Areas are considered the most promising identity for the implementation of this management. For the proposition of Phase II of the Biosphere Reserve of Espinhaço Mountain, this lesson is understood as the engagement of the RBSE State Committee, articulating, in a participatory manner and also in the management of other shared management instruments, such as the active participation of member institutions that are members in the Mosaic: Espinhaço - Alto Jequitinhonha - Cabral Mountain (recognized in 2007), in the region of Diamantina (City recognized as a UNESCO World Heritage).

FIGURE 65: MEETING REGARDING THE MOSAIC: ESPINHAÇO, ALTO JEQUITINHONHA-CABRAL MOUNTAIN



SOURCE: MIGUEL ANDRADE (2016)

The Mosaic of Protected Areas covering the regions of Alto Jequitinhonha and the Cabral Mountain is, to date, the only one implanted in the Biosphere Reserve of Espinhaço Mountain. It spans nearly 2 million hectares, distributed in 25 municipalities, and brings together 19 Conservation Units (protected areas) for Integral Protection and Sustainable Use. The Mosaic region possesses an expressive biological diversity, coupled with a rich socio-cultural diversity, with a predominance of extractive culture, and it aggregates a set of areas identified as irreplaceable and priority for conservation along the entire length of the Espinhaço Chain (Silva et al., 2008).

In such regions, it is highly desirable to build socioenvironmental management mechanisms that foster the long-term planning of human activities and the implementation of sustainable development models. Mosaics of protected areas can fulfill this role, since they aim at the integrated and participatory management of conservation units that are close and overlapping, in order to reconcile the presence of biodiversity, the valorization of sociodiversity and responsible development on a regional scale, which is reflected in the purposes and strategies of the RBSE Action Plan. If on the one hand, conservation units are not capable of preserving all the biological, historical and regional geographic wealth, on the other hand, acting together

in the mosaic context, they become elements that induce the planning process of territorial management. Therefore, in seeking to fulfill its objectives, Jequitinhonha Cabral Mosaic also acts as a gear to strengthen the management of the Biosphere Reserve.

By 2015, the Biosphere Reserve Committee of Espinhaço Mountain officially established the first region through mosaics. This process is in the stage of detail with the actors of the region, according to RBSE and MaB (Man and the Biosphere) / UNESCO premises. This premise is necessary, either by the various potentials already established in a cooperative way between Conservation Units, by the size of the RBSE itself and by the capillarity to make management in a participatory and decentralized way.

In continuity of the shared management action of RBSE through the Mosaics, the RBSE State Committee, together with ICMBio (Chico Mendes Institute for Biodiversity Conservation) and the IEF (State Forestry Institute) of Minas Gerais, is one of the proponents of the technical document and the articulation of the recognition of Mosaic: Southern Espinhaço - Cipó Mountain, in 2018, with the Ministry of the Environment. This action is strategically configured in the RBSE Action Plan, mainly for the promotion of cooperation between conservation units of the Mosaic regions, both in the RBSE; in strengthening the identity of the RBSE together with the strategies shared with those mosaics; with the possibility of monitoring actions of the RBSE in a closer and participative way; with the taking and processing of management data and scientific and traditional knowledge, with the communities residing in the RBSE.

To this end, the regions with potential for the recognition of Protected Area Mosaics that can attend to the collaborative process in the RBSE co-management have been identified, based on the successful experience of Mosaic: Alto Jequitinhonha - Cabral Mountain. The potentialities and discussions in progress stand out:

Mosaic of Protected Areas of RBSE - Southern Espinhaço: Cipó Mountain - currently being recognized by the Ministry of the Environment: 21 conservation units of the three spheres of government, two federal, two state, and ten private units (RPPN). As for the management groups, there are seven units of Integral Protection and seventeen of Sustainable Use and, in relation to the categories defined by SNUC (National System of Conservation Units of Nature), there are six Parks (one federal, two state, three municipal), one Natural Monument (municipal), seven Environmental Protection Areas (one federal, six municipal), and eight Private Natural Heritage Reserves (one recognized at federal level and seven at the state level). The sum of these areas, considering in the calculation the correction in relation to the overlapping areas totals approximately 275,833 protected hectares. This proposal is highlighted by the objectives of the Southern Espinhaço Mosaic: Cipó Mountain, in line with the RBSE Action Plan:

- To strengthen the collegiate management areas of Mosaico and its entities.
- To ensure the possessory security of local communities as a condition for biodiversity conservation and sustainable development.
- To promote the visibility of peoples, traditional communities and their territories.
- To develop Integrated Fire Management (FIM) activities.
- To develop inter- and intra-institutional articulations in order to strengthen actions to protect the mosaic.
- To support initiatives that contribute to environmental education and social organization in the region involved by the Mosaic.
- To develop communication between the management of conservation units and the community and users involved.

- To implement effectively the Public Use in the Mosaic, in order to guarantee conservation of biodiversity and cultural diversity.
- To strengthen community-based tourism in the Mosaic as an alternative income to communities.
- To encourage and support the development of research in the Mosaic with a view to improving the quality of life of the population and the conservation of biodiversity.
- To support the Rural Environmental Registry (CAR), focusing on the possibility of forming ecological corridors through the contiguity of legal reserve areas and permanent preservation areas (APP).
- To promote funding for the implementation of the Mosaic and conservation unit's components.
- To articulate for the application of resources derived from environmental compensation and conversion of fines within the Mosaic.
- To encourage the creation of conservation units in the region, with special emphasis on the recognition of Private Reserves of Natural Heritage (RPPN).

FIGURE 66: DOCUMENT OF RECOGNITION OF THE MOSAIC: SOUTHERN ESPINHAÇO -CIPÓ MOUNTAIN, ACTIVE PARTICIPATION OF THE RBSE IN THE WHOLE PROCESS. MEETING OF THE TECHNICAL GROUP OF THE PROPOSAL OF MOSAIC RECOGNITION; APPROVAL OF THE MOSAIC RECOGNITION PROPOSAL.



FIGURE 67: AREA OF COVERAGE OF THE MOSAIC: SOUTHERN ESPINHAÇO - CIPÓ MOUNTAIN. THE AREA THAT GOES BEYOND THE RBSE IS INCLUDED IN THE PROPOSAL OF PHASE II OF RBSE



4.2. CONSERVATION OF BIODIVERSITY

Since the Rio-92 Conference, the discussion on the impacts of human activities on the environment and the resulting loss of biodiversity has gained global importance, establishing a new basis for negotiation and collaboration between countries and mobilizing society: the Convention on Biological Diversity (CBD). Although Brazil has made significant progress in the implementation of the CBD, it was pointed out the need to create more practical instruments containing feasible goals, objectives, guidelines and indicators.

Within the Biosphere Reserve of Espinhaço Mountain four PEPB (State Park of Pedra Branca) workshops were held in the municipalities of Caetanópolis, Diamantina, Governador Valadares and Montes Claros, strategically selected mainly due to logistics issues. With the participation of actors from various institutions of organized civil society and public authorities, the main obstacles were discussed as well as the demands for the conservation of biodiversity in their respective areas of activity related to scientific research, biodiversity conservation, agrobiodiversity, socio-biodiversity, environmental education, environmental impacts and legal-normative instruments.

Regarding the theme "Scientific Research", one of the main obstacles identified was the lack of integration between research institutions, public and private agencies and the community, suggesting the need to promote events, prioritization and research development. The following were cited as successful initiatives in the region: Espinhaço Sempre Vivo (Espinhaço Always Alive), which identified the irreplaceable areas of Espinhaço Mountain and the project: Mosaic of Espinhaço Protected Areas: Alto Jequitinhonha-Cabral Mountain, a region identified with a large knowledge gap for priority research, and Southern Espinhaço: Cipó Mountain, great knowledge gap for priority research, and Southern Espinhaço: Cipó Mountain.

In relation to the "Biodiversity Conservation" theme, the main demands raised were with regard to the evaluation of categories of conservation units to be created and those already in existence, in addition to the need to consolidate existing Conservation Units, mainly in relation to regularization improvement of infrastructure, preparation and review of Management Plans and consolidation of the Consultative Councils. In this sense, we highlight the State Park of Itambé Peak, one of the conservation units inserted in the mosaic: Espinhaço Mountain which has been successful in the process of land regularization through environmental compensation resources.

Regarding the theme "Sociobiodiversity", one of the main obstacles found in the region is the restriction on the access of socio-biodiversity resources by traditional / local communities and the need to regulate the activity of extractivism and valorization of socio-biodiversity products. In order to contribute to the solution of these obstacles, representatives of the traditional communities of the Biosphere Reserve of Espinhaço Mountain, in addition to other sectors such as the Secretariats of Environment, Tourism and Culture, and EMATER (Company of Technical Assistance and Rural Extension), for example.

4.3. DEMONSTRATION OF SUSTAINABLE DEVELOPMENT METHODOLOGIES FOR THE REGION

In order to promote economic and human development in a socially, culturally and ecologically sustainable way in the territory proposed for Phase 2, it is fundamental to consider the greater distancing of these municipalities from the capital of the state of Minas Gerais (Belo Horizonte). The territory of Phase 2 has a lower IDH (Human development Index) when compared to the municipalities contemplated in Phase 1. This fact imposes a strategic configuration more adjusted to this reality. In this new scenario, the option will be a more in-depth approach to Agenda 2030 for Sustainable Development.

Considering that the 17 Sustainable Development Objectives (ODS) are integrated and indivisible, and blend, in a balanced way, the three dimensions of sustainable development: economic, social and environmental, the components that drive sustainable development in Espinhaço Mountain, seek to engage the various sectors in this construction. For the demonstration of these methodologies, sustainability actions are listed in the enlargement region in line with the ODS (Sustainable Development Objectives).

FIGURE 68: SUSTAINABLE DEVELOPMENT GOALS - "TRANSFORMING OUR WORLD: THE AGENDA 2030 FOR SUSTAINABLE DEVELOPMENT".



TABLE 32: ALIGNMENT OF SUSTAINABLE DEVELOPMENT OBJECTIVES WITH PROJECTS, PROGRAMS AND POLICIES IMPLEMENTED IN THE TERRITORY OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.

I – ERADICATION OF POVERTY



Objective 1. To end poverty in all its forms, everywhere.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Poverty Alleviation Fund (FCP)	The Fund to Combat Poverty or FCP, provided for in Article 82 of the Transitional Constitutional Provisions Act of the Federal Constitution, was created with the intention of minimizing social inequalities in Brazilian states.
Sustainable Economic and Social Development Plan	Working with the qualification of young people and the development of the rural population, to combat poverty and extreme poverty
Program ("New meetings")	Program of the Government of Minas Gerais to combat poverty in the countryside.
Program: Bolsa Família (Family Allowance)	The PBF (Family Allowance) is technically called a conditional resource transfer mechanism. It consists of financial assistance to poor families (defined as those with a per capita income of R \$ 85.00 to R \$ 170.00 reais - brazilian currency) that have pregnant women and children or adolescents between 0 and 17 years and extremely poor (with income per capita up to R\$ 85.00 reais - brazilian currency).
Program: (PNCF) (Land credit and land bank)	The National Land Credit Program (PNCF) provides conditions for landless or landless rural workers to purchase a rural property through financing. The resources are still used in structuring the ownership and productive project and in contracting technical assistance and rural extension (Ater).
Program: Food Acquisition (PAA)	The Food Acquisition Program (PAA), created by article 19 of the law, number 10.696, of July 2, 2003, has two basic purposes: to promote access to food and encourage family farming.
Program: Combating Rural Poverty (PCPR)	A partnership between Emater (Company of Technical Assistance and Rural Extension), the Government of Minas Gerais and the World Bank, this initiative aims to benefit 21,500 families in the valleys of Jequitinhonha, Mucuri and North of Minas Gerais.
Support Program for Sustainable Production, Aggregation of Value and Marketing - From Field to Table (ALMG).	It provides for actions, projects and other initiatives aimed at supporting sustainable production, value added and marketing of products from family agriculture and agrarian reform.
"Handicraft in Movement" Program - Government of Minas Gerais	It has the purpose of arousing the entrepreneurial spirit, organizing the productive sector and professionalizing the artisans.

II – PROGRAM: FOME ZERO (ZERO HUNGER) AND SUSTAINABLE AGRICULTURE



Objective 2. To end hunger, achieve food security and improve nutrition, and promote sustainable agriculture.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Center of Alternative Agriculture of Northern Minas Gerais (CAA)	Program of the Government of Minas Gerais to combat poverty in the countryside.
Municipal Councils for Sustainable Rural Development (CMDRS)	The National Council for Sustainable Rural Development - CNDRS, a collegiate body part of the regimental structure of the Ministry of Agrarian Development, has the purpose of deliberating on the National Plan for Sustainable Rural Development - PNDRS, which will constitute the guidelines, objectives and goals of the Programs National Agrarian Reform, Land Fund and Agrarian Reform - Land bank, to Strengthen Family Agriculture and Income Generation of the Rural Sector.
National Program for Strengthening Family Agriculture - Pronaf Rural credit	Pronaf was created in 1996, through Decree 1,946, with the objective of promoting the sustainable development of family agriculture ", through policies of credit to family farmers, of the Technical Assistance and Rural Extension (ATER) program - which seeks to promote income generation by agribusiness, rural tourism, biofuels, medicinal plants, production chain, agricultural insurance, price insurance and drought calamity insurance in the Northeast Region.
Honey Warehouse in Bocaiúva	It aims to boost beekeeping in the region. The space will be directed to the reception, classification and industrialization of the product and its derivatives. The investments amount to R\$ 494,000 reais (brazilian currency), of which R\$ 400,000 reais (brazilian currency) from the National Land Credit Program of MDSA (Ministry of Agrarian Development) and R \$ 94,000 from the Ministry of National Integration (MI). The warehouse encourages the social and cooperative organization of beekeepers, by improving the socioeconomic conditions of the families of the producers, and promotes the sustainable use of natural resources.
Agricultural Family Schools (EFA's) - Veredinha, Taiobeiras, Catas Altas da Noruega	Pedagogical experience aimed at rural adolescents, including basic and vocational education, leadership training and prevention of rural exodus.
National Plan for the Promotion of Product Chains of Sociobiodiversity (PNBSB)	Created to promote the conservation and sustainable use of biodiversity and guarantee alternatives for generating income for rural communities, through access to credit policies, technical assistance and rural extension, markets and marketing instruments and guarantee policy minimum prices.
National Land Credit Program and land bank (MDA)	The National Land Credit Program (PNCF) provides conditions for landless or landless rural workers to purchase a rural property through financing. The resources are still used in structuring the ownership and productive project and in contracting technical assistance and rural extension (Ater).
Support Program for Sustainable Production, Aggregation of Value and Marketing - Program: Do Campo à Mesa (From Field to Table), (ALMG)	Law, number 22942/2018 - Provides for the revision of the Plurianual Plan of Government Action - PPAG - 2016-2019, for fiscal year 2018. Actions: Guarantee of Minimum Income to Family Farmers; Promotion of Apiculture ⁷ .

⁷ FOMENTATION OF APICULTURE: Purpose: to support the implementation and consolidation of structures for the production of honey and derivatives, with a stimulus to collective management, providing employment and income generation and food security for the family farmer.

Food Acquisition Program (PAA) ⁸	The Food Acquisition Program (PAA), created by article 19 of Law, number 10,696 of July 2, 2003, has two basic purposes: to promote access to food and to encourage family farming.
State Program of Cooperativism of Family Agriculture and Family Agroindustry (ALMG)	To support the structuring of family agro-industry cooperatives with equipment, vehicles, software, infrastructure
Program: Fome Zero (Zero Hunger) – A Milk for Life	Partnership between the Ministry of Social Development and Emater (Company of Technical Assistance and Rural Extension) -Minas Gerais, whose beneficiaries are children from 2 to 7 years old, from 60 years old, pregnant and nursing mothers and social entities. It is a subprogram of FOME ZERO (HUNGER ZERO) aimed at combating hunger and malnutrition of 700,000 families and 4,600,000 people in rural areas and in urban outskirts of 600 municipalities.
Program: “Minas Sem Fome” (Minas Gerais without hunger)	It was launched by the Government of the State of Minas Gerais, through the Technical Assistance and Rural Extension Company - Emater MG.
National School Feeding Program (PNAE)	National School Feeding Program (PNAE) offers school feeding and food and nutrition education actions to students of all stages of public basic education.
Program: VitaVida	Food supplementation program of the Voluntary Service of Social Assistance (Servas), in Technical Assistance and Rural Extension Company of the State of Minas Gerais (Emater-Minas Gerais). In Janaúba alone, twenty entities benefit from the program, which distributes a dehydrated food supplement, produced from surpluses of vegetables, cereals and fruits donated by farmers and merchants.
Project: Jaíba	Initiative of the State Secretariat of Agriculture, Livestock and Supply that aims to support the settlement of rural producers in the project, restructuring and revitalizing their production processes. promote the sustainable development of agriculture in the project area, aiming to consolidate the agroindustrial pole and increase the region's participation in the internal and external markets, mainly fruits.
Project: Jequitaiá	Agreement between the Government of Minas Gerais and the Ministry of Social Integration, which will allow an increase of 35 thousand hectares in irrigated agricultural production area
Program: “Cultivar, Nutrir e Educar” (“Cultivate, nurture and educate”)	It aims to guarantee the human right to healthy, adequate and supportive food; for students in the state public schools of basic education, also guaranteeing the strengthening of family agriculture, with a minimum of 30% of the resources passed through the FNDE (National Education Development Fund) for the PNAE (National School Feeding Program), in the acquisition of school meals from family agriculture.
State Day of Family Agriculture (Minas Gerais)	The norm, derived from the law project (PL) 742/11, sought to give visibility to a segment that did not always receive the necessary attention from the public power.

III – GOOD HEALTH AND WELL-BEING

⁸ In order to achieve its two objectives, the PAA (Food Acquisition Program) purchases food produced by family farms, with no waiver, and assigns them to food and nutrition insecure people and those assisted by the social assistance network, public food and nutritional security equipment, and by the public and philanthropic teaching network.



Objective 3. To ensure a healthy life and promote well-being for all, at all ages.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Strategic Project: Water for All	Partnership with the Federal Government to universalize access to water for human consumption and to agricultural production in rural areas. R \$ 140 million have already been invested. There are 12,260 completed interventions, including the deployment of 5,287 polyethylene tanks, 6,468 plate tanks, 482 plate tanks for agricultural production and construction of 23 barrels.
Permanent Program of Dengue Mosquito - State Department of Health	It aims to mobilize, sensitize and inform the population of Minas Gerais, together with the Health Region, about the diseases caused by the Aedes aegypti - Dengue, Chikungunya and Zika Virus mosquito, always supporting the municipalities to strengthen the Unified Health System SUS).
State Pharmaceutical Assistance Program	It provides the medicines of the Unified Health System (SUS) to all miners, contemplating actions aimed at the clinic and also to support the municipalities.
Teleassistance Network of Minas Gerais (RTMG) ⁹	Partnership of seven public universities that aims to develop, implement and evaluate telehealth systems, such as teliagnosis ¹⁰ .
"Family Health Strategy Program"	The Family Health Strategy aims at the reversal of the current care model, where emergency care is predominant, most often in large hospitals.

IV – QUALITY EDUCATION



Objective 4. Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Support to the Professional Projects of the Young Elders of the Agricultural Family Schools (EFAS) - and of Agricultural Technical Schools.	It aims to foster and finance the professional projects of young graduates of agricultural schools and agricultural technical schools, with the objective of offering alternatives for their stay in the field, thus promoting rural succession.

⁹ The participating institutions are the Telehealth Center of the Hospital das Clínicas of the Federal University of Minas Gerais (UFMG), coordinating center of the Network, State University of Montes Claros (UNIMONTES), Federal University of Uberlândia (UFU), Federal University of the Triângulo Mineiro (UFTM), Federal University of Juiz de Fora (UFJF), Federal University of São João Del Rei (UFSJ) Campus Cento-Oeste "Dona Lindu" (CCO) located in Divinópolis and Federal University of the Jequitinhonha and Mucuri Valleys (UFVJM).

¹⁰ Teliagnosis is a diagnosis carried out at a distance, or as defined by the Ministry of Health, a service "that uses information and communication technologies to perform diagnostic support services through geographic and temporal distances" (decree number: 2,546, dated October 27 Ministry of Health).

Program: Field, Indigenous and Quilombola Education (ALMG)	The action aims to develop a differentiated and specific education for state schools in remaining areas of quilombos, proposing curricula and methodologies that value their cultural and social specificities, improvement of the school infrastructure and the adequacy of the pedagogical and organizational structures of these schools.
"Professional of the Future" - FAEMG	One of the highlights of SENAR MINAS is programs aimed at training young people, such as Minas Jovem Rural, which seeks to support the succession process in family agriculture, preparing those who want to take up business in the field. The initiative contemplates three axes: the formation of the citizen for the agribusiness and the preparation of leaderships.
Program: "Young in the Field"	Objective of collaborating with the insertion of the young person in the labor market, offering an entrepreneurial vision of the business and, thus, stimulating the economy in the field, with the consequent reduction of the rural exodus.
Program: Rural Tourism Agent	It aims to strengthen activity in the field. Through the program, it is possible to survey the opportunities and resources, strengths and weaknesses, as well as the infrastructure of the place and the historical, tourist and cultural attractions. The initiative counts with the partnership of FECITUR (Federation of Tourist Circuits of Minas Gerais).
Program: " Crossing, grade:10"	To universalize the literacy of youth and adults.

V – GENDER EQUALITY



Objective 5. To achieve gender equality and empower all women and girls.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Pronaf (National Program for Strengthening Family Agriculture) Woman	Financing to the female farmer who is part of a family production unit within Pronaf, regardless of marital status.
Support for Productive Inclusion and Economic Autonomy of Women in the Field	It aims to contribute to the productive and economic emancipation and improvement of the quality of life of the rural women, considering the historical problems related to the gender issue. Budget Unit: Secretariat of State for Agrarian Development.
Law 21.043/13, of Minas Gerais	It promotes gender equality and establishes ways to prevent, restrain and eliminate direct and indirect discrimination against women. It provides for the promotion of gender equality and adds provisions to law number 11,039 of January 14, 1993, which imposes sanctions on individual firm and the legal company of private law in the establishment of which is practiced a vexatious, discriminatory or threatening act against the woman and gives other measures.
National Policy Plan for Women	An instrument that reinforces the principle that in a fully democratic State the condition of social participation, especially of women, is constitutive of all phases of the public policy cycle
Municipal Fund for Women's Rights (FMDM) - Itabira: Law 5,022 / 2018	The FMDM has the purpose of capturing, passing on and applying resources to provide financial support in the implementation, maintenance and development of programs, projects and actions directed at women in Itabira.
Plataform City 50-50: All and All for Equality / UN Women (Itabira)	Platform City 50-50 is a tool to encourage gender parity in the spheres of power.

Program: Pro-Equity of Gender and Race	Oswaldo Cruz Foundation program, coordinated by sociologist and journalist Elizabeth Fleury, conducted campaigns, promoted seminars and published the "Feminine Dictionary of Infamy - hosting and diagnosing women in situations of violence" by the book publisher: Fiocruz.
Royal Road Walkers Association	The Association of Walkers of the Royal Road (ACER) is a non-profit organization that promotes, conducts and coordinates walks with a group of 80 women, businesswomen, female teachers and doctors, politicians, judges, architects, journalists, nurses, pedagogues, plastic artists, lawyers, among others, in the script of the Royal Road. The development of the communities visited is stimulated along the way, working in the areas of culture, education, environment, tourism and promoting actions aimed at preserving and valuing historical, artistic and socio-environmental heritage.

VI – POTABLE WATER AND SANITATION



Objective 6. To ensure availability and sustainable management of water and sanitation for all.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Strategic Project: Water for All (Montes Claros)	Universal access to water for human consumption and agricultural production in rural areas.
Program: Sanitation for All Project 1: Mine Sanitation; 2. Project: Life in the Valley; 3. Process: Basic Sanitation: Copasa	To promote social welfare, especially health conditions, through adequate access to basic sanitation through the implantation, expansion and improvement of water supply, sanitary sewage and final disposal of solid waste, including through the construction of septic tanks and modules, aiming at the universalization of this access.
Taiobeiras Sewage Treatment Station	Funded by Funasa (2017), this project of R\$ 13 million financed by the National Health Foundation (Funasa), the municipality of Taiobeiras was able to build a sewage network as well as a treatment plant. Inaugurated in 2013, the sewage system has capacity to serve the entire population of the city, around 34 thousand inhabitants.
Project: Oásis (Brumadinho)	To establish mechanisms for biodiversity conservation in the region: Moeda mountain, focusing on the conservation of natural areas and their consequent benefits to the availability and quality of water in the region
Project: Headwaters of Rio Doce	Recovery of 1,000 hectares in 40 properties in Presidente Bernardes and Senhora de Oliveira.
Project: The Guardian of Igarapé city	Promotion of increased production and improvement of water quality in the municipality of Igarapé - Minas Gerais, from the recovery and preservation of water systems in the Estiva Stream Sub-basin, a contributor to the Serra Azul System of public water supply in the Metropolitan Region of Belo Horizonte, through the environmental management of properties
Program: Fresh water	The program's proposal is to treat the water withdrawn from the artesian wells that supply the municipalities and communities, removing the saltiness and salinity of the water, making it suitable for human consumption. Assistance to all 85 municipalities that make up the semi-arid region of Minas Gerais. It is important to highlight that the program covers ODS (Global Objectives for Sustainable Development) 6, 12, 13, 14, 15 and 17. The premiere took place in Montes Claros.

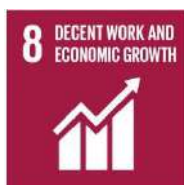
VII – CLEAN AND ACCESSIBLE ENERGY



Objective 7. To ensure access to cheap, reliable, sustainable and renewable energy for all.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Solar Energy Projects in the North of Minas Gerais	The generation of voltaic solar energy in the north of Minas Gerais has the objective, through technology, of jobs generation and elevation of the Human Development Index (IDH) of one of the most needy regions of the state.
Law, number 22,549 / 17, of June 30, 2017	It regulates the Regularization Plan for Tax Credits related to ICMS. It deals with the exemption of the Tax on Circulation of Goods and Services (ICMS) for all set of solar photovoltaic energy generation equipment.
Creation of the Center of Excellence of Photovoltaic Energy of the north of Minas Gerais	Created by the Technological Development Foundation of the North of Minas (Fundetec). In addition, Adenor and other class entities intend to discuss the granting of incentives to attract a new solar panel plant in Montes Claros.
Project “Fazendo Solar”	EBES (Brazilian Solar Energy Company) searches for regions of Minas Gerais with good sunlight and technical conditions to build a solar farm. EBES then divides this farm into lots of solar panels and makes them available for rental by any commercial client of Minas Gerais, assisted by Cemig (Energy Company of Minas Gerais). At the end of each month, Cemig counts the energy credits produced by the lot and debits them from the electricity bill.
Solarimetric Atlas of Minas Gerais	Tool that aims to attract investors in alternative energies in the state of Minas Gerais, since it presents detailed research of the energy potential and the areas with the highest incidence of solar rays.

VIII – DECENT WORK AND ECONOMIC GROWTH



Goal 8. To promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Economic Development of Minas Gerais (ALMG)	To promote economic development actions based on various collaborative regional integration activities, seeking to offer competitive advantages, fostering regional business, developing tourism and generating employment and income, intensifying regional GDP (Gross Domestic Product) growth, and facilitating the displacement of rural dwellers to Belo Horizonte, allowing them to have access to events and services available in the capital.
Support for Youth in the Field and the Continuity of Family Agriculture (ALMG)	To promote conditions for the permanence of young people in rural areas and stimulate the social participation of this public, through activities related to training, income generation and dissemination of traditional and sustainable knowledge of family agriculture.

Program: Rural Human Health	It aims to generate education opportunities for the promotion of health and prevention of diseases of rural men, thus contributing to the improvement of the quality of life.
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IX – INDUSTRY, INNOVATION AND INFRASTRUCTURE



Objective 9. To build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

PROJECT / PROGRAM / POLICY	DESCRIPTION
WORKSHOP: "Mapping the Objectives of Sustainable Development (ODS) in the Brazilian Mining".	The Program Mapping the Goals of Sustainable Development in Mining, launched in September 2017, by SGM (Secretariat of Geology, Mining and Mineral Transformation) / MME (Ministry of Mining and Energy) has the basic objectives of mapping the actions of the mining companies that converge to one or more of the 17 ODS, in addition to elaborating and disseminating widely a document that portrays: the performance of mining companies in ODS (Global Objectives for Sustainable Development); an analysis of the convergence of these actions for local and regional sustainable development. As a basic premise, it was established that the program's development methodology must be built together with the mineral sector in four national seminars.
International Working Group regarding Mining in Biosphere Reserves	It is of fundamental importance that the municipalities have a perfect understanding of the Mining Cycle in order to match their demands for resources and partnerships. On the other hand, it is necessary to increase, on the part of society, the requirement for a municipal public administrative efficiency.
Waste Bag (SIBR) - FIEMG (Federation of Industries of the State of Minas Gerais)	It offers, in a practical and free way, through its web page on the Internet, the opportunity to negotiate in real time various waste, adding value to them and avoiding expenses with final disposal.
Minas Gerais Industrial Simbiose Program (PMSI) - FIEMG	Developed by FIEMG in partnership with the State Environment Foundation (FEAM) and the Mining Reference Center on Residues (CMRR), the Mineiro de Simbiose Industrial (PMSI) is the Brazilian version of the British National Industrial Symbiosis Program (NISP) whose aim is to promote profitable interactions between companies in all sectors of industry.
Rede Mineira de Recursos Hídricos da Indústria	In order to align the positioning and qualify the representatives of the industrial sector in the State System of Management of Water Resources - (SEGRH), the network was created in 2013 and is coordinated by FIEMG. It is made up of Industries, Minerals, Associations and Trade Unions.
Royal ROad and the RBSE: Historical Paths and Development Promoters of Minas Gerais	Created in 1999 and linked to the FIEMG System, the Estrada Real Institute (IER) aims to organize, promote and manage the Royal Road (RO) tourism product. Royal Road is an old road, opened more than 300 years ago by the Portuguese Crown and today is the largest tourist route in the country. They are more than 1,630 km long, passing through Minas Gerais, Rio de Janeiro and São Paulo. One of the strongest points of the Royal Road is the signage through its landmarks. There are a total of 1,926 landmarks on its main axis and, within the limits of the study area, there are several landmarks set up to mark the tourist route.

X – REDUCTION OF INEQUALITIES



Goal 10. To reduce inequalities within and between countries.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Program: Bolsa Família (Family Allowance)	The PBF (Family Allowance) is technically called a conditional resource transfer mechanism. It consists of financial assistance to poor families (defined as those with a per capita income of R \$ 85.00 to R \$ 170.00) that have pregnant women and children or adolescents between 0 and 17 years and extremely poor (with income per capita up to R\$ 85.00).
Access to Land and Sustainable Development of Traditional Peoples and Communities	To support and promote the sustainable development of traditional peoples and communities (PCTS) with the aim of overcoming poverty in the rural and urban areas of these groups, contributing, through the encouragement of the use of collective initiatives, for access to land, sustainable production, the aggregation of value and commercialization of PCTS products and the cultural and identity valorization of these peoples.
Program: "New Meetings "	The "New Meetings" program is being implemented in 797 municipalities in all regions of the state of Minas Gerais and aims to promote citizenship, social participation and sustainable development in partnership with municipal governments and civil society entities.
Program: "Minas Gerais, territory of Culture "	Performed by the Secretariat of State for Culture, its objective is the decentralization of investments to the interior of Minas, as in the municipalities of the North of Minas Gerais. Janaúba and Montes Claros have already received the program.
Program: "Brazil Quilombola"	The Brasil Quilombola Program was launched on March 12, 2004, with the objective of consolidating the State policy frameworks for the quilombola areas. As its unfolding, the Quilombola Social Agenda was established (Decree 6261/2007), which brings together actions aimed at communities in various areas of activity.
Project "Quilombos of the Americas - Articulation of Afro-rural Communities"	International Cooperation Project, through a partnership with MDA, EMBRAPA; IPEA; Ibero-American General Secretariat (SEGIB); UNIFEM; and the Inter-American Institute for Cooperation on Agriculture (IICA); and the Brazilian Cooperation Agency of the Ministry of Foreign Affairs (ABC / MRE). It has as its general objective the promotion of food sovereignty and broadening access to the economic, social and cultural rights of afro-regional communities in the Americas, seeking to foster the construction of an inter-institutional cooperation network.
Selo "Quilombos do Brasil"	A strategy created by SEPIIR (Secretariat of Policies for the Promotion of Racial Equality) to identify products from Quilombola Communities, such as vegetables, vegetables, fruit pulp, dairy and handicrafts, promotes greater ethnic-cultural valorization, as well as enabling new marketing opportunities.

XI – CITIES AND SUSTAINABLE COMMUNITIES



Objective 11. To make cities and human settlements inclusive, secure, resilient and sustainable.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Program: "Bolsa Verde" ("Green bag")	Bolsa Verde (Green bag) aims to support the conservation of native vegetation cover in Minas Gerais, by paying for environmental services to owners and squatters who already preserve or who undertake to recover vegetation of native origin in their properties or possessions.
Program: Economic Development of Minas Gerais - Environmental Management	The action aims to promote interventions that allow the recovery of degraded areas, river springs, its tributaries and riparian forests, as well as urban afforestation, contemplating the 17 development territories defined by the government.
Destination Structuring Program and National Prodetur (Regional Tourism Development Programs) of Minas Gerais	To structure priority destinations to enhance socio-economic development and tourism competitiveness of municipalities, aiming at institutional strengthening, municipal planning and, through the National Prodetur (Regional Tourism Development Programs), to offer the population access to urban services and qualification of tourism products and attractions, flow of tourists and the generation of employment and income.
Program: Sustainable Cities	Joint implementation of the Noosa São Paulo Network, the Brazilian Social Network for Fair and Sustainable Cities and the Ethos Institute. It proposes the promotion, from the municipal governments, of synergies between scientific-technological, sociocultural and institutional advances that harmonize the processes and impacts of development at the local level, making it sustainable. In addition, it aims to stimulate social participation as a way to contribute to improving the quality of life of each region, taking advantage of the exchange of information and experiences at local and global levels. Participating Cities that are part of the RBSE Phase 2: Nova União, Betim, Itabira, Itacambira, Nova Lima, Santa Bárbara, Barão de Cocais, Rio Piracicaba, São Gonçalo do Rio Abaixo.

XII – RESPONSIBLE CONSUMPTION AND PRODUCTION



Objective 12. To ensure sustainable production and consumption patterns.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Do Campo à Mesa (From Field to Table), (ALMG) - "Support for Free Trade Shows of Family Agriculture "	Support the implantation, revitalization and modernization of free fairs of family and urban agriculture, in order to make viable the short commercialization circuits, to dynamize the local economy of the municipalities, generate work and income for the farmers through the production flow and contribute to the sustainable food and nutrition security through the access of the population to fresh, quality and affordable food.

Do Campo à Mesa (From Field to Table), (ALMG) - Support to Agroextractivism and Strengthening of Peoples Working with Fruits and Native Products of the savanna and the Caatinga	To promote the deliberation, monitoring, control and support to the execution of state public policies that contemplate and ensure the guidelines of the mining program to encourage the cultivation, extraction, consumption, commercialization and transformation of pequi and other fruits and native products of the savanna - Pró-Pequi (pequi - brazilian fruit).
Do Campo à Mesa (From Field to Table), (ALMG) - Promotion of Sustainable Production of Agriculture, Animal Production, Extractivism and Family Fisheries - Agroecological Transition.	To increase productivity and improve the quality of life of family farmers and consumers by supporting the agroecological transition, understood as a gradual process of changing productive methods, and replacing unsustainable and environmentally harmful production techniques.
Do Campo à Mesa (From Field to Table), (ALMG) - State Fair of Family Agriculture - AGRIMINAS	To hold a state fair of family agriculture, aiming to strengthen the marketing of its products and expand access to markets.
Program: Sustainable Consumption and Production	It aims to foster dynamics and actions in the short, medium and long term, mainly in the actions of the industry. In Minas Gerais, the program is mainly promoted by FIEMG.

XIII – ACTION AGAINST GLOBAL CLIMATE CHANGE



Objective 13. To take urgent action to combat climate change and its impacts.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Law, number 12,187, of December 29, 2009 - Federative Republic of Brazil	This Law establishes the National Policy on Climate Change (PNMC) and establishes its principles, objectives, guidelines and instruments.
Program: “Bolsa Verde” (“Green bag”)	Bolsa Verde (Green Bag program) aims to support the conservation of native vegetation cover in Minas Gerais, by paying for environmental services to owners and squatters who already preserve or who undertake to recover vegetation of native origin in their properties or possessions.
ICMS Ecological (Goods and Services Circulation Tax)	Its objective is to compensate municipalities that have portions of their territory committed to conservation units that imply land use restrictions, and to encourage the creation, implementation and maintenance of these conservation units by the municipalities themselves, contributing to decentralize and consolidate the protection policy ecosystems.
Law, number 10,175, of May 6, 2011, of Belo Horizonte	It establishes the Municipal Policy of Belo Horizonte to mitigate the effects of climate change.
Decree, number 45.229, of December 3, 2009, of Minas Gerais	It regulates measures of the Public Power of the State of Minas Gerais regarding the fight against climate change and management of emissions of greenhouse gases and other measures.

Decree. number 47,347, dated January 24, 2018, from Minas Gerais.	It contains the Statute of the State Environmental Foundation. FEAM (State Foundation for the Environment) is responsible for developing and implementing public policies related to climate change, renewable energy, air quality, soil quality and the management of liquid effluents and solid waste.
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XIV – LIFE IN WATER



Objective 14. Conservation and sustainable use of oceans, seas, and marine resources for sustainable development.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Program for the Revitalization of the Sub-basins of the São Francisco River	It has as principles to develop actions in the conservation of resources: soil / water / vegetation. They consist basically of techniques to contain and to mitigate the destination, deposition and accumulation of sediments in the water courses coming from erosive processes of the road beds and agricultural soils.
Project: Planting Rivers (Ministry of Environment)	It intends to reforest the riparian forests of headwaters and riverheads.
Law, number 15.082, of April 27, 2004, of Minas Gerais (Rivers of Permanent Preservation)	It disposes on rivers of permanent preservation and gives other measures. Rivers of permanent preservation are considered to be watercourses or sections of these with exceptional beauty characteristics or endowed with ecological, historical or tourist value, in natural or little altered natural environments.
Water Producer Program - National Water Agency (ANA)	The program works through voluntary adherence of rural producers who intend to adopt conservation practices and management in their lands for the conservation of soil and water. 70% of the projects are in Minas Gerais and São Paulo.
Águas de Minas Project (IGAM)	Monitoring of surface and groundwater, running since 1997.
Special Protection Areas (APEs) in Minas Gerais	Protected area, whose purpose of preservation of riverheads in the state of Minas Gerais.
Project: Manuelzão (UFMG)	The Manuelzão Project is an extension project of the Federal University of Minas Gerais, which seeks to revitalize the Rio das Velhas basin, the largest tributary of the São Francisco River, encompassing partnerships with 51 municipalities and the government of the Brazilian state of Minas Gerais.
Fund for the Recovery, Protection and Sustainable Development of the Hydrographic Basins of the State of Minas Gerais - FHIDRO	Its objective is to give financial support to programs and projects that promote the rationalization of the use and improvement of water resources, in terms of qualitative and quantitative aspects, including those related to flood prevention and soil erosion control, in accordance with Laws 6,938 / 1981 and 9,433 / 1997, and with State Law 13199/1999.

XV – TERRESTRIAL LIFE



Objective 15. To protect, recover and promote the sustainable use of terrestrial ecosystems, to manage forests sustainably, to combat desertification, to halt and reverse the degradation of the Earth and to halt the loss of biodiversity.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Program: "Bolsa Verde" ("Green Bag")	Bolsa Verde (Green bag) aims to support the conservation of native vegetation cover in Minas Gerais, by paying for environmental services to owners and squatters who already preserve or who undertake to recover vegetation of native origin in their properties or possessions.
ICMS (Goods and Services Circulation Tax) Ecological	Its objective is to compensate municipalities that have portions of their territory committed to conservation units that imply land use restrictions, and to encourage the creation, implementation and maintenance of these conservation units by the municipalities themselves, contributing to decentralize and consolidate the protection policy ecosystems.
Document "Biodiversity in Minas Gerais: an Atlas for Conservation"	Document that presents the criteria for the definition of priority areas for conservation of State Biodiversity, as well as the guidelines and other important recommendations to ensure the maintenance of the environmental quality and biological diversity of the State
Mosaic of Units of Conservation - Law 9985 (SNUC)	Set of units of conservation of different or not, near, juxtaposed or overlapping categories, and other public or private protected areas ", whose management must be done in a joint and integrated manner.
Project for the Protection of the Atlantic Forest (PROMATA-MG)	It aims to promote protection, recovery and sustainable use in the Atlantic Forest region of Minas Gerais.
PREVINCÊNDIO – Program for the Prevention and Combat of Forest Fires	It aims to coordinate actions to prevent, control and combat forest fires in protected areas under the responsibility of the State of Minas Gerais, areas of great ecological importance and which endanger the heritage and community of Minas Gerais.
Bosques-Modelo/IEF-MG	The strategy to institute and strengthen the Model Forests in Minas Gerais aims to adopt sustainable practices, minimizing the effects of the fragmentation of the environment and enabling the implantation of a more favorable matrix to maintain the ecological balance than the current scenario of observed occupation areas.

XVI - PEACE, JUSTICE AND EFFECTIVE INSTITUTIONS



Objective 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

PROJECT / PROGRAM / POLICY	DESCRIPTION
Program: Pró-APAC	The APACs - Associations for the Protection and Assistance of Convicted Persons are civil society organizations that work with the Courts of Justice and the State Department of Public Security in the execution of sentences of deprivation of liberty in a humanized way, where discipline and trust go hand in hand to arrive to the objective of enhancing the social inclusion of prisoners after the sentence has been served.
Project: “Acervos Museológicos” (“Museological collections”)	In a pioneering initiative of the Institute for Peace Mines in partnership with the Municipality of Belo Horizonte, PUC Minas and the Ministry of Culture, the project Museological Collections - Democratization of Access and Training of Cultural Agents was held from 2011 to 2014. The initiative was based on four pillars, taking to the students of the municipal schools of Belo Horizonte a more universalist education, sharpening its sensitivity to the art.
Project: “Além dos Muros” (“Beyond the Walls”)	The AVSI Foundation and Mines for Peace developed the Project Beyond the Walls, which aimed at strengthening the Protection and Assistance to the Convicted Associations (APACs) of Minas Gerais. The action was funded by the European Union's European Instrument for Democracy and Human Rights (IEDDH), which demonstrates the international recognition of the experience gained in APACs in the mining sector, associations that favor recovery, with a view to the social reintegration of the convicted person.
Project: “Trampolim” ¹¹ (“Trampoline”)	Minas Pela Paz develops the Trampoline project, mobilizing several partners that act in the socio-educational service system. The main objective of the Trampoline Project is to promote the social and professional inclusion of adolescents in compliance with socio-educational measures and those who have graduated from the formal labor market.

XVII - PARTNERSHIPS AND MEANS OF IMPLEMENTATION.

¹¹ The Trampoline is carried out in partnership with the Coordination Management of Socio-educational Measures of the City Hall of Belo Horizonte, with the Subsecretariat of Attendance to Socio-educational Measures of the Government of Minas Gerais, with the Se Liga Program and with the vocational institutions SENAI and ASSPROM (National Service of Industrial Learning of the Minor).



Objective 17. To strengthen the means of implementation and revitalize the global partnership for sustainable development.

PROJECT / PROGRAM / POLICY	DESCRIPTION
REGULATORY LAW, number: 22942, OF JANUARY 12, 2018 - revision of the Plurianual Plan of Government Action - PPAG - 2016-2019, for fiscal year 2018, as provided in art. 8 of the Law, number 21.968, of January 14, 2016	To meet the set of Sustainable Development Objectives - ODS.
Program of studies, surveys, information and statistical data (ALMG)	Developed by Foundation: João Pinheiro (FJP), whose purpose is to provide support to the sustainability of local and regional development through the territorial approach to the design, articulation, implementation and monitoring of the different public policies.
Local Productive Arrangements (APLs)	The APL's (Local Productive Arrangements) are agglomerations of companies located in the same territory, which present productive specialization and linkage among themselves and with public and private institutions and other social actors, among which are established synergies and cooperative relations.
Mosaic of Units of Conservation - Law 9,985 (SNUC)	Set of units of conservation of different or not, near, juxtaposed or overlapping categories, and other public or private protected areas ", whose management must be done in a joint and integrated manner.
Brazilian Network of Biosphere Reserves	The Brazilian Network of Biosphere Reserves was established in 1995 and is coordinated by the Ministry of Environment (MMA). The Network has 7 Biosphere Reserves: Espinhaço Mountain, Atlantic Forest, Cinturão Verde, Pantanal, Amazônia, Savanna, Caatinga and Espinhaço.

4.4. COMPATIBLE DIMENSIONS WITH BIOSPHERE RESERVE CONCEPT

The Biosphere Reserve of Espinhaço Mountain was recognized by the United Nations Educational, Scientific and Cultural Organization letter SC-05 / CONF.210 / 2 Add, in Paris, Room XIV (Bonvin Building), on June 24, 2005, through Man and the Biosphere (MaB) Program - Meeting of the Bureau of the International Coordinating Council, UNESCO Headquarters. In 2018, it completes 13 years, and, at this moment, the document of revision and updating of the limits and zoning of the RBSE is presented.

To comply with milestones and legislation, as well as to promote the management of the territory of **10.218.895,20 hectares** of the Biosphere Reserve of Espinhaço Mountain, they are considered the aspects of land use and occupation in a historical perspective, considering the Neolithic occupation, the archaeological and palaeontological sites, the indigenous occupations, the great economic cycles (gold, diamond, iron and steel) cultural, environmental conservation and tourism issues.

To this end, the zoning of the Biosphere Reserve contemplates in its main criteria for the evaluation and monitoring of actions in the RBSE area, thus integrating the three functions recommended for a Biosphere Reserve.

TABLE 2: COMPARATIVE DATA OF THE ZONEING OF PHASES 1 AND 2 OF THE RBSE.

PHASES	AREAS: NUCLEUS *	DAMPING AREAS *	TRANSITION ZONES *	TOTAL AREA
1	322.040,20	2.170.513,80	718.349,30	3.210.903,30
2	528.896,40	6.958.105,80	2.731.893,00	10.218.895,20

* In hectares.

The axes of occupation and conservation of natural and anthropic aspects are clearly established, either by tourism processes, outstanding traditional cultures (geraizeiros, quilombolas, natives, among others), aspects of gastronomy, distribution of biomes and species, mining territories and urban areas, as well as protected areas. This way, this mosaic of attributes composes, in its totality, the greater identity of the Biosphere Reserve of Espinhaço Mountain, in an integrated way, with its gaps and potentialities of the themes of development, conservation and promotion of scientific and traditional knowledge.

4.4.1 COMPARATIVE ANALYSIS OF THE DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE OF THE MUNICIPALITIES OF PHASE II

In this topic, the demographic and socioeconomic profiles of the municipalities incorporated to Phase 2 of the RBSE were analyzed. In Table 34, the indices are described according to data collected by IBGE and systematized in order to describe, in general, the profile of these municipalities, according to surveys by the Brazilian Institute of Geography and Statistics (IBGE).

This way, the following are presented: the territorial area of each municipality to be incorporated; the Demographic Density; the respective Schooling Fees; the Adequate Sanitary Sewage Indices; the IDHM (Municipal Human Development Index), which varies from 0 to 1 and the closer to 1 the greater the human development of the municipality in question. In Brazil, this index follows the same three dimensions of the Global HDI - longevity, education and income, besides adapting the global methodology to the Brazilian

context and the availability of national indicators. The GINI Index is a parameter used internationally to measure inequality of income distribution.

Like the IDHM (Municipal Human Development Index), it presents a variation between 0 and 1, and the closer to zero the lower the income inequality and the better the income distribution; and the closer to 1 the higher the concentration of income in the municipality. In addition to these, we also highlight Infant Mortality, GDP (Per capita Gross Domestic Product), the percentage of families benefited by the Bolsa Família (Family Allowance) Program and the Estimated Population for the municipality for the year 2017.

Subsequently, the variables are analyzed separately and represented in the form of graphs, in order to clarify the comparison between them and data from Brazil, the state of Minas Gerais and the State Capital, Belo Horizonte. In addition, the ODS (Global Objectives for Sustainable Development) was incorporated into the analysis in order to contextualize globally the advances and challenges related to demographic and socioeconomic profiles.

The importance of this analysis is due mainly to the specificity of some of these municipalities, especially those in the North of Minas Gerais, which contrasts the presence of municipalities belonging to the Metropolitan Region of Belo Horizonte. The municipalities of Phase 2 thus comprise a territory of socioeconomic asymmetries, whose convergence point is the Biosphere Reserve of Espinhaço Mountain and its potential to promote local and regional development, with a conservation and sustainable basis.

TABLE 34: DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE OF THE MUNICIPALITIES INCORPORATED TO PHASE 2 OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.

CITIES	TERRITORIAL AREA	DEMOGRAPHIC DENSITY	SCHOOLING	ADEQUATE SANITARY EXHAUST	IDMH	GINI INDEX	CHILD MORTALITY	GDP (GROSS DOMESTIC PRODUCT) PER CAPITA	BENEFIT: BOLSA FAMÍLIA (FAMILY ALLOWANCE)	ESTIMATED POPULATION
ÁGUAS VERMELHAS	1.256,613 km ² (2017)	10,10 inhabitants /km ² (2010)	93,3 % (2010)	36,4% (2010)	0,601 (2010)	0.42 (2003)	18,52 deaths per thousand people born (2014)	R\$ 12.545,79 (2015)	42,12% (2018)	13.576 inhabitants (2017)
ARICANDUVA	243,329 km ² (2017)	19,60 inhabitants /km ² (2010)	98,1% (2010)	40,7% (2010)	0,582 (2010)	0.38 (2003)	19 deaths per thousand people born (2013)	R\$ 8.371,70 (2015)	38,47% (2018)	5.192 inhabitants (2017)
BERILO	587,106 km ² (2017)	20,95 inhabitants /km ² (2010)	98,9 % (2010)	28,1% (2010)	0,628 (2010)	0.42 (2003)	8,55 deaths per thousand people born (2014)	R\$ 7.281,19 (2015)	21,50% (2018)	12.360 inhabitants (2017)
BERIZAL	488,756 km ² (2017)	8,94 inhabitants /km ² (2010)	97,8 % (2010)	16,2% (2010)	0,604 (2010)	0.37 (2003)	22,73 deaths per thousand people born (2014)	R\$ 8.136,27 (2015)	43,00% (2018)	4.720 inhabitants (2017)
BONFIM	301,865 km ² (2017)	22,59 inhabitants /km ² (2010)	98,5 % (2010)	38,5% (2010)	0,637 (2010)	0.43 (2003)	31,75 deaths per thousand people born (2014)	R\$ 11.040,79 (2015)	17,82% (2018)	7.020 inhabitants (2017)
BOTUMIRIM	1.568,884 km ² (2017)	4,14 inhabitants /km ² (2010)	96,5 % (2010)	15,1% (2010)	0,602 (2010)	0.42 (2003)	39 deaths per thousand people born (2012)	R\$ 6.511,93 (2015)	36,40% (2018)	6.540 inhabitants (2017)
CAPELINHA	965,377 km ² (2017)	36,05 inhabitants /km ² (2010)	97,3 % (2010)	58,1 % (2010)	0,653 (2010)	0.41 (2003)	12,96 deaths per thousand	R\$ 13.527,44 (2015)	21,49% (2018)	37.867 inhabitants (2017)

							people born (2014)			
CAPIM BRANCO	95,333 km ² (2017)	93,16 inhabitants /km ² (2010)	99,3 % (2010)	23,8 % (2010)	0,695 (2010)	0.40 (2003)	8,62 deaths per thousand people born (2014)	R\$ 8.045,35 (2015)	10,55% (2018)	9.678 inhabitants (2017)
CARBONITA	1.456,095 km ² (2017)	6,28 inhabitants /km ² (2010)	99,4 % (2010)	64,9 % (2010)	0,638 (2010)	0.46 (2003)	21 deaths per thousand people born (2013)	R\$ 16.917,87 (2015)	21,31% (2018)	9.544 inhabitants (2017)
CATUTI	287,812 km ² (2017)	17,73 inhabitants /km ² (2010)	98,3 % (2010)	2,9% (2010)	0,621 (2010)	0.36 (2003)	20,83 deaths per thousand people born (2014)	R\$ 6.867,00 (2015)	38,85% (2018)	5.151 inhabitants (2017)
CONFINS	42,355 km ² (2017)	140,15 inhabitants /km ² (2010)	99,3 % (2010)	2,2 % (2010)	0,747 (2010)	0.36 (2003)	12 deaths per thousand people born (2013)	R\$ 121.530,44 (2015)	9,64% (2018)	6.608 inhabitants (2017)
CORAÇÃO DE JESUS	2.225,216 km ² (2017)	11,70 inhabitants /km ² (2010)	96,7% (2010)	17,9% (2010)	0.642 (2010)	0.46 (2003)	13,99 deaths per thousand people born (2014)	R\$ 7.339,22 (2015)	34,48% (2018)	27.052 inhabitants (2017)
CRISTÁLIA	840,702 km ² (2017)	6,85 inhabitants /km ² (2010)	95,3 % (2010)	39,4% (2010)	0,583 (2010)	0.44 (2003)	12,5 deaths per thousand people born (2014)	R\$ 6.252,81 (2015)	60,80% (2018)	6.042 inhabitants (2017)
CRUCILÂNDIA	167,164 km ² (2017)	28,46 inhabitants /km ² (2010)	98,6 % (2010)	59,4 % (2010)	0,651 (2010)	0.37 (2003)	26 deaths per thousand people born (2013)	R\$ 10.715,22 (2015)	15,98% (2018)	5.057 inhabitants (2017)
CURRAL DE DENTRO	570,950 km ² (2017)	12,17 inhabitants /km ² (2010)	96,2% (2010)	39,9% (2010)	0.585 (2010)	0.33 (2003)	17,24 deaths per thousand	R\$ 7.681,34 (2015)	50,20% (2018)	7.623 inhabitants (2017)

							people born (2014)			
ESMERALDAS	909,679 km ² (2017)	66,20 inhabitants /km ² (2010)	97,3 % (2010)	25,2 % (2010)	0,671 (2010)	0.34 (2003)	11,01 deaths per thousand people born (2014)	R\$ 8.326,62 (2015)	23,04% (2018)	69.010 inhabitants (2017)
ESPINOSA	1.868,970 km ² (2017)	16,65 inhabitants /km ² (2010)	95,7 % (2010)	2,2 % (2010)	0,627 (2010)	0.41 (2003)	14,74 deaths per thousand people born (2014)	R\$ 8.139,71 (2015)	33,67% (2018)	32.214 inhabitants (2017)
FRANCISCO SÁ	2.747,295 km ² (2017)	9,07 inhabitants /km ² (2010)	98,8 (2010)	46,1 % (2010)	0,654 (2010)	0.44 (2003)	8,16 deaths per thousand people born (2014)	R\$ 11.411,27 (2015)	26,85% (2018)	26.428 inhabitants (2017)
FREI LAGONEGRO	167,474 km ² (2017)	19,88 inhabitants /km ² (2010)	96,6 % (2010)	18,4 % (2010)	0,543 (2010)	0.38 (2003)	20,83 deaths per thousand people born (2014)	R\$ 7.279,66 (2015)	42,36% (2018)	3.510 inhabitants (2017)
FRUTA DE LEITE	762,837 km ² (2017)	7,79 inhabitants /km ² (2010)	94,7 % (2010)	0,7 % (2010)	0,544 (2010)	0.41 (2003)	30,3 deaths per thousand people born (2014)	R\$ 6.088,61 (2015)	28,96% (2018)	5.709 inhabitants (2017)
FUNILÂNDIA	199,797 km ² (2017)	19,29 inhabitants /km ² (2010)	97,4 % (2010)	38,4 % (2010)	0,655 (2010)	0.34 (2003)	20 deaths per thousand people born (2012)	R\$ 11.162,17 (2015)	27,32% (2018)	4.277 inhabitants (2017)
GAMELEIRAS	1.733,203 km ² (2017)	2,97 inhabitants /km ² (2010)	98,9 % (2010)	0,7% (2010)	0,650 (2010)	0.44 (2003)	40 deaths per thousand people born (2014)	R\$ 7.123,10 (2015)	31,15% (2018)	5.246 inhabitants (2017)
GLAUCILÂNDIA	145,861 km ² (2017)	20,31 inhabitants /km ² (2010)	99,8 % (2010)	24% (2010)	0,679 (2010)	0.50 (2003)	25,64 deaths per thousand	8.036,07 (2015)	27,18% (2018)	3.160 inhabitants (2017)

							people born (2014)			
GRÃO MOGOL	3.885,294 km ² (2017)	3,87 inhabitants /km ² (2010)	96,7 % (2010)	32,5 % (2010)	0,604 (2010)	0.47 (2003)	10,93 deaths per thousand people born (2014)	R\$ 20.204,67 (2015)	25,88% (2018)	15.931 inhabitants (2017)
GUANHÃES	1.075,124 km ² (2017)	29,08 inhabitants /km ² (2010)	98,5% (2010)	72,8 % (2010)	0.686 (2010)	0,41 (2003)	19,07 dea ths per thousand people born (2014)	R\$ 17.530,20 (2015)	15,38 % (2018)	34.054 inhabitants (2017)
GUARACIABA	348,596 km ² (2017)	29,33 inhabitants /km ² (2010)	97,3 % (2010)	37,1 (2010)	0,623 (2010)	0.39 (2003)	19,23 deaths per thousand people born (2014)	R\$ 7.095,17 (2015)	21,98% (2018)	10.542 inhabitants (2017)
GUARACIAMA	390,263 km ² (2017)	12,09 inhabitants /km ² (2010)	95,8 % (2010)	15,4 % (2010)	0,677 (2010)	0.44 (2003)	28,99 deaths per thousand people born (2014)	R\$ 7.462,23 (2015)	40,06% (2018)	5.001 inhabitants (2017)
INDAIABIRA	1.004,149 km ² (2017)	7,30 inhabitants /km ² (2010)	97,8 % (2010)	16,9 % (2010)	0,610 (2010)	0.38 (2003)	11,36 deaths per thousand people born (2014)	R\$ 7.776,46 (2015)	33,87% (2018)	7.524 inhabitants (2017)
INIMUTABA	527,060 km ² (2017)	12,82 inhabitants /km ² (2010)	98,3% (2010)	18,7% (2010)	0,664 (2010)	0,41 (2003)	14 deaths per thousand people born (2013)	R\$ 8.563,19 (2015)	21,24% (2018)	7.489 inhabitants (2017)
ITACAMBIRA	1.788,445 km ² (2017)	2,79 inhabitants /km ² (2010)	95,3 % (2010)	7% (2010)	0,628 (2010)	0.38 (2003)	18 deaths per thousand people born (2009)	R\$ 10.157,46 (2015)	33,12% (2018)	5.374 inhabitants (2017)

ITAGUARA	410,468 km ² (2017)	30,14 inhabitants /km ² (2010)	96,4% (2010)	7% (2010)	0,691 (2010)	0.38 (2003)	20 deaths per thousand people born (2014)	R\$ 16.328,41 (2015)	9,57% (2018)	13.329 inhabitants (2017)
ITAÚNA	495,769 km ² (2017)	172,38 inhabitants /km ² (2010)	98,2% (2010)	96,2% (2010)	0,758 (2010)	0.42 (2003)	8,12 deaths per thousand people born (2014)	R\$ 26.934,94 (2015)	6,03% (2018)	92.696 inhabitants (2017)
JANAÚBA	2.181,319 km ² (2017)	30,63 inhabitants /km ² (2010)	98,5 % (2010)	15,2 % (2010)	0,696 (2010)	0.40 (2003)	8,11 deaths per thousand people born (2014)	R\$13.715,77 (2015)	21,35% (2018)	71.653 inhabitants (2017)
JEQUITIBÁ	445,030 km ² (2017)	11,59 inhabitants /km ² (2010)	96,7% (2010)	24,7 % (2010)	0,689 (2010)	0.38 (2003)	52,63 deaths per thousand people born (2014)	R\$16.841,45 (2015)	19,78% (2018)	5.319 inhabitants (2017)
JOSÉ GONÇALVES DE MINAS	381,332 km ² (2017)	11,94 inhabitants /km ² (2010)	99,2% (2010)	31,2 % (2010)	0,632 (2010)	0.38 (2003)	16,39 deaths per thousand people born (2014)	R\$ 7.398,92 (2015)	25,54% (2018)	4.631 inhabitants (2017)
JOSENÓPOLIS	541,393 km ² (2017)	8,43 inhabitants /km ² (2010)	96,1% (2010)	49,3 % (2010)	0,564 (2010)	0.42 (2003)	21,74 deaths per thousand people born (2014)	R\$ 8.141,97 (2015)	38,20% (2018)	4.877 inhabitants (2017)
JUATUBA	97,172 km ² (2017)	223,04 inhabitants /km ² (2010)	98,8 % (2010)	51,7 % (2010)	0,717 (2010)	0.36 (2003)	6,4 deaths per thousand people born (2014)	R\$ 45.055,74 (2015)	24,42% (2018)	25.874 inhabitants (2017)
JURAMENTO	431,630 km ² (2017)	9,53 inhabitants /km ² (2010)	99,1% (2010)	39,8% (2010)	0,669 (2010)	0.38 (2003)	25,64 deaths per thousand people born (2014)	R\$ 9.161,30 (2015)	30,68% (2018)	4.358 inhabitants (2017)

LAGOA SANTA	229,409 km ² (2017)	229,08 inhabitants /km ² (2010)	97% (2010)	54,7 % (2010)	0,777 (2010)	0.40 (2003)	9,49 deaths per thousand people born (2014)	R\$ 27.871,73 (2015)	9,05% (2018)	61.752 inhabitants (2017)
LEME DO PRADO	280,036 km ² (2017)	17,15 inhabitants /km ² (2010)	99,8% (2010)	59,6% (2010)	0,670 (2010)	0.43 (2003)	83 deaths per thousand people born (2009)	R\$ 8.230,74 (2015)	21,73% (2018)	4.998 inhabitants (2017)
MAMONAS	284,365 km ² (2017)	21,69 inhabitants /km ² (2010)	98,5 % (2010)	5,1 % (2010)	0,618 (2010)	0.39 (2003)	21,28 deaths per thousand people born (2014)	R\$ 6.028,41(2015)	26,50% (2018)	6.624 inhabitants (2017)
MATEUS LEME	301,383 km ² (2017)	92,02 inhabitants /km ² (2010)	96,9% (2010)	60,9 % (2010)	0,704 (2010)	0.39 (2003)	16,81 deaths per thousand people born (2014)	R\$17.735,61 (2015)	16,64% (2018)	30.678 inhabitants (2017)
MATO VERDE	472,245 km ² (2017)	26,86 inhabitants /km ² (2010)	97,2% (2010)	1,5 % (2010)	0,662 (2010)	0.42 (2003)	5,81 deaths per thousand people born (2014)	R\$ 8.031,39 (2015)	29,30% (2018)	12.849 inhabitants (2017)
MATOZINHOS	252,280 km ² (2017)	134,59 inhabitants /km ² (2010)	99,2% (2010)	67,2% (2010)	0,731 (2010)	0.38 (2003)	15,93 deaths per thousand people born (2014)	R\$ 26.356,84 (2015)	29,30% (2018)	37.344 inhabitants (2017)
MINAS NOVAS	1.812,398 km ² (2017)	16,99 inhabitants /km ² (2010)	97,1% (2010)	16,4 % (2010)	0,633 (2010)	0.45 (2003)	23,95 deaths per thousand people born (2014)	R\$ 8.885,89 (2015)	23,66% (2018)	32.009 inhabitants (2017)
MONTE AZUL	1.001,296 km ² (2017)	22,12 inhabitants /km ² (2010)	98,3% (2010)	9,1 % (2010)	0,659 (2010)	0.41 (2003)	14,71 deaths per thousand people born (2014)	R\$ 7.828,03 (2015)	24,56% (2018)	21.783 inhabitants (2017)

MONTES CLAROS	3.568,941 km ² (2017)	101,41 inhabitants /km ² (2010)	98,4% (2010)	93,4% (2010)	0,770 (2010)	0.41 (2003)	9,85 deaths per thousand people born (2014)	R\$ 20.199,41 (2015)	10,91% (2018)	402.027 inhabitants (2017)
MONTEZUMA	1.130,419 km ² (2017)	6,60 inhabitants /km ² (2010)	97,1% (2010)	25,1% (2010)	0,587 (2010)	0.38 (2003)	12,5 deaths per thousand people born (2014)	R\$ 7.056,82 (2015)	25,79% (2018)	8.168 inhabitants (2017)
NINHEIRA	1.108,272 km ² (2017)	8,86 inhabitants /km ² (2010)	97,4% (2010)	13,5 % (2010)	0,556 (2010)	0.37 (2003)	37,74 deaths per thousand people born (2014)	R\$ 6.793,24 (2015)	34,38% (2018)	10.375 inhabitants (2017)
NOVA PORTEIRINHA	120,943 km ² (2017)	61,17 inhabitants /km ² (2010)	98,3% (2010)	24,5% (2010)	0,641 (2010)	0.33 (2003)	9,52 deaths per thousand people born (2014)	R\$ 11.889,28 (2015)	33,59% (2018)	7.64 inhabitants (2017)
NOVORIZONTE	271,610 km ² (2017)	18,25 inhabitants /km ² (2010)	96,8% (2010)	4,6% (2010)	0,616 (2010)	0.39 (2003)	deaths per thousand people born (2010)	R\$ 7.624,24 (2015)	28,67% (2018)	5.308 inhabitants (2017)
PADRE CARVALHO	446,275 km ² (2017)	13,07 inhabitants /km ² (2010)	92,2% (2010)	1,5 % (2010)	0,599 (2010)	0.38 (2003)	20,2 deaths per thousand people born (2014)	R\$ 9.104,94 (2015)	11,68% (2018)	6.338 inhabitants (2017)
PAULISTAS	220,564 km ² (2017)	22,30 inhabitants /km ² (2010)	98,3% (2010)	47,7 % (2010)	0,625 (2010)	0.43 (2003)	15 deaths per thousand people born (2010)	R\$ 9.018,11 (2015)	27,88% (2018)	4.982 inhabitants (2017)
PEDRO LEOPOLDO	292,947 km ² (2017)	200,51 inhabitants /km ² (2010)	98,3% (2010)	66,9 % (2010)	0,757 (2010)	0.41 (2003)	8,55 deaths per thousand people born (2014)	R\$ 23.777,10 (2015)	8,04% (2018)	63.837 inhabitants (2017)

PIEDADE DOS GERAIS	259,638 km ² (2017)	17,87 inhabitants /km ² (2010)	100% (2010)	2,2% (2010)	0.626 (2010)	0.36 (2003)	51,28 deaths per thousand people born (2014)	R\$ 11.679,49 (2015)	23,47% (2018)	4.981 inhabitants (2017)
PIRACEMA	280,335 km ² (2017)	22,85 inhabitants /km ² (2010)	98,7% (2010)	47,8% (2010)	0.646 (2010)	0.43 (2003)	No data (2014)	R\$ 14.583,76 (2015)	5,35% (2018)	6.566 inhabitants (2017)
PORTEIRINHA	1.749,683 km ² (2017)	21,51 inhabitants /km ² (2010)	98,6% (2010)	18,7% (2010)	0.651 (2010)	0.41 (2003)	11,43 deaths per thousand people born (2014)	R\$ 7.757,69 (2015)	20,74% (2018)	31.741 inhabitants (2017)
PRESIDENTE BERNARDES	236,798 km ² (2017)	23,38 inhabitants /km ² (2010)	98,4% (2010)	43,4% (2010)	0.632 (2010)	0.41 (2003)	24, deaths per thousand people born (2014)	R\$ 7.319,77 (2015)	24,06% (2018)	5.562 inhabitants (2017)
PRUDENTE DE MORAIS	124,189 km ² (2017)	77,08 inhabitants /km ² (2010)	97,7% (2010)	51,9% (2010)	0.690 (2010)	0.38 (2003)	6,41 deaths per thousand people born (2014)	R\$ 12.557,68 (2015)	15,98% (2018)	10.577 inhabitants (2017)
RIACHO DOS MACHADOS	1.315,540 km ² (2017)	7,11 inhabitants /km ² (2010)	95,3% (2010)	19,7% (2010)	0.627 (2010)	0.41 (2013)	No data (2014)	R\$ 13.637,75 (2015)	33,47% (2018)	9.672 inhabitants (2017)
RIBEIRÃO DAS NEVES	155,454 km ² (2017)	1.905,07 inhabitants /km ² (2010)	96,5% (2010)	74,3% (2010)	0.684 (2010)	0.33 (2003)	10,31 deaths per thousand people born (2014)	R\$ 10.753,60 (2015)	11,54% (2018)	328.871 inhabitants (2017)
RIO PARDO DE MINAS	3.117,675 km ² (2017)	9,33 inhabitants /km ² (2010)	98,9% (2010)	8,7% (2010)	0.624 (2010)	0.40 (2003)	9,35 deaths per thousand people born (2014)	R\$ 7.179,98 (2015)	30,07% (2018)	31.016 inhabitants (2017)
RUBELITA	1.110,295 km ² (2017)	7,00 inhabitants /km ² (2010)	96,7% (2010)	25,7% (2010)	0.582 (2010)	0.40 (2003)	13,89 deaths per thousand people born (2014)	R\$ 6.945,35 (2015)	31,25% (2018)	6.789 inhabitants (2017)

SALINAS	1.862,117 km ² (2017)	20,75 inhabitants /km ² (2010)	97,2% (2010)	66,5% (2010)	0.679 (2010)	0.43 (2003)	12,54 deaths per thousand people born (2014)	R\$ 12.869,43 (2015)	18,44% (2018)	41.678 inhabitants (2017)
SANTO ANTÔNIO DO RETIRO	796,290 km ² (2017)	8,73 inhabitants /km ² (2010)	95,9% (2010)	26,5% (2010)	0.570 (2010)	0.39 (2003)	12,2 deaths per thousand people born (2014)	R\$ 6.421,81 (2015)	48,80% (2018)	7.339 inhabitants (2017)
SÃO JOÃO DA LAGOA	998,015 km ² (2017)	4,67 inhabitants /km ² (2010)	98,9% (2010)	0,3% (2010)	0.634 (2010)	0.40 (2003)	No data (2014)	R\$ 8.423,50 (2015)	33,76% (2018)	4.942 inhabitants (2017)
SÃO JOÃO DO PARAÍSO	1.925,575 km ² (2017)	11,59 inhabitants /km ² (2010)	97,2% (2010)	18,2% (2010)	0,615 (2010)	0.42 (2003)	14,65 deaths per thousand people born (2014)	R\$ 8.301,85 (2015)	17,69% (2018)	23.729 inhabitants (2017)
SÃO JOSÉ DA LAPA	47,930 km ² (2017)	413,08 inhabitants /km ² (2010)	98,5% (2010)	82,1% (2010)	0.729 (2010)	0.35 (2003)	12,42 deaths per thousand people born (2014)	R\$ 20.086,86 (2015)	10,14% (2018)	22.910 inhabitants (2017)
SÃO JOSÉ DO JACURI	345,146 km ² (2017)	18,99 inhabitants /km ² (2010)	95,8% (2010)	35,9% (2010)	0.566 (2010)	0,39 (2003)	18,87 deaths per thousand people born (2014)	R\$ 8.980,03 (2015)	28,98% (2018)	6.650 inhabitants (2017)
SÃO SEBASTIÃO DO MARANHÃO	517,830 km ² (2017)	20,56 inhabitants /km ² (2010)	96% (2010)	28,4% (2010)	0.581 (2010)	0.39 (2003)	9,35 deaths per thousand people born (2014)	R\$ 5.960,44 (2015)	29,77% (2018)	10.511 inhabitants (2017)
SENHORA DE OLIVEIRA	170,749 km ² (2017)	33,28 inhabitants /km ² (2010)	96% (2010)	63,8% (2010)	0,631 (2010)	0,40 (2003)	16,39 deaths per thousand people born (2014)	R\$ 8.774,21 (2015)	21,87% (2018)	5.892 inhabitants (2017)

SENHORA DO PORTO	381,328 km ² (2017)	9,17 inhabitants /km ² (2010)	97,7 % (2010)	42,6 % (2010)	0.565 (2010)	0.38 (2003)	21,28 deaths per thousand people born (2014)	R\$ 8.266,57 (2015)	26,08% (2018)	3.602 inhabitants (2017)
SERRANÓPOLIS DE MINAS	551,954 km ² (2017)	8,02 inhabitants /km ² (2010)	99,3% (2010)	0,5% (2010)	0.633 (2010)	0.37 (2003)	19,23 deaths per thousand people born (2014)	R\$ 6.496,44 (2015)	30,03% (2018)	4.769 inhabitants (2017)
TAIOBEIRAS	1.220,046 km ² (2017)	25,88 inhabitants /km ² (2010)	98,3% (2010)	15,8% (2010)	0.670 (2010)	0.38 (2003)	4,08 deaths per thousand people born (2014)	R\$ 11.806,80 (2015)	22,24% (2018)	33.824 inhabitants (2017)
TURMALINA	1.153,11 km ² (2017)	15,66 inhabitants /km ² (2010)	99,2% (2010)	60,6% (2010)	0.682 (2010)	0.44 (2003)	4,29 deaths per thousand people born (2014)	R\$ 13.982,60 (2015)	20,53% (2018)	19.762 inhabitants (2017)
VARGEM GRANDE DO RIO PARDO	491,512 km ² (2017)	9,63 inhabitants /km ² (2010)	96,8% (2010)	1% (2010)	0.634 (2010)	0.37 (2003)	No data (2014)	R\$ 10.197,96 (2015)	34,88% (2018)	5.032 inhabitants (2017)
VEREDINHA	631,691 km ² (2017)	8,78 inhabitants /km ² (2010)	98% (2010)	98% (2010)	0.632 (2010)	0.43 (2003)	No data (2014)	R\$ 8.729,88 (2015)	26,33% (2018)	5.798 inhabitants (2017)
VESPASIANO	71,080 km ² (2017)	1.467,62 inhabitants /km ² (2010)	96,7% (2010)	91% (2010)	0.688 (2010)	0,36 (2003)	8,56 deaths per thousand people born (2014)	R\$ 26.111,13 (2015)	12,74% (2018)	122.365 inhabitants (2017)

4.4.2 POPULATION IN THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2

The RBSE Phase 2 area comprises a total population of 7,231,658 inhabitants in its 172 municipalities.

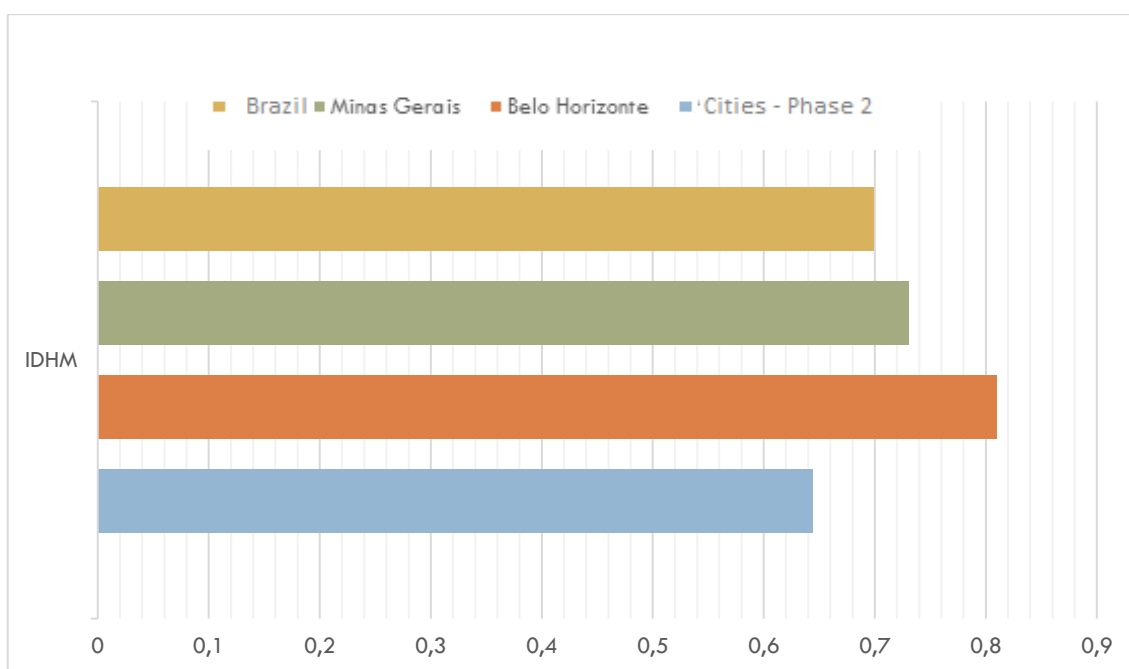
TABLE 35: NUMBER OF MUNICIPALITIES PER PHASE OF RECOGNITION OF THE RBSE.

PHASES	MUNICIPALITIES	POPULATION	DIFFERENCE
1	94	5.138.124	2,093,534 (population increase of 140.74% in Phase 2 in relation to Phase 1)
2	172	7.231.658	

The graph below shows a comparison between the IDHM (Municipal Human Development Index) of the municipalities selected for Phase 2, the capital Belo Horizonte and the IDH (Human development Index) of the State of Minas Gerais and the Federative Republic of Brazil.

Thus, the graph shows that the municipalities of Phase 2 (0.644) have a Human Development Index well below those observed in Belo Horizonte (0.810). It is also below the average of the state of Minas Gerais (0.731), being also below the Brazilian average (0.699).

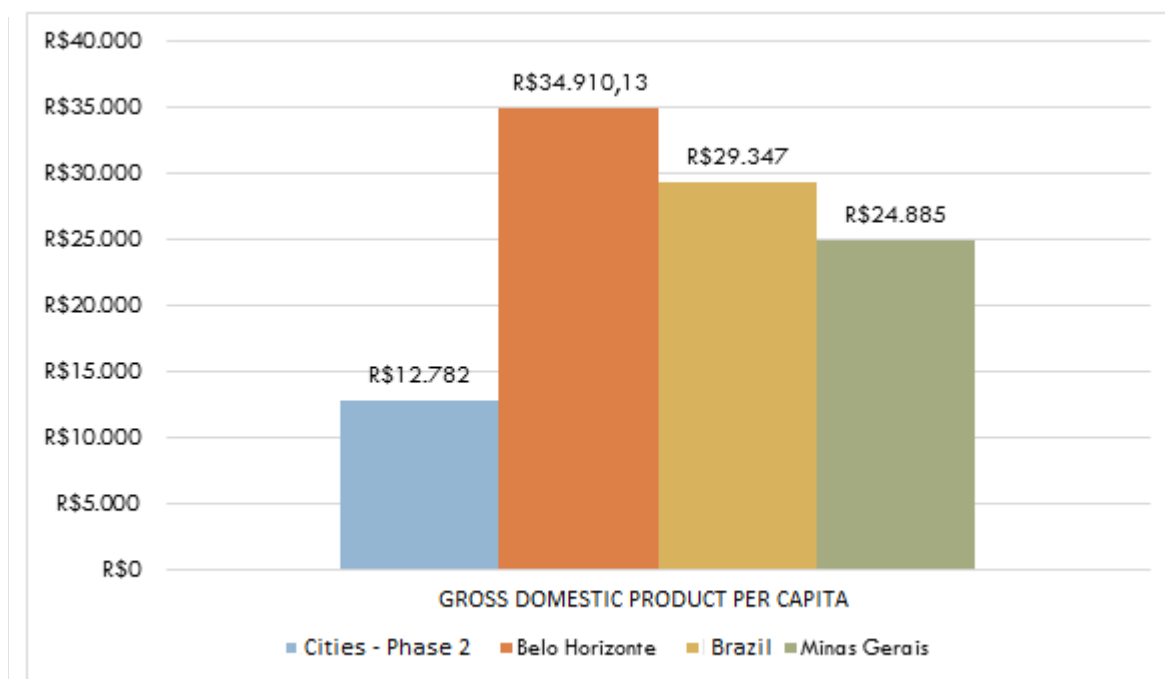
GRAPH 3: COMPARATIVE AMONG THE HUMAN DEVELOPMENT INDICES- 2010.



SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE - Brazilian Institute of Geography and Statistics (2018).

The graph below shows a comparison between the GDP Per Capita of MF2 for Belo Horizonte and the Federative Republic of Brazil. From this information, it was verified that the average GDP (per capita GDP) of MF2 - Municipalities of Phase (R \$ 12,782) is slightly higher than 1/3 that observed in Belo Horizonte (34,910.13). In this indicator, MF2 (Municipalities of Phase) also have a lower income than the national GDP per capita, R \$ 29,347 (IBGE - Brazilian Institute of Geography and Statistics, 2018).

GRAPH 4: COMPARATIVE BETWEEN GDP (GROSS DOMESTIC PRODUCT) PER CAPITA - 2015.



SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE (2018).

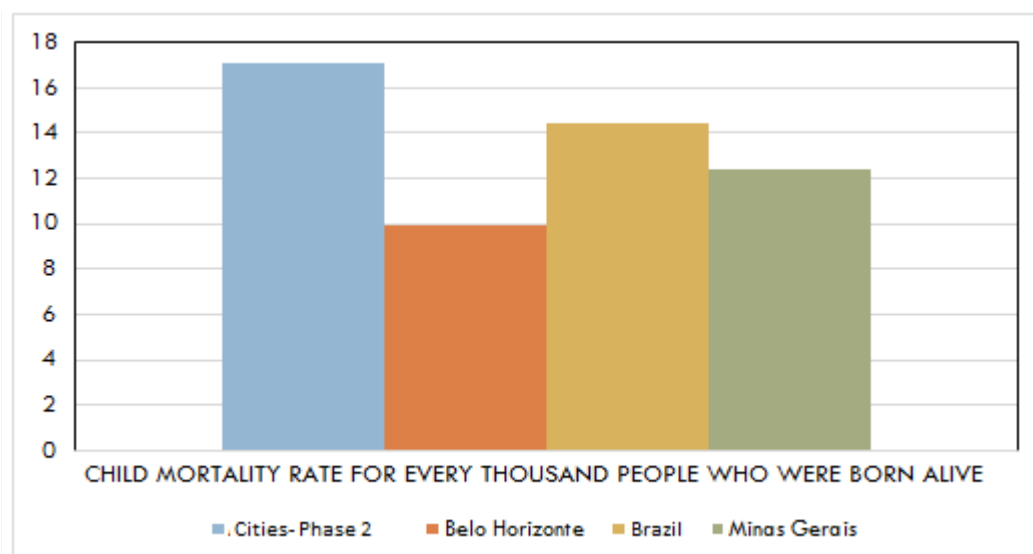
By systematizing the information mentioned above, a high degree of vulnerability of municipalities of MF2 (Municipalities of Phase) is verified. When compared with other localities the asymmetry between them is evident. In addition to the data, MF2 (Municipalities of Phase) populations still receive considerably lower salaries than those observed in Belo Horizonte, 1.68 and 3.5 minimum wages, respectively. (IBGE - Brazilian Institute of Geography and Statistics, 2018).

The fragility of the population can be seen through data from social programs, such as the Bolsa Família Program (PBF). According to a survey by the Ministry of Social Development (2018), a considerable part of the MF2 municipalities have high portions of benefit recipients. The municipalities of Guaraciama, which approximately 40.06% of the population is dependent on the PBF, Águas Vermelhas, 42.12%, Berizal, 43%, Santo Antônio do Retiro, 48.80%, Curral de Dentro, 50, 20%, and Cristália with 60,80%. In order to compare, Belo Horizonte has 5.83% of dependents of the PBF.

These data demonstrate how fragile these populations are. Low pay, high reliance on social programs and income below the Brazilian average, demonstrate the risks of these municipalities not fully achieving the first of the Sustainable Development Objectives (ODS), of ending poverty in all their forms, everywhere.

Graph 5 shows that the MF2 (Municipalities of Phase) had a higher infant mortality rate (17.3 deaths per thousand born) than those found in Belo Horizonte (9.9 deaths per thousand born) in the state of Minas Gerais (12, 4 deaths per thousand born) and in Brazil (14.4 deaths per thousand born). Data that explain the persistent difficulty of this group to reach favorable indicators in terms of human development and ODS (Global Objectives for Sustainable Development).

CHART 5: CHILD MORTALITY RATE FOR EVERY THOUSAND PEOPLE WHO WERE BORN ALIVE

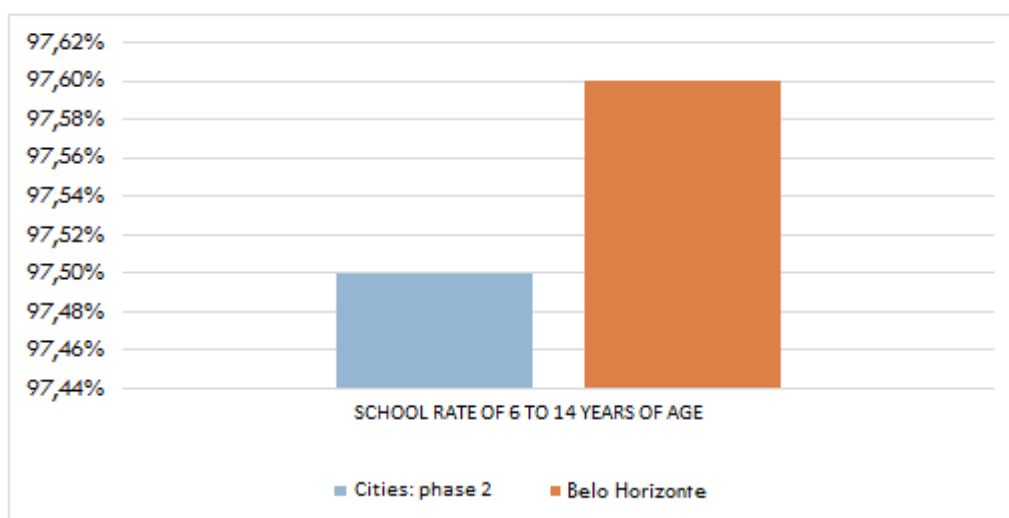


SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE (2018).

Even in indicators with lower impact, the municipalities belonging to Phase 2 present results below Belo Horizonte. When comparing the percentage of afforestation of public roads, MF2 (Municipalities of Phase 2), present results lower than those found in Belo Horizonte (56.30% and 82.7%, respectively).

Given this scenario, it is clear that this group will have greater difficulty in achieving the goal of number 3 of the Sustainable Development Objectives: to ensure a healthy life and to promote well-being for all, at all ages. The chart below shows the schooling rate, showing the disparity between Belo Horizonte and MF2 (Municipalities of Phase 2). As can be observed, the difference between the schooling rate between the two localities is only 0.10%, with Belo Horizonte having 97.60% and MF2 (Municipalities of Phase 2) 97.50% of schooling. However, 2.5% of the total population between the ages of 6 and 14 do not go to school, suggesting that efforts must be made to ensure that the fullness of this rate can be achieved, since this is one of the ODS (Global Objectives for Sustainable Development): ensuring inclusive education, equitable and quality, and promote lifelong learning opportunities for all.

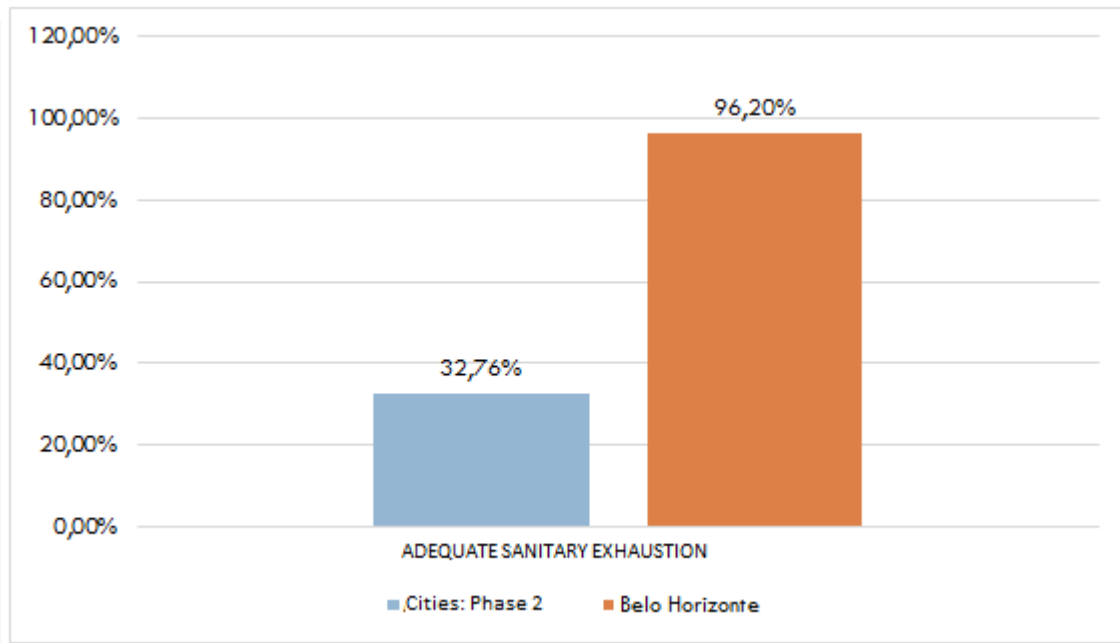
CHART 6: SCHOOL RATE OF 6 TO 14 YEARS OF AGE - 2010



SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE (2018).

Graph 7 shows the difference between Belo Horizonte and MF2 (Municipalities of Phase 2) in relation to the population covered by the adequate sanitary sewage service. The data show that the MF2 (Municipalities of Phase 2) region presents a large coverage deficit of this service, with only 32.76% of the population served. Belo Horizonte has 96.20% of its population served by the service. In view of this scenario, great efforts will be needed to enable MF 2 (Municipalities of Phase 2) to achieve Goal 6, set out by the ODS (Global Objectives for Sustainable Development): to ensure the availability and sustainable management of water and sanitation for all. The absence of this service for 67.24% of the population accentuates the risks that the inhabitants of this region are exposed.

FIGURE 7: ADEQUATE SANITARY EXHAUSTION – 2010.

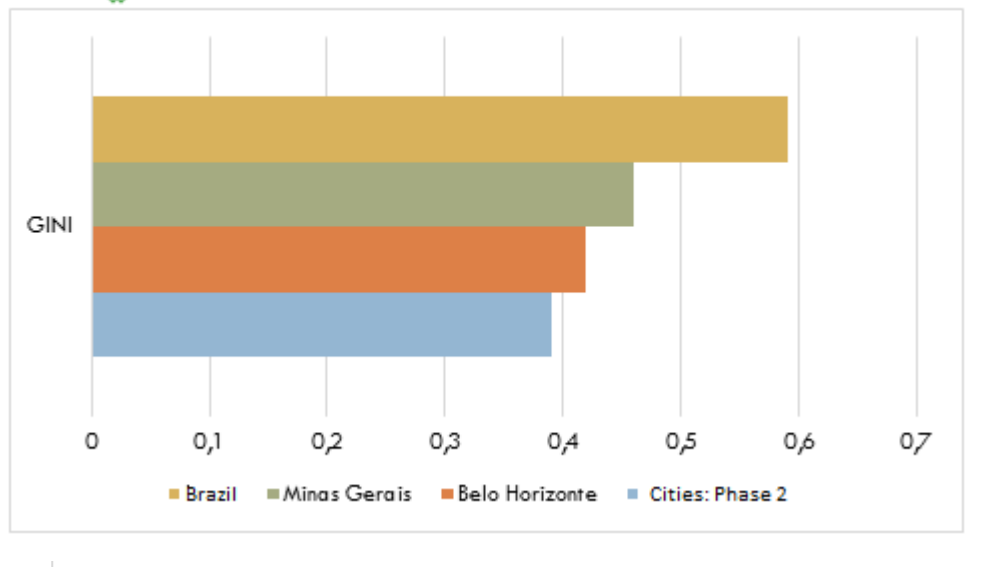


SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE (2018).

Graph 8 is the result of the GINI index survey in four different locations. It is possible to observe that MF2 (Municipalities of Phase 2) have a low inequality rate among them, when compared with the internal indices of Brazil, the State of Minas Gerais and Belo Horizonte.

However, when performing an analysis based on the data of HDI, Per capita Income and Average Salary, it is verified that the MF2 (Municipalities of Phase 2) inequality index remains below the others, due to the homogenization of poverty, not because it is an economically favorable condition the population. Due to this factor, we draw attention to the achievement of ODS (Global Objectives for Sustainable Development) goal 10: reducing inequality within and between countries, a target for which MF2 (Municipalities of Phase 2) still faces major obstacles.

GRAPH 8: GINI INDEX - 2003.



SOURCE: ELABORATED BY AUTHORS WITH DATA EXTRACTED FROM IBGE (2018).

Cultural ICMS (Goods and Services Circulation Tax)

In the RBSE, demonstrative cultural projects are developed in the municipalities, considering as territorial axis the Espinhaço Mountain. It is important to emphasize the legislation of the State of Minas Gerais, which, through the Law, number 18.030-2009, transfers resources from the Tax on the Circulation of Merchandise and Services (ICMS) to municipalities that preserve their memory and cultural production¹² (Cultural ICMS). The IEPHA (State Institute of Historic and Artistic Patrimony), with participation in the State Committee of the RBSE, is responsible for the elaboration and analysis of the criteria for the transfer of resources, besides providing advice to the municipalities.

IEPHA (State Institute of Historic and Artistic Patrimony) Minas Gerais also offers, through the Regional Rounds, guidelines on preservation policies that can be implemented in the cities of the State. Besides seeking to stimulate the preservation of local heritage, the program also seeks to guarantee and solidify the identity of the municipalities of Minas Gerais and, therefore, is of immutable relevance for this document. Thus, the classification of the municipalities of phase 2 of the RBSE in relation to the ICMS (Goods and Services Circulation Tax) Cultural Heritage can be analyzed in the table below, where the maximum score obtained by municipality is four points. (IEPHA, 2017).

It can be observed that the mean of the municipalities of phase 2 of the RBSE is 2.33%. If compared to the percentage of capital Belo Horizonte that is 2.70, the average of the municipalities of Minas Gerais is below the desired one. Thus, the proposed expansion of the Biosphere Reserve of Espinhaço Mountain, becomes of paramount importance, since it proposes to establish the promotion of the development of incorporated municipalities, especially with regard to the cultural scope.

¹² The municipality that has a protection law, which has a municipal council of the patrimony, which protects the cultural assets through the tipping, which would invent these assets, which restores and takes care of more resources to be able to improve their quality of life more and more, safeguarding its history, its culture and its self-esteem (IEPHA, 2009).

TABLE 36: SCORING OF CULTURAL ICMS IN THE MUNICIPALITIES OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2

City	Score: Cultural Politics
Águas Vermelhas	1,85
Aricanduva	3,35
Berilo	0,05
Berizal	There isn't any information.
Bonfim	3,50
Botumirim	3,00
Capelinha	3,70
Capim Branco	1,60
Carbonita	2,45
Catuti	There isn't any information.
Confins	2,25
Coração de Jesus	There isn't any information.
Cristália	There isn't any information.
Crucilândia	2,80
Curral de Dentro	2,50
Esmeraldas	1,65
Espinosa	There isn't any information.
Francisco Sá	There isn't any information.
Frei Lagonegro	2,20
Fruta de Leite	2,55
Funilândia	There isn't any information.
Gameleiras	There isn't any information.
Glaucilândia	There isn't any information.
Grão Mogol	2,30
Guanhães	2,60
Guaraciaba	2,55
Guaraciama	There isn't any information.
Indaiabira	There isn't any information.
Inimutaba	2,65
Itacambira	2,55
Itaguara	2,00
Itaúna	3,20
Janaúba	2,15
Jequitibá	2,65
José Gonçalves de Minas	There isn't any information.
Josenópolis	There isn't any information.
Juatuba	2,65
Juramento	There isn't any information.
Lagoa Santa	0,65
Leme do Prado	2,75
Mamonas	There isn't any information.
Mateus Leme	2,70
Mato Verde	There isn't any information.
Matozinhos	2,20
Minas Novas	1,45
Monte Azul	There isn't any information.
Montes Claros	There isn't any information.
Montezuma	There isn't any information.
Ninheira	There isn't any information.
Nova Porteirinha	There isn't any information.
Novorizonte	2,20
Padre Carvalho	There isn't any information.
Paulistas	2,45
Pedro Leopoldo	There isn't any information.

Piedade dos Gerais	2,75
Piracema	2,40
Porteirinha	2,75
Presidente Bernardes	2,25
Prudente de Moraes	There isn't any information.
Riacho dos Machados	0,00
Ribeirão das Neves	2,30
Rio Pardo de Minas	There isn't any information.
Rubelita	2,00
Salinas	There isn't any information.
Santo Antônio do Retiro	2,20
São João da Lagoa	2,70
São João do Paraíso	There isn't any information.
São José da Lapa	2,15
São José do Jacuri	1,75
São Sebastião do Maranhão	There isn't any information.
Senhora de Oliveira	2,80
Senhora do Porto	1,20
Serranópolis de Minas	2,95
Taiobeiras	3,20
Turmalina	3,25
Vargem Grande do Rio Pardo	2,45
Veredinha	There isn't any information.
Vespasiano	There isn't any information.

SOURCE: STATE INSTITUTE OF HISTORICAL AND ARTISTIC PATRIMONY (2017)

4.5 APPROPRIATE ZONING

The mountain chain of Espinhaço Mountain, a rocky massif that extends from the center of the state of Minas Gerais to the interior of the state of Bahia, presents as one of its greatest attributes its biogeographic dynamics and its intrinsic relations with the Atlantic Forest biomes of the Cerrado, both considered Hotspots (MYERS, 2000), which, together with its historical cultural aspects, is a unique territory in Brazil and in the world.

Whereas in the Phase 1 delimitation of the RBSE the Espinhaço Mountain was considered only in its southern portion, from the Iron Quadrangle region to the PARNA of the Sempre Vivas, it was sought in this Phase 2 to delimit the RBSE up to the border with the state of Bahia, thus also encompassing its northern portion in the state of Minas Gerais. This study was only possible due to the increase of available scientific data and researches, besides the institutional articulation with the municipal organs, universities, NGOs (Non-governmental organization) and state and national governments, new overlapping of relevant cartographic themes for the Espinhaço mountain range and studies on its dynamics, evaluation and monitoring of undertakings and actions in the RBSE area, thus integrating its three functions. Below, we detail the RBSE Phase 2 zoning criteria and the RBSE Phase 2 Synthesis Map in the state of Minas Gerais (Figure 68), as well as the mapping of these criteria.

PROPOSED ZONING FOR PHASE 2 OF RBSE

Core Zones of RBSE: Total area of 528,896.4 hectares, consisting of 40 Conservation Units of Integral Protection, with an increase of ten conservation units since the last revision of 2015, that is, from 322,040.2 hectares in 2015 to 528,896.38 hectares in 2018, corresponding to an increase of 206,856.18 hectares (64.3%) of its area of Integral Protection. It was considered as a criterion in the definition of this zone, only the federal and state Integral Protection Conservation Units.

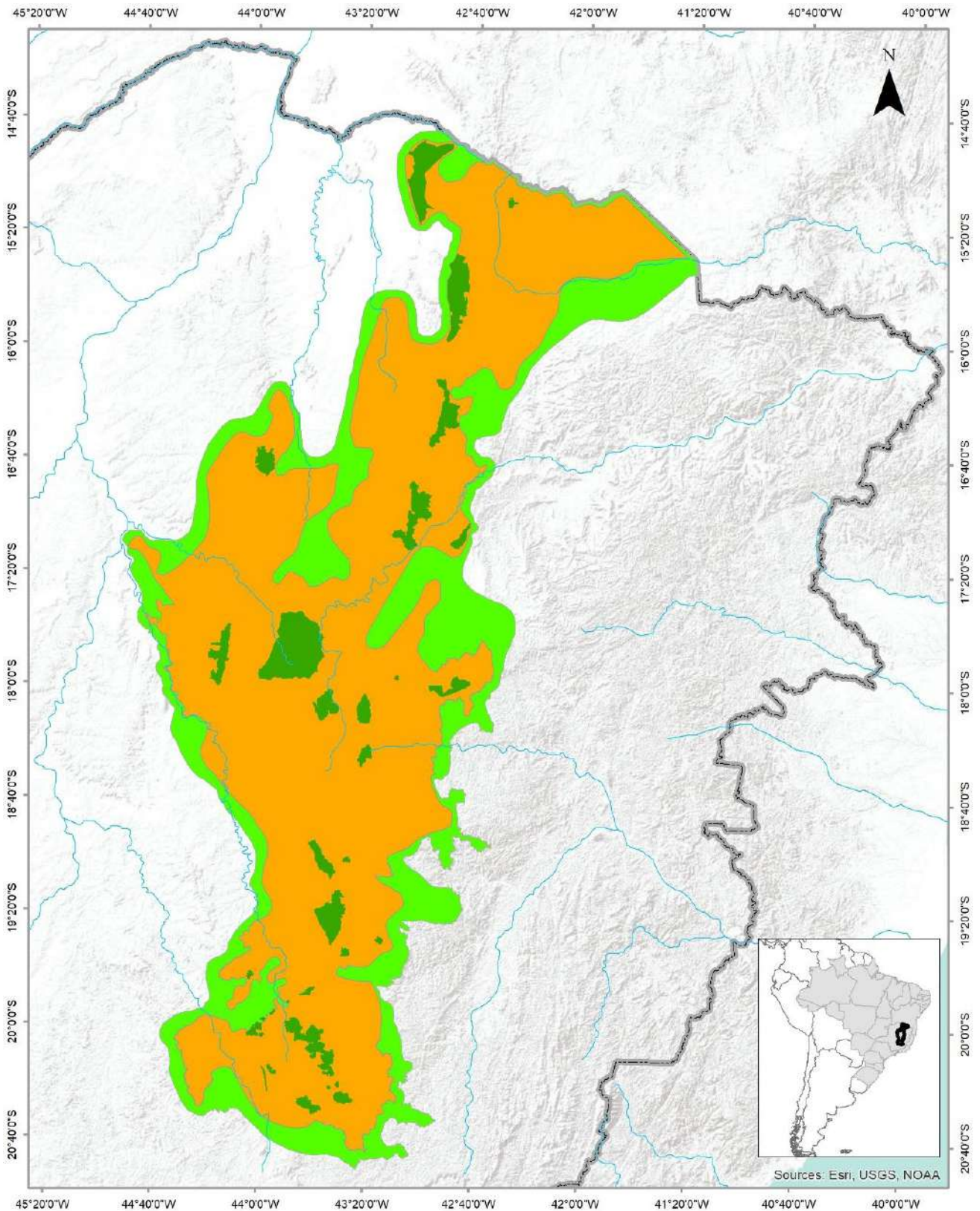
Damping Zone or Buffer: Total area of 6,958,105.8 hectares, with an increase of 4,971,026.2 hectares since its last revision in 2015, that is, from 2,170,513.9 hectares in 2015 to 7,141,540.1 hectares in 2018, corresponding to an increase of 229% in its area of damping. The damping zone was created considering the distribution of the following variables along the Espinhaço Range: Rupestrian Fields, Special Protection Areas (LPAs) and the Lund-Warming Ramsar Site, protected areas that protect water sources, Key Areas of Biodiversity (KBAs), the Irreplaceable Areas of Espinhaço Mountain, the Permanent Preservation Rivers of the state of Minas Gerais, the buffer zones of federal and state PAs, the Municipal Conservation Units of Integral Protection, the Units of Conservation of Sustainable Use, the Priority Areas for Biodiversity Conservation of Minas Gerais (DRUMMOND et al., 2005), the boundaries of the Mosaics of Management of Protected Areas, the location of historical urban nuclei, the Zero Extinction Alliance (BAZE) sites, the Area of Surrounding Areas of Ferruginous Geosystems, the buffer zones of federal and state Protected Areas .

Transition Zone: Total area of 2,731,893 hectares, mainly composed of places where large human settlements occur, areas related to economic activities such as agricultural and commercial forestry projects, among others, that make the transition from Espinhaço Mountain to its immediate surroundings .

TABLE 37: AREA IN HECTARES OF THE ZONEING OF PHASES 1 AND 2 OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN.

ZONES	2015 (hectares)	2018 (hectares)	Difference (hectares)
CORE ZONE	322.040,2	528.896,4	206.856,2 (+64,3%)
DAMPING AREA	2.170.513,80	6.958.105,8	4.971.026,2 (+229%)
TRANSITION AREA	718.349,3	2.731.893,0	2.013.543,7 (+280,3%)
TOTAL	3.210.903,3	10.218.895,2	7.191.426,1 (+ 224%)

FIGURE 69: FINAL ZONING OF RBSE PHASE 2.



Legend

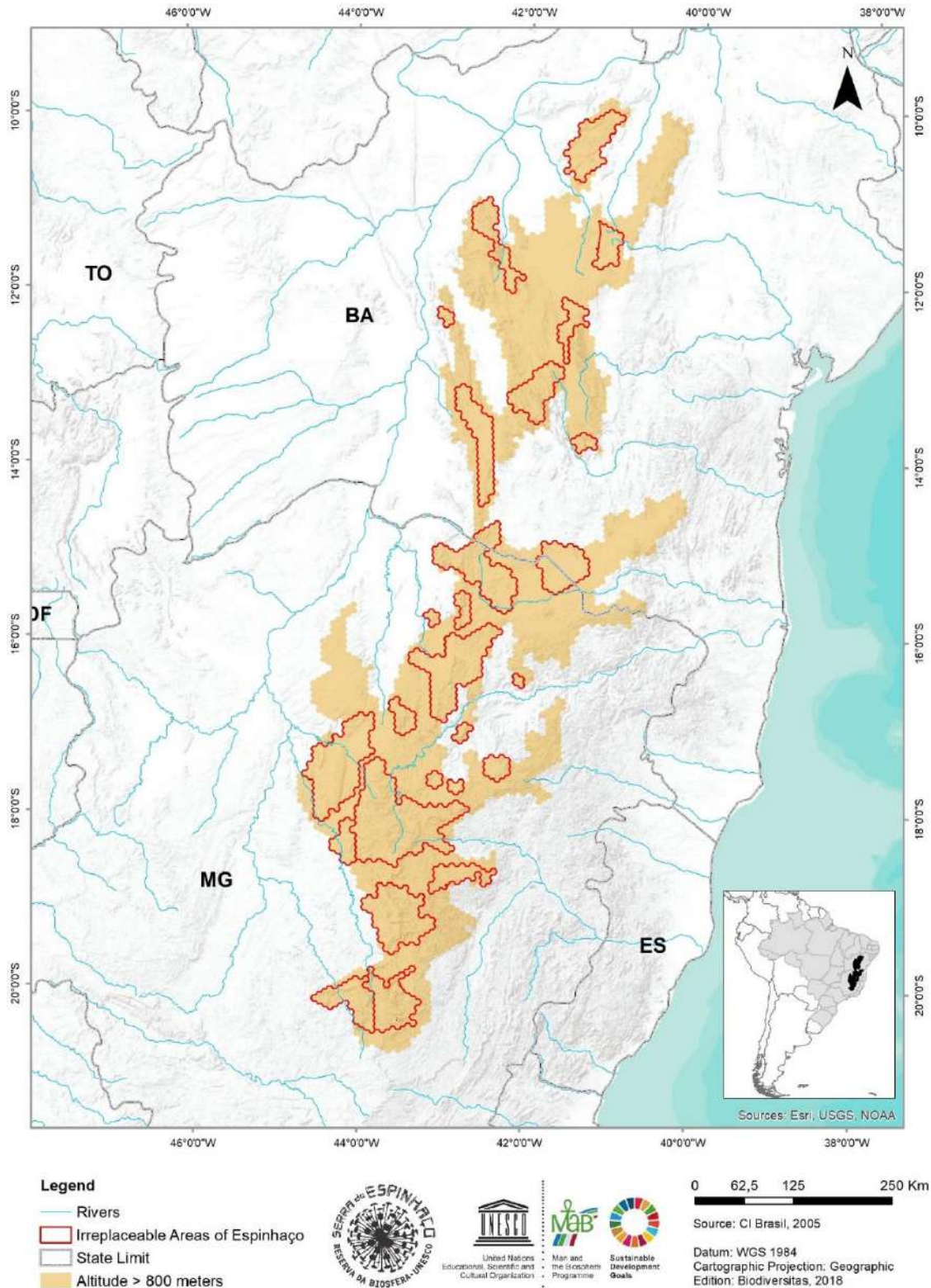
-  Rivers
-  Core Zone
-  Buffer Zone
-  Transition Zone
-  State Limit



Source: Biodiversitas, 2018

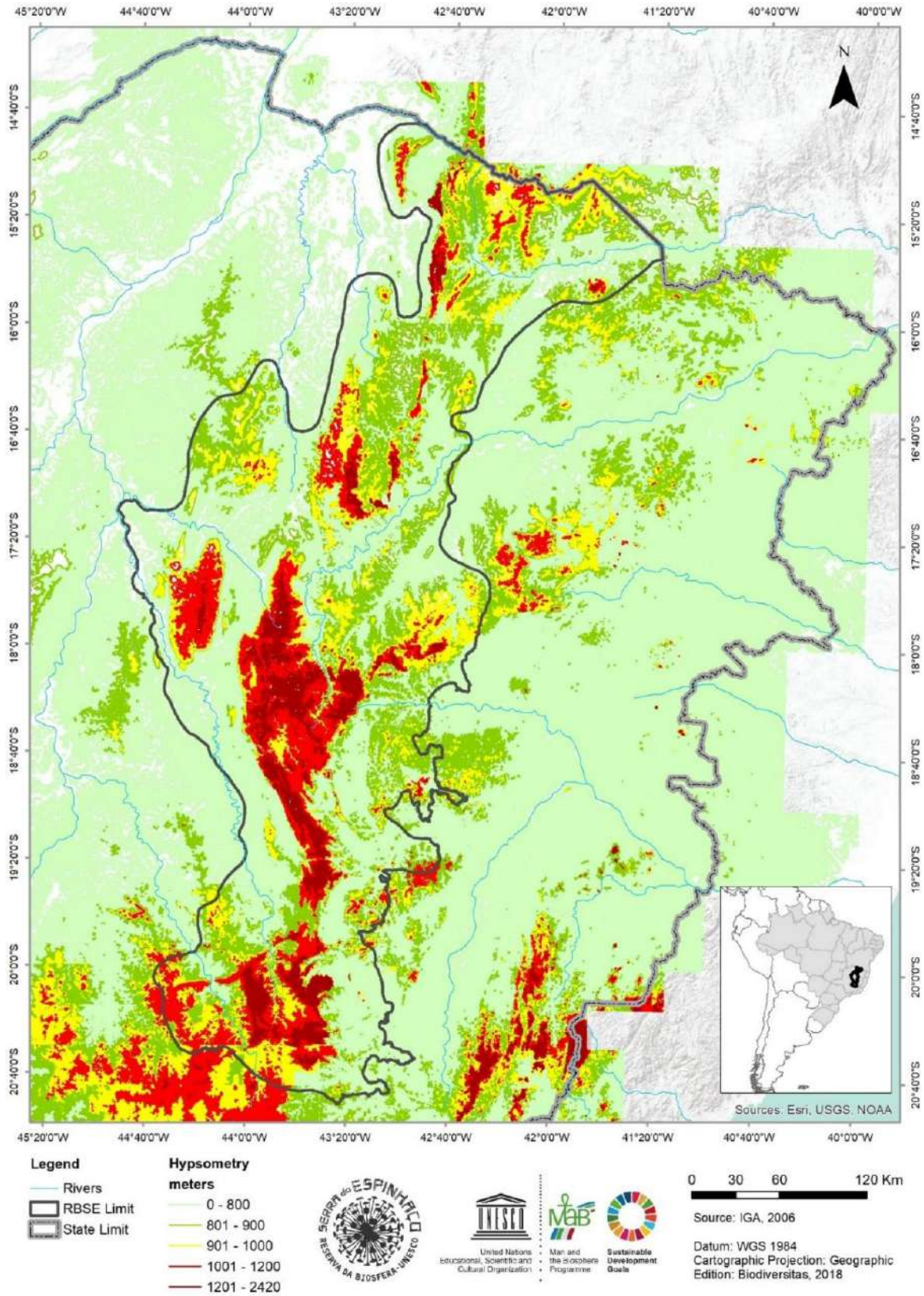
Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

1) The geological, geomorphological, biogeographic and cultural characteristics that provide the Serra do Espinhaço identity as a unit that extends from the iron Quadrangle region in the state of Minas Gerais to the interior of the state of Bahia. As a zoning criterion, the altimetric heights above 800 meters as one of the boundaries of this territory, used as a basis for the study, were used as a starting point for the identification of the irreplaceable areas in Espinhaço mountain, (CI - Conservation International - Brasil, 2008), a study carried out post- creation of the RBSE Phase 1 limit. **FIGURE 70: INSUBSTITUABLE AREAS DEFINED THROUGH THE SEMPRE-VIVO ESPINHAÇO PROJECT (CI - Conservation International - BRAZIL & AL, 2005), REGARDING THE BOTTOM OF THE MOUNTAIN CHAIN OF ESPINHAÇO MOUNTAIN, CONSIDERED ABOVE 800 METERS OF ALTITUDE.**



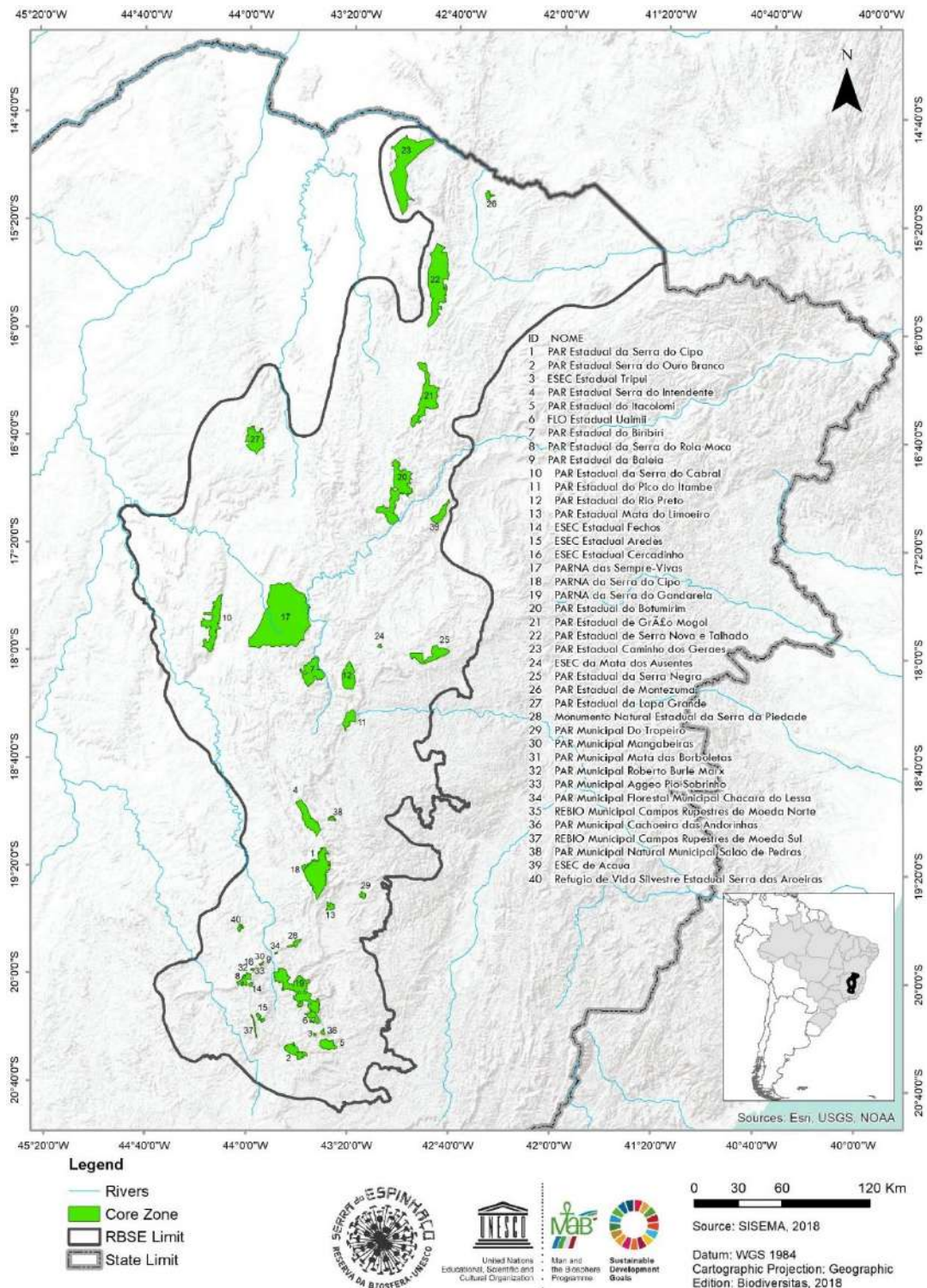
2) The biogeographical distribution of the Rupestrian Fields, a phyto-physiognomy with a large number of endangered and endangered species, in an environment of low resilience, thus becoming a World Endemism Center. As a zoning criterion, areas above 900 meters were considered in the buffer zone, while areas between 700 and 900 meters were considered in the transition zone.

FIGURE 71: HYPOMETRIC MAP OF THE REGION OF ESPINHAÇO MOUNTAIN IN MINAS GERAIS, SHOWING THE BIOGEOGRAPHIC DISTRIBUTION OF THE RUPESTRIAN FIELDS (> 900 METERS) IN THE RED AND YELLOW COLORS.



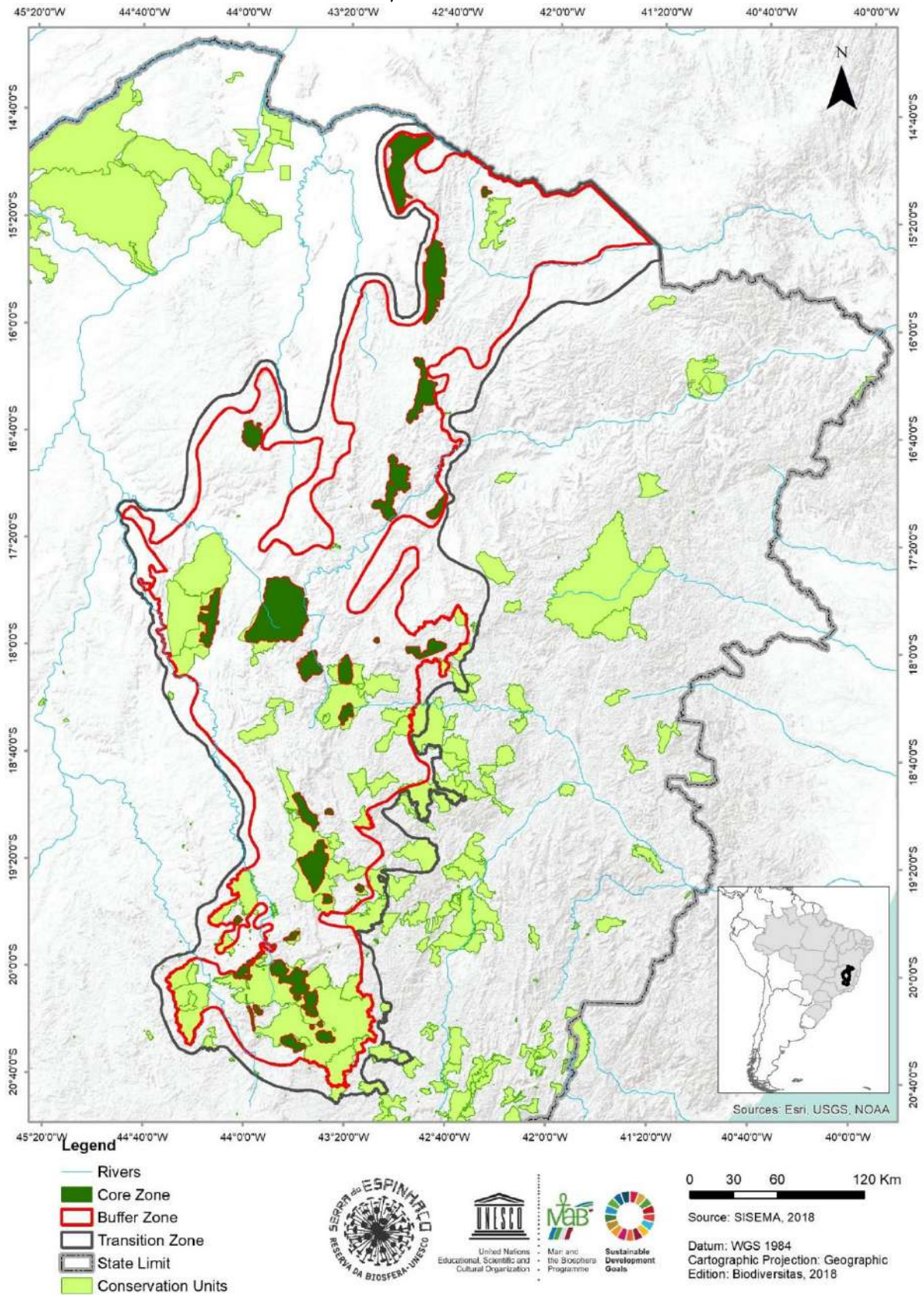
3) The Protected Areas of Integral Protection and Sustainable Use, and their buffer zones, which protect and protect the biological, scenic and associated environmental services. As a criterion of zoning, the Integral Protection conservation units of federal and state jurisprudence were considered as a core zone, while the protected areas of Sustainable Use and the protected areas of Integral Protection of municipal jurisprudence (except those already established as zone nucleus in Phase 1 of the RBSE zoning), in addition to the damping zones established from federal and state conservation units, were considered in the Cushion zone. In this aspect, it was highlighted the newly-created Botumirim State Park, where it was rediscovered the species *Columbina cyanopsis* (Pelzeln, 1870), considered extinct until its identification in the park.

FIGURE 72: CONSERVATION UNITS INTEGRATING THE ZONE NUCLEUS AREA OF RBSE PHASE



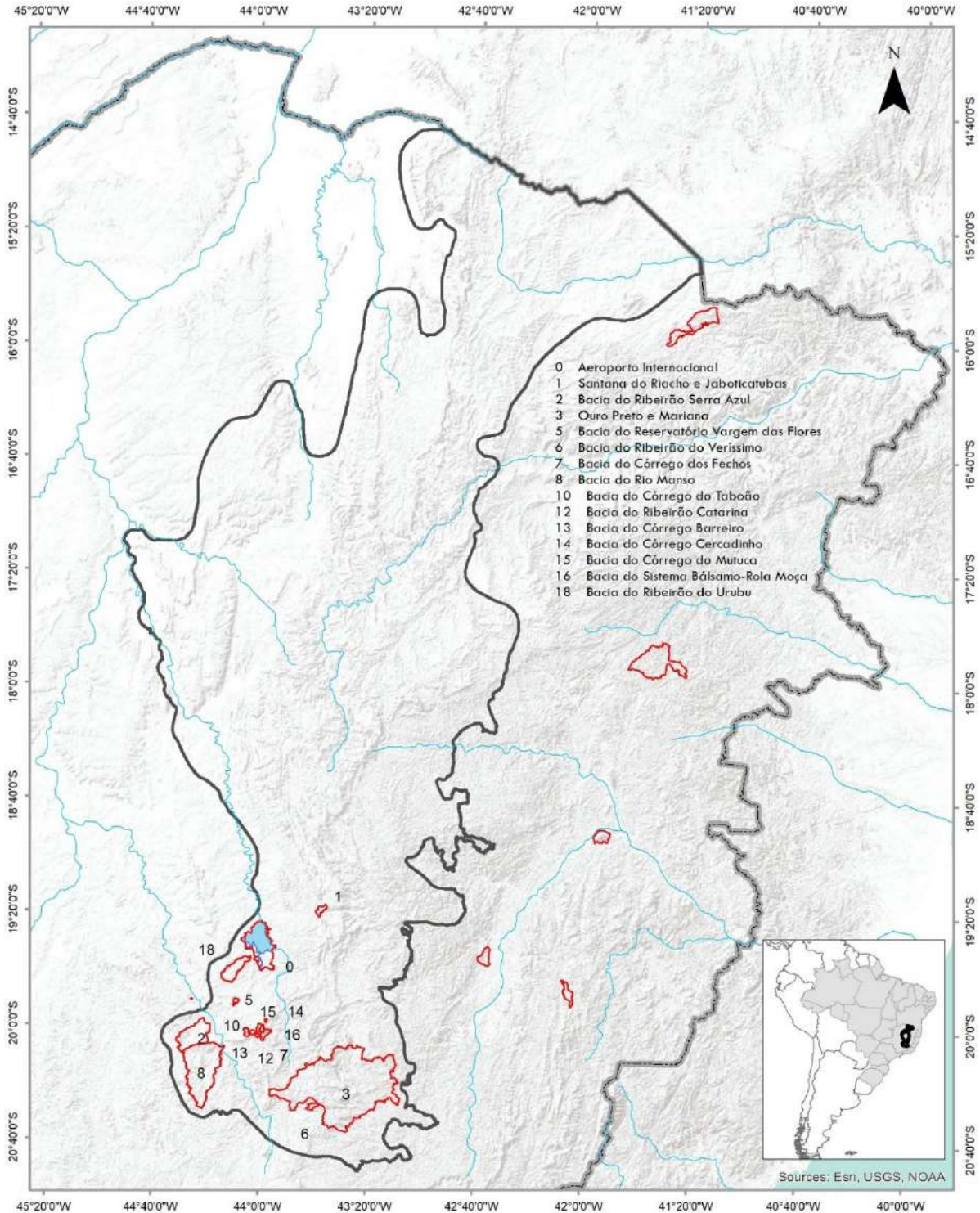
4) The Special Protection Areas (APEs), conservation units of state jurisdiction of the state of Minas Gerais, that protect the sources of interest in the water supply of the Metropolitan Region of Belo Horizonte. As a criterion of zoning, the APEs (Special Protection Areas) were considered in the delimitation of the zone of damping.

FIGURE 73: ZONE MAP OF RBSE PHASE 2, SHOWING THE DISTRIBUTION OF CONSERVATION UNITS.



5) The delimitation of the Ramsar Lund-Warming site, an area known as the "Humid Zone of International Importance" by the Ramsar Convention, of which Brazil has been a signatory since 1993. The area is in the Federal Environmental Protection Area of Lagoa Santa. As a zoning criterion, the area was considered in the delimitation of the damping zone of the RBSE Phase 2.

FIGURE 74: MAP SHOWING SPECIAL PROTECTION AREAS (APES) AND RAMSAR LUND-WARMING SITE.



- Legend**
- Rivers
 - RBSE Limit
 - State Limit
 - Special Protection Areas - APES
 - Site Ramsar LUND-WARMING

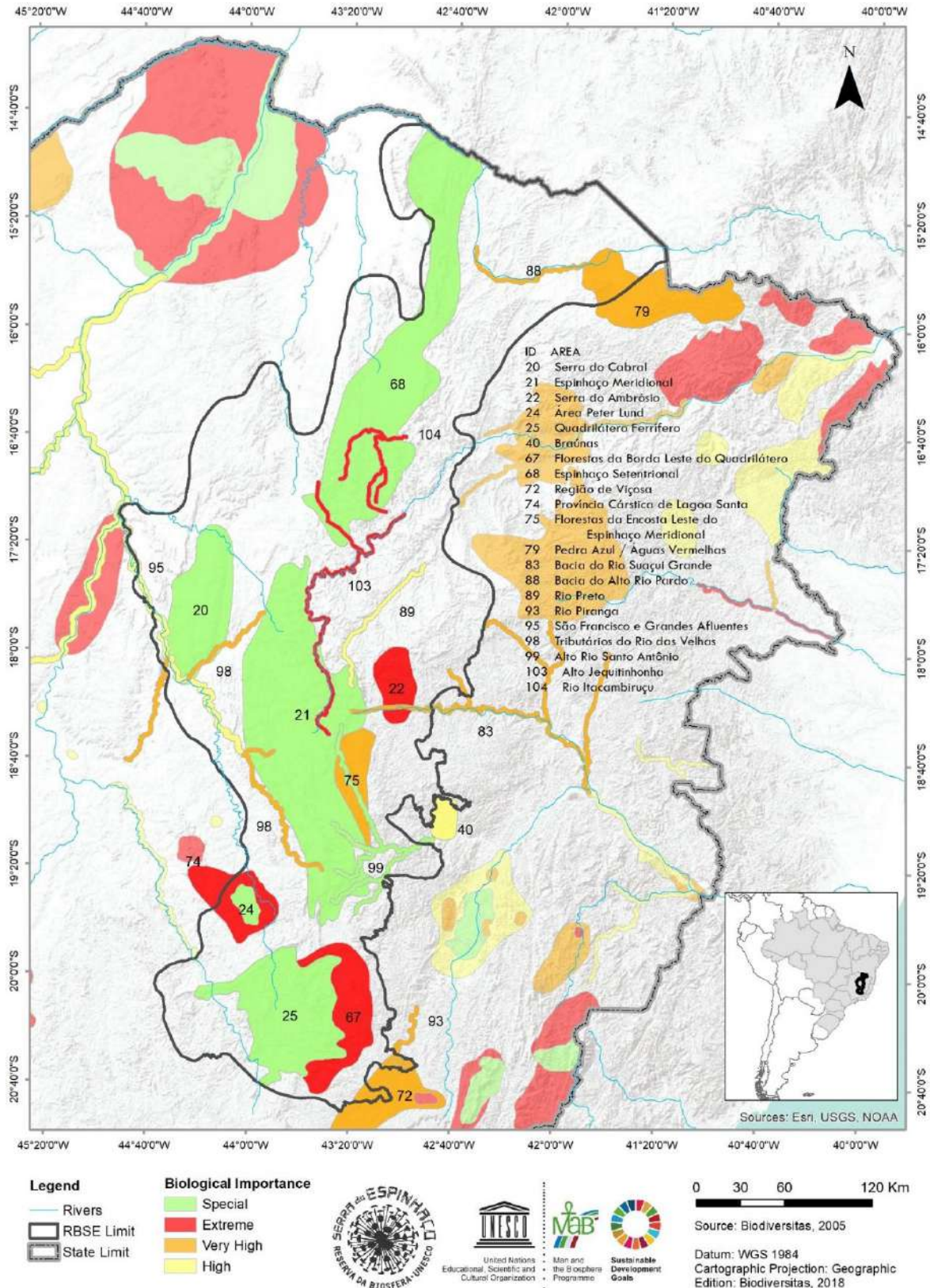


0 30 60 120 Km

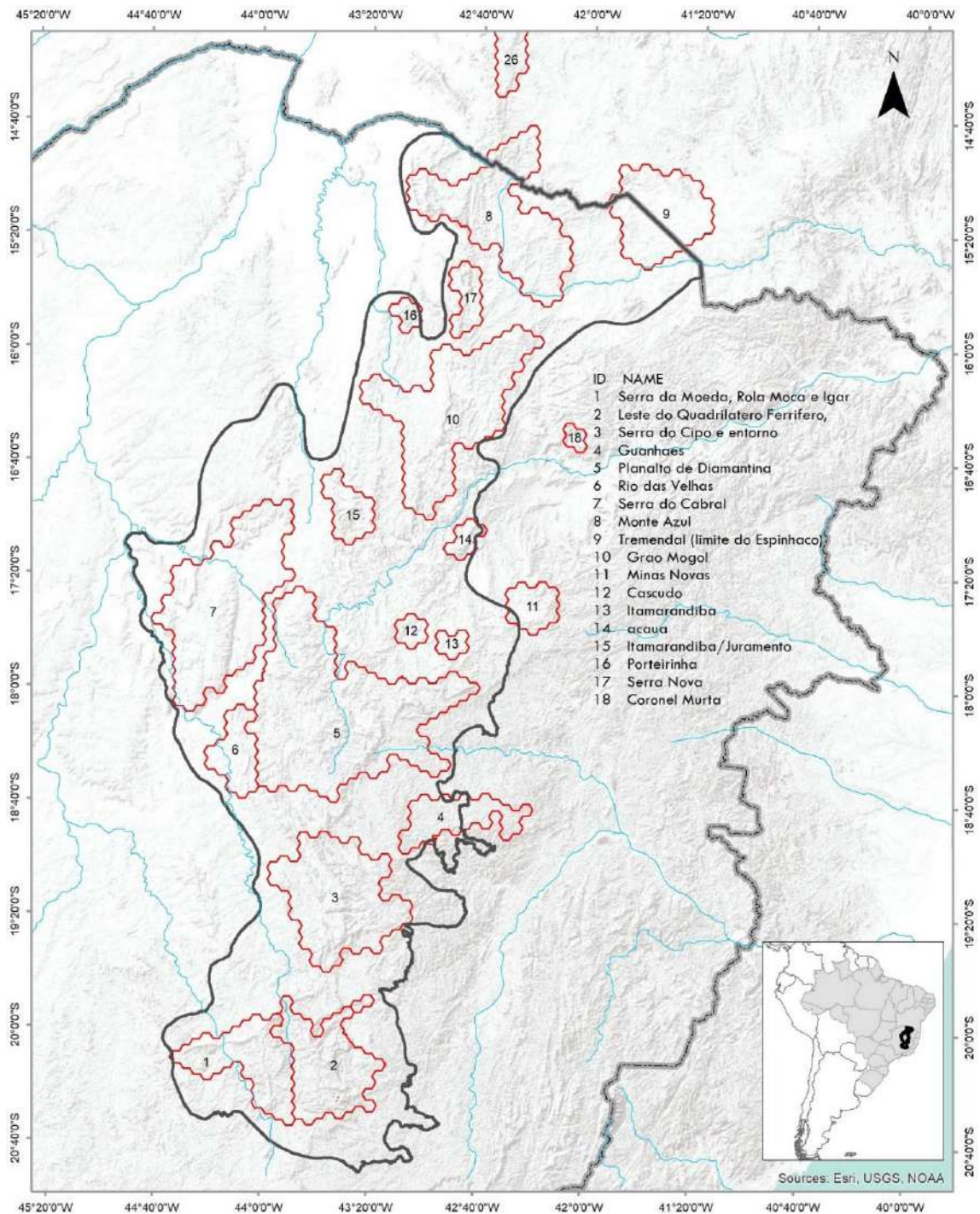
Source: Ramsar.org, 2018
 IGA, 2017

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

6) The Priority Areas for Biodiversity Conservation of Minas Gerais, a study carried out in 1998 and revised in 2005, coordinated by the Biodiversitas Foundation, where the areas of Espinhaço Mountain as of biological importance in the Special and Extreme categories, recommending and permeating Phase 1 of creation and zoning of the RBSE. As a criterion of zoning in this Phase 2, the priority areas were considered mainly in the delimitation of the buffer zone. Figure 75: Map showing the Priority Areas for Biodiversity Conservation in the State of Minas Gerais, Biodiversitas 2005.



7) The irreplaceable areas of Espinhaço Mountain, a study coordinated in 2008 by the institutions Conservation International of Brazil, Biotrópicos Institute and Biodiversitas Foundation, to identify the irreplaceable areas for conservation in Espinhaço Mountain. As a zoning criterion, the irreplaceable areas were considered both in the adjustment of the zoning limits of Phase 1 and in the limit mainly of the zone of buffering of the new conservation units of the core zone of Phase 2. **FIGURE 76: MAP OF THE INSUBSTITUABLE AREAS OF ESPINHAÇO MOUNTAIN, DEFINED IN THE PROJECT: ESPINHAÇO SEMPRE-VIVO, THROUGH ONGS (Non-governmental organization) OF INTERNATIONAL CONSERVATION - BRAZIL, INSTITUTE: BIOTROPICS AND BIODIVERSITAS FOUNDATION, 2005.**



Legend
 Rivers
 RBSE Limit
 State Limit
 Irreplaceable Areas of Espinhaço



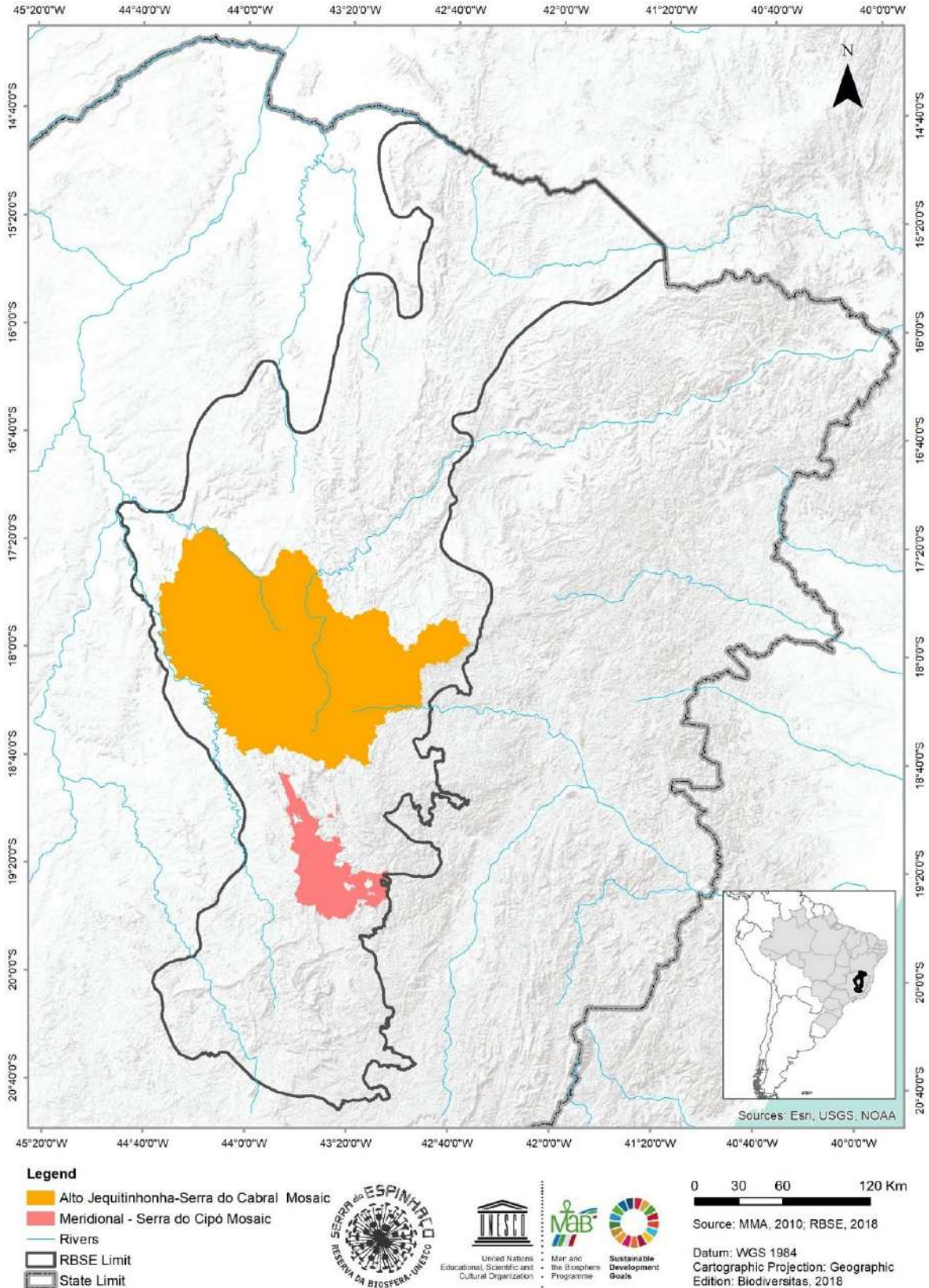
0 30 60 120 Km

Source: CI Brasil, 2008

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

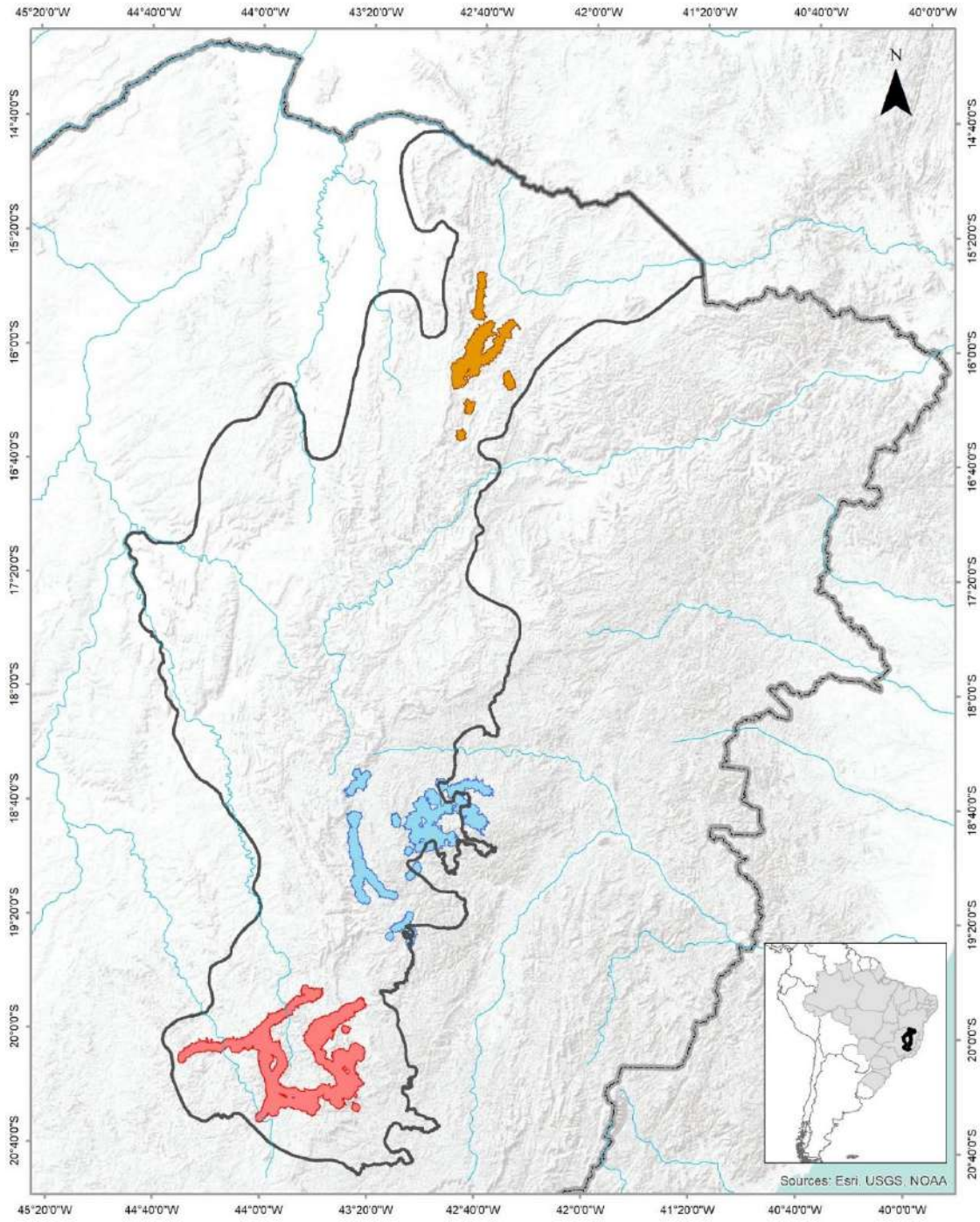
8) The inclusion of the areas covered by the Mosaics of Protected Areas of Espinhaço Mountain: Alto Jequitinhonha - Cabral Mountain and the Mosaics of Protected Areas of the southern Espinhaço: Cipó Mountain, model of management of conservation units that contribute to the maintenance of conservation units and to the conservation of the RBSE as a whole. As a criterion of zoning, the mosaics were considered in the delimitation of the zone of damping of the core zones.

FIGURE 77: MOSAICS OF PROTECTED AREAS AT RBSE PHASE 2, MOSAIC: ALTO JEQUITINHONHA - CABRAL MOUNTAIN AND SOUTHERN MOSAIC - CIPÓ MOUNTAIN.



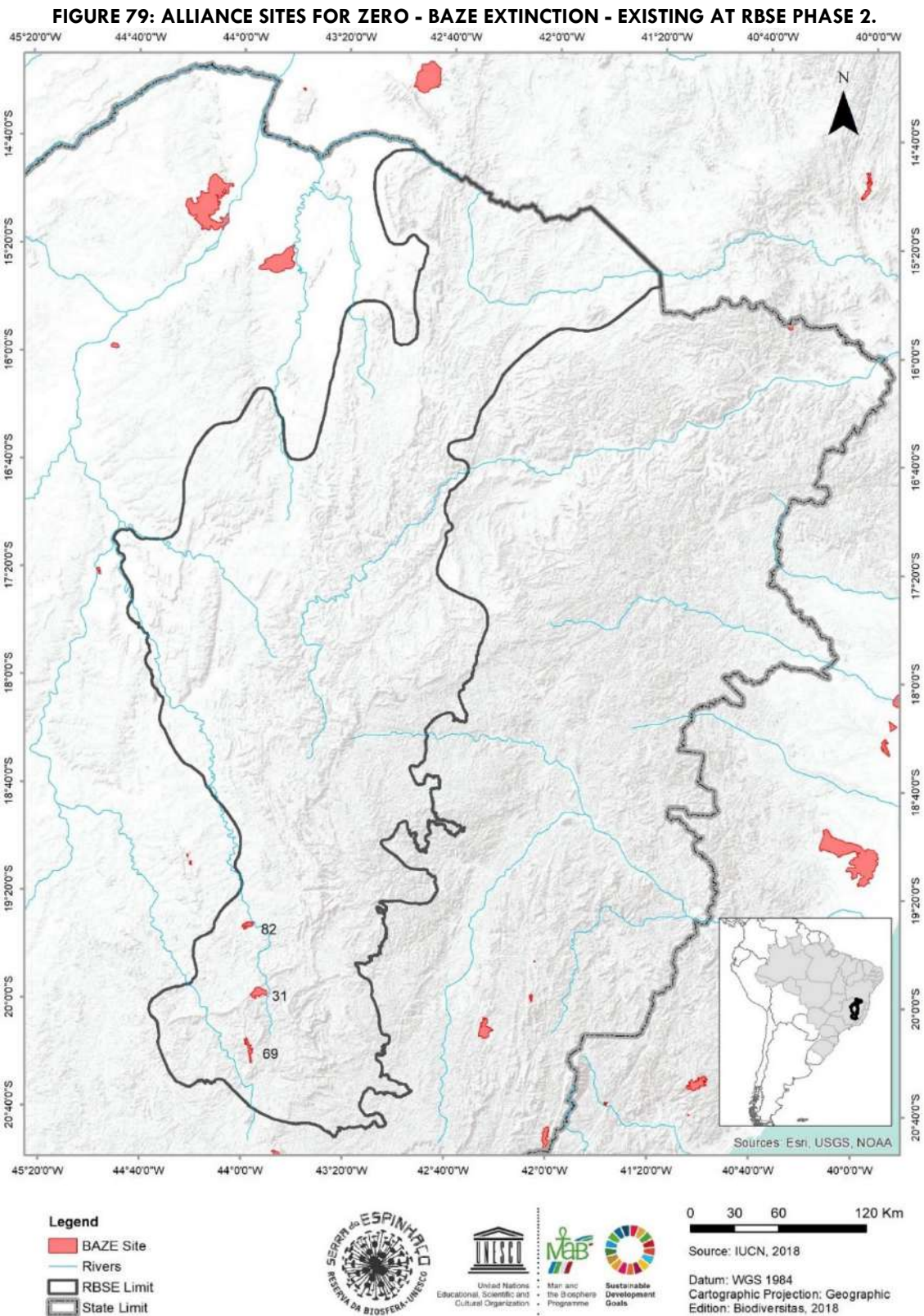
9) The inclusion of surrounding areas of Ferruginous Geosystems, where the cangas and iron-rich formations predominate below them, composing unique geosystems, as a geological record of the Earth's evolution history. It stands out in this Phase 2 the Ferruginous Geosystem of the Valley: Vale do peixe Bravo, a region that presents an exuberant landscape, still little altered and the marked presence of extensive ferruginous harnesses, associated to a high value of environmental and cultural conservation. As zoning criteria, the surrounding areas of the ferruginous geosystems were considered in the delimitation of the zone of damping of the core zones..

FIGURE 78: FERRUGINOUS GEOSYSTEMS AT RBSE PHASE 2.

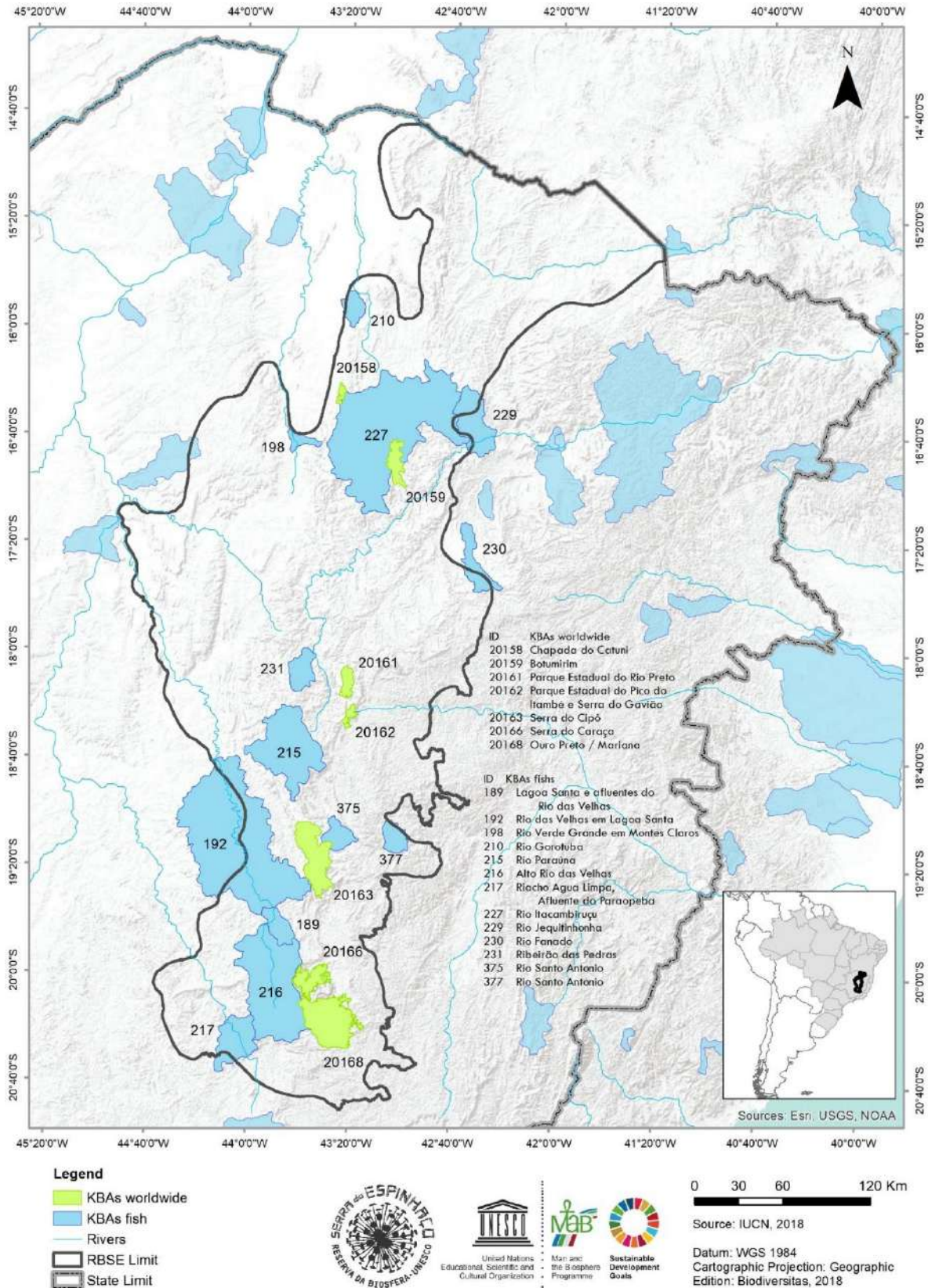


<p>Legend</p> <ul style="list-style-type: none"> Rivers RBSE Limit State Limit 	<p>Ferruginous Geosystems</p> <ul style="list-style-type: none"> Vale do Peixe Bravo Quadrilátero Ferrífero Bacia Santo Antônio 		<p>United Nations Educational, Scientific and Cultural Organization</p>	<p>Man and the Biosphere Programme</p>	<p>Sustainable Development Goals</p>	<p>0 30 60 120 Km</p> <p>Source: Biodiversitas, 2005</p> <p>Datum: WGS 1984 Cartographic Projection: Geographic Edition: Biodiversitas, 2018</p>
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10) The inclusion of the Zero Extinction Alliance (BAZE) sites, an alliance initiated in 2006 and coordinated by the Biodiversitas Foundation, aiming to identify and protect the sites or sites that represent the last refuge for endangered species in the categories Critically Endangered (CR) and In Peril (EN), according to the Red List of endangered species of Brazil. As a zoning criterion, the BAZE sites were considered in the delimitation of the zone of damping of the core zones.

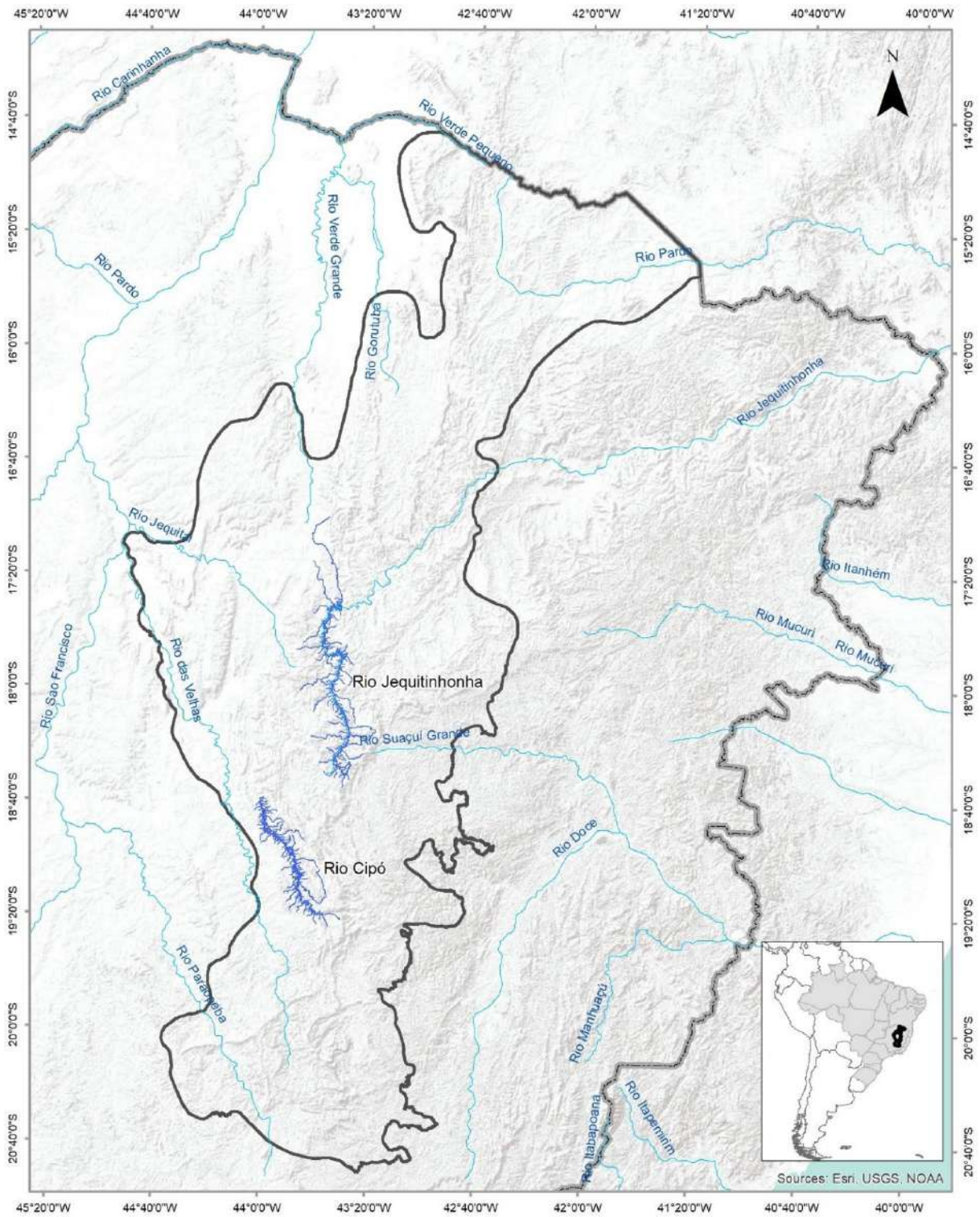


11) The inclusion of Key Conservation Areas (KBAs), global areas that meet a selection pattern developed by the International Union for Conservation of Nature, (IUCN, 2018), considering criteria grouped into five categories: biodiversity threatened; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability. As a zoning criterion, the KBAs were considered in the delimitation of buffer zones and transition zones. Figure 80: Key Areas for Conservation (KBAs), IUCN 2018, occurring in RBSE Phase 2.



12) The inclusion of the Permanent Protection Rivers established by the law, number: 15.082, dated 04/27/2004, sections of the Cipó and Jequitinhonha rivers, included in the RBSE. As zoning criteria, they were considered in the delimitation of the damping zone.

FIGURE 81: PARTS OF RIVERS OF PERMANENT PRESERVATION INSTITUTED BY LAW, NUMBER: 15.082, OF 04/27/2004.



- Legend**
- Rivers
 - RBSE Limit
 - State Limit
 - Permanent Preservation Rivers



0 30 60 120 Km

Source: SIAM, 2017

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

13) The species distribution of the flora and fauna considered under the Espinhaço Sempre-Vivo project (2008), endangered species (ICMBio, 2014) and flora (CNCFlora, 2015) and rare plants of the savanna (CNCFlora, 2014), with distribution of RBSE Phase 2.

FIGURE 82: OCCURRENCE OF TARGETS OF SPECIES THAT WERE CONSIDERED IN THE IDENTIFICATION OF INSUBSTITUABLE AREAS IN ESPINHAÇO MOUNTAIN, FOR THE SEMPRE-VIVO SPINHAÇO PROJECT (CI - CONSERVATION INTERNATIONAL - BRASIL, 2008), AT THE RBSE PHASE 2.

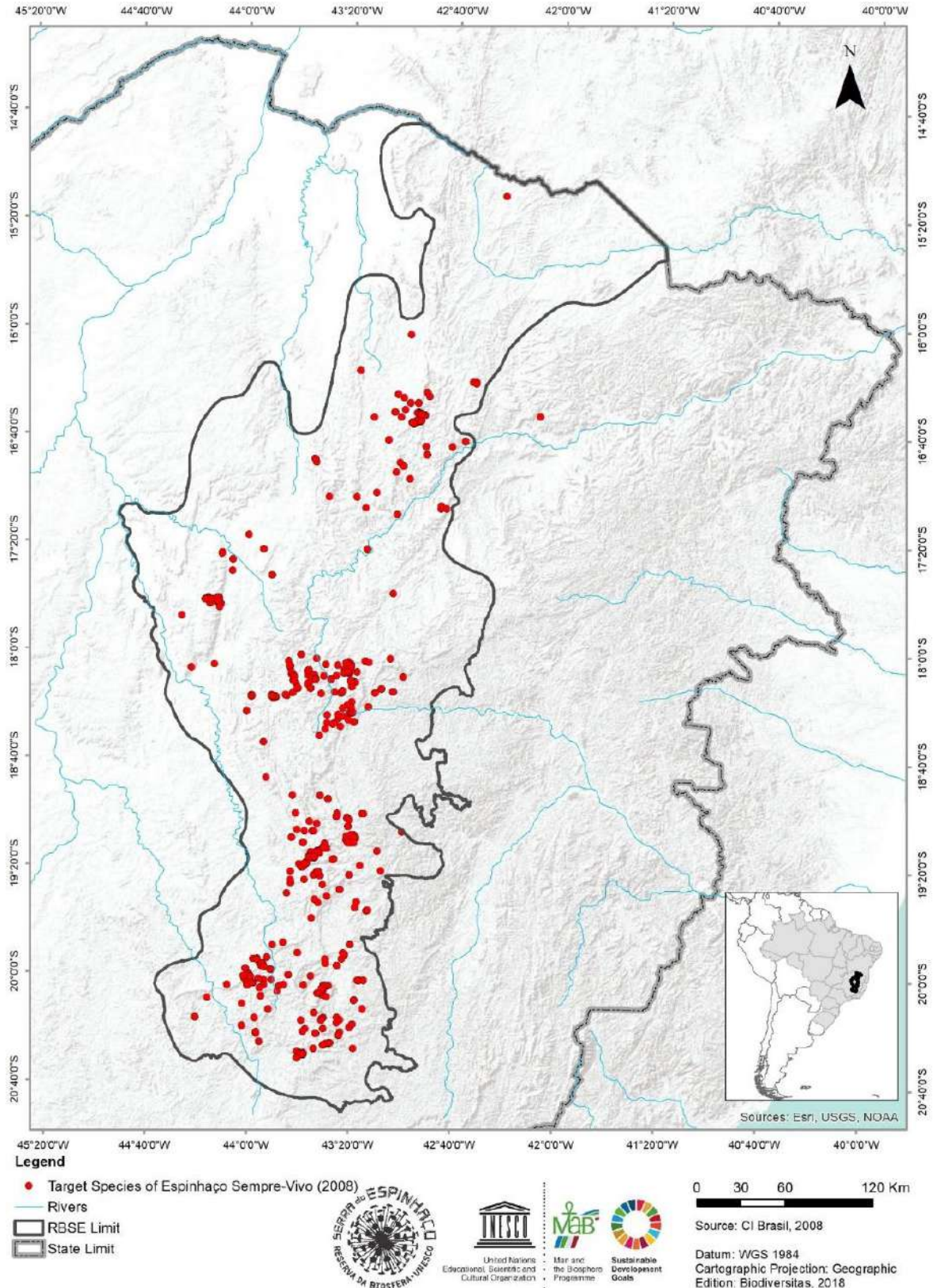


FIGURE 83: OCCURRENCE OF SPECIES RECORDS OF THE FAUNA THAT IS THREATENED WITH EXTINCTION (ICMBIO, 2014), AT THE RBSE PHASE 2.

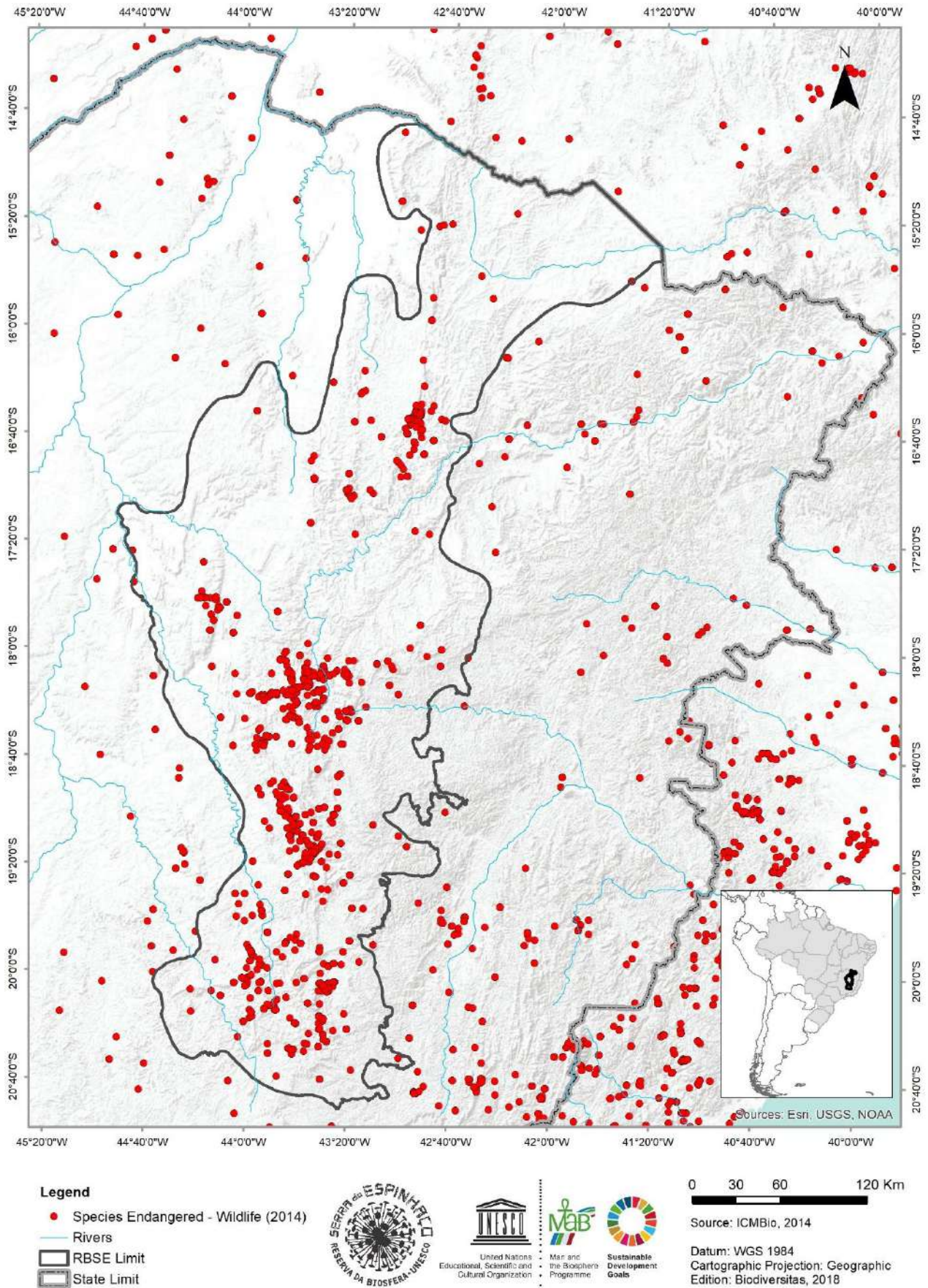
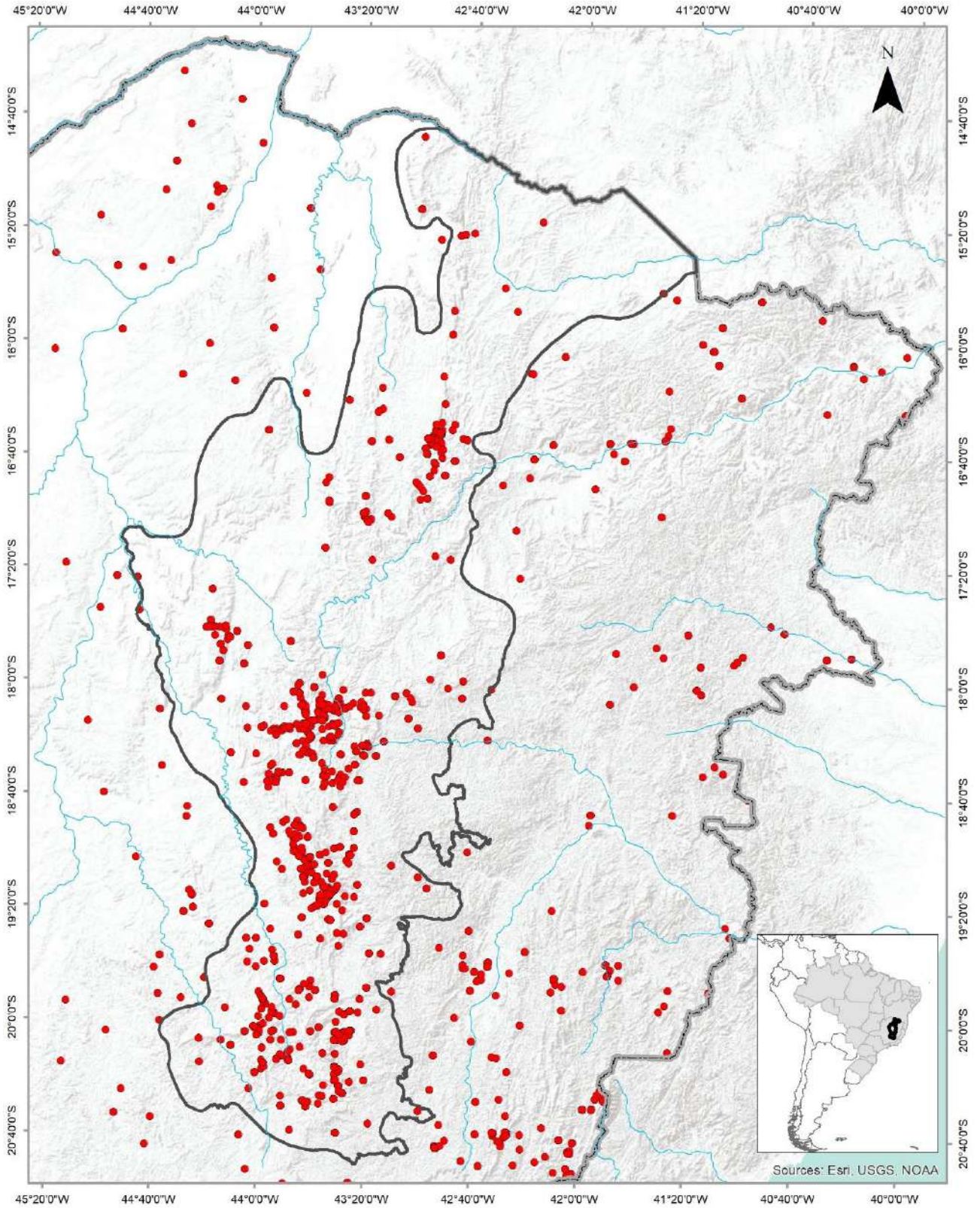


FIGURE 84: OCCURRENCE OF RECORDS OF FLORA SPECIES THAT IS THREATENED WITH EXTINCTION (CNCFLORA, 2015), AT RBSE PHASE 2.



Legend

- Species Endangered - Plants (2015)
- Rivers
- ▭ RBSE Limit
- ▭ State Limit

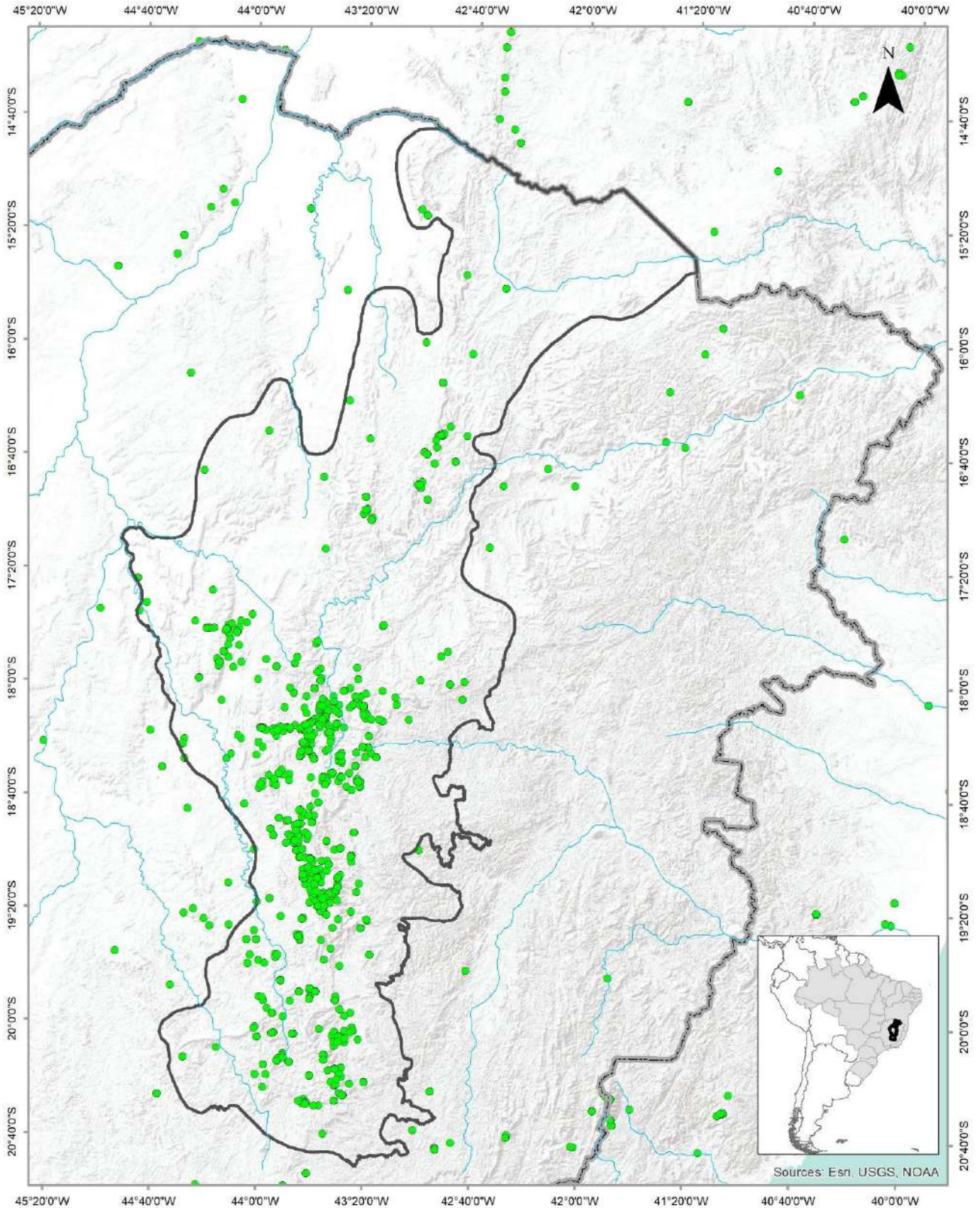


0 30 60 120 Km

Source: CNCFlora, 2015

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

FIGURE 85: OCCURRENCE OF RECORDS OF RARE SPECIES OF SAVANNA FLORA THAT IS THREATENED WITH EXTINCTION (CNCFLORA, 2014), IN THE RBSE PHASE 2.



Legend

- Rare Plants of Biome Cerrado
- Rivers
- RBSE Limit
- State Limit



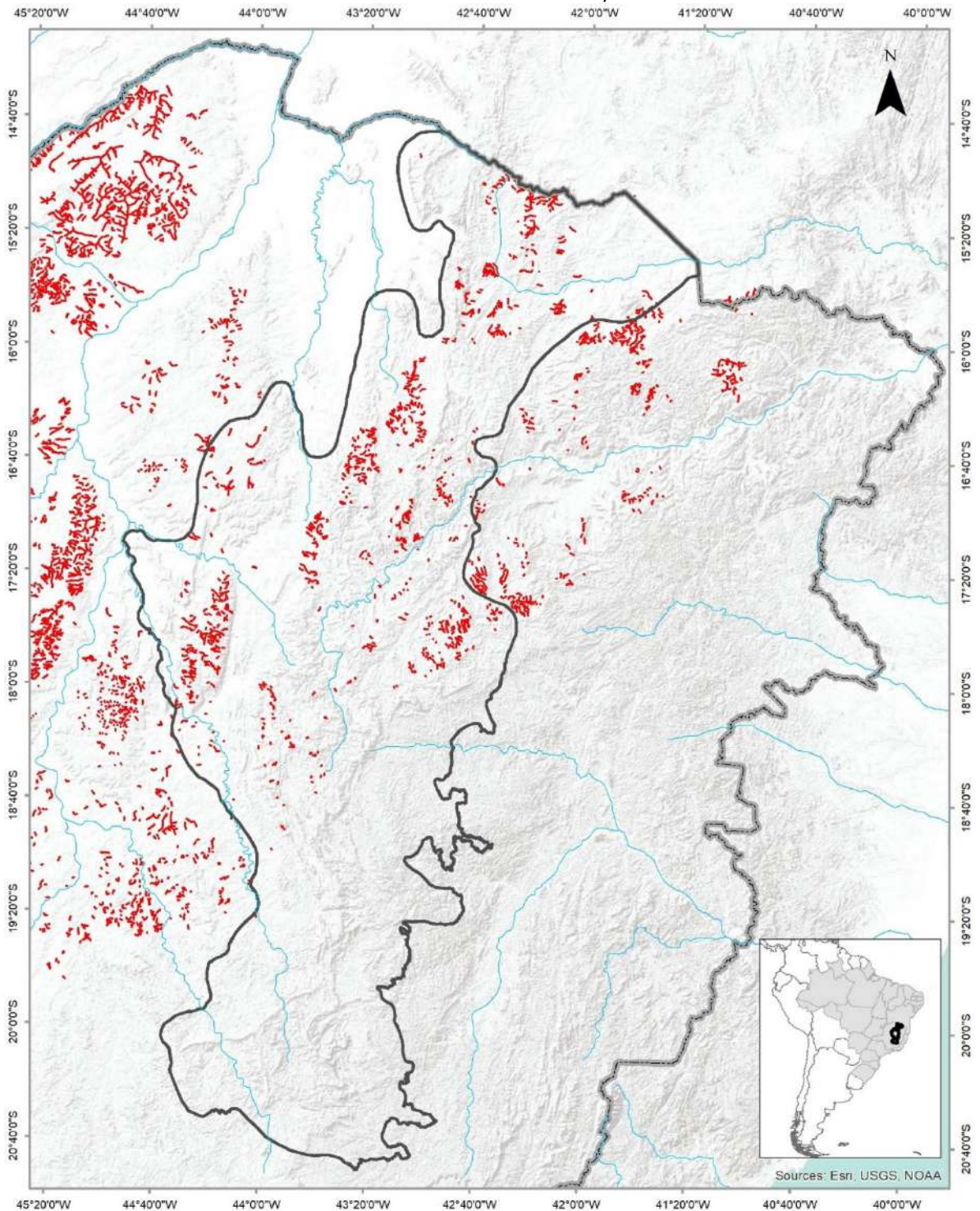
0 30 60 120 Km

Source: CNCFlora, 2014

Datum: WGS 1984
Cartographic Projection: Geographic
Edition: Biodiversitas, 2018

14) The ecosystem of trails was also considered in the zoning of RBSE Phase 2, through a study developed by CETEC (2000) used in the Atlas of Biodiversity of Minas Gerais in 2005. This is a potential occurrence of this ecosystem so important for the state of Minas Gerais General and that has been very degraded in the last decades with the expansion of the agricultural frontier.

FIGURE 86: OCCURRENCE OF PATH ECOSYSTEM, IN THE RBSE PHASE 2.



Legend

- Vereda ecosystem
- Rivers
- RBSE Limit
- State Limit



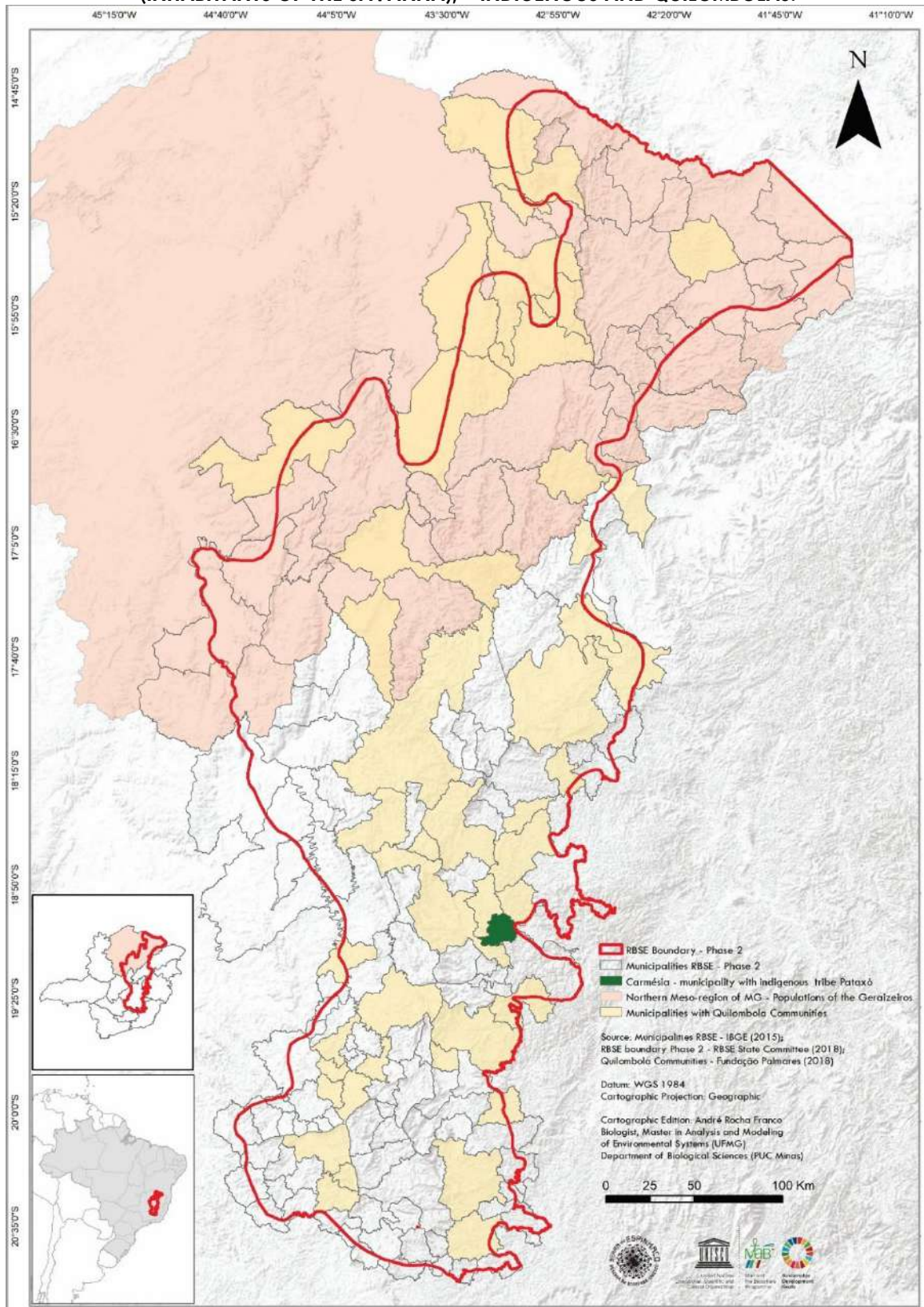
0 30 60 120 Km

Source: Biodiversitas, 2005

Datum: WGS 1984
 Cartographic Projection: Geographic
 Edition: Biodiversitas, 2018

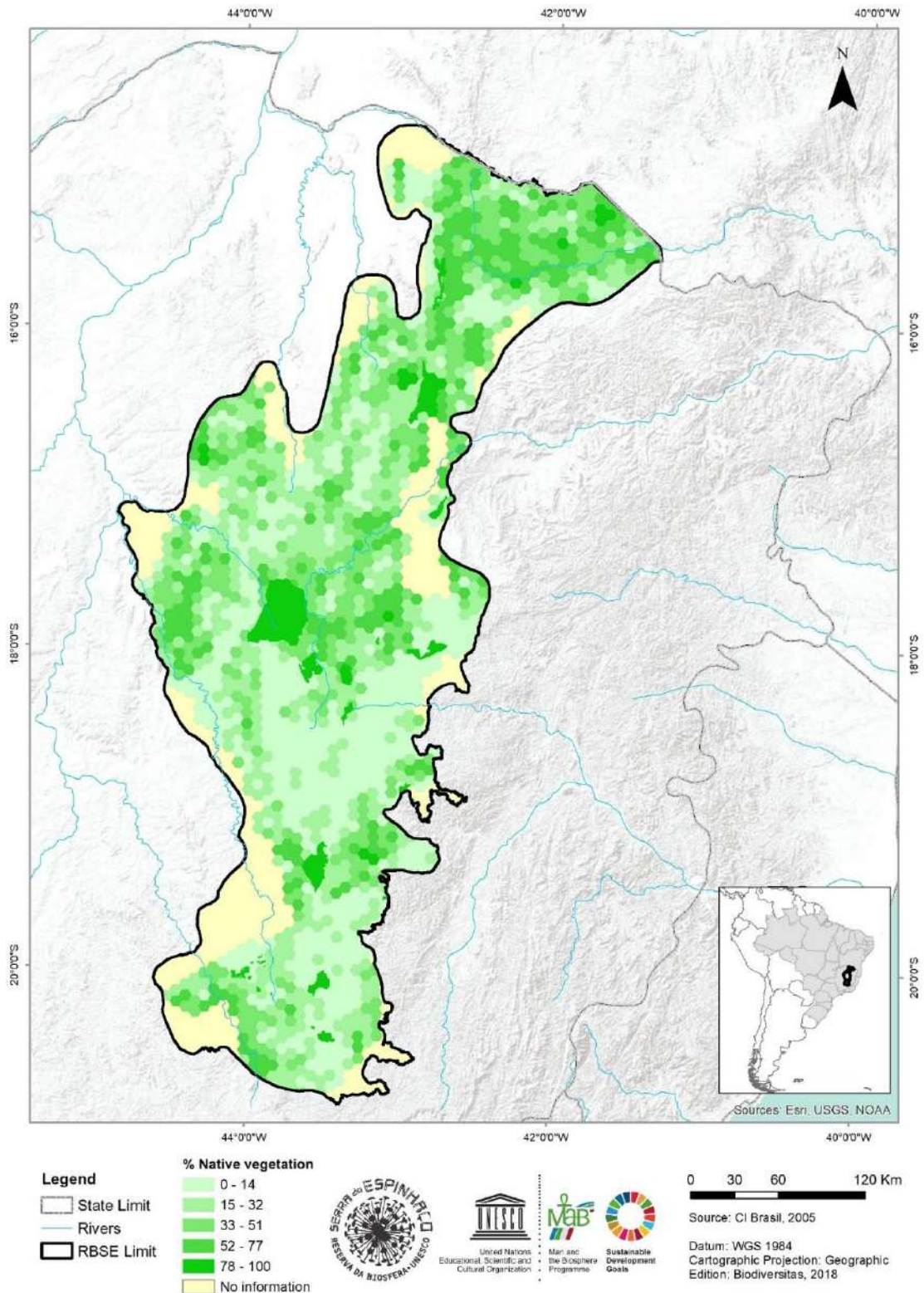
15) The importance of Espinhaço Mountain, with its extreme importance for the conservation of biodiversity and water resources, is also reflected in its communities. traditional and their knowledges associated with the most diverse identities and material and immaterial patrimonies. In the zoning, they were considered as qualifiers of the delimited areas.

FIGURE 87: MAP OF MAIN PEOPLES AND TRADITIONAL COMMUNITIES AT RBSE PHASE 2 – GERAIZEIROS (INHABITANTS OF THE SAVANNA), INDIGENOUS AND QUILMBOLAS.

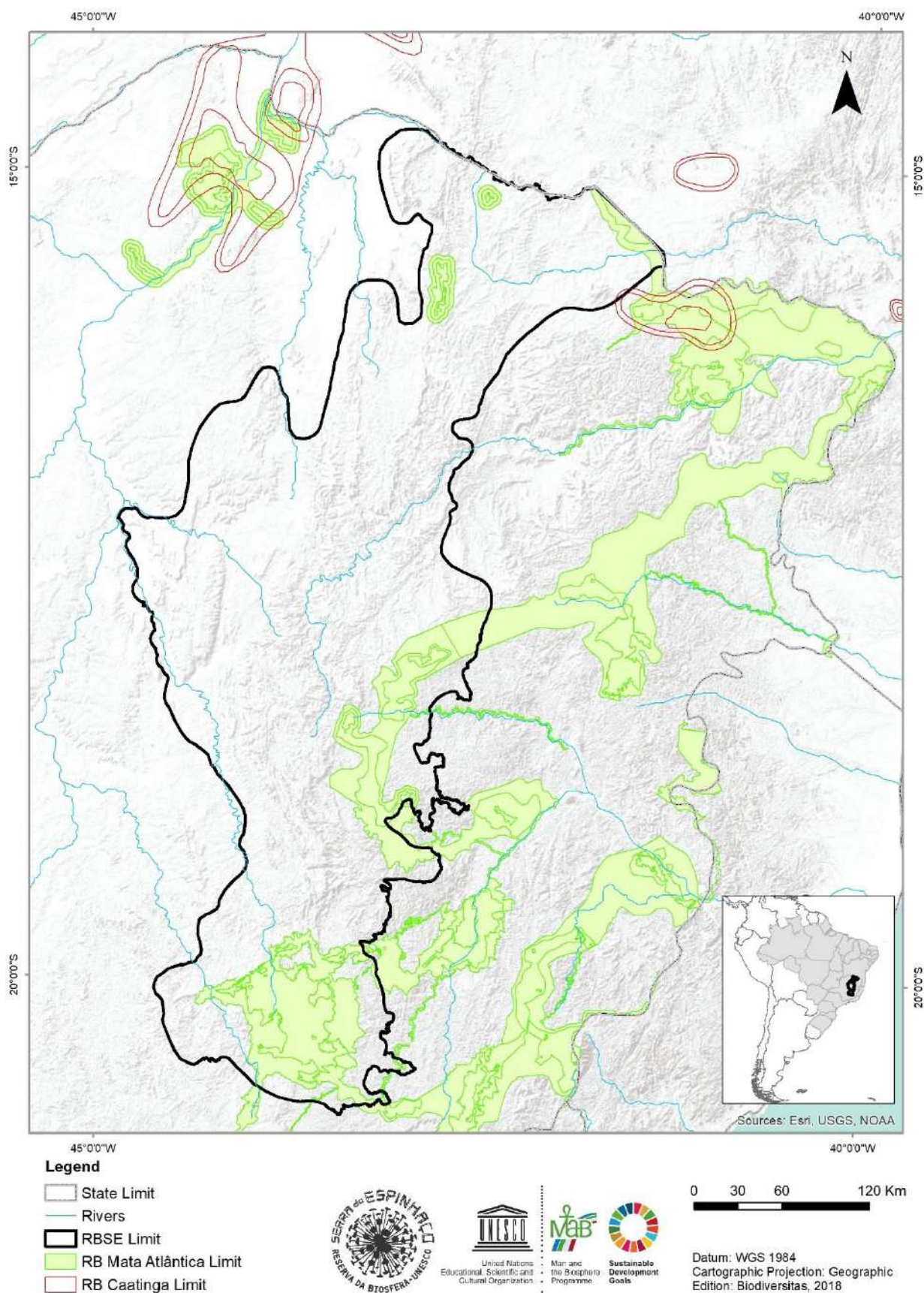


16) New studies are in development perspective related to the definitions of the Program:

Corridors of Espinhaço Mountain: connecting natural and cultural landscapes. The project to update the Priority Areas for Biodiversity Conservation of the State of Minas Gerais is under development, of which one of the expected products will be a proposal map of ecological corridors. The following figure shows a map of the RBSE region showing the potential of identifying ecological corridors, considering the variable related to the percentage of native vegetation in the planning units used in the project 2008: Espinhaço Sempre-Vivo. **FIGURE 88: CONNECTIVITY BETWEEN PLANNING UNITS USED IN THE PROJECT: ESPINHAÇO SEMPRE-VIVO (2008), CONSIDERING THE PERCENTAGE OF NATIVE VEGETATION.**



17) Finally, it is recommended a future study on the possibility of RBSE expansion, PHASE 3, for its entire region of biogeographic identity up to the state of Bahia, as well as the connection with other RBs (RB of the Atlantic Forest, RB Savanna and RB of the Caatinga). **FIGURE 89: MAP SHOWING THE RB SUPERPOSITION: MATA ATLÂNTICA AND RB CAATINGA, WITH THE RBSE PHASE 2.**



4.6. PARTICIPATIVE MANAGEMENT

The participation of several segments in the processes of management of the Reserve can be guaranteed for the development of its functions, as follows:

- Through the State Decree creating the State Biosphere Reserve Committee, Decree Number 44281/2006, dated 04/25/2006, and guided by the current Internal Regulations, with the representation of 28 institutions, which are representative of the private sectors, governmental, third sector, universities, traditional communities and managers of protected areas.

- Through representations in Advisory Councils of Conservation Units in the Biosphere Reserve (Core Zones);

- Through ordinary and extraordinary assemblies, with members of the Committee and invited;

- With the encouragement to the development and participation of events, publications and demonstrative projects in the territory;

- Through cooperation between various actors and processes already demonstrated in this document;

- Through communication networks, be they publications, emails, blog, facebook, among others.

Governance

The RBSE is coordinated by the Brazilian Commission for the "Man and the Biosphere" Program - COBRAMAB, as well as the other Brazilian Biosphere Reserves. This commission, in turn, is linked to the Ministry of the Environment (MMA) of the Federal Government of Brazil, according to the organization chart below.

Recognized by UNESCO in 2005, the RBSE received the attention of the Government of the State of Minas Gerais, which, through a Decree Law in 2006, created the Steering Committee and delegated to the State Secretariat for Environment and Sustainable Development (SEMAD), through State Forestry Institute (IEF), the advisory function.

The RBSE Managing Committee has 7 types of representations: federal, state and municipal government. Universities, the productive sector, non-governmental organizations and traditional populations.

The institutional representatives who form the RBSE committee were integrated in all stages. Since the creation of the reserve, organization of the Steering Committee, elaboration of the Internal Rules and Plan of Action, always in ordinary meetings and training workshops.

The institutional representatives who form the RBSE committee were integrated in all stages. Since the creation of the reserve, organization of the Steering Committee, elaboration of the Internal Rules and Plan of Action, always in ordinary meetings and training workshops.

This mobilization was only possible, since each institution represented in the Steering Committee has instances of participation in other councils and forums. They act as two-way channels: disseminating information about the MaB (Man and the Biosphere) Program and bringing demands or experiences from the most varied sectors of society.

Management Committee

Under the Bylaws, the State Steering Committee is composed of a Coordination, a Vice Coordination and an Executive Secretariat, elected by the Steering Committee

The attributions are the following ones:

- To defend the objectives, principles and attributions of the RBSE and represent the Committee;
 - To convene the meetings of the Committee and the investigation of the matters that comprise it;
 - To direct the work, coordinate the meetings and exercise, when necessary, the quality vote;
 - To forward the vote on matters submitted to the Committee's decision;
 - To sign the minutes approved at the meetings;
 - To dispatch the Committee's files;
 - To sign the deliberations of the Committee;
 - To conduct meetings or suspend them when necessary;
 - To enforce these Internal Regulations;
 - To represent the RBSE Committee, passively, judicially or extrajudicially;
 - To delegate functions within your competence.
 - To prepare the agenda of the meetings and the instruction of the matters that comprise it;
 - To write the Minutes and other documents prepared by the RBSE Committee;
 - To follow the projects within the scope of the RBSE;
 - To ensure and articulate technical-scientific, logistical and administrative-financial support to CERBSE;
-
- To implement CERBSE deliberations;
 - To support actions and foster the articulation of the Reserve Management System;
 - To organize the documentation, ensure the technical-scientific and managerial memory of the Reserve and serve as its reference center;
 - To promote programs and projects and subsidize public policies in accordance with the strategies and priorities defined by CERBSE;
 - To disseminate the principles, projects and activities of the Reserve.

As for all members of the Committee, the coordination mandate will be for a period of two (2) years, with re-appointment permitted.

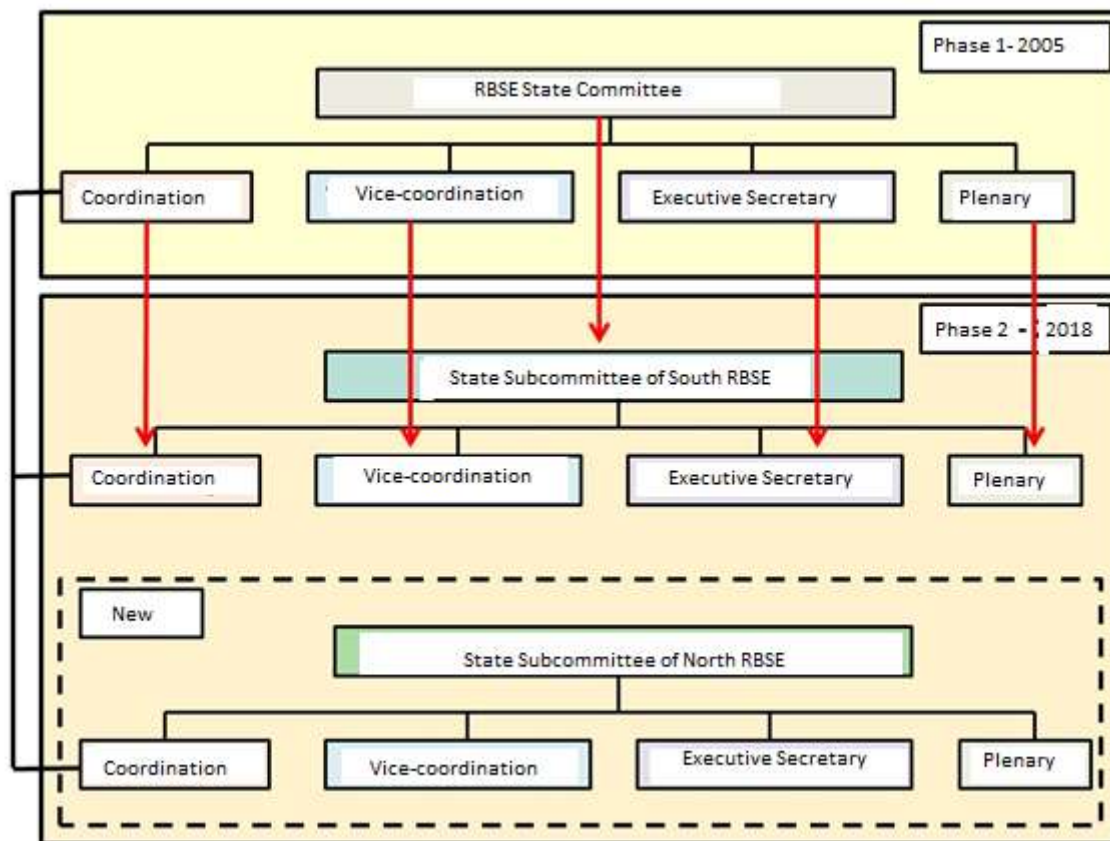
Currently, the composition is defined after the Ordinary Meeting held in 2016 for the election and possession of the directors:

Coordination: Professor: Miguel Ângelo Andrade - Representative of the Pontifical Catholic University of Minas Gerais - miguelandrade@pucminas.br;

- **Vice Coordination:** Gláucia Moreira Drummond - Representative of the NGO Biodiversitas Foundation - glauucia@biodiversitas.org.br;
- **Executive Secretary:** Sérgio Augusto Domingues - Representative of the NGO: Ecological Cultural Association: Lagoa do Nado - sergioguto@gmail.com.

For governance adjustments in Phase 2, we will seek to follow the current guidelines, with regional updates. The division of jobs and responsibilities into two poles (north and south) will be fundamental. The strategy will be the formation of two subcommittees where the current state committee will be transformed into the subcommittee of the southern region. This portion of the reserve is where most of the territory of phase 1 is located. This committee will be committed to training new advisers to the formation of the northern subcommittee, which is the main focus of phase 2. The adequacy will be made according to the organization chart below.

FIGURE 90: CHART OF THE STATE COMMITTEE OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2.



In the Phase 1 Committee the Federal Government has an institution related to environmental policies with an emphasis on conservation. The state government has 5 representatives, four of them related to the environmental agenda and one related to culture. There are 5 municipal prefectures, 3 universities, two of which are public and one private, plus three NGOs (Non-governmental organizations) with social and environmental activities. In the specific case of the representation of traditional populations, the Committee counts on the participation of indigenous and quilombo representatives from the State of Minas Gerais.

Following the representative logic of the current management committee, adjustments will be necessary for the participation of local institutions and communities. Thus, public agencies must prioritize the inclusion of employees working in the northern Espinhaço territory, such as managers of the integral protection units that make up the Core Zones. Municipal governments inserted in Phase 2 will be naturally represented. Entities representing all these municipalities were present at the regular meeting of the State Committee for approval of this document. These institutions will be strategic for the selection process of the representative municipalities.

The local academic community is mobilized to support the process of training new advisors. During the process of creating the North Subcommittee will be held workshops, including with production of specific information material. At this stage of building regional governance, the logistical support of universities, conservation units and municipal governments will be fundamental. Another important sector that is already included in the elaboration of this proposal is that of non-governmental organizations (third sector). Local representative institutions assumed a leading role in the Working Group set up by the State Committee. Much of the mobilization, search for supporters and information gathering are being carried out by organizations in the northern territory.

The traditional populations will be represented mainly by the "Geraizeiros" (inhabitants of the savanna) and "Quilombolas". As all Brazilian territory, historically occupied by the Indians, all the guidelines already adopted for the territories of Phase 1 will be maintained, since the memory of the indigenous peoples is crystallized in the cultural organization of the Brazilian people.

Representatives of the cultural area, whether governmental or non-governmental, will have to seek as much as possible elements of regional traditions and customs. The expression and cultural meaning described throughout this proposal will naturally be represented in the North subcommittee.

The livelihoods of local populations and the potential attributes for sustainable development in the region will also need to be included. In this context, the institutions of the current committee related to the productive sector, such as agriculture, livestock, forestry, mining and industry already have operations in the state as a whole. These institutions are part of the GT (Work group) to elaborate this proposal and have a role of articulation in the construction of a consistent governance for Phase 2.

It is worth mentioning that the process of restructuring RBSE governance in phase 2 is already underway since the beginning of the formulation of this proposal. In addition, the recognition of Espinhaço as a Biosphere Reserve in 2005 already focused on the mountain range as a whole, that is, from Minas Gerais to the state of Bahia. It was already known that to contemplate the entire Espinhaço dimension, three phases would be necessary, the first two being in the state of Minas Gerais and the third in the state of Bahia.

Therefore, for the constitution of the two subcommittees there will be no need for a National Biosphere Reserve Council of Espinhaço Mountain, as it occurs in RB Mata Atlântica. As it was already said, Phase 2 of RBSE will still be in a single state. The profile of the institutions of the current committee will be maintained, as will the same institutions that operate in the entire state, as shown in the table below.

FIGURE 91: REPRESENTATIONS IN THE COMPOSITION OF THE NORTH SUBCOMMITTEE, CONSIDERING THE 2006 DECREE OF LAW

Representations	Composition strategies
Federal government	No change: To consider new conservation units
State government	No change: To consider new conservation units
Local Governments	Municipalities: inserted in phase 2
Universities	Local Academic Community
Productive sector	No change
NGOS (Non-governmental organization)	Local institutions
Traditional population	Inhabitants of the savanna and quilombolas

As indicative of a Phase 3 for the Espinhaço, it is worth recording a governance based on the experience of the RBMA (Biosphere Reserve of the Atlantic Florest), constituted by a National Council, State Committees and regional Subcommittees.

For Phase 2, the same guidelines will be maintained, that is, all the institutions defined by State Decree, number 44.281 of April 25, 2006 have their own criteria for choosing the representatives, holder and alternate in the Management Committee. The position of member of the State Committee of the RBSE is not remunerated, being considered of relevant public interest.

According to the Internal Regulations of the Managing Committee of RBSE, the members' term of office is of 2 (two) years, being allowed the renewal.

Through Article 8 of the Internal Regulations, it is the duty of each member of the RBSE Committee:

To publicize the RBSE, its objectives and defend its principles on all occasions that are possible;

- To perform the duties for which you have been assigned;
- To participate regularly and actively in the meetings, seeking to contribute objectively and concretely to the solutions of the problems of the RBSE;
- To collaborate with the tasks assigned to them by the Committee or the Executive Secretariat;
- To be represented by your substitute in case of disability.

The meetings of the Committee are held on a quarterly basis whenever called by the Coordination or by more than fifty percent of its members, establishing an annual calendar. The meetings are open and public, and its members may invite individuals or legal entities, public or private, working in the RBSE area or interested in its activities.

Extraordinary meetings may be called by the Coordination of the Committee or by request of a quarter of the members of the Committee. Ordinary meetings are called at least thirty days in advance and extraordinarily at least ten days in advance. The notice must be accompanied by an indication of the matter to be discussed. Other modalities of participation are related to the meetings and lectures for alignment and the workshops for the preparation, review and monitoring of the Plan of Action.

As established in Federal Law, number: 9,985 of July 18, 2000, the decisions of the Steering Committee are deliberative, however, there are other instances related to the representative institutions and their specific forums. In this case, the RBSE Committee works to support and strengthen the proposals and initiatives of each social segment. Whenever possible, it is essential to establish connections with other discussion forums, such as conservation councils, river basin committees, environmental licensing boards, academic congresses, socio-environmental conferences, union meetings, producer cooperatives, among others. Such connections are appropriate to avoid overlapping competence and broadening the level of information and contacts.

New advisors require a contribution in the leveling of information and reference documents of MaB (Man and the Biosphere), in addition to the broader context of the RBSE with its priorities and projects in progress. With a new composition, considering the new North subcommittee will need to establish an agenda for meetings and training workshops. This responsibility will be the responsibility of the coordination, deputy coordination and executive secretariat of the current Management Committee.

In this new scenario, the work will be carried out by a group of more active and experienced advisors, familiar with the purposes of the Reserve and the MaB (Man and the Biosphere) -UNESCO Program. The installation of a Coordination office for direct support in this process will take place at the northern end of Phase 1 (Municipality of Diamantina). The RBSE Coordination will have a physical structure with equipment and human resources. The coordination of the actions will count with the support of partner institutions crowded in the municipality.

The technical and logistical support for the adaptation of governance has already been established in the municipality of Diamantina with own contributions according to the nature of each of the partner institutions. Whether from the governmental sector, non-governmental sector, productive sector, universities or local communities.

The Steering Committee already has representations in the region of Phase 2, be it by the federal, state and municipal governments, universities, productive sector, non-governmental organizations and traditional populations. The representation of the Federal Government that is given by the environmental agency, has collaborated in the policies with emphasis to units of conservation and biodiversity programs. The state government also has representativity related to the environmental agenda collaborating with greater intensity in the specific actions of the Core Zones, monitoring and environmental inspection. It is also worth mentioning the work of the Secretariat of Culture in matters related to the inventory of tangible and intangible heritage of the territory. It is also worth emphasizing the need to disseminate the purposes of the Biosphere Reserve throughout Espinhaço territory, seeking to identify new partners, recognizing and integrating actions in development.

4.7 IMPLEMENTATION MECHANISMS

For the implementation of the actions, the State Committee of the RBSE is guided by MaB (Man and the Biosphere) guidelines, directing efforts (funding and application of resources, activities and support) to its Management, the Action Plan of the Biosphere Reserve of Espinhaço Mountain (2015-2016), revised from the first Plan of Action (2011-2013).

The processes of meta-evaluation of the plans and the implementation of the presented goals must be seen in an integrated and complementary way, considering the functions and objectives of the RBSE. And also, the guarantee of the development of the proposed actions must count on the institutional cooperation, the responsibilities of financial investments and logistical support, as recommended in the decree of the State Committee of RBSE (responsibility of the IEF - State Forestry Institute), and with the direct support of COBRAMAB (Brazilian Commission of the Man and the Biosphere Program) and Unesco (United Nation Educational, Scientific and Cultural Organization).

RBSE Action Plan

At the IV World Congress of Biosphere Reserves in Lima in March 2016, the Lima Action Plan was approved, replacing the Madrid Plan (08-13). It is presented as an array, structured around the Strategic Action Areas contained in the MaB Strategy, together with expected results, actions and achievements that contribute to the effective implementation of the strategic objectives contained in the MAB (Man and the Biosphere) Strategy. It also specifies the entities (implementation level) with primary responsibility for implementation along with the time interval and performance indicators.

Below, there are some strategic areas:

A: RBs (Biosphere Reserve) consist of models that work effectively for sustainable development;

B: Collaboration and formation of inclusive, dynamic and results-oriented networks;

C: Effective external partnerships and sufficient and sustained funding;

D: Comprehensive, modern, open and transparent communication, information and data sharing; and

E: Effective governance.

In this sense, we are in the process of adapting the current RBSE Action Plan to better align with the Lima Action Plan.

For the implementation of actions, the RBSE State Committee is always guided by MaB guidelines, directing efforts (funding and application of resources, activities and support) to its Management, and is based on the Action Plan of the Biosphere Reserve of Espinhaço Mountain. The processes of integrating the plans and the implementation of the goals must be seen in an integrated and complementary way, considering the functions and objectives of the RBSE. The guarantee of the development and monitoring of the proposed actions must count on the institutional cooperation, the responsibilities of financial investments and logistical support, as recommended in the decree of the State Committee of RBSE and with the direct support of COBRAMAB (Brazilian Commission of the Man and the Biosphere Program) and UNESCO (United Nation Educational, Scientific and Cultural Organization).

Alignment of the RBSE Action Plan to the Lima Plan of Action for the MAB (Man and the Biosphere) Program and its World Biosphere Reserves Network (2016-2025)

**TABLE 38: ACTION STRATEGY - AREA A.
AREA OF STRATEGIC ACTION: A**

The World Network of Biosphere Reserves consists of models that work effectively for sustainable development	
Result	Actions
A1. To recognize Biosphere Reserves (RBs) as models that contribute to implementing Sustainable Development Objectives (ODSs) and Multilateral Environmental Agreements (AMABs)	<ol style="list-style-type: none"> 1. To progress in the actions of the Brazilian Network of Biosphere Reserves; 2. Guarantee the Brazilian participation in the MaB-UNESCO Program Working Groups; 3. To map ongoing actions to and from the RBSE with definition of ways and targets for monitoring and support; 4. To promote specific discussion agendas with UNESCO, Government of Mines, Federal Government, municipalities, NGOs, companies, managers of universities, universities and other RBs; 5. To recognize RBs in legislation, policies and / or programs at the national and / or subnational level; 6. To establish partnerships with universities and research institutes to conduct research; establish partnerships with education and training institutions to undertake education, training and capacity building activities for RB stakeholders, including managers, taking into account ODS (Global Objectives for Sustainable Development); 7. To identify and disseminate good practices for sustainable development; 8. To encourage managers, local communities and other stakeholders in RBs to collaborate in designing and implementing projects that inform the management and sustainable development of their RBs. 9. To discuss the zoning of the RBSE with the recognition of the new Conservation Units; 10. To induce and support the recognition and implementation of mosaics of conservations units in RBSE - Mosaics of Espinhaço: Jequitinhonha - Cabral, Mosaic: Southern Espinhaço, Cipó Mountain; Mosaics of the Espinhaço - Iron Quadrangle region; Mosaic of the Northern Espinhaço - North of Minas; 11. To conduct technical-scientific discussions to define the biome condition of the rupestrian fields; 12. To implement a system of information, management and monitoring of water quality in the basins of the Biosphere Reserve of Espinhaço Mountain; 13. To stimulate projects for the recovery of the water resources of the basins of the Biosphere Reserve of Espinhaço Mountain. 14. - To inventory project initiatives related to the sustainable use of natural resources.
A2. To select Biosphere Reserves in an open and participatory manner, as well as their planning and implementation.	
A3. To integrate RBs (Biosphere Reserve) into relevant legislation, policies and / or programs complemented by support for their operation	
A4. To develop research, create learning opportunities and practical training that support the management of RBs and sustainable development within RBs (Biosphere Reserve).	

A5. Financial Sustainability of RBs	<p>15. - To identify projects in the area of environmental recovery and prevention and combat of forest fires;</p> <p>16. To map the distribution of endangered and invasive species within the RBSE;</p> <p>17. - To identify and disseminate connectivity programs and mosaics of Conservation Units;</p> <p>18. To identify ecosystem services and facilitate their long-term supply, including those that contribute to health and well-being;</p> <p>19. To promote mechanisms for fair payment for ecosystem services; implement programs to preserve, maintain and promote species and varieties of economic and / or cultural value and which support the provision of ecosystem services.</p> <p>20. The "Corridors of the Serra do Espinhaço Biosphere Reserve: connecting natural and cultural landscapes", in line with the CONESCTA Program of the Ministry of the Environment and with government agencies in Minas Gerais (IBAMA - Brazilian Institute of Environment and Renewable Natural Resources, ICMBio - Chico Mendes Institute for Biodiversity Conservation and IEF - State Forestry Institute). network of actors for the viability.</p>
A6. Effective functioning of the Global Network of Biosphere Reserves (RMRB), with all RBs fulfilling its Statutory Framework.	
A7. Recognize RBs (Biosphere Reserve) as sources and managers of ecosystem services	

TABLE 39: ACTION STRATEGY - AREA B.

STRATEGIC AREA OF ACTION: B	
Collaboration and training of inclusive, dynamic and results-oriented networks under the MAB (Man and the Biosphere) Program and the Global Network of RBs (Biosphere Reserve)	
Result	Actions
B1. Effective managers / coordinators of RBs and stakeholder involvement of RBs.	<p>1. To ensure the participation of all stakeholders in regional and thematic networks.</p> <p>2. To expand thematic alliances especially for the Working Group on Mining and Biosphere Reserves;</p> <p>3. To articular environmental and heritage education network within reach of the community in general;</p> <p>4. To stimulate projects of training and training of conservation unit officials about the RBSE;</p> <p>5. To inventory leaders of communities and traditional populations;</p> <p>6. To draw up the Land Use and Occupancy Map - inventory of productive activities: mining, industry, agrosilvipastoril, family farming, power generation plants, among others.</p> <p>7. To develop discussion platform and disseminate good practices for the mineral sector;</p> <p>8. To inventory good practice land use initiatives;</p> <p>9. To recognize and promote traditional knowledge and practices;</p>
B2. Inclusive regional and thematic networks	
B3. Regional and thematic networks with adequate resources	
B4. Effective collaboration at regional and thematic levels.	

B5. Visibility of regional and thematic networks and their activities	<p>10. To raise cultural, environmental, conservation and other councils in the municipalities of RBSE, with a view to disseminating the functions and actions of the RBSE;</p> <p>11. To create opportunities for collaborative research, implementation and monitoring;</p> <p>12. Internal and external dissemination of results of network activities, including cases of good practices in the RBSE.</p> <p>13. To structure a georeferenced database of images, articles and theses.</p> <p>14. To promote socio-environmental monitoring in Espinhaço territory;</p> <p>Promote discussion on the integration of different territorial management instruments in the RBSE space;</p>
B.6. Transnational and cross-border cooperation between Biosphere Reserve (RBs)	
B.7 Active and open interdisciplinary network of scientists who share vision and mission MAB (Man and the Biosphere).	

TABLE 40: ACTION STRATEGY - AREA C.

STRATEGIC AREA OF ACTION: C	
Effective external partnerships and sufficient and sustained funding for the MAB (Man and the Biosphere) Program and the Global Network of RBs (Biosphere Reserve)	
Result	Actions
C1. Adequate resources for the MAB (Man and the Biosphere) program and the Global Network of RBs (Biosphere Reserve)	<p>1. To promote and carry out courses, forums, congresses, seminars and workshops on art, education, culture and the environment;</p> <p>2. To identify RBSE disclosure opportunities (events, seminars, lectures, etc.);</p>
C2. Recognize the MAB Program as a key partner within UNESCO and with other relevant	<p>3. To promote exchanges with the national and international reserves network;</p>

international organizations and conventions.	4. To raise resources for the RBSE with UNESCO, the federal, state, municipal governments and private initiative and other institutions;
C3. Biosphere reserves and regional networks generating their own revenue.	5. To develop a business plan for RBSE, including effective revenue generation and partnerships with potential funders; 6. To elaborate RB's business plan to produce revenues and discuss the PJ creation process of the RBSE friends to raise and manage financial resources; 7. To elaborate a business plan with emphasis on productive arrangements for products with the Espinhaço brand;
C4 Recognition of the MAB Program as a key partner by the private sector.	8. To strengthen financial contributions and creation of the RBSE fund. 9. To create opportunities for collaboration and partnerships with relevant international programs and conventions.
C5 The recognition that the MAB (Man and the Biosphere) Program contributes to the achievement of national and regional objectives.	10. To promote partnerships to raise funds from external entities with objectives compatible with the MAB Program; 11. To develop guidelines on partnerships with the private sector for national commissions and RBs; create opportunities for collaboration and partnerships with the private sector, which are open, accountable and sustainable; 12. To create opportunities for projects and activities funded by national and regional funding agencies;
C6. Entrepreneurs and social enterprises contribute to RBs activities.	13. To provide guidance and training for entrepreneurs and social enterprises on involvement within RBs; create opportunities for entrepreneurs and social enterprises in RBs, including training, incentives and public procurement;
C7. National and international recognition of Biosphere Reserves	14. To monitor the investment of resources in the PAs inserted in the RBSE; 15. To map the distribution of cultural heritage listed, material and immaterial, within the RBSE.
C8. Reinforced synergies between RBs	16. To stimulate projects for payments for environmental services in the RBSE; 17. To create the seal for commercialization of Espinhaço products; 18. To set up recognized tourist circuits within the RBSE with a view to integration. 19. To establish a strong global RB brand associated with national guidelines; 20. To use the brand in products and services in accordance with national guidelines;

	<p>21. To encourage joint promotion and marketing of RB products and services between and beyond RBs;</p> <p>Establish feasibility process for the recognition and installation of the RBSE Advance Booths.</p>
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**T ABLE 41: ACTION STRATEGY - AREA D.
STRATEGIC ACTION: AREA D**

Comprehensive, modern, open and transparent communication, information and data sharing	
Result	Actions
D1. Wide availability of MAB (Man and the Biosphere) documents, data, information and other materials	<p>1. To promote the free access policy adopted by the International Co-ordinating Council - ICC in 2014;</p> <p>2. To create visual identity for communication material;</p> <p>3. To elaborate new printed and digital information materials (institutional);</p>
D2. Raise of awareness of all aspects of the MAB Program (Man and the Biosphere)	<p>4. To maintain updates and adaptations in the RBSE portal on the Internet;</p> <p>5. To publish and update newsletters;</p>
D3. Broad engagement and awareness	<p>6. To update and execute the communication action plan;</p> <p>7. To develop a program for the coordination of publications to facilitate the sharing of data and knowledge;</p> <p>8. To use social media and other new information and communication technologies;</p> <p>9. To update the Communication and Marketing Plan;</p> <p>10. To create the Evergreen Award for best practices in Espinhaço;</p> <p>11. To establish the Seal: Friendly Company of Espinhaço Mountain;</p> <p>12. To establish next to the state government, Serra do Espinhaço Day;</p> <p>13. To produce and publish the book updating RBSE information;</p>

	<p>14. To produce and publish thematic editions of the Magazine: Biosphere Reserve of Espinhaço Mountain , with topics related to conservation, development, management and governance; scientific and traditional knowledge</p> <p>15. To structure a media team and public relations;</p> <p>16. To establish feasibility process for the recognition and installation of the RBSE Advance Booths;</p> <p>To expand road signs and conservation units, especially in the RBSE core zones, traditional communities, itineraries and tourist routes and municipalities</p>
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TABLE 42: ACTION STRATEGY - AREA E.

AREA OF STRATEGIC ACTION: E

Effective governance of and within the framework of the MAB Program and the World Network of Biosphere Reserves

Result	Actions
E1. Strong support to implement the MAB (Man and the Biosphere) program of Member State governments	1. To seek support and institutional resources to ensure the participation of State Committee advisors in MaB meetings;
E2. MAB National Committees have a transdisciplinary group of members	2. To seek support and institutional resources to ensure the participation of State Committee advisors in meetings of the Brazilian Network;
E3. Regular updates of the progress of the Member States and follow-up of the Action Plan.	3. To discuss and revise the Internal Regulations of the State Committee and State Decree;
E4. Effective operation of regional and thematic networks	4. To develop a plan with objectives, mechanism of performance evaluation and schedule for each regional and thematic network;
	5. To monitor continuously the RBSE action plan with efficiency check;
	6. To evaluate, in the medium term, the implementation of the RBSE action plan;
	7. To monitor the Communication and Marketing Plan;
	8. To consolidate and maintain the necessary structure for the operation of the RBSE offices;

	<p>9. To check the feasibility of creating an intermunicipal consortium for shared management in the territories of the RBSE;</p> <p>10. To recognize and support the implementation of RBSE Outposts;</p> <p>11. To include the Phase 3 studies, integrating the states of Minas Gerais and Bahia;</p> <p>12. To promote the revision of the RBSE regiment and decree, in order to comply with the desired governance;</p> <p>To establish continuous monitoring mechanisms for the 2nd Periodic Review (2025).</p>
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5. OFFICIAL SUPPORTS – LETTERS SUPPORTING THE RBSE PHASE 2 PROPOSAL

- 1. ARCHDIOCESE OF BELO HORIZONTE AND PONTIFICAL CATHOLIC UNIVERSITY OF MINAS GERAIS** Archbishop of the Archdiocese and Grand Chancellor of PUC Minas: Archbishop Walmor Oliveira de Azevedo
- 2. ASSOCIATION OF MINING MUNICIPALITIES OF MINAS GERAIS (AMIG)**
President: Vitor Penido de Barros
- 3. ASSOCIAÇÃO DOS MUNICÍPIOS DO NORTE DE MINAS GERAIS**
- 4. ASSOCIAÇÃO MINEIRA DE MUNICÍPIOS – AMM**
President: Julvan Lacerda
- 5. MINAS GERAIS EXCURSIONIST CENTER (CEM)**
President: Giselle Saraiva de Melo
- 6. NORTH OF MINAS GERAIS BIRD OBSERVERS CLUB (COA-NM)**
Technical coordinator: Daniel Filipe Dias
- 7. COMMITTEE OF THE HYDROGRAPHIC BASIN OF THE RIVER: RIO DAS VELHAS (CBH RIO DAS VELHAS)** President: Marcus Vinicius Polignano
- 8. REGIONAL COUNCIL OF BIOLOGY 4th REGION (CRBio-04)**
President: Tales Heliodoro Viana
- 9. COOPERATIVE OF PRODUCERS OF BOOZE BARRIL OF THE MICRO-REGION OF SALINAS (COOPERCACHAÇA)**
Chief Executive Officer: Gilmar Pereira de Freitas
- 10. ESPELEOGRUPO PETER LUND (EPL)**
Technical coordinator: Ronaldo Lucrécio Sarmento
- 11. FEDERATION OF THE KILOMBOLAS COMMUNITIES OF THE STATE OF MINAS GERAIS- N'GOLO**
President: Jesus Rosário Araújo
- 12. FOUNDATION OF MUNICIPAL PARKS AND ZOOBOTANIC OF BELO HORIZONTE (FPMZB/BH)**
President: Sérgio Augusto Domingues
- 13. STATE OF THE ENVIRONMENT FOUNDATION (FEAM/MG)**
President: Eduardo Pedercini Reis
- 14. FOUNDATION: SOS MATA ATLÂNTICA**
Mobilization Coordinator: Beloyanis Monteiro
- 15. INSTITUTE: BIOTRÓPICOS**
Chief Executive Officer: Joaquim de Araújo Silva (Dsc.)
- 16. INSTITUTE: CHICO MENDES OF CONSERVATION OF BIODIVERSITY (ICMBio)**
Regional Coordinator (CR11 Lagoa Santa): Frederico Drumond Martins
- 17. INSTITUTE OF HISTORICAL AND ARTISTIC PATRIMONY (IPHAN)**
IPHAN (Institute of National Historical and Artistic Heritage) Superintendent in Minas Gerais: Célia Maria Corsino

18. STATE INSTITUTE OF FORESTRY OF MINAS GERAIS (IEF/MG)

General Director: Henri Dubois Collet

19. INSTITUTE: GRANDE SERTÃO

Chief Executive Officer: Eduardo Gomes de Assis

20. INSTITUTE OF WATER MANAGEMENT OF MINAS GERAIS (IGAM/MG)

Diretora Geral: Marília Carvalho de Melo

21. INSTITUTE: PRÍSTINO

President: Flávio Fonseca do Carmo

Vice-president: Luciana Hiromi Yoshino Kamino

22. PUBLIC MINISTRY OF THE STATE OF MINAS GERAIS (MPMG)

Coordinator of the Justice Prosecutor's Offices for the Defense of Cultural and Tourist Heritage of Minas Gerais: Justice Promoter Giselle Ribeiro de Oliveira

23. MOSAIC OF PROTECTED AREAS OF ESPINHAÇO MOUNTAIN: JEQUITINHONHA-CABRAL

Executive Secretary: Alexsander Araujo Azevedo (DSc.)

24. NGO (Non-governmental organization) CAMINHOS DA SERRA

President: Alex Mendes Santos

25. CITY HALL OF MATO VERDE

Secretariat of Sports, Leisure, Tourism, Children and Youth: Wallison Rondinely Barbosa

26. CITY HALL OF MONTE AZUL CITY

Mayor: Alexandre Augusto Fernandes de Oliveira

Head of Tourism Division: Uziel Barbosa de Castro

27. PORTAL: ESPINHAÇO MOUNTAIN AND IMAGINOSFERA

President: Bernardo Erwin Puhler Resende

28. CULTURE SECRETARIAT OF MINAS GERAIS STATE

Secretary: Angelo Oswaldo de Araújo Santos

Head of Cabinet: Evandro Xavier Gomes

29. SECRETARIAT OF STATE FOR ENVIRONMENT AND SUSTAINABLE DEVELOPMENT (SEMAD)

Secretary: Germano Luiz Gomes Vieira

30. STATE SECRETARY OF EDUCATION OF MINAS GERAIS

31. MINAS GERAIS TOURISM SECRETARIAT (SETUR/MG)

Secretary: Paulo Marcos Almada de Abreu Junior

32. MINING INDUSTRY UNION OF THE STATE OF MINAS GERAIS – SINDIEXTRA

President: José Fernando Coura

33. TRIAS BRAZIL

National Coordinator: Gisele Obara

34. STATE UNIVERSITY OF MONTES CLAROS (Unimontes)

Pro-Rector of Research: Professor: Dr. Virgílio Mesquita Gomes



ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

**PART II: METHODOLOGICAL GUIDE:
ESPINHAÇO RANGE BIOSPHERE RESERVE
PHASE 2**



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



PART II: METHODOLOGICAL GUIDE: BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - PHASE 2

I – WHAT IS RBSE PHASE 2?

The second phase of the RBSE is a consequence of efforts to recognize the first portion of the mountain range in 2005, the participatory management process carried out by the state committee, the strategic action plan and the first periodic review in 2015. The Espinhaço Mountain is indissociable when considering its ecological characteristics, especially in the case of its main ecosystem, the Rupestrian Fields.

The low resilience of this ecosystem associated with the high degree of endemism and biodiversity has made the Espinhaço mountain a territory that includes areas considered irreplaceable and, therefore, priority for conservation. Its incidence at altitude levels above 900 meters creates a unique identity not only for Brazil, but for the entire planet.

This identity is even more striking in the microclimatic details that mark its diverse regions. This occurs in its eastern portion where it borders the Atlantic Forest biome, in its western portion where the boundaries occur with the savanna biome and now in its northern expansion integrating with the Caatinga biome.

To all this biogeographic wealth can be added the highland ecosystems where rocky fields and transition ecosystems occur, areas of ecotones for which knowledge is still insipid. Its attributes as ecological territory are still insufficient for a characterization of its importance if it does not take geodiversity and geomorphology into account. It is a fact that these aspects are being presented more and more as the mineral extraction activities occupy more space in the agenda of the Steering Committee.

The economic activity of mining is the means by which the occupation of this territory occurred and still occurs. The historic explorations of gold and diamond, the huge iron deposits mark the economic development of numerous municipalities of Espinhaço Mountain. Finite cycles of mineral wealth impose a relentless challenge to the logic of an immediate economy. The exploratory race often devoid of socio-environmental planning leaves deep negative marks difficult to solve.

Phase 2 of the RBSE proposes essential dialogues based on sustainable and possible frameworks, involving the various sectors of society. The regional discrepancies in the Phase 2 territory are clear from a deeper look. Both by the increase of social inequalities caused by the governmental forgetfulness of a more isolated population, away from the administrative capital and devoid of coherent public policies. It is remarkable that water scarcity amplifies the consequences of poverty and makes land use the only safeguard of these people.

The RBSE in its Phase 2 has different challenges when compared to Phase 1. At the same time, the recognition of this region integrating it to the Reserve creates opportunities, since it brings light to the socio-environmental issues. It creates a differentiated framework for municipalities with possibilities for cooperation, greater institutional support, research incentive, special conservation programs and sustainable development.

The extreme north, already in the border between the states of Minas Gerais and Bahia, approximates the recognition of the RBSE of a very important Phase 3. The complementation of the orographic group of the Espinhaço integrating the mountains of Minas to the National Park of the plateau: Diamantina is a

necessary condition for the totalisation of work begun in 2005. Phase 2 is an important transition to achieve this goal. Although the time interval between Phase 1 and Phase 2 has been 13 years, we are sure that the time between Phase 2 and a future Phase 3 will be much shorter.

From that moment on, it will be necessary to negotiate with the actors of the state of Bahia to make feasible a Serra do Espinhaço Biosphere Reserve in its entirety (Phases 1, 2 and 3). As Phase 2 will be still within the state of Minas Gerais, all measures related to the plan of action will be facilitated, as they will be under the governance of a single State Committee that will be divided into 2 regional subcommittees. This will be a feasible and promising enlargement.

In considering the implementation of this expansion proposal as a transition methodology for Phase 3, all zoning and mobilization adjustments have been built for some time in partnership with the governmental and non-governmental agencies of the state of Minas Gerais. Actions such as the creation of conservation units, mapping and definition of criteria were already part of the Steering Committee's procedures, including the creation of the first mosaic of conservation units at the northern end of Phase 1. The mobilization of this southern mosaic will be the platform of constitution of the North Subcommittee (Phase 2). Thus there is already a logistical support point capable of conducting with tranquility the transition of governance and elaboration of a new plan of action.

II – WHAT ARE THE PROCEDURES ADOPTED FOR PHASE 2 OF THE RBSE?

This process took place officially through the direct participation of institutions that make up the State Committee of RBSE, in addition to a wide consultation for data collection and analysis in cooperation with various institutions and governmental, nongovernmental, educational and research institutions, especially universities, research centers, ensuring the participatory process and the quality of the data presented here.

In a Workshop held with the Phase II Working Group of the RBSE, of the State Committee of the Biosphere Reserve, respecting the profile of each institution. Based on the discussion and discussion of the RBSE Phase 2 items, the reference case studies cited by UNESCO and the capacity for data integration, a commitment was made to the collaboration of the participants in the preparation of the review.

A Work Plan was prepared for the preparation of this document, which began in April 2018. The actions followed this form, with emphasis on teams that deal with institutional articulation, management, conservation, development, geoprocessing and remote sensing , as is also recommended in the Plan of Action of said Committee.

During the process, technical seminars were produced and presented for analysis and validation of the data and, later, composition of the syntheses presented in this report.

The coordination of the work was conducted by the Coordination, Vice Coordination and Executive Secretariat of the State Committee of RBSE, with the direct support of institutions that make up the State Committee, as well as other entities incorporated in this procedure. For the works of indication of Phase II of the RBSE, were considered:

a- Institutional feasibility and financial viability: internal capacity of the RBSE State Committee; existing institutional arrangements and new participations of institutions of the new proposed new areas of expansion; guarantee of the participatory process and legitimacy in the preparation of the proposal;

b- Available data and updated cartography: source of official data and information, on governmental and non-governmental platforms, as well as on scientific publications sites and from updating the RBSE database;

c- Creation of new core areas and increase of protected areas: strengthening the management of the RBSE by sharing strategies of the RBSE Action Plan with other conservation and development instruments (Mosaics of protected areas, inclusion of strategic water sources of the Metropolitan Region of Belo Horizonte);

d- Monitoring and participation capacity: involvement of the RBSE State Committee for phase II; articulation with new munitions to be included in the proposal; participation of research centers and universities, as well as non-governmental organizations in the proposed new region.

e Coherence and compliance with the RBSE Action Plan and the 1st RBSE Periodic Review (2015) approved by UNESCO, which indicates the extension and revision of the RBSE limits.

The methodology used for this Periodic Review is summarized in:

- Planning meetings;
- Identification of strategic actors;
- Sending correspondence by e-mail for data collection;
- Seminars for alignment of syntheses;
- Fieldwork;
- Organization of data and completion of the Report;
- Meeting with the Secretary of Biodiversity and Forests, COBRAMAB (Brazilian Commission of the Man and the Biosphere Program), in September 2018, at the Ministry of the Environment, with delivery of the final version in Portuguese.
- Translation of the text into English and referral to UNESCO / MaB.

We understand that, as in the moment of recognition of the Biosphere Reserve of Espinhaço Mountain, this process was expanded and built in a comprehensive and multilateral way, with different actors of organized society, thus expanding the process of dissemination and insertion of new strategic actors..

We took the 1st Periodic Review of the RBSE, prepared in 2015 and approved by UNESCO in 2016, as an excellent moment for the institutional articulation, as well as for the strengthening of actions and actors in the RBSE territory. The active participation of the members of the RBSE State Committee stands out, with direct and continuous commitment and co-responsibility in this process.

III – CRITERIA FOR THE REVISION OF THE RBSE PHASE 2 - 2018

A) INTRODUCTION

Phase 2 RBSE was elaborated considering the methodological roadmap established by this UNESCO review form, with discussions in the RBSE State Committee, highlighting:

- Attendance at the prospect of expansion, considering the Serra do Espinhaço, which has in its 1,200 kilometers of extension, as identity of natural and cultural landscapes, in a historical perspective and of economic characteristics and diverse social dynamics.
- The consistency in giving greater detail and connection of the attributes that guided the recognition of the RBSE in 2005 and that were improved in 2015, when the 1st Periodic Review of the RBSE, or by the cartography and data with higher quality and scale of analysis, or by the established governance in these 13 years of recognition;
- The valorization of a geographic identity in the north of Minas Gerais, which requires arrangements based on principles of conservation, sustainable economic development, education and knowledge. Due to such factors, this region was included in the zoning review.
- The increase of the RBSE Action Plan to be mirrored and revised for compliance with the Lima Plan, which is being reviewed by the RBSE State Committee in 2018.
- The strengthening of Brazilian public policies, particularly Minas Gerais, which has considered RBSE as a territorial planning unit for decision-making and investments in research, conservation actions, environmental licensing and economic development, with a focus on tourism.
- The need to review and update the RBSE zoning, according to the criteria presented in item **Princípios Gerais (General principles)**, with cartography and data availability of better quality and detailing.

To this end, the RBSE Zoning Review Working Group met with the Ministry of the Environment and the State Forestry Institute of Minas Gerais to align expectations and actual demands for RBSE expansion.

From the decision making for the RBSE Phase 2 studies, work began in 2018, according to the agenda presented. It is important to note that, with Phase 2 of the RBSE, a new governance process of the RBSE State Committee is instituted, which brings in this proposal the regionalization of the RBSE's management.

This way, a perspective and commitment of the RBSE State Committee is also opened for the installation of robust and comprehensive programs, such as the "RBSE Corridors Program: connecting natural and cultural landscapes", with the adoption of the priority areas of Environmental Conservation, Environmental, Sustainable Production, Territorial Management, Scientific and Traditional Knowledge and Training and Communication.

It is also assumed, with Phase 2 of RBSE, the commitment to mobilize and strengthen the last area of Espinhaço Mountain, in the plateau: Diamantina, in the state of Bahia, which is intended for the future Phase 3 of RBSE.

B) GENERAL PRINCIPLES

The search for the geographical integrity of Espinhaço Mountain, strengthening its identity through the recognition of the Biosphere Reserve, is not recent. From its recognition, this goal is put. This is a review of zoning, accompanied by implementation strategies, in a coherent and mature way, given the investment of a series of actions already consolidated and presented in this document. In this way, it is not a reinvention of the RBSE, but, rather, a recognition and consolidation of this territory.

For this purpose, the following general principles for the proposal were considered:

General Principle 1 - To adapt the limits of the RBSE in the region of Phase 1, with new attributes, and to extend to the north of Minas Gerais, seeking greater homogeneity in the criteria that were used in the recognition of RBSE in 2005, considering:

1. the creation of new Conservation Units or changes in existing ones;
2. the existence of more accurate and up-to-date information and cartography on the Rocky Mountains and their associated ecosystems;
3. the special attention recommended by the RBSE State Committee for the northern region of Minas Gerais;
4. The existence of new official zoning of the territory (Ecological-Economic Zoning, tourist routes, priority areas for biodiversity conservation and the Biosphere Reserve itself, as a locational criterion for environmental licensing in Minas Gerais, Ramsar Site, Metropolitan Region of Belo Horizonte, Permanent Preservation Rivers, among others);
5. the existence of indications of irreplaceable areas of Espinhaço mountain;
 - the quality of the scientific data that point to the conservation and promotion of the conservation and cultural base development of the Valley Geosystem: Vale do Peixe Bravo, already assumed in the 1st Periodic Review of the RBSE in 2015.
- 7- the updating of the information of the items treated in the First Periodic Review of the RBSE, in the time scale of 2015 to 2018.

General Principle 2 - The ability to mobilize, strengthen governance and cultural wealth, considering:

1. The legitimate process of mobilization of institutions in the region intended to expand and host the RBSE State Committee for this demand;
- 2 - Local productive arrangements and development plans of a conservationist base, such as tourist routes;
- 3- The need to train new actors in the context of the Biosphere Reserve, with the creation of discussion forums and shared management of this vast territory;

4 - Respect for social and cultural diversity, considered as a great gain for the multiple identities that the Espinhaço Mountain translates, like the ways of life, literature, music, ethnic diversity, traditional behaviors and knowledge of the use and land management, among other elements of diverse cultural wealth of Espinhaço Mountain.

5- The possibility of increasing and improving a region of Espinhaço Mountain that holds one of the lowest Human Development Indexes (HDI) in the country.

6- The strengthening of the northern region of Minas Gerais, which may be the reference for the mobilization of new actors for Bahia, and then establishing the governance for the future Phase 3 of RBSE.

C) THEMATIC CRITERIA

The main criteria adopted in this RBSE Phase 2 proposal for the new zoning were:

- The technical analysis to expand the boundaries for northern Minas Gerais.
- The articulation and mobilization of strategic actors and with legitimate demand from several sectors that have been talking for years with the State Committee of RBSE, requesting the expansion of the RBSE to the northern region of Minas Gerais. - The increase of RBSE, from the principles and functions of the Biosphere Reserve to one of the richest regions of biodiversity in Brazil, with the connection between the Rupestrian fields,

the paths and the Peat bog of Espinhaço Mountain, as well as the use of the territorial planning units of the savanna, Atlantic Forest and Caatinga Biomes. Also worthy of note is the geographical interface with the Atlantic Forest Biosphere Reserves and that of the savanna and from Phase II, with the Caatinga Biosphere Reserve.

- The scientific knowledge of a region rich in biodiversity, archaeological and paleontological sites, still little known and where it is sought the highlight from the Biosphere Reserve of Espinhaço Mountain of the ferruginous geosystems of Peixe Bravo.

- The recognition of products and rural producers, based on the investigation of biodiversity products, such as pequi (*Caryocar brasiliense* Camb), umbuzeiro (*Spondias tuberosa* Arr. Cam), from which the umbu, cassava-do-cerrado (*Anacardium humile*), ruffian (*Peritassa campestris*), macaúba (*Acrocomia aculeata*) and fava d'anta (*Dimorphandra mollis*), and products of geographical identity, such as the cachaça of the Salinas region and the crafts of the Jequitinhonha Valley. On the other hand, the challenge of strengthening one of the regions with the lowest Human Development Index in Brazil is incorporated with Phase II.

- The decentralization of RBSE management processes, regionalizing this vast territory of multiple identities, in its southern and northern portion, and also through the shared management of conservation territories, such as the Mosaics of Protected Areas of Espinhaço (Mosaic of Protected Areas of Espinhaço - Alto Jequitinhonha - Cabral Mountain, already recognized, and Mosaic of Protected Areas of the Southern Espinhaço - Cipó Mountain, being recognized by the Ministry of the Environment). To this end, the potential for recognition of a new Mosaic of Protected Areas in the Northern Region of Espinhaço Mountain was identified, generating technical cooperation among conservation units, logistical support and social mobilization and regional development programs.

- The commitment of the Brazilian government to assume Biosphere reserves as territorial units for planning, and thus includes the Biosphere Reserve of Espinhaço Mountain, in the National Connectivity Program for Landscapes - Conecta (decree number 75, dated March 26 2018). In this sense, it is proposed for Phase II the creation, within the RBSE State Committee, of the Corridors Program of Biosphere Reserve of Espinhaço Mountain: connecting natural and cultural landscapes. RBSE, being a natural ecological corridor and provider of large ecosystem services, and acting as a space for strategic governance, has, through the RBSE - Corridors of Espinhaço Program, the main objective, to interconnect the mosaics of protected areas within them and among them, promoting culture and conservation through forest restoration, local productive arrangements, tourism, among other strategies, developing the functions of MaB Biosphere Reserves.

- The incorporation of Biosphere Reserves in the State of Minas Gerais, in environmental regulation policies, which assumed, in 2017, the Biosphere Reserve of Espinhaço Mountain, as a locational criterion of Environmental Licensing of projects of potential environmental impact (COPAM - State Council for Environmental Policy Normative Resolution, number 217/17).

- The potential already installed from **Tourist Routes of Espinhaço Mountain** which is added to the network of routes in the region, proposed for expansion of the RBSE where you can highlight: the Crossing Talhado: Waterfall: Cachoeira do Cerrado and crossing: Talhado: Sete Quedas and Talhado Serra Nova, all within of the State Park of the Serra Nova, in Grão Mogol; the Crossing of the trail: trilha do Barão, between the city of Grão Mogol and Fazenda Cafezal, historical in the region; the Tropa / Peripiri Trail, and the Crossing: Folha Larga, both in Botumirim;; the crossing: Gigante, the trail: Trilha da Bocaina; a Trilha da Campina Pé da Serra; Trilha do Laerte-Poço do Bananal; the trail: Trilha Serrinha Rio de Peixe; the trail: Prata/Rio de Peixe ao lago de Irapé; Vale da Limeira até Tamanduá; cachoeira do Curiando; Trilha do Encantado , in the Resplendent Mountain in Monte Azul; the trail: cidade campina/basis of Formosa Peak; the Climbing Trail of Formosa Peak in Cristália; the trail: cidade Morro do Chapéu; the road map: Off Road - Gortuba Lapinha da Serra. As well as the creation of the **Program of Long Track Trails** to the RBSE territory that inaugurated, in 2018, the installation of **Trail: Transespinhaço**, itinerary of more than seven hundred kilometers, connecting some fifty conservation units, communities and natural and cultural attractions of Espinhaço. It also stands out o **CRER, Caminho Religioso da Estada Real (Religious Path of the Royal Road)**, which connects the Basílica Nossa Senhora da Piedade Sanctuaries (the most visited Integral Protection Conservation Unit in Minas Gerais) to the Sanctuary of Aparecida do Norte.

- The review of the limits, starting with the strengthening of the municipalities of RBSE, in its Phase I, with the mobilization of strategic actors through the **Situational Diagnosis of the Management of Municipal Conservation Units of RBSE**, study conducted in 2017 in the 94 municipalities of RBSE (Phase I). For this revision of limits that it intends to expand for the other 172 municipalities proposed in Phase II of the RBSE.

- RBSE's participation in the creation of new Core Areas in the proposed region, highlighting the **Parque Estadual de Botumirim (Botumirim State Park)**. It is an important Integral Protection Conservation Unit, with 35,402 hectares, and protects important tributaries of the Jequitinhonha River, as well as to preserve the rich speleological and archaeological heritage of the northern region of Espinhaço Mountain. This is an area of particular relevance, given the occurrence and recent rediscovery of a very rare bird, the **Rolinha do Planalto - dove (Columbina cyanopis)**, a highly vulnerable and fragile species. **Given as extinct by science, the Rolinha do Planalto (dove) is endemic to the savanna - Espinhaço Mountain, and was last sighted in 1941, but was rediscovered in the current conservation unit in July 2015.**

- The inclusion in Phase II zoning of the RBSE of **areas covered by institutions of artistic and cultural heritage, management of protected areas, with the limits of conservation units not considered in Phase I**. In this context, the Permanent Preservation Rivers and Special Protection Areas, strategic sources for water supply in the Metropolitan Region of Belo Horizonte, sources of the Manso River and Serra Azul

System collaborate in the water security of one of the regions most populous in Brazil; Conservation Units, such as the total incorporation of the Serra da Piedade State Natural Monument, where the Basilica Sanctuary of Nossa Senhora da Piedade, Patron of the State of Minas Gerais, is located. It is the conservation unit with the largest number of visitors in the state (more than half of all visits), with the capacity to become a Forward Station of RBSE.

- It has been invested heavily in this item, considering the intersectoral articulation (regional, national and international), which gives security for this proposal with the institutional strengthening in the region of Phase I and now, extending to the north of the State in its Phase II . It must be noted that RBSE's participation in the **Technical Guidelines for Biosphere Reserves (TGBR), Working Group, Data Management and Monitoring**, in cooperation with the MAB Secretariat; the creation of the Biosphere Reserve Magazine in 2017, which published in its first edition the synthesis of the 1st Periodic Review of the RBSE; the creation of the RBSE Website; the expansion and availability of geospatial information through the **RBSE Geoenvironmental Atlas**, coordinated by the Prístino Institute and with the support of the State Committee of RBSE, which has 75 layers of information and possibility of data analysis; The **road signs with indicative signs** of RBSE, in more than 20 municipalities, initially; the incorporation of the RBSE limits into the **Spatial Data Infrastructure of the State System of Environment and Water Resources (IDE-SISEMA)**, established by Joint Resolution SEMAD (State Secretariat for Environment and Sustainable Development) /FEAM (State Foundation for the Environment)/IEF (State Forestry Institute) /IGAM (Minas Gerais Institute of Water Management) number: 2,466 / 2017, whose objective is to promote the adequate organization of the processes of generation, storage, access, sharing, dissemination and use of geospatial data derived from the activities, programs and environmental and water resources projects developed by the State System of Environment.

- The responses to UNESCO's recommendation in the 1st Periodic Review in 2016 on the issue of mining. To that end, RBSE participated with a presentation and discussion with an oral presentation at the side event, Working Group on "Biosphere Reserves and Earth Resources, at the IV World Congress of Biosphere Reserves (Lima - Peru, 2016). Also worth mentioning is the discussion of good practices in biosphere reserves territories with the sector, with the participation of Sindiextra in the State Committee of RBSE.

- The study and strategic responses for the biodiversity conservation of the Espinhaço Mountain, with the **Project: Espinhaço Sempre Vivo** (2005), and that was updated in 2015 in our 1st Periodic Review, indicating the **Irreplaceable areas of Espinhaço Mountain**.

- The inclusion of **Farms: BAZE (Brazilian Alliance for Zero Extinction)** for the determination of the new zoning, territories defined starting, AZE Global Project "Alliance for Zero Extinction: Protection of Irreplaceable Natural Sites for the Conservation of Endangered Biodiversity".

- Public policy for the conservation of biodiversity, through the **National Action Plans (PANs)**, coordinated by the Chico Mendes Institute for Biodiversity Conservation (ICMBio) and agreed with society. PANs (National Action Plans) identify and guide priority actions to address threats that threaten populations of natural species and environments and then protect them. Within the scope of the RBSE, 15 National Action Plans are developed.

- The **inclusion of the Ramsar farm LUND-WARMING** in Phase II of the RBSE. Recognized in 2017 (Site number 2306), which corresponds to a portion of the Federal Environmental Protection Area Carste Lagoa Santa, which limits the Transition Zone of Phase I of RBSE, aims to create Ramsar Sites in a regional scope, including protected areas and other wetlands of international importance, to prioritize their consolidation in relation to other protected areas, as included in the National Strategic Plan for Protected Areas (PNAP).

- Superposition with other Biosphere Reserves:

Brazil currently has 7 Biosphere Reserves: RB Cinturão Verde of the City of São Paulo, RB Mata Atlântica, RB Pantanal, RB Caatinga, RB Cerrado, RB Amazônia Central and RB Serra do Espinhaço. To a large extent, there are areas of overlap between them. The RBSE has areas of overlap with the RBs of the Caatinga of RB Mata Atlântica.

With emphasis, the Brazilian Network has promoted discussions about processes that go beyond the thematic cartography of representation of these overlaps. However, we must seek to increase institutional gains in the dialogical sphere for management, respecting the identities and processes of each of the reserves. It is then proposed, in a manner agreed between the Brazilian Biosphere Reserves, the necessary rationale for the sharing of territories, generating gains and strengthening of Brazilian reserves, in addition to establishing criteria for all cases where there is overlap. Thus, the potential of cooperation and governance is assumed by shared management among the RBs. An example of this is the deployment of Phase II of the RBSE and Phase VII of the RBMA (Biosphere Reserve of Central Amazon), with the commitment assumed between the Biosphere Reserves for a joint construction for the next phases, increasing the convergence between the reserves, which already occurs through cooperation between these two RB, since 2005.

D) WORK AGENDA - PHASE 2

Considering that RBSE Phase II had already been indicated since the recognition of Phase I of RBSE (2005), the current RBSE Phase II proposal began in 2015 at the time of its 1st Periodic Review. In 2018 it was decided by the State Committee of RBSE, the creation of a Working Group to conduct the actions.

The RBSE Phase II Working Group was composed of representatives from universities, non-governmental organizations, the extractive and rural production sector, municipal representatives and government managers in the area of conservation units. The Working Group is appointed here:

RBSE STATE COMMITTEE WORKING GROUP:

- Pontifical Catholic University of Minas Gerais - Prof. Miguel Ângelo Andrade - Coordinator of the State Committee of the Biosphere Reserve of Espinhaço Mountain
- Biodiversitas Foundation - Gláucia M. Drummond - Vice-coordinator of the State Committee of the Biosphere Reserve of Espinhaço Mountain
- Lagoa do Nado Ecological Cultural Association - Sérgio Augusto Domingues - Executive Secretariat of the State Committee of the Biosphere Reserve of Espinhaço Mountain
- Biodiversitas Foundation - Cassio Soares Martins
- Conceição do Mato Dentro prefecture - Filipe Generoso B. Gaeta
- Fiemg - Federation of Industries of the State of Minas Gerais - Thiago Rodrigues Cavalcanti and Silvia de Freitas Xavier
- Sindiextra - Thais Rêgo Oliveira and Christiane Malheiros
- FAEMG - Federation of Agriculture and Livestock of the State of Minas Gerais - Mariana P. Ramos
- State Forestry Institute of Minas Gerais - Henri Dubois Collet (General Director of IEF - MG) Paulo Scheid and Nilcemar de Oliveira Bejar
- Chico Mendes Institute for Biodiversity Conservation - CR11 - Frederico D. Martins and Juliana Gonçalves

In addition to this Working Group, the proposal was supported by the following institutions:

- Institute: Grande Sertão - Eduardo Gomes
- Pristino Institute - Dr. Flávio Fonseca do Carmo and Dr. Hiromi Yoshino Kamino
- Pontifical Catholic University of Minas Gerais - André Rocha Franco
- Federal University of Minas Gerais / Unimontes - Keyty de Andrade Silva
- Brazilian Network of Biosphere Reserves
- Reserve of the Atlantic Forest Biosphere

For the financial feasibility of the proposal of Phase II of the RBSE, it is also taken into consideration:

- VALE S.A.
- Ministry of the Environment - Secretariat of Biodiversity and Forests
- State Forestry Institute of Minas Gerais

After the feasibility of the work, the RBSE management group met with representatives of IEF (State Forestry Institute) - Minas Gerais and the Ministry of the Environment to present the initial proposal for Phase II. Thus agreed, the work proceeded with other articulations.

The document and proposed zoning for RBSE Phase II were unanimously discussed and approved, according to the attached minutes, at an Extraordinary Meeting of the RBSE State Committee, on August 31, 2018.

After approval of Phase II by the RBSE State Committee, the documents were sent to the Ministry of the Environment, which translated the document and placed it for consideration and approval by COBRAMAB (Brazilian Commission of the Man and the Biosphere Program) - Brazilian Commission of the MaB Program, during the 26th Ordinary Meeting at September 17, 2018.

It is important to note that, with the support of dozens of institutions for the 1st Periodic Review of the RBSE, the proposal for Phase II was carried out in order to consolidate the indicative periodic review, and then proceeded to the processing of information and making decision on the zoning proposed here for this new Phase.



ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

**PART III: DETAILING THE PROPOSAL:
ESPINHAÇO RANGE BIOSPHERE RESERVE
PHASE 2**



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



PART III: DETAILING THE PROPOSAL

This proposed revision of the RBSE zoning, Phase II, presents the aspects established in the Biosphere Reserve and the Biosphere Reserve, at different scales of units of official territorial planning, and with the active participation of governmental institutions, research centers and universities, representatives of local communities, managers of protected areas, private and third sector entities. Added to this participation are potentialities not yet exploited, as well as gaps and weaknesses in a territory surrounded by different political and economic interests. It is a question of assuming here the reissue of successful actions in the RBSE to areas with great needs to be instructed with the principles and functions of the MaB (Man and the Biosphere) Program, which summon the lessons learned by the RBSE until then, and whose learning for the RBSE will be mutual, facing the new realities of this new territory, that is, the north of Minas Gerais. In these thirteen years, the lessons learned by RBSE have been many and the social and conservation gain has been recognized. The search for the institutionalization of the Serra do Espinhaço identity has gained maturity and, at the moment, this proposal represents the reinforcement of amplifying the principles of the MaB Program for regions still in need of territorial strengthening, and that can be favored by the principles of Biosphere Reserve.

The critical analysis that the revision of the limits of the RBSE provides is, in synthesis, a valuable instrument of (re) planning, evaluation and monitoring for the institutional arrangements of great size for the actions of the present and of the future. The zoning review of the RBSE-Phase II contributes to the strengthening of governance processes, the definition and promotion of dialogue on development principles and conservation, as well as the redefinition of responsibilities. This revision of the zoning, aligned with the implementation of the Action Plan of the Biosphere Reserve, appears as a mobilizing action of this proposal. Added to this challenge is the need to align the current RBSE Action Plan with the innovative processes brought by the Lima Plan and the World Biosphere Reserve Network, which is already underway.]

As the dynamism of Biosphere Reserves calls for their continuous monitoring and review, this proposal aims at **expanding of 94 municipalities (Phase I), to 172 municipalities, with a territory of 3,210,903.3 hectares (Phase I), to 10,218,895.20 hectares (Phase II), considering the identities associated with the functions and strategic actions of conservation, development , logistical support and traditional and scientific knowledge, shared management and communication and monitoring of Espinhaço Mountain.**

For its elaboration, the following principles and general criteria are considered, to be detailed throughout the document::

- **The articulation and mobilization** of strategic actors;
- The **consistency between the criteria and strategies adopted** in recognition of the RBSE (Phase 1, in 2015) and in the 1st Periodic Review of the RBSE (2015);
- The **connectivity between the Rupestrian Fields** and associated environments, the ecosystems of the Paths and the Peat bogs of Espinhaço Mountain, as well as the integration between the territorial planning units of the Savanna Biomes, Mata Atlântica and Caatinga, which make up the Espinhaço Mountain.
- The **collaborative geographic and institutional interface with Biosphere Reserves** of the Atlantic Forest and, as of Phase II, with the Caatinga Biosphere Reserve.
- The scientific knowledge of a region rich in biodiversity, archaeological and paleontological sites, still little known and where it is sought the highlight from the Biosphere Reserve of Espinhaço Mountain of the **Ferruginous Geosystems of Peixe Bravo**, in the north of Minas Gerais.

- The **recognition of products and rural producers, through verification of products of socio-biodiversity**, such as pequi (*Caryocar brasiliense* Camb), umbuzeiro (*Spondias tuberosa* Arr. Cam), from which umbu, *Anacardium humile*, ruffian (*Peritassa campestris*), macaúba (*Acrocomia aculeata*) and the fava d'anta (*Dimorphandra mollis*), and products of geographical identity, such as the cachaça of the Salinas region. On the other hand, it is incorporated with Phase II, **the challenge of strengthening one of the regions with the lowest Human Development Index in Brazil.**

- The **decentralization of RBSE management processes**, regionalizing this vast territory of multiple identities, in its southern and northern portion.

- The propositions of **shared management of conservation territories, such as the Espinhaço Protected Area Mosaics** (Mosaic of Protected Areas Espinhaço Alto Jequitinhonha - Cabral Mountain, already recognized, and Mosaic of Protected Areas of the Southern Espinhaço - Cipó Mountain, being recognized by the Ministry of the Environment).

- The potential for recognition of a **new Mosaic of Protected Areas in the northern region of the Biosphere Reserve of Espinhaço Mountain**, generating technical cooperation between conservation units, logistical support and programs of social mobilization and regional development **as well as to the region of the Iron Quadrangle region, to the south of the RBSE**

- The strengthening of the RBSE together with **National Landscape Connectivity Program – Conecta** (decree number 75, dated March 26, 2018), established by the Ministry of the Environment.

- The creation, within the RBSE State Committee, of the **Program: Corridors of the Biosphere Reserve of Espinhaço Mountain: connecting natural and cultural landscapes.**

- The incorporation of Biosphere Reserves in the State of Minas Gerais in **environmental regulation policies**, which assumed the Biosphere Reserve of Serra do Espinhaço in 2017 as a locational criterion for Environmental Licensing of projects of potential environmental impact (COPAM - State Council for Environmental Policy - Normative Resolution, number 217/17).

- The **Tourist Routes of Espinhaço Mountain** which is added to the network of routes in the region, proposed for expansion of the RBSE where you can highlight: the crossing: Talhado: waterfall: Cachoeira do Cerrado and the crossing: Talhado: Sete Quedas and Talhado Serra Nova, all within the Serra Nova State Park, in Grão Mogol; the crossing: trilha do Barão, between the city of Grão Mogol and Fazenda Cafezal, historical in the region; the Tropa / Peripiri Trail, and the crossing: Folha Larga, both in Botumirim; the crossing: Gigante, the trail: Trilha da Bocaina; the Trail: Campina Pé da Serra; the trail: Laerte-Poço do Bananal; the trail: Trilha Serrinha Rio de Peixe; Trilha Prata/ Rio de Peixe in the lake of Irapé; the trail: trilha do Vale da Limeira until Tamanduá; the trail: Trilha da cachoeira do Curiando; a Trilha do Encantado, in Serra Resplandescente in Monte Azul; the trail: cidade campina/ basis of Formosa Peak; the trail: climbing of Formosa Peak in Cristália; the trail: cidade Morro do Chapéu; the road map: off road - Gortuba Lapinha da Serra. As well as the creation of **Program of Long Track Trails** to the RBSE territory that inaugurated, in 2018, the installation of **Transespinhaço Trail**, itinerary of more than seven hundred kilometers, connecting some fifty conservation units, communities and natural and cultural attractions of Espinhaço.

It is highlighted the **CRER, Religious Way of the Royal Road**, which connects the sanctuaries: Basilica Nossa Senhora da Piedade (the most visited Integral Protection Conservation Unit in Minas Gerais) to the Sanctuary of Aparecida do Norte.

- The expansion of the **Situational Diagnosis of Management of the RBSE Municipal Conservation Units** for the municipalities of Phase 2 of the RBSE.
- RBSE's participation in the creation of **new Core Areas in the proposed region**, highlighting the **Botumirim State Park**, area of special relevance, given the occurrence and the recent rediscovery of an extremely rare bird, the **Rolinha do Planalto - dove (*Columbina cyanopis*)**, a highly vulnerable and fragile species. Given as extinct by science, the Rolinha do Planalto (dove) is endemic to savanna - Espinhaço Mountain, and was last sighted in 1941, but was rediscovered in the current conservation unit in July 2015.
- The inclusion in Phase II zoning of the RBSE of **areas covered by institutions of artistic and cultural heritage, management of protected areas, with the limits of conservation units not considered in Phase I.**
- The implementation of an important priority of the RBSE Action Plan: **the Communication and Monitoring**, with the creation of the Biosphere Reserve Magazine in 2017, which published in its first edition the synthesis of the 1st Periodic Review of the RBSE; the creation of the RBSE Website; the development and availability of up-to-date geospatial information through **RBSE Geoenvironmental Atlas**; the **road signs with indicative signs** of RBSE, in more than 20 municipalities, initially; the incorporation of the RBSE limits into the platform of **Spatial Data Infrastructure of the State System of Environment and Water Resources (IDE-SISEMA)**, established by the Joint Resolution SEMAD / FEAM (State Foundation for the Environment) / IEF (State Forestry Institute) / IGAM (Minas Gerais Institute of Water Management) number 2.466 / 2017
- The responses to UNESCO's recommendation in the 1st Periodic Review in 2016 on the issue of mining.
- The study and strategic responses for the biodiversity conservation of Espinhaço Mountain, with the **Project: Espinhaço Sempre Vivo** (2005), which was updated in 2015 in our First Periodic Review, indicating the **Irreplaceable areas of Espinhaço Mountain.**
- The inclusion of **Farms: BAZE** (Brazilian Alliance for Zero Extinction) for the determination of the new zoning, territories defined starting, AZE Global Project "Alliance for Zero Extinction: Protection of Irreplaceable Natural Sites for the Conservation of Endangered Biodiversity".
- Public policy for the conservation of biodiversity, through the **National Action Plans for Endangered Species (PANs)**, being that, for the scope area of the RBSE, 15 National Action Plans are developed.
- The **inclusion of the Ramsar farm: LUND-WARMING** in Phase II of the RBSE.



ESPINHAÇO RANGE BIOSPHERE RESERVE PHASE 2

**PART IV: GOVERNANCE, MANAGEMENT
AND COORDINATION OF ESPINHAÇO
RANGE BIOSPHERE RESERVE - PHASE 2**



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme



Sustainable
Development
Goals



PART IV: GOVERNANCE, MANAGEMENT AND COORDINATION OF BIOSPHERE RESERVE

The Managing Committee of RBSE currently has an office located at PUC Minas - Pontifical Catholic University of Minas Gerais located at the avenue: Dom José Gaspar, number: 500, Building, number: 25 - Eucharistic Heart in Belo Horizonte state of Minas Gerais - Brazil (mail box: 1,686 - zip code: 30535610).

The RBSE Office at PUC Minas is located in the Integration Center for Environmental Sustainability (CISAL), a laboratory / observatory of orientation, professional practice and technological and scientific development, associated to the Biological Sciences Department of PUC Minas, which has trained technical-scientific staff, including students, staff and teachers from PUC Minas.

The laboratory aims at innovation, strengthening itself as a study environment, project design and development, intersectoral and institutional articulation in the area of environment and social-environmental business. In addition, CISAL acts as a center for the promotion of entrepreneurship, whose foundation is consolidated through research, teaching and extension.

Infrastructure installed and made available to the RBSE Management Committee:

- 10 MICROCOMPUTERS;
- 2 PRINTERS (A3 AND A4);
- MEETING ROOMS;
- MULTIMEDIA PROJECTORS;
- OFFICE SUPPLIES;
- THEMATIC LIBRARY AND DIDACTIC MATERIALS;
- AUDITORIUMS; AND
- SUPPORT FROM SECTORS OF PUC MINAS.

FIGURE 92: LOCATION OF THE CENTRAL OFFICE OF THE STATE COMMITTEE OF THE BIOSPHERE RESERVE OF ESPINHAÇO MOUNTAIN - INTEGRATION CENTER FOR ENVIRONMENTAL SUSTAINABILITY (CISAL), AT THE CAMPUS EUCHARISTIC HEART OF THE PONTIFICAL CATHOLIC UNIVERSITY OF MINAS GERAIS.



In addition to the central office, the Steering Committee has been using the facilities of several municipal, state and federal Conservation Units for a series of workshops and traveling meetings with the purpose of increasing participation for the managers of these units as well as promoting the integration of the councilors. Meetings have already been held at the following RBSE conservation units:

- Itacolomi State Park, located in the municipalities of Mariana and Ouro Preto, in the southeast region of Minas Gerais, 100 kilometers from the Capital.
- Tripuí Ecological Station, which is located in the Municipality of Ouro Preto, approximately 90km from Belo Horizonte.
- Serra do Rola-Moça State Park, located within the metropolitan area of Belo Horizonte.
- National Park of Cipó Mountain, located in the central area of the State of Minas Gerais, 100 km from the capital, Belo Horizonte.
- Municipal Natural Park of Tabuleiro, located in Conceição do Mato Dentro, 165 km from Belo Horizonte.
- Mangabeiras Municipal Park, located in Belo Horizonte Capital.
- Mosaic of Protected Areas Alto Jequitinhonha - Cabral Mountain, in Diamantina, which has strong support from the UFVJM and the Biotropics Institute.

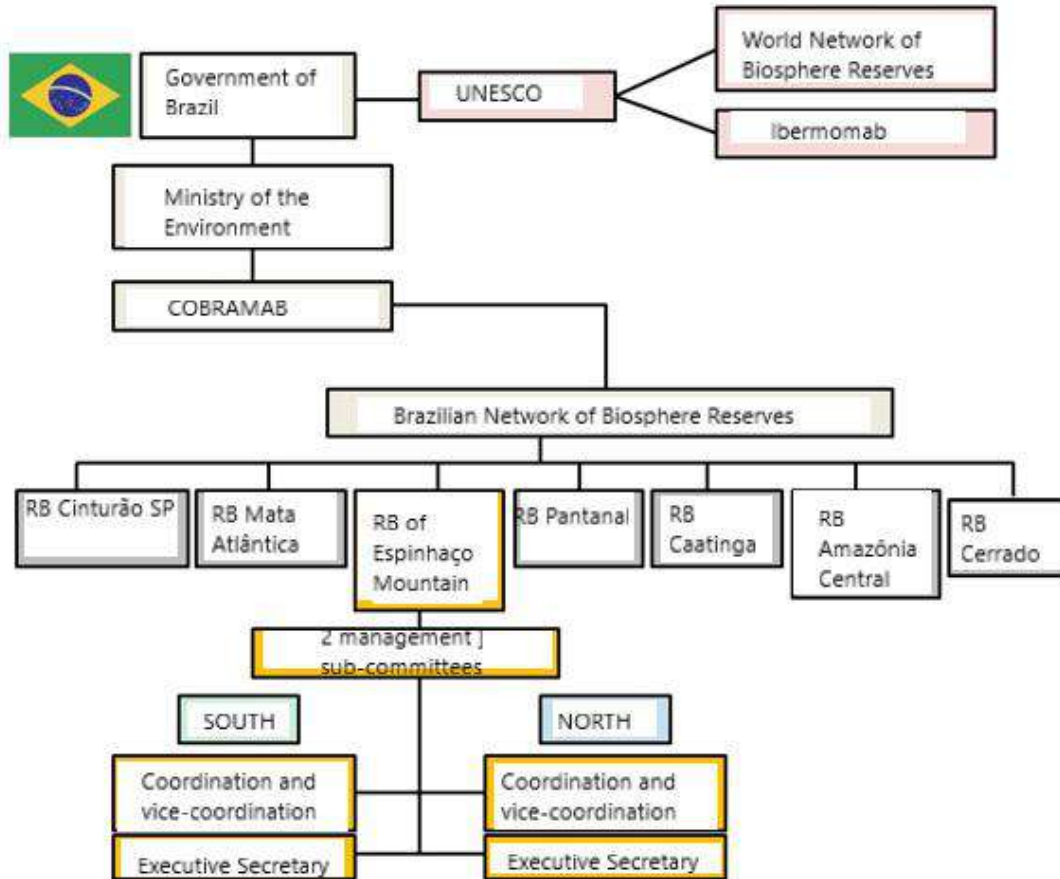
Directly, the Steering Committee counts on a team of guiding teachers, scholarship students and trainees in general connected to the Biological Sciences course that divide the workload between their research projects and the support to the Committee. Such activities are carried out within the central office of the Management Committee at PUC Minas. Technical support has also been provided by staff members of the following governmental and non-governmental bodies:

- ACELN and Fundação Biodiversitas - NGOs that have played a predominant role in the Management Committee, either by the Coordination (previous management), Vice coordination (current management) and Executive Secretariat (current management).
- Production Sector: sector represented by SINDIEXTRA and FIEMG (Federation of Industries of the State of Minas Gerais), has financially and technically supported RBSE projects. In addition, this sector has been increasingly involved in discussions of themes and objects of the RBSE with the Steering Committee.
- Secretariat of State for Environment and Sustainable Development (Semad) and related bodies: State Foundation for the Environment (Feam), responsible for environmental quality in the State; State Forestry Institute (IEF) responsible for the Green Agenda; and the Minas Gerais Institute for Water Management (IGAM), which responds to the Agenda Azul (Blue Agenda).
- The Chico Mendes Institute for Biodiversity Conservation (ICMBio), which is a special regime, linked to the Ministry of the Environment and member of the National Environment System (Sisnama), especially for its Regional Coordination CR11 located in the municipality of Lagoa Santa in Minas Gerais.

Presented at the 6th Meeting of the Brazilian Commission for the "Man and the Biosphere" Program - COBRAMAB (Brazilian Commission of the Man and the Biosphere Program) held on April 27, 2005, the proposal for the recognition of the Serra do Espinhaço as a Biosphere Reserve was sent by the Government of Brazil and approved by UNESCO in the year 2005.

RBSE, as well as other Brazilian Biosphere Reserves, is under the coordination of the Brazilian Commission for the "Homem e a biosfera - Man and the Biosphere" Program - COBRAMAB, linked to the Ministry of Environment of the Federal Government of Brazil, according to the organization chart below:

FIGURE 93: OPERATING ORGANIZATION OF BIOSPHERE RESERVATIONS IN BRAZIL.



In this sense, the RBSE's governance is oriented under three fundamental legal frameworks:

1 - National System of Conservation Units (SNUC): Federal Law number 9,985, of July 18, 2000 for Conservation Units and protected areas. The law defines a set of federal, state and municipal Conservation Units (UC). It is composed of 12 categories of Conservation Units, whose specific objectives differ in the form of protection and permitted uses: those that need greater care, their fragility and particularities, and those that can be used in a sustainable way and conserved at the same time. In this System a Biosphere Reserve is included as a special category, expressed in item XI that has five articles transcribed below:

XI - REGARDING THE BIOSPHERE RESERVES

Article 41. The Biosphere Reserve is a model of integrated, participatory and sustainable management of natural resources, whose basic objectives are the preservation of biodiversity and the development of scientific research activities, to deepen the knowledge of this biological diversity, environmental monitoring, environmental education, sustainable development and the improvement of the quality of life of the population.

Article 42. The management of Biosphere Reserves will be coordinated by the Brazilian Commission for the "O homem e a biosfera - Man and the Biosphere" Program - COBRAMAB (Brazilian Commission of the Man and the Biosphere Program), which is dealt with in the Decree of September 21, 1999, in order to plan, coordinate and supervise activities relating to the Program.

Article 43. COBRAMAB, in addition to that established in the Decree of September 21, 1999, shall support the creation and installation of the management system for each of the Biosphere Reserves recognized in Brazil.

§ 1 When the biosphere reserve covers the territory of only one State, the management system will be composed of a deliberative council and regional committees.

Paragraph 2. When the Biosphere Reserve covers the territory of more than one State, the management system shall be composed of a deliberative council and state committees.

Paragraph 3. COBRAMAB is responsible for creating and coordinating the National Network of Biosphere Reserves.

Article 44. It is incumbent upon the deliberative councils of Biosphere Reserves:

I - To approve the structure of the management system of its Reserve and to coordinate it;

II - To propose to COBRAMAB macro-guidelines for the implementation of Biosphere Reserves;

III - To prepare action plans for the Biosphere Reserve, proposing priorities, methodologies, schedules, partnerships and thematic areas of action, according to the basic objectives enumerated in article 41 of Law number 9.985, of 2000;

IV - To reinforce the implementation of the Biosphere Reserve by proposing pilot projects at strategic points in its domain area; and

V - To implement, in the areas of the Biosphere Reserve, the basic principles contained in article 41 of Law 9.985, of 2000.

Article 45. It is incumbent upon the regional and state committees:

I - To support local governments in the establishment of public policies related to Biosphere Reserves; and

II - To identify priority areas and propose strategies for the implementation of Biosphere Reserves, as well as for the diffusion of their concepts and functions.

2 - State Decree number: 44.281 of April 25, 2006: Expresses the interest of the State of Minas Gerais in stimulating the participation of the various segments of society in the implementation of the Biosphere Reserve of Espinhaço mountain..

After a period of presentation of ideas, discussions, studies and events, a joint initiative was initiated with the State Secretariat for the Environment and Sustainable Development (SEMAD) and the State Forestry Institute (IEF) to identify the main possibilities of partnerships with institutions that develop activities in the territory of the Biosphere Reserve of Espinhaço Mountain, as well as those that played a more active role in the elaboration of the proposal of its creation. In this way the bases for the formation of a Management Committee were built, which has 28 representations according to the State Decree, but currently 21 institutions representing civil society and governments are active.

The technical and logistical support for the management of the RBSE has been established based on own contributions according to the nature of each of the institutions that make up the Committee. Whether from the governmental sector, non-governmental sector, productive sector, universities or local communities. The proposals are taking place through a Strategic Action Plan built in a participatory manner. The main objective of the plan is to strengthen collective capacities with the formation of a network of cooperation between participating institutions and others that are interested in the process.

The Steering Committee has 7 types of representations: Federal, State and Municipal Government, Universities, productive sector, non-governmental organizations and traditional populations. The Federal Government has an institution related to environmental policies with an emphasis on conservation. The State Government has 5 representations, four of which are related to the environmental agenda and one related to culture. There are 5 municipalities representing the portions south, center and north of Espinhaço, three universities, two of them public and one private, and three NGOs (Non-governmental organizations) with social and environmental activities.

The form of participation of the indigenous populations is officially given through the Decree of creation of the Management Committee (State Decree number: 44.281 of April 25, 2006) that defines a titular councilor and an alternate of the Traditional Populations. In the specific case of these representations, the nomination is made through a non-governmental, nonprofit, philanthropic, scientific, cultural and community organization, statewide, with headquarters in the city of Belo Horizonte, State of Minas Gerais. The denomination entity CEDEFES aims to promote information and cultural and pedagogical training, documenting, archiving, researching and publishing topics of interest to populations and social movements.

In this sense it creates the State Committee of the Biosphere Reserve of Espinhaço Mountain, a collegiate body, linked to the Brazilian Network of Biosphere Reserves with the following attributions:

- To ensure and coordinate the implementation of the RBSE in the State, establishing its guidelines and strategies for action;
 - To exercise and disseminate the principles of the RBSE;
 - To approve and coordinate the RBSE management system, in accordance with the guidelines established by the MaB-UNESCO Program;
 - To elaborate, in a participatory manner, the RBSE State Action Plan, proposing priorities, methodologies, partnerships and areas of action;
 - To foster studies and projects aiming at the conservation of natural and cultural heritage, stimulating sustainable development and scientific knowledge of the RBSE;
 - To support projects, programs and projects of interest to RBSE;
 - To articulate institutional efforts and act as a facilitator to raise funds for conservation, development and research projects in the RBSE;
 - To collaborate to improve legislation and public policies in the Serra do Espinhaço area;
 - To propose and support the tipping of the state and federal environmental and cultural patrimony of Espinhaço Mountain included in the RBSE;
 - To encourage and support the establishment of pilot areas of the RBSE and homologate those already existing, aiming at the development of model projects that provide for the implementation of the Reserve, through regional actions;
 - To encourage and propose the implementation of public and private Conservation Units;
 - To evaluate and approve proposals to create RBSE advance posts;
-
- To analyze and approve the RBSE projects, to be sent to any instance for possible financial support;
 - To promote the realization of socio-environmental diagnostics in the RBSE area, in order to base the definition of priority actions;

- To encourage scientific research in the biomes and ecotones that integrate the Espinhaço Mountain;
- To promote the development and dissemination of incentives for environmental conservation and recovery;
- To evaluate, in conjunction with the State of Bahia, issues related to the RBSE in neighboring areas;
- To prepare its internal regulations.

The Steering Committee has representations of the Federal, State and Municipal Government, universities, productive sector, nongovernmental organizations and traditional populations. The representation of the Federal Government that is given by the environmental agency, has collaborated in the policies with emphasis to Conservation Units and biodiversity programs.

The State Government also has representativity related to the environmental agenda collaborating with greater intensity in the specific actions of the Core Zones, monitoring and environmental inspection. It is also worth mentioning the activities of the Secretariat of Culture in matters related to the inventory of tangible and intangible heritage of the territory. The participation of the five municipalities that represent the southern, central and northern portions of Espinhaço collaborate irregularly, always depending on the political situation of the managers and the level of interest of each one. Nevertheless, whenever it is possible to establish partnerships with municipal public administrations, the results are very significant.

Among the three universities only one has a more regular activity in the Committee, including assuming coordination and a good part of the organizational initiatives of the Reserve. In some cases, the Committee has been successful with departments of some universities for more timely projects and collaborations. The three NGOs that remain active in the Committee are largely responsible for maintaining the administrative and financial nature of the RBSE, including bearing the costs of drafting this revision document.

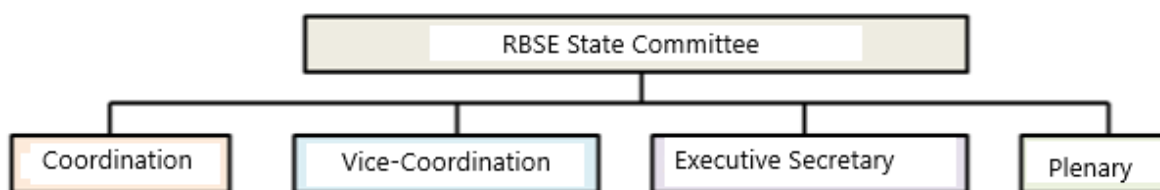
In a first evaluation it is possible to verify the need for substitution and inclusion of new institutions within the Management Committee. Many institutions with specific activities in the territory of Serra do Espinhaço have already shown interest in this regard. The proposed revision of the Internal Regime, with the extension of Phase II of the RBSE, necessarily implies the complementation of the participation of institutions representative of the region intended for expansion, as well as partner institutions of the RBSE State Committee.

To implement the assignments, three strategies were defined:

- To promote the integration of municipalities, local communities, non-governmental organizations, research centers and private initiative in the implementation actions of the RBSE;
- To optimize the operationalization between the different bodies directly or indirectly linked to the RBSE issue in the State, collaborating to integrate their policies and actions;
- To seek cooperation with other Biosphere Reserves, as well as with state, national and international institutions.

The structure of the State Committee of the Biosphere Reserve of Espinhaço Mountain follows:

FIGURE 94: STRUCTURE OF THE RBSE STATE COMMITTEE.



3 - Internal Rules of the Steering Committee: Set of rules prepared by the members representing the various institutions to regulate the following issues:

- Objectives of the Steering Committee Committee.
- Competencies in view of their advisory, normative and deliberative character.
- Composition of members of the public power and civil society.
- The duties of each member.
- Management and attributions of the Coordinator, Deputy Coordinator and Executive Secretary.
- Operation of meetings and other participations.

In order to comply with the RBSE premises and MaB guidelines, directing efforts (fundraising and application of resources, activities and support) to its Management, it was elaborated the Action Plan for the Biosphere Reserve

of Espinhaço Mountain (2015-2016), revised from the first Plan of Action (2011-2013) containing 5 main objectives: For each objective, main actions were established. After the definition of the targets and priorities, thematic work groups will be created for the validation of co-responsibilities and autonomy in the Steering Committee.

Objective 1: To promote the conservation function of the RBSE

- To stimulate the implementation of Conservation Units already created;
- To discuss the zoning of the RBSE with the recognition of the new Conservation Units;
- To induce and support the recognition and implementation of mosaics of conservation units in RBSE - Espinhaço Mosaic: Jequitinhonha - Cabral, Cipó - Intendente and Iron Quadrangle regions
- To perform technical-scientific discussions to define the biome condition of the rupestrian fields;
- To implement a system of information, management and monitoring of water quality in the basins of the Biosphere Reserve of Espinhaço Mountain;
- To stimulate projects for the recovery of water resources in the hydrographic basins of the Biosphere Reserve of Espinhaço Mountain.
- To inventory of project initiatives related to the sustainable use of natural resources.
- To identify projects in the area of environmental recovery and prevention and combat of forest fires;

- To map the distribution of endangered and invasive species within the RBSE; and
- To identify and disseminate connectivity programs and mosaics of Conservation Units.

Objective 2: To promote the RBSE development function

- To prepare the map of Land Use and Occupation - inventory of productive activities: mining; industry; agrosilvipastoral; family farming; power generation plants; among others.
- To develop discussion platform and disseminate good practices for the mineral sector;
- To inventory of good land use initiatives;
- To recognize and promote traditional knowledge and practices;
- To monitor the investment of resources in the UCs inserted in the RBSE;
- To map the distribution of cultural heritage listed, material and immaterial, within the RBSE.
- To stimulate projects for payments for environmental services in the RBSE;
- To create the seal for commercialization of Espinhaço products; and
- To raise recognized tourism circuits within the RBSE with a view to integration.

Objective 3: to promote the logistical support function - scientific and traditional knowledge of the RBSE

- To articulate environmental and heritage education network within reach of the community in general;
- To stimulate projects of training and training of conservation unit officials about the RBSE;
- To inventory of community leaders and traditional populations;
- To raise councils of culture, environment, conservation unit and others in the municipalities of RBSE, with a view to spreading the functions and actions of the RBSE;
- To structure a georeferenced database of images, articles and theses.
- To promote socio-environmental monitoring in Espinhaço territory;
- To promote the discussion on the integration of the different territorial management instruments in the RBSE space.

Objective 4: to make feasible the management of the RBSE Committee;

- To discuss the process of creation PJ of the friends of the RBSE to capture and manage financial resources;
- To map of ongoing actions to and for the RBSE with definition of forms and targets for monitoring and support;
- To participate in the creation of the Alliance of Biosphere Reserves of Brazil;
- To review the Internal Rules of CERBSE Decree (s);
- To consolidate and maintain the necessary structure for the operation of the RBSE offices;
- To check the feasibility of creating an intermunicipal consortium for shared management in the territories of the RBSE.
- To elaborate a business plan / with emphasis on productive arrangements for products with the Espinhaço brand;
- To promote specific discussion agendas with UNESCO, Government of Mines, Federal Government, prefectures, NGOs, companies, managers of conservation units, universities and other RBs;
- To capture resources for the RBSE with UNESCO, the federal, state, municipal governments and private initiative and other institutions;
- To monitor continuously the RBSE action plan with efficiency check;

- To monitor business plans and cooperation plans;
- To monitor the Communication and Marketing Plan; and
- To recognize and support the implementation of RBSE Advance Stations.

Goal 5: To promote RBSE communication and marketing

- To register the RBSE logo;
- To update the Communication and Marketing Plan;
- To create a visual identity for the communication material;
- To prepare printed information material (institutional);
- To publish newsletters;
- To establish the day of the Biosphere Reserve of Espinhaço Mountain;
- To establish the Evergreen Award;
- To produce and publish the RBSE book;
- To structure a media team and public relations;
- To create and maintain the RBSE portal on the Internet;
- To carry out the Espinhaço Expedition;
- To promote and carry out courses, forums, congresses, seminars and workshops on art, education, culture and the environment;
- To identify opportunities for dissemination of the RBSE (events, seminars, lectures, etc.); and
- To promote the exchange with the national and international reserves network.

As a link in the World Network of Biosphere Reserves, approaching the guidelines suggested by the MaB (Man and the Biosphere) Program required not only to know them, but also to monitor and promote national, regional and international exchanges on how to put them into practice.

Always counting on the commitment of many members of the Committee, as well as of many other partners, it was possible to attend the meetings, congresses, seminars and main meetings proposed by UNESCO headquarters in Paris, the Ibero-MaB group, of Montevideo and the Brazilian Network of Biosphere Reserves.

Seeking to create good connections with other reserves and to improve the knowledge of the advisors themselves, the RBSE Committee also hosted two international meetings on related topics. Ecosystem services and the extraction of natural resources have been treated as crosscutting tools in policy discussions and cooperation proposals.

Action plan

The Action Plan will have to act as a communication protocol between senior and new advisers, facilitating the organization of information, mobilizing efforts and raising funds for compliance with the guidelines established under the MaB (Man and the Biosphere) -UNESCO Program.

In order to enforce the premises of the Biosphere Reserve of Espinhaço Mountain - RBSE and MaB (Man and the Biosphere) guidelines, directing efforts (funding and application of resources, activities and support) for its Management, it was elaborated the Action Plan of the Biosphere Reserve of Espinhaço Mountain with 5 main objectives:

For this purpose, workshops will be held with the following objectives:

- Provide the new advisers of the Biosphere Reserve of Espinhaço Mountain with a reflection on the meaning of the MaB-UNESCO program.
- Promote in the participants the sense of connection and belonging to the Biosphere Reserve of Espinhaço Mountain;
- To improve quality in the relationship by stimulating cooperative work;
- To map more urgent opportunities and needs;
- To discuss priorities in the RBSE management process;
- To organize strategically a set of actions for the management of the RBSE during the 2019-2020 biennium.

- 1- To promote the conservation function of the RBSE;
- 2 - To promote the RBSE development function;
- 3 - To promote the function of logistical support - scientific and traditional knowledge of the RBSE;
- 4- To enable the management of the RBSE Committee;
- 5 - To promote communication and marketing of RBSE.

MANAGEMENT COMMITTEE

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Administrative Details Country: Brazil

Name of the RB: Biosphere Reserve of Espinhaço Mountain

Year of designation: 2005

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Related Links (web pages):

- Blog of RBSE: <http://rbse-unesco.blogspot.com.br>.
- Facebook of RBSE: <https://www.facebook.com/ReservaDaBiosferaDaSerraDoEspinhaco>.
- E-mail of RBSE: rbsemg@gmail.com
- Geoenvironmental Atlas of the Biosphere Reserve of Espinhaço Mountain – <http://institutopristino.org.br/atlas/espinhaco/>

BIBLIOGRAPHIC REFERENCES

ANDRADE, Miguel Ângelo; MARTINS, Cássio Soares; DOMINGUES, Sergio Augusto (Org.), et al. **Primeira Revisão Periódica da Reserva da Biosfera da Serra do Espinhaço**. Reserva da Biosfera da Serra do Espinhaço, MaB-UNESCO. Belo Horizonte, Minas Gerais, Brasil. 2015.

BRASIL, Ministério do Turismo. **Diretrizes para o Desenvolvimento do Turismo Rural no Brasil**. Brasília: Ministério do Turismo, 2003:11.

BRASIL. Ministério do Turismo. **Turismo rural: orientações básicas**. / Ministério do Turismo, Secretaria Nacional de Políticas de Turismo, Departamento de Estruturação, Articulação e Ordenamento Turístico, Coordenação Geral de Segmentação. – 2. ed – Brasília: Ministério do Turismo, 2010. page: 68.

_____. **Law number 9,985, of July 18, 2000**. Institui o Sistema Nacional de Unidades de Conservação da Natureza do Brasil (SNUC). Brasília, 2000.

CARMO, F.F. 2010. **Importância Ambiental e Estado de Conservação dos Ecossistemas de Cangas no Quadrilátero Ferrífero e Proposta de áreas-alvo para a Investigação e Proteção da Biodiversidade em Minas Gerais**. Masters dissertation, ICB (Institute of Biological Sciences)/UFMG (Federal University of Minas Gerais).

CARMO, F.F., CARMO, F.F., BUCHMANN, F.S., FRANK, H.T., JACOBI, C.M. 2011. Primeiros registros de paleotocas desenvolvidas em formações ferríferas. Minas Gerais, Brasil. In: **Anais 31 CONGRESSO BRASILEIRO DE ESPELEOLOGIA, 2011**, Ponta Grossa. Anais 31 Congresso Brasileiro Espeleologia, pages: 531-540.

CARMO, F.F.; CARMO, F.F.; CAMPOS, I.C.; JACOBI, C.M. 2012. Cangas: Ilhas de Ferro Estratégicas para a Conservação no Brasil. **Ciência Hoje**, 50: 49-53.

CARMO, F.F. & JACOBI, C.M. 2012. Plantas vasculares sobre cangas. In: JACOBI, C.M.; CARMO, F.F. (Org.). **Diversidade Florística nas Cangas do Quadrilátero Ferrífero**. 1ed. Belo Horizonte: IDM Ltda, pages: 31-42.

CARMO, F.F., CAMPOS, I.C., CARMO, F.F., TOBIAS JUNIOR, R. 2015. O Vale do Peixe Bravo: área prioritária para a conservação dos geossistemas ferruginosos no norte de Minas Gerais. In: Carmo, F.F. & Kamino, L.H.Y. (Orgs.) **Geossistemas Ferruginosos do Brasil: áreas prioritárias para conservação da diversidade geológica e biológica, patrimônio cultural e serviços ambientais**. 1 edition: 2015, volume: 1, pages: 497-520.

CARMO, F.F. & KAMINO, L.H.Y. 2015. Introdução. In: CARMO, F.F. & KAMINO, L.H.Y. (Orgs.) **Geossistemas Ferruginosos do Brasil: áreas prioritárias para a conservação da diversidade geológica e biológica, patrimônio cultural e serviços ambientais**. Belo Horizonte: 3i Editora.

DE OLIVEIRA, Ana Carolina Campanha et al. Histórico e implementação de sistemas de Pagamentos por Serviços Ambientais no Estado de Minas Gerais. **Sustentabilidade em Debate**, volume: 4, number: 1, pages: 139-159, 2013.

DINIZ, Gabriela Lima et al. Mapeamento dos povos e comunidades tradicionais de Minas Gerais: visibilização e inclusão sociopolítica. Um breve relato sobre incursões no semiárido mineiro. **Interfaces-Revista de Extensão da UFMG**, v. 3, number: 1, page: 69-88, 2016.

GIULIETTI, A.M.; RAPINI, A.; ANDRADE, M.J.G; QUEIROZ, L.P. & SILVA, J.M.C. (Org.). 2009. **Plantas Raras do Brasil**. Belo Horizonte, MG. Conservation International, page: 496.

GRAZIANO DA SILVA, José et al. Turismo em áreas rurais: suas possibilidades e limitações no Brasil. In: ALMEIDA, J.A. et al. (Org.). **Turismo Rural e Desenvolvimento Sustentável**. Santa Maria: Centro Gráfico, 1998:14.

JACOBI, C. M.; CARMO, F.F.; CAMPOS, I.C. 2015. Iron geosystems: priority areas for conservation in Brazil. In: Mark Tibbett. (Org.). **Mining in Ecologically Sensitive Landscapes**. 1ed.: v. 1, p. 1-25.

MELO, Ana Carolina Almeida; SILVA, EL da. Queijo Minas Artesanal: Patrimônio Brasileiro Proibido e Oportunidade para o Desenvolvimento do Turismo Rural em Serro/MG. **Anais do VIII FÓRUM INTERNACIONAL DE TURISMO DO IGUASSU**, 2014.

MYERS, N.; MITTERMEIER, R. A.; MITTERMEIER, C. G.; FONSECA, G. A. B. & KENT, J. 2000. Biodiversity hotspots for conservation priorities. **Nature** 403: 853-858.

NEVES, André Luiz Baeta. 01) A Associação Amigos de Santana dos Montes/MG e o Desenvolvimento do Turismo Rural: Um Estudo de Caso. **Revista Brasileira de Gestão e Engenharia | RBGE | ISSN 2237-1664**, number: 14, pages: 01-19, 2016.

RUCHKYS U.A. 2007. **Patrimônio geológico e geoconservação no Quadrilátero Ferrífero, Minas Gerais: potencial para criação de um geoparque da UNESCO**. Tese de Doutorado. Pós-Graduação em Geologia, Departamento de Geologia, Universidade Federal de Minas Gerais, 209p.

SCHAEFER, C.E.; CÂNDIDO, H.G.; CORRÊA, G.R.; PEREIRA, A.; NUNES, J.A.; SOUZA, O.F.; MARINS, A.; FILHO, E.F.; KER, J.C. 2015. Solos desenvolvidos sobre canga ferruginosa no Brasil: uma revisão crítica e papel ecológico de termiteiros. pages: 77-102. In: CARMO, F.F. & KAMINO, L.H.Y. (Orgs.) **Geossistemas Ferruginosos do Brasil: áreas prioritárias para a conservação da diversidade geológica e biológica, patrimônio cultural e serviços ambientais**. Belo Horizonte: Book publisher:3i.

WUNDER, S. **Payments for environmental services: some nuts and bolts**. CIFOR, Occasional Paper, page: 42, 2005.

ANNEXES - COMPLEMENTARY DOCUMENTS

A) Minutes of the State Committee of the Biosphere Reserve of Espinhaço Mountain - August 31, 2018

B) Digital Cartographic Base (Files: *Shapefile* and PDF)

C) Letters of Support

D) Photographs

ESPINHAÇO, BIOSPHERE RESERVE OF THE MOUNTAIN - PHASE 2

MINISTRY OF THE ENVIRONMENT

BRAZILIAN COMMISSION FOR THE PROGRAM "THE MAN AND THE BIOSPHERE" - COBRAMAB

STATE COMMITTEE OF THE SERRA DO ESPINHAÇO BIOSPHERE RESERVE



