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APARADOS DA SERRA GERAL
CANYON GUIDE

. LEANDRO BAZOTTI . TATIANA BRESSEL .

CaminO EDITORIAL

Vol I

APKANION

APARADOS DA SERRA GERAL

CANYON GUIDE

Selected for the RIC
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Associação Praiagrandense de Canionismo

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Leandro Bazotti e Tatiana Bressel

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Talma Maiara Pereira Valim

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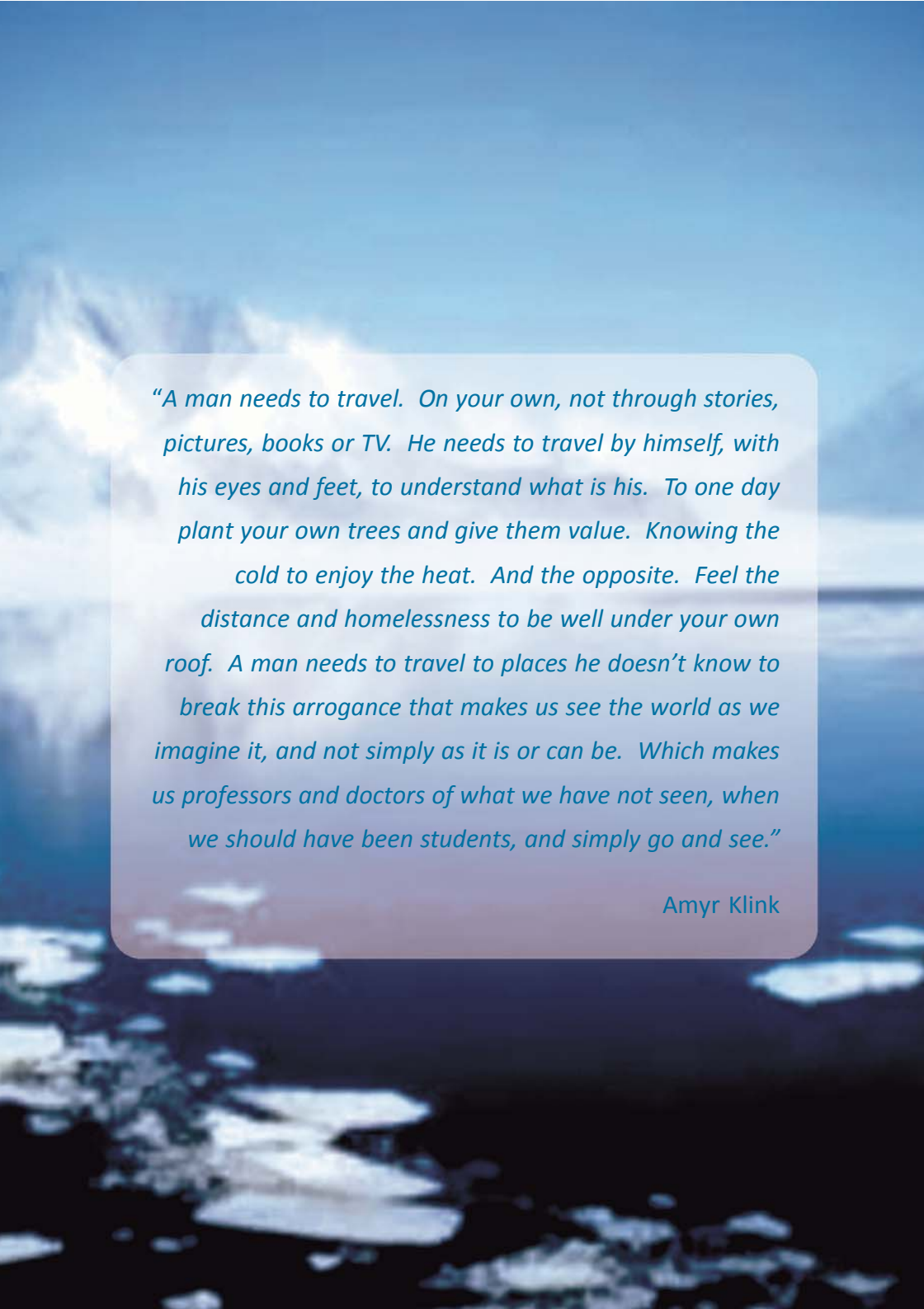


"A man needs to travel. On your own, not through stories, pictures, books or TV. He needs to travel by himself, with his eyes and feet, to understand what is his. To one day plant your own trees and give them value. Knowing the cold to enjoy the heat. And the opposite. Feel the distance and homelessness to be well under your own roof. A man needs to travel to places he doesn't know to break this arrogance that makes us see the world as we imagine it, and not simply as it is or can be. Which makes us professors and doctors of what we have not seen, when we should have been students, and simply go and see."

Amyr Klink

Thanks

The production of this guide was only possible through the collaboration of a large number of people. Different professors, researchers and photographers contributed with rich, didactic and updated material on the characteristics and history of the region. The names of these collaborators are in their respective texts and images. We would like to thank all this team that collaborated voluntarily, dedicating time to provide us with this material presented here.

COLLABORATING AUTHORS: Bento Junior, Cristiano Agra Iserhard, Flavia P. Tirelli, Gustavo Simão, Juliano Bitencourt Campos, Luiz Carlos Weinschütz, Maria Elisabeth da Rocha, Mikael Mizieski, Patrick Colombo, Roberto Baptista de Oliveira and Vinicius Renner Lampert.

Here, we want to give a special thanks to the entire APKanion team and collaborators who organized themselves into different work fronts that coordinated led to the realization of this international event. These teams did all the review and maintenance of the canyons to ensure safety for all participants. The entire group that attended the stapling workshop and then reviewed all the canyons. Data collection and sketches were also carried out, with several people contributing information to produce the most reliable material on the ground in order to facilitate the planning of incursions as well as a possible rescue. The team also participated in a rescue and simulation course, in order to be able to work in partnership with the firefighters, in case of need.

STAPLING TEAM: Flávio Getúlio Lima, Carlos Alberto Réus (Kaloca) e Ramonn Tomaz.

ATHLETES WHO ALSO COLLABORATED BY HELPING THE STAPLING TEAM: André Behenck, Daniel Lima, Douglas Gebert,Eliton Ferreira, Elves Crescêncio, Eliton Ferreira, Frank Lummertz, Henry Lummertz, Jocelyto Coelho, Leandro Bazotti, Lucas dalPont, Michel Pereira, Nicolas Amaya, Rafael Bianchini, Rafael Britto, Ricardo Leffa e Vitor Viana.

RESCUE: Daniel Lorezzon, Daniel Silveira Lima, Douglas Rocha Gebert, Elves de Bem Crescêncio, Eric Vargens Figueiredo, Fabio Bortolotti, Felipe Roldão da Rosa, Flavio Getúlio Lima, Frank Cardoso Lummertz, Gustvo Silveira da Luz, Honório Pereira de Mattos, Leandro Bazotti, Lucas Dal Pont, Michel da Silva Pereira, Rafael Bianchini Chaves, Ramonn Tomaz, Richards Rochi Pizzetti e Vitor Viana Gonçalves.

CREATION OF TOPO GUIDES: Flávio Getúlio Lima, Lucas dal Pont, Neyton Reis, RamonnTomaz, Tatiana Bressel and Vitor Viana.

RIC BRAZIL 2022 ORGANIZING COMMITTEE: Flavio Getúlio Lima, Frank Cardoso Lummertz, Jorge Scandolara Jr, Henry Lummertz, Leandro Bazotti, RamonnTomaz and Tatiana Bressel.

Summary

Part II – Important Practical Information – Leandro Bazotti and Tatiana Bressel

Part III – Topo guides and information about the canyons

Preface

In the southern region of Brazil, on the border between the states of Santa Catarina and Rio Grande do Sul, there is one of the largest canyons complexes with vegetation in the world. This territory has a geological heritage of international relevance, receiving the seal as a UNESCO World Geopark. The geosites in this region reveal evidence of one of the largest outpourings of basaltic volcanic lava on the planet, which occurred approximately 135 million years ago, when the supercontinent Gondwana split, forming the American and African continents.

The geological formations are of great proportions. The canyons in this region have a depth that approaches 1,000 meters and the extension can reach 7.5 km, being characterized by a steep slope and numerous waterfalls. These imposing environments are extremely demanding, so canyoneering

practitioners must be physically, technically and psychologically prepared to be able to progress independently and safely.

Canyoning or descent of canyons requires specific techniques, as well as adapted equipment, in addition to the necessary knowledge in relation to the environment. The information contained in this book is not a substitute for in-depth knowledge of the environment and sports practice.

There are different types of routes and canyons for different technical levels. Check the canyon classification and evaluate the topo before venturing into these giants of southern Brazil. The topos demonstrate the descent profile of the canyon, they serve to guide and help people to locate themselves inside the canyon. Always review the anchors, check the depth of the well before any jump or toboggan,

remember that canyons are subject to floods, rockslides and other factors that can change the environment unexpectedly.

Our intention is to provide accurate and up-to-date information about the canyons and the region where they are located. We want to present this region with a strong environmental message and minimal impact, with safe places to practice sports according to ethical concepts.

Enjoy our canyons and our region. Remember that before you, others have passed through here, and many are yet to come. Do your part by leaving the canyon the same way you found it - or even cleaner - and in this way we can continue sharing this natural environment in a sustainable way.

The use of artificial anchors can be quite controversial in canyoning, especially within national

parks. In the canyoning routes described in this book there are enough anchors to practice canyoneering according to the topos. It is not necessary to place others, or invent other possibilities. Learn new techniques, acquire the knowledge necessary to cross these canyons using existing anchors. Respect local/ legal rules.

Rassemblement Internationale de Canyon - RIC

The RIC - Rassemblement Internationale de Canyon- is an international canyoneering meeting, organized annually by the Fédération Internationale de Canyonisme - FIC, an international entity that brings together canyoning associations from several countries, with the support of local associations.

The event provides an opportunity for canyoners from all over the world to come together to socialize, share information and experiences, discover new places to practice canyoning and descend canyons together.

The first RIC took place in 2003, in Spain, and since then, meetings have taken place in several other countries, such as: Spain (2004, 2014, 2021), Mexico (2005), Greece (2006, 2007 and 2020), United States (2008 and 2015), France and overseas territories (2008 and 2018), Cape Verde (2009), Italy (2010), Nepal (2011), Brazil (2012), Portugal (2013 and 2016), Switzerland (2018) and Colombia (2019).

Currently, the FIC has canyoneering associations from Germany, Austria, Australia, Belgium, Brazil, Colombia, Ecuador, Spain, the United States, France, Greece, Iran, Italy, Mexico, Portugal, Turkey and Zambia.

The choice of the Municipality of Praia Grande (SC) to host the venue for the RIC 2022 was due, among other reasons, to the importance that the practice of canyoning in the Serra Geral canyons had for the emergence and development of this sport in Brazil and the large number of canyons suitable and equipped for canyoneering, some of which are among the best in the world.

This region is located in the the extreme south of Santa Catarina and northeast of Rio Grande do Sul. The participating municipalities are: Praia Grande (SC), Bom Jardim da Serra (SC), Cambará do Sul (RS); Jacinto Machado (SC), Lauro Muller (SC), Mampituba (RS); Morrinhos do Sul (RS); São Francisco de Paula (RS) and Três Forquilhas (RS). Most of these municipalities belong to the Caminhos dos Cânions do Sul Geopark Territory.

The idea of creating this canyoneering guide book emerged during the first meetings about RIC Brazil 2022. Thinking of a way to present the richness of our fauna, flora, geology and history of this region, we gathered different texts and photos in a didactic, illustrative and collaborative material. It was with this objective in mind that two members of the organizing committee of the RIC (a tourismologist and a biologist) decided to join efforts to produce this material for your appreciation. We believe that in this way, the participants of the event will be able to enjoy even more the days they will spend here, enriching their experience in our territory.

The book has topo guides, geographic coordinates, access descriptions and photos of the 17 canyoning routes selected for RIC Brazil 2022, in addition to extensive information for your benefit.

Enjoy this material, and good waters for all!

Leandro Bazotti

Tatiana Bressel

Organizers Profile

Leandro Bazotti, in addition to being a tourismologist and canyoner expert, is a rock, ice, high mountain climber and an enthusiast of adventure activities in nature.

It works in sports development internationally, composing and representing different entities seeking to disseminate the safe, ethical and minimal impact practice of adventure sports modalities with those of Conservation Units to model public use according to the needs of the community that consumes life outdoors, with special dedication to the Núcleo dos Aparados da Serra Geral.

He participated in the organization of different sporting events and documentary videos in nature and is dedicated to the socio-economic development of locations with a vocation for sustainable tourism.

He is currently coordinator of the Tourism axis of the

UNESCO Caminhos dos Cânions do Sul World Geopark, Tourismologist of Praia Grande SC, headquarters of the Geopark and RIC Brazil 2022, founding partner and member of the APKanion Ethics Board, of the National Parks Advisory Board and the organizing committee of the event that offers this work.

Tatiana Bressel is a biologist, canyoner and practitioner of different adventure sports.

She has worked actively and voluntarily on behalf of canyoning and this specific region since the beginning of ACASERGE, the first civil association of canyoners in Brazil. She actively participated with the Aparados da Serra and Serra Geral national parks with volunteer work on environmental impact, elaboration of canyoning topo guides, participation of the advisory council, in the planning workshop

of the parks management plan in order to demonstrate the feasibility of practicing this sport within these conservation areas.

She also worked promoting this region in lectures and photographic exhibitions at international events (RIC in France, the United States and Italy, in addition to the GORGs in Spain) with the aim of bringing the International Canyoning Encounter to Brazil, for Aparados da Serra.

Founding partner of APKanion and member of the Organizing Committee RIC Brasil 2022.

PART I

Characterizing the region

1. Geological and geomorphological characteristicsof the Geopark Region and surroundings / surrounding area

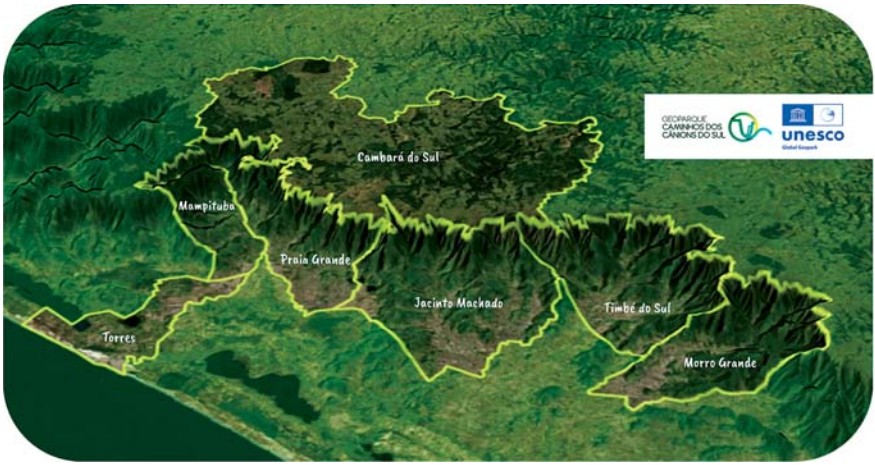
Leandro Bazotti and collaborators

1.1 Caminhos dos Cânions do Sul Geopark

Leandro Bazotti

Tourismologist with a Masters in Tourism and Hospitality. tourismologist of Praia Grande, SC and Coordinator of the World Geopark Tourism Hub UNESCO Pathways to the Southern Canyons. Atlas technical manager Mountaineering Mountain Services

The UNESCO World Geopark Caminhos dos Cânions do Sul is located in the Southern Region of Brazil, more precisely in the extreme south of Santa Catarina and northeast of Rio Grande do Sul. It is formed by an inter-municipal consortium that covers seven municipalities: four in Santa Catarina (Praia Grande, Jacinto Machado, Timbé do Sul and Morro Grande) and three in Rio Grande do Sul (Cambará do Sul, Mampituba and Torres).



The administrative headquarters of the Geopark is located in Praia Grande, where the proposal to insert the region in the UNESCO Global Geoparks Network emerged. The municipality is an inducing destination for the tourist region and also the base city for visitation for the lower part or upper access of the Aparados da Serra and Serra Geral National Parks - thus composing the ideal context to host the RIC 2022 Brazil.

The territory's geological history began approximately 250 million years ago, the final record of the episodes of filling the Paraná basin and its relationship with the breakup of the Gondwana supercontinent and the opening of the South Atlantic Ocean.

The exuberance of the natural heritage draws attention. Located in Serra Geral, the canyons limit the plateau and the coastal plain, with gaps that reach 1000 meters and are less than 50 kilometers from the sea. The region has numerous waterfalls, natural pools, lakes and rivers, as well as beaches and dune fields. In this scenario of singular beauty, there are also several paleoburrows, shelters excavated by already extinct animals, which lived more than 10 thousand years ago.

The territory also reveals a rich cultural heritage, referring to indigenous, quilombola, Azorean, German and Italian immigrants, passing through the remarkable movement of "tropeirismo" in the region.

The Caminhos dos Cânions do Sul Geopark is a territory that promotes sustainable development and the improvement of living conditions for the entire population. It offers knowledge, security and comfort for the visitor, by providing memorable experiences

and environmental/cultural awareness. For these reasons, its role is so important within the global context.

UNESCO World Geopark status does not imply restrictions on any economic activity, provided that such activity complies with local, regional and/or national laws.

Thus, the Geopark does not seek to be another place of government administration that develops rules or public policies, not even a new "environmental or theme park", but rather an instance of local agents who work in the continuous improvement of knowledge and existing practices in the region. territory, using natural resources consciously.

Our Geopark has as its central axis the pillars of community-based socio-activist activities, consolidating sustainable development through Geotourism. The work is carried out in line with the prerogatives of the UN's Sustainable Development Goals (SDGs), a global action plan aimed at eliminating extreme poverty and hunger, providing quality education throughout life for all, protecting the planet and promote peaceful and inclusive societies by 2030.

Tourism is an important economic activity in the territory. The Caminhos dos Cânions do Sul Geopark has a wide range of products and services specifically aimed at meeting the demand of visitors and is focused on being a Smart Tourist Destination.

It is worth noting that not all municipalities in the Geopark participate in the event. RIC Brazil also occurs in municipalities that are not specifically part of this territory, but their general characteristics related to geology, fauna and flora are similar.

The term "geotourism" is a relatively new term and takes us

back to the strategy that is one of the main pillars of UNESCO's World Geoparks: tourism. This concept is characterized by having the geological heritage as its main attraction and seeks to understand geological-geomorphological phenomena through environmental interpretation activities.

Internationally, the use of the prefix "geo" in the word "tourism" was adopted, to refer to a process of transformation focused on belonging based on heritage education: tourism focused on the natural features of planet Earth. The aim is to disseminate the scientific information produced by the academy, facilitating the understanding of the natural and cultural wealth of the territory, for the entire community within the area of coverage.

In this way, a georoute is a tourist experience offered during the process of appropriation of the territory that is discovered, based on studies carried out by researchers who identify the vocation of each Geopark.

A definition: geopark is tourism associated with geological attractions and destinations. Geotourism deals with abiotic natural and built environments. Geotourism was first defined in England by Thomas Alfred Hose in 1995.

1.2 Geology

Maria Elisabeth da Rocha
Geologist at Torres City Hall, specialist in sanitation. Scientific Coordinator of the UNESCO World Geopark Caminhos dos cânions do Sul

Prof. M.Sc. Gustavo Simão
Geologist with a Masters in Geosciences. Technical consultant of UNESCO World Geopark Paths of the Southern Canyons; Partner manager at Simgeol and professor at the University of Extreme South of Santa Catarina (UNESC)

1.2.1 Geological and geomorphological characteristics of the Canyons Region

Geology deals with the study of rocks, that is, the study of the history of the evolution of the planet recorded in the rocks; in what geological period these rocks were formed, what the environment was like, which living beings inhabited and if there was a possibility of life; are some of the facts that geologists "read" in rocks. Furthermore, from the knowledge of the chemical composition and physical factors involved in its genesis, it is possible to determine, among others, the possible uses, the types of soils formed and to explain the causes of the current morphology of the reliefs.

The rocks that outcrop in the Canyons Region are related to a geological entity called Paraná Basin. This great geological structure corresponded in the past, millions of years ago, to a great depression that comprised a significant portion of South America, extending to what currently constitutes Brazil, Paraguay, Argentina and Uruguay. It has an elongated shape in the NNE-SSW direction, with approximately 1,750 km in length and an

average width of 900 km (Zalán et. al., 1990) (Figure 1). The set of rocks, sedimentary and volcanic that constitutes the Paraná Basin, has a thickness that exceeds 6,000 m and comprises ages from 465 Ma (millions of years) to 65 Ma (millions of years).

In the Canyons of the Caminhos dos Cânions do Sul Geopark, the Paraná Basin is represented by the Gondwana I and III Super Sequences, which are the sedimentary rocks of the Rio do Rastro, Botucatu and Serra Geral Group volcanic formations, which correspond to a thickness of rock total of 1,200m.

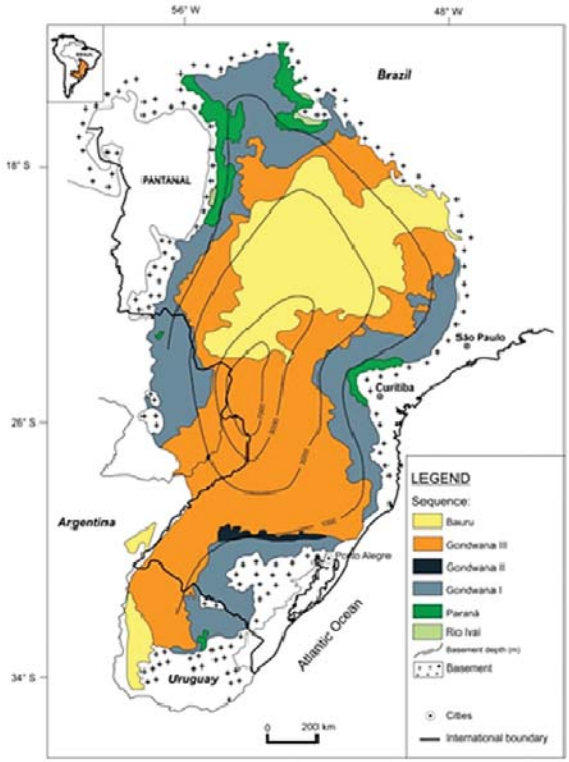


Fig. 1: Geological map of the Paraná Basin – Brazil, Uruguay, Argentina and Paraguay (modified from MILANI, 2004). Source: (Milani, 2004)

1.2.2 Rio do Rasto Formation

The Rio do Rasto Formation corresponds to a set of red, burgundy and yellowish red rocks, which occur in the form of tabular layers, interspersed with fine sandy to clayey rocks, a fact that gives this formation a typical morphology of its slopes, where recesses are formed in the clayey rocks and promontories - protrusions - in the more resistant sandy layers (Fig. 2).

The formation features two packages, one upper and one lower. The lower one is constituted by fine sandstones, well selected, interspersed with clayey rocks, greenish gray, brownish, burgundy and reddish, locally it may have limestone lenses. The upper portion consists of thick lenses of fine reddish sandstones, interspersed with siltstones and purplish claystones. The set also shows colors in green, chocolate, yellowish and off-white tones.

The sediments of the Rio do Rasto Formation represent the deposition in lake environments, alluvial plains, shallow marine that transitions to coastal plain deposits and passes, later, to the implantation of a fluvio-deltaic sedimentation. In addition, its fossiliferous content allows this formation to be positioned between the Late Permian and the Late Triassic (260 to 240 Ma), a period that represents the greatest event of extinction of life on the planet.

Fig. 2.: Representative photos of occurrences of the Rio do Rasto Formation in the Canyons region. (Source: Gustavo Simão)
This formation presents surface exposures in a narrow strip located in the extreme north of the GCCS territory, especially in the municipality of Morro Grande/SC.

1.2.3 Botucatu Formation

The sedimentary rocks of the Botucatu Formation correspond to a desert regime that was implanted between the periods of the Upper Jurassic to the Lower Cretaceous (from 240 to 160 Ma approximately), consisting of aeolian sand dunes similar to what we currently have in the Sahara Desert, Africa. Locally, there are deposits of rocks with coarser grains - conglomeratic and conglomeratic sandstones - related to the presence of ephemeral drainage systems that cut through the desert. Lithologically, orthoquartzitic sand dunes predominate, containing large cross bedding and interdune deflation zones (Fig. 3).

After the onset of volcanism, fine deposits are found interspersed with layers of volcanic rock: basalts, andesites, rhyolites, signifying the intercalation between the desert sediments and the volcanic events that were beginning.

Fig.3: Representative photos of occurrences of the Botucatu Formation in the Canyons region. (Sources: Gustavo Simão and Flávia Lima)

In the sandstones of the Botucatu Formation, on the slopes of the canyons, there is a large amount of trace fossil records, popularly known as Paleotocas and crotovins (Fig. 4).

Paleotoca is defined as a biogenic tunnel-like structure made by vertebrates. Crotovin is a similar structure, but it was later filled in by sediments. Both are endogenous bioerosion structures and represent a dwelling place.

Fig. 4: Representative photos of the occurrence of Paleotocas of the Botucatu Formation in the region of the canyons. (Source: Gislael Floriano)

1.2.4 Serra Geral Group

The volcanic rocks that make up the Serra Geral are related to a geological unit called the Paraná-Etendeka Magmatic Province (PMPE), which is one of the largest recorded continental fissure volcanism events in the world. This event occurred in the Early Cretaceous (120 Ma) and is characterized by the accumulation of immense volumes of volcanic and intrusive rocks in continental areas of the paleocontinent Gondwana.

The volcanic sequence in the states of RS and SC can reach up to 1200 m in thickness. Several events of spills are observed, in some points more than thirteen (13), with tabular limits and thicknesses that vary between 15 and 55 meters, with average thickness around 25 meters (Fig. 5).

Fig. 5: Itaimbezinho Canyon, where successive volcanic events can be seen stacked up. (Source: Gustavo Simão)

In the area of the canyons, the Serra Geral Group is characterized by a lower portion, which presents the Torres Formation, predominantly constituted by fields of basaltic flows. These deposits covered the dune field that gave rise to the Botucatu Formation, and form the base of the canyons.

Above the Torres Formation, in the intermediate portion of the canyon slopes, the flows have a composition of basaltic andesites (Fig. 6) - Vale do Sol Formation- and correspond to the main phase of magmatism, with a vast sequence of tabular and thick flows (Fig. 5). The peak of magmatism culminated in the formation of acidic volcanic deposits, occurring dacites, rhyodacites and abundant layers of volcanic glasses (Fig. 6).

Fig. 6: Representative photos of occurrences of the Serra Geral Group in the Canyons region, amygdalar basalt (left); Volcanic Glass (right). (Source: Gustavo Simão).

The end of this extensive and voluminous magmatism coincides, temporally, with the beginning of the opening of the South Atlantic Ocean, giving rise to the current African continents, to the east, and the American continent, to the west.

1.2.5 Morphological Evolution of the Territory

The Serra Geral escarpment is one of the most imposing geomorphological features in Brazil. The evolution of the morphology of the landscape of the canyons region takes us back to the beginning of the formation of the Atlantic facade, since the fragmentation of the supercontinent Gondwana and the opening of the South Atlantic during the Cretaceous to 120 Ma - Millions of years.

Of this process, the most relevant occurrence, from the point of view of the canyons region, is the survey of the mountain ranges of Serra Geral. These features actually represent escarpments on the edge of the plateau and this uplift was carried out producing gaps of more than 1,000m.

The formation of the rocks that make up the geology of the region dates back to around 150 Ma, when the current continental masses were still united and formed a supercontinent called PANGEA (Fig. 7a), which later would be subdivided into two large blocks called EURASIA (northern) and GONDWANA (south).

Approximately 120 Ma ago, the processes of separation of the great continent Gondwana began, in the form of one of the largest volcanic fissure events occurred on the planet (Fig. 7b and 7c). This volcanism covered the entire central-eastern portion of South America, extending to the northwest of Namibia, forming the so-called Paraná-Etendeka Basin, one of the largest plateau volcanic provinces on the planet and which is part of the canyons region.

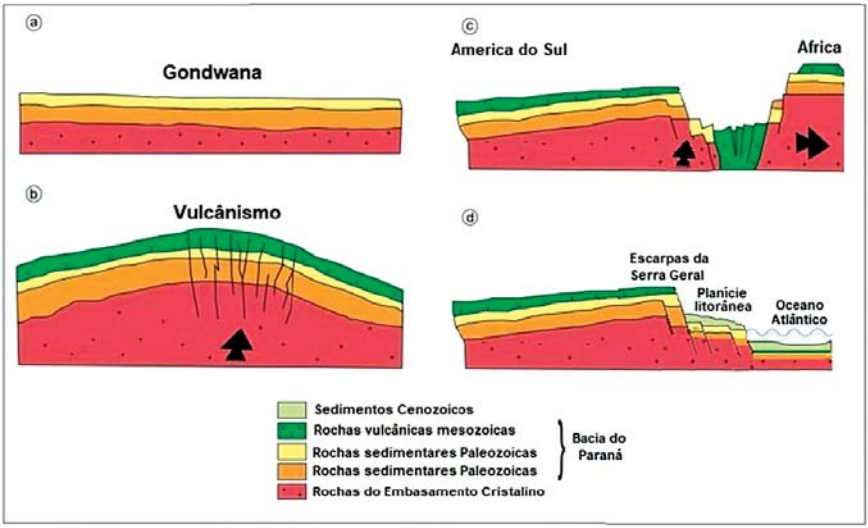


Fig. 7: Schematic of the process of crust rupture and separation of Gondwana.

Simultaneously with the uplift or lifting of the coastal chains, there was a progressive retreat of the escarpments on the edge of the plateau by erosion over millions of years (Figure 7d), which led to the creation of an extensive coastal plain. Thus, the more accentuated retreat of the Serra Geral escarpment allowed the creation of a wide coastal plain, with clear exposure of gravel deposits in the form of alluvial fans at the base of the slopes, generally in the form of drainage channels (Fig. 8).

Fig. 8: Photo showing gravel drainage channel. (Source: Beth Rocha)

The imposing escarpment of Serra Geral is marked by a dissection - erosion by erosion -, produced by the drainage network that excavates deep valleys in the shape of a "V". In this context, in the Canyons Region, the Mampituba River and its tributaries stand out as agents of dissection, shaping the landscape. The lower parts of the escarpments in the canyon region are generally made up of sandstones from the Botucatu Formation, while the upper part is made up of thick volcanic flows.

The staggered shapes of the canyon walls, creating a morphology of steps in the landscape, with the presence of several waterfalls, are due to the physicochemical characteristics of the basaltic rock, which provide resistance to weathering and physical degradation, caused by the climate and the presence of large amount of water in the region (Fig. 9).

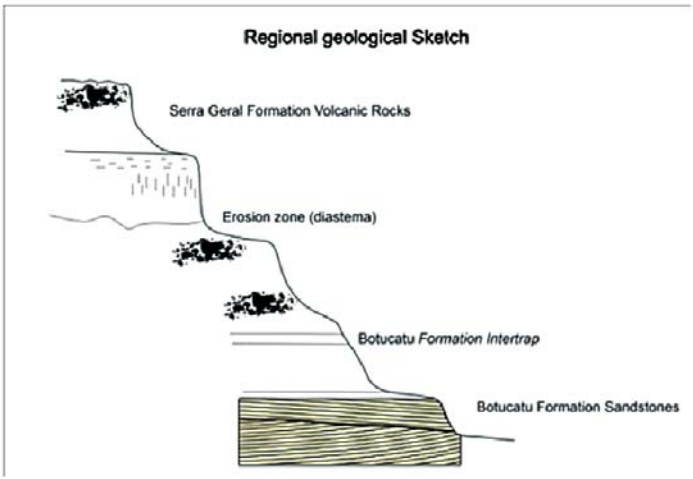


Fig. 9: Schematic geological section of the contact between the Serra Geral Formation and the Arenites, with the staggered shape of the slopes.

The morphological control of the terrain of the canyon region is given by a dense system of geological fractures that section the region. In these systems of fractures, originated when the lavas cool, the rock is more broken, allowing the excavation by the drainage system, one of the most important agents for the development of the rock walls seen. Weathering evolves conditioned by these characteristics in terms of rock composition and discontinuities (faults and fractures) (Fig. 10).

Fig. 10: Image where we can observe the large alignments (fractures) where weathering agents act, forming drainage channels (Source: Google Earth).

The top of each volcanic package presents an amygdaloid zone, rich in bubbles, filled or not with minerals, a material known as gravel; in this portion of the spill, weathering progresses more rapidly, creating horizontal levels of better-developed vegetation, typically observable in canyons (Fig. 11).

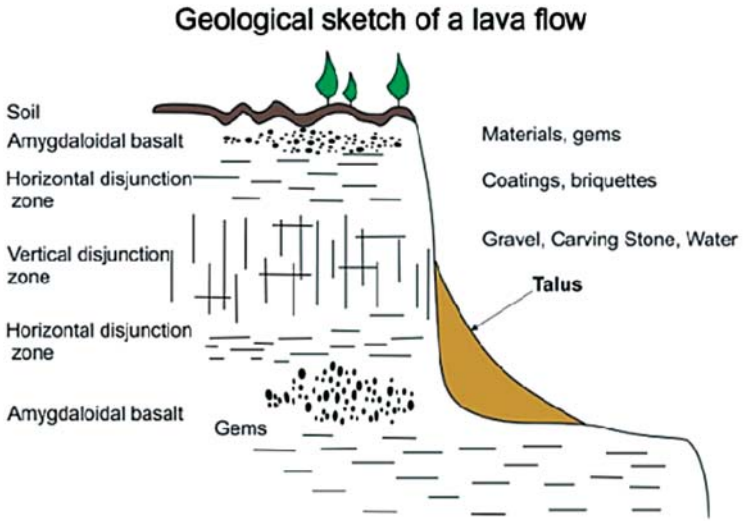


Fig. 11: Geological section usually found in the Serra Geral Formation.

In these terrains with steep slopes, the soils tend to be very shallow, even if supporting forest-sized vegetation, due to the very humid climate. This geoecological circumstance describes the Serra Geral escarpment as a geomorphological unit very susceptible to mass movements, emphasizing shallow translational landslides in soil-rock contact during climatic events of extreme rainfall, as occurred in the natural disaster of December 1995, widely documented by the literature.

1.3. Paleoburrows and Megafauna - evidence of prehistoric life in the Caminhos dos Cânions do Sul Geopark region

Dr. Luiz Carlos Weinschütz
Geologist with Master's and Doctorate in Geosciences from UNESP. Coordinator of the Center for Paleontological Research at the University of the Contestado (CENPALEO). Member of the Scientific Education Committee of the Caminhos dos Cânions do Sul Geopark.

Our planet has been around for a long time, it's approximately 4.5 billion years of history. During this time it underwent many transformations, mainly linked to internal dynamics (plate tectonics), astronomical influences and weathering. Life appeared at least 3.8 billion years ago, and from simple bacteria we have reached this enormous and wonderful biodiversity today. We know all this because we learn to "read" this long history engraved in the stones, when rocks are formed they record a lot of information about the Earth's past and if they contain fossils they can give us information about past life and its transformation in time. There is much to be discovered and understood, but we already have enough information to divide this geological time into several Geological Eras (figure 1), which mark major events related to the geology and life of our Planet.

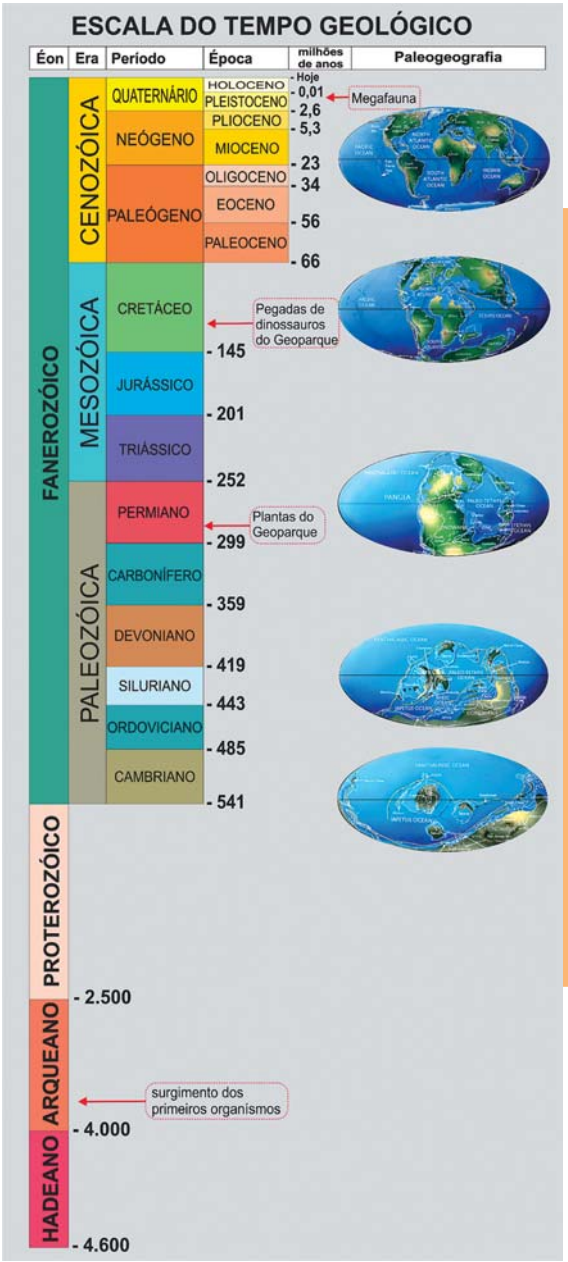


Fig. 1: Demonstrates the Geological Time scale (source Luiz C. Weinschutz).

The region that makes up the Caminhos dos Cânions do Sul Geopark has an exuberant geology and significant fossiliferous occurrences, dating back to the Permian period - around 280 million years ago-, with exceptional occurrences of plants (figure 2), mollusc shells, fragments of crustaceans, insects, others, including the occurrence of dinosaur footprints dating back 140 million years (figure 3), to spectacular evidence of giant mammals - megafauna - from the last ice age that ended 11,000 years ago.

Fig. 2. Fossil fern specimen. Piece length 6cm (font Luiz C. Weinschütz).

Fig. 3. Theropod dinosaur footprint. Width of the piece 18cm (font Luiz C. Weinschütz).

The Megafauna

At the end of the Cenozoic Era, a group of large animals called MEGAFAUNA appeared, which coexisted with man and disappeared in the mass extinction event at the end of the Quaternary (figure 4), which occurred simultaneously in different parts of the globe. It is speculated that the disappearance of these animals would have occurred due to an association of climatic factors, such as the warming of the planet with the end of the Ice Age and the beginning of the Holocene period and also due to anthropic action: the human species may have decimated several species through the competition for food or hunting.

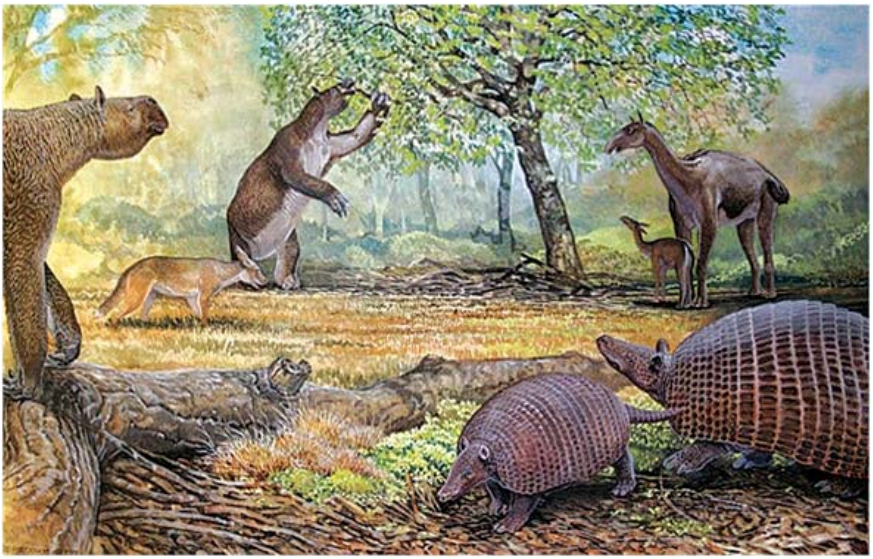


Fig.4. Illustration of some specimens of the South American Megafauna in their natural habitat.
Source: (https://www.blogs.unicamp.br/colecionadores/wp-content/uploads/sites/243/2017/06/14f3e24261e55dcd64b84b4384accd87-672x372.jpg)

Representatives of the megafauna became extinct everywhere in the world, except on the African continent, because in the African savannah large animals remaining from the extinct megafauna are still found, such as the African elephant, the giraffe and the lion. The most accepted hypothesis is that climate change, which transformed many existing savannas in the world into dense forests, expanded savannas on the African continent. In fact, we have a few other living representatives of Megafauna in various parts of the planet, including here in Brazil, as in the case of the tapir (*Tapirus terrestris*).

Geopark Paleoburrows

A fossil is not necessarily direct evidence of an organism, such as a mineralized bone, a mold of a mollusk shell, or a "petrified" (permineralized) trunk, but it can also be evidence of an animal activity, such as footprints, droppings (coprolites), excavation marks, others. For paleontologists, paleoburrows are bioerosive structures, that is, excavations made by prehistoric organisms and are considered a type of ichnofossil.

Paleoburrows are burrows dug by extinct animals that lived in part in underground shelters. Just as armadillos, burrowing owls and other animals shelter in burrows that they dig themselves, in the past there were animals that dug shelters. Therefore, the term paleoburrows only applies to burrows of extinct animals. When paleoburrows are filled with sediment, they are called "crotovinas" or "krotovinas" in Russian.

There are paleoburrows described in various locations on the planet and from different geological times, and which are usually associated with small reptile and mammal burrows. In the geopark region there are giant paleoburrows of Pleistocene age associated with large mammals. The occurrence of Pleistocene paleoburrows in South America is relatively abundant, the first descriptions were made for the city of Mar Del Plata, in Argentina, and date from 1928. In Brazil the first descriptions were made in the beginning of the 80's, for the state of Rio Grande do Sul. In the state of Santa Catarina there are records of the occurrence of more than a hundred paleoburrows and crotovins, most of which

are located in the southern portion of the state. In the Geopark Region there is a large concentration of paleoburrows, mainly excavated on the slopes of the canyons (figure 5), which can bring new information about the life of these animals by scientists. It is worth mentioning that paleoburrows associated with megafauna are unique to South America.

Fig. 5. Paleoburrow of Toca do Tatu, Timbé do Sul, SC. Survey of structures by researchers from the University of Contestado (Source CENPALEO/UNC).

Who excavated the paleoburrows?

The origin of paleoburrows was, for a long time, attributed to the erosive action of water or as structures dug by indigenous people, until the first settlers and Jesuits. Today we recognize in some paleoburrows signs of the presence of man, who used these structures as shelter, but they were not the executors (figure 6).

The paleoburrows in the Geopark region were excavated at least 11,000 years ago, mainly by two groups of giant mammals that were part of the Megafauna; armadillos that reached 1.5 m in length and sloths with 3.5 m in length, both belonging to the Xenarthra Order, which also includes the anteaters. At that time, the relief was similar to what we see today, but the beach was several kilometers further away, and the vegetation of the plains was very similar to the African savannas. Figure 7 relates the possible burrowing species with the size and shape of the paleoburrow.

In many paleoburrows it is still possible to see claw marks from the animals they excavated (figure 8), which were not made by a single organism, but probably by a generation of individuals and even by different organisms. Some are very large, reaching almost a hundred meters in length, 3 to 4 meters in width and height, and still contain chambers, possibly used for return or as a “dormitory”. In others it is possible to observe smaller tunnels, deriving from larger galleries, indicating the occupation and continuity of the excavation by different species, at different times.

Fig. 6. Old marks of human use in paleoburrows, Toca do Tatu, Timbé do Sul, SC (Source CENPALEO/UNC).

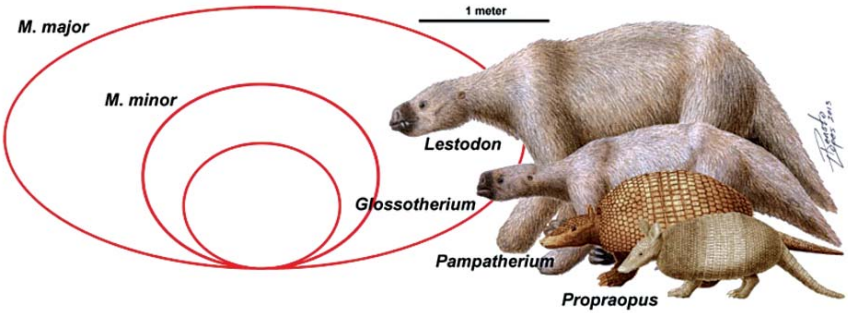


Fig. 7. Correlation between the size of paleoburrows (ichnogenera *Megaichnus major* and *Megaichnus minor*) and the burrowing organism. The circles show the difference between the size of tunnels excavated by giant sloths (major ellipse) and armadillos (small ellipse), as well as smaller tunnels. (Credit: Renato Lopes).

Fig. 8. Excavation marks left by excavating organisms, where possible giant sloth marks (Source CENPALEO/UNC).

Paleotocas, importance and care

Each paleoburrow is a unique feature, which means a window to the past, a little bit of what this region was like in past times. We must be very responsible in the use of these structures, taking all measures and actions to avoid the depredation of unique and sometimes of great scientific relevance.

The tourist importance should be highlighted, the visit to a paleoburrow can be a unique experience, a trip to the past, to the perception of the history of life, but also, because it is an inhospitable environment and offers serious risks to the visitor, one must take all possible precautions. It is not uncommon for reports of venomous and poisonous animals to be found in its interior, as well as the presence of guano (bat feces) and fungi that are harmful to our respiratory system. There is also the danger in some situations of landslides and the difficulty of access, requiring the use of specific equipment for a safe visitation, as well as the accompaniment of guides and trained drivers (figure 9).

As already discussed, paleoburrows are considered a type of fossil, and therefore are part of the nation's natural assets, and are subject to certain laws aimed at the preservation and protection of this rich heritage, and are also subject to specific state and municipal laws for each area of the Geopark. It is worth mentioning that the occurrence of archaeological evidence also implies the observation of specific legislation.

The Geopark paleoburrows are considered a unique natural heritage, and must be treated with all possible respect and responsibility, adding tourism, education, culture and preservation.

Fig. 9. Visit by researchers to a paleoburrow with the appropriate safety equipment (source CENPALEO/UNC).

1.4 The archaeology of the original peoples in the region of Geopark South Canyons Paths

Dr. Juliano Bitencourt Campos

Professor of theGraduate Program in Environmental Sciences (PPGCA). Research Archeologist from the Pedro Ignácio Schmitz Pedro Ignácio Schmitz Archeology Laboratory (LAPIS) University of Extrem South of Santa Catarina (UNESC). Member of the Scientific and Educational Committee (CEC) of Geopark South Canyons Paths.

Prof. Mikael Miziescki

Professor and Researcher in the áreas of Art, Cultural Heritage and Education. Graduated in Visual Arts, Licentiate (UNESC), specialist in Theory and History of Art (UNESC) and master in Cultural Heritage and Heritage and Society (UNIVILLE). Coordinator of Culture of the Geopark South Canyons Paths.

According to archaeological research, the region near the territory of the Geopark South Canyons Paths. Hás records of the presence human populations since approximately 10 thousand years ago.

In Timbé do Sul/SC is located the "Toca do Tatu": a paleoburrow of 35 squaremeters, excavated by giant mammals that were part of the Megafauna in the Pleistocene period (armadillos reaching 1.5 meters in length meters long and slothsupto 3.5 meters long, both belonging to the Order Xenarthra). These spaces were inhabited subsequently by human groups, that have left a series of rock carvings (seven distinct geometries) that maybe associated with ritualistic functions. In the cave, there are two tunnels excavated in the sandstone rocks of the Botucatu Formation.

Photo from the Collection of Rock Engravings, paleoburrows and lithic tools in theterritory of the South Canyons. Source: Geopark South Canyons Paths.

Besides this place, other paleoburrows were occupied by prehistoric groups, such as the geosites "Furnas dos Laklãnõ-Xokleng" in Morro Grande/SC and the "Paleoburrows of the Laklãnõ-Xokleng Indians" in Jacinto Machado/SC. These groups inhabited places with potential for multiple resources, near rivers, rocky outcrops, and land suitable for hunting and gathering. Their tools were made on a wide range of rocks and mineral raw materials such as: flint, chalcedony, basalt, sandstone, quartz among others.

At the geosite "Cânion Malacara", in Praia Grande, in the Malacara river bed, it is possible to identify elements of prehistoric art on basalt rock support, with geometric graphics allusive to two production techniques: the stone chip and polishing. Regarding the lithic material found, chipped artifacts such as projectile and spear points stand out, drills, peduncular scrapers, various carvers, among others.

Some are part of the collection of the Pedro Ignácio Schmitz Archeology Laboratory (LAPIS) of the (UNESC), in Criciúma/SC; of the Historical, Anthropological, Archeological and Oceanographic Museum of Torres/RS; of the Historical Museum of Jacinto Machado/SC; of the Bar do Alemão in Timbé do Sul/SC and the

Museum of Land and Culture in of Morro Grande/SC.

Photo from the archeological collection of the Museu da Terra e da Cultura de Morro Grande in Morro Grande/SC. Source: Geopark Caminhos dos Cânions do Sul.

Besides this, there are also ceramic remains found in Mampituba/RS and Cambará do Sul/RS, with emphasis on small vessels with little variation in decoration, varying between gray, Brown and black. These vestiges are found in the context of excavated structures or underground houses or subterranean houses, ranging from 2.5 to 20 meters in diameter, usually found on gentle slopes, which facilitate the installation of the roof, presumably na arrangement of Wood and palm leaves, tied together with appropriate vines and covered with palm leaves.

In Torres/RS, there are sambaquis: large deposits of shells and funeral and ritualistic materials, discovered by researchers as early as the end of the century. Archeological studies on the south-southeast coast of Santa Catarina indicate that these sites were installed in áreas of environmental ecotone, such as lagoons, river mouths and inlets. Sites known to date with up to 8,000 years before the present.

There are several records of these sites in the region of Torres/RS, where it is located the Guarita Park, the Itapeva Lagoon and

the Recreio Beach. In the interior of thecity, is found the Sambaqui Morro das Pedras, one of the archaeologist Pedro Ignácio Schmitz in the 1960, where several traces were found, such as human bones, break coconut, shells, carapaces, charcoal and calcined seeds. In this archeological site there are also basaltic blocks with small petroglyphs.

Subsequently, the territory of the Geopark Caminhos dos Cânions do Sul was inhabited by Laklãnõ-Xokleng groups belonging to the Macro-Jê linguistic trunk. These peoples are recurrently mentioned in colonial narratives, in local folklore, where they are popularly referred to as bugres and botocudos. These individuals were forest managers with a sophisticated agriculture, they collected and managed a vast quantity of plants, as well as hunted various types of animals and fished. They wove blankets with nettle fiber, bamboo baskets, and molded Clay pots.

The Constant search for food and better survival conditions implied in a certain mobility through its territory, maintaining, however, central villages to which frequent returns occurred. This dynamic of space use was altered by the colonization fronts from the 19th century. In this way, the interpretation that the Laklãnõ-Xokleng were nomadic peoples, forced to occupy furnaces, paleoburrows and caves, has become crystallized in the non-specialist literature, which erroneously suggests that they were nomadic peoples. Otherwise, the recent archaeological research has pointed tothe use of permanent villages and long-term occupations, associated withhunting camps and environmental management of the territories surrounding the villages.

Concomitantly, the groups of the Tupi linguistic trunk, of the

Tupi Guarani linguistic family Tupi Guarani linguistic family, called Guarani today and nicknamed Carijós in the 16th century, also inhabited the territory. With extensive knowledge in agriculture, they managed hundreds of food and medicinal plants (corn, pumpkin, manioc, peanuts, among others).They produced pottery with high technological and morphological standardization. They managed to inhabit the three southern states, highlighting the coasts of Santa Catarina and Rio Grande do Sul, as well as theareas near of the rivers, lakes, and springs.

At the beginning of the 20th century, with the advent of European immigration,These native peoples had their spaces reduced, and the looting of chickens, pigs, cattle and settlers' cooking utensils became constant. The conflicts became increasingly heated, with countless scenes of extermination, segregation and slavery. The figure of the "bugreiro" became popular: woodsmen and hunters hired to execute, expel and enslave Indians.Currently, there are no records of contemporary Laklãnõ-Xokleng in the region, however, in the upper Itajaí valley, in the towns of Doutor Pedrinho, Vitor Meireles, José Boiteux, and Itaiópolis, there are about 2,000 remnants and descendants of these peoples live in the indigenous land demarcated Ibirama Laklãnõ. Approximately 14,000 hectares, between the Platêand Hercílio rivers, were established by the Santa Catarina government in 1926. In Campo Bonito, in thecity of Torres/RS, about 200 Mbya Guarani Indians live along 97 hectares in the TekoaNhuum Porã indigenous land (Campo Bonito 2), which means 0.25% of the inhabitants of the Geopark territory.

Photo of handicraft produced by the Mbya Guarani Indians.
Source: Geopark South Canyons Paths.

Among the main activities of the village, hignlights the handicrafts with fibers, Wood and beads stand out, such as baskets, bracelets, earrings, animal sculptures, necklaces, musical instruments, among others. Many of these objects are commercialized on site and also at the Casa da Terra Store, in downtown Torres, with their full value going to the group. Another important activity is agriculture, where corn, cassava, watermelon, peanuts, sweet potatoe, beans, and melons are grown. Hunting, gathering (offruits, seeds and eggs) and fishing are also practiced. Their dwellings are made of masonry, wood, taquara, clay, and palm leaves. There is a sacred place for rituals, prayers, and religious ceremonies called “Casa de Reza” (Opy, in Guaraní). The cultural knowledge is shared from generation in oral form.

The socialization of information, the preservation and dissemination, in turn, contributed to give continuity to the approximation that hás already been between the researches carried out in the region in the scope of Geopark Caminhos dos Cânions do Sul. Therefore, science shows us that the history of human occupation in the territory does not Begin with the advent

of European immigration and say to the colonization rhetoric of most cities in the it surroundings. These traces bring new chapters to the contemporary history these seven municipalities and problematize the processes of forgetting and silencing to which they are linked. It is a starting point for new developments to emerge in order to add previously non-existent gaps to the context of local cultural-historical heritage and that legitimize the struggle and resistance of these populations.

Mbya Guarani Indigenous in Torres/RS Source: Geopark South Canyons Paths

2. Participating Municipalities

2.1 Praia Grande, SC

Capital of the Canyons of Brazil

The municipality of Praia Grande is located in the extreme south of Santa Catarina, being the best prepared destination in the entire region to serve its visitors.

The city is also known as the Capital of the Canyons, for having in its territory the main canyons of the National Parks of Aparados da Serra and Serra Geral, such as Itaimbezinho, Malacara, Índios Coroados, Molha Coco, among others and the countryside is full of rivers and crystal clear waterfalls.

Photo Collection of the Praia Grande Tourism Office

Praia Grande is also the administrative headquarters of the UNESCO Caminhos dos Cânions do Sul World Geopark, being highlighted for having a considerable forest reserve, with rich fauna and flora and presenting geological formations of incredible scenic beauty, in addition to its organization and structuring to receive guests.

The Municipality of Praia Grande is located on the border of the States of Santa Catarina and Rio Grande do Sul, 290 km from Florianópolis - known as Ilha da Magia, the capital of Santa Catarina - and 230 km from Porto Alegre, the capital of the "gaúchos", which are the respective metropolises with international airports, which offer different services to the visitor, including car rental shops and currency exchange bureaus.

About 7 thousand inhabitants live in the Capital of the Canyons, distributed between urban and rural areas. The Municipality has characteristics of a small town, in the countryside, where children play in the streets, houses have their doors open, and vehicles have a key in the ignition.

Despite this tranquility, Praia Grande has a quality public security service, such as military and civil police, who work to ensure peace and good relationships, a service supported by an electronic fencing system with state-of-the-art 24-hour surveillance cameras, that read vehicle registration and facial recognition of people. The region also has medical and hospital services, specialized search and rescue resources, including the use of aircraft for hard-to-reach places.

Here you can relax, enjoying the best the region has to offer,

as you will have everything you need to enjoy a memorable experience.

The headquarters of RIC Brazil 2022 is indoors, in front of the central square of the city of Praia Grande, SC. The region has several accommodation options and varied cuisine nearby.

In the region surrounding the Capital of the Canyons, as a background, it is possible to see at all times the steep formation of the great green canyons, which are one of the largest complexes of canyons with vegetation in the world.

It is known that their lands were originally inhabited by native indigenous populations of the Guarani, Xokleng and Kaingangs ethnic groups at the top of the mountain range. They were responsible for opening the first trails and trails that connect the lower part of the plain with the top of the mountain range.

Praia Grande inherited its name from the drovers who, upon seeing the immense spreads of pebbles on the banks of the rivers, mainly the Mampituba river, called it "Praia de Pedras Grandes". On July 19, 1958, it was emancipated and "Praia Grande", the name chosen for the municipality.

Within its territory, there is the traditional community of the quilombola remnants of São Roque and the community of Mãe dos Homens, formerly known as Roça da Estância. The community of São Roque is currently declared as a traditional territory of remnants of quilombolas, recognized by the Palmares Foundation, IPHAN and the Public Ministry. Pico da Pedra Branca is located in this region, where several adventure and ecotourism activities are practiced, such as climbing, trekking and base jumping. In this locality are also located three great canyons: the

Josafáz, Faxinalzinho and São Gorgonha. The community maintains an association, which constantly seeks partnerships to maintain its culture and promote Tourism. One of the hallmarks of its identity is ecological agriculture, in which community members have remained as guardians of creole seeds for almost two centuries.

The exuberant unparalleled beauty can be appreciated when traveling along the Serra do Faxinal road and surroundings. This whole scenario gives an unquestionable vocation to Nature and Adventure Tourism.

To get to know the region, it is advisable to spend at least 4 days and go beyond the lower part of the canyons, also the upper part. But if you want to explore even more, there are options for tours and activities to spend more than 10 days traveling through the entire territory, with options for all tastes and profiles of people.

Below we list just some of the main tourist attractions that we have available so that you can plan ahead:

- **Rio do Boi Trail**: it is located inside the Itaimbezinho Canyon, in the Aparados da Serra National Park, with approximately 7 km long, that is, 14 km round trip. It is possible to walk between walls up to 700 meters high in its final portion. The walk starts partly through the forest and then goes partly along the river bed, between the rocks, crossing the river along the way.

The activity within the Rio do Boi is considered to be of HIGH GRADE of difficulty, due to the fact that the walk is made between the stones and through the various crossings of the river, which also has its bed full of stones of varying sizes, thus requiring a good physical condition of the Visitor.

In crossings, depending on the volume of water in the river, the height of the water can exceed the knee. On days of flood or forecast of a lot of rain, the trail can be canceled, as it can become dangerous, since being inside a canyon, the water can rise quickly and the current gets strong.

The walking time varies depending on the pace of each group, but lasts an average of 7 hours, including stops.

- **Malacara Trail**: activity carried out in the middle of the Malacara Canyon, in the Serra Geral National Park. It is a very fun walk, which offers stops for contemplation and even baths in the natural pools along the way. This trail is suitable for the whole family and can be done at any time of the year, but bathing in the river is best in the summer.

The activity consists of an approach to the lower part of the canyon, through a walk with about 8 river crossings, crossing a rocky bed from Malacara is a great choice.

- **Panoramic trail of the Itaimbezinho Canyon**: activity carried out in the upper part of the Aparados da Serra National Park. There, the Vértice trail is carried out, where the two walls meet

and huge waterfalls fall, in a short walk of approximately 1.5 km, with a fantastic view!

In the same place, it is possible to visit Casa da Vó Maria, owned by former peasant residents, which was built in 1945 and maintains the same characteristics to this day, and you can have a freshly brewed coffee and eat a pastry made by them, the traditional "Pastel de Pinhão" is recommended - during the season.

Here it is also possible to make a second trail, of about 6 km (round trip), on flat terrain, until reaching a sequence of viewpoints, from which you can view the entire final portion of this canyon, known as "elbow" and its incredible proportions, being possible to rent bicycles to do this route.

Panoramic trail of the Fortaleza Canyon: for this activity, it is necessary to travel towards Cambará do Sul along dirt roads that cross the National Parks, in a trip of approximately 2 hours to visit the Fortaleza Canyon Viewpoint, where you can take a walk on the top of Serra Geral National Park.

In this place, it is possible to carry out yet another trail, which leads to the Tigre Preto waterfall, a waterfall of about 350m in height and the Pedra do Segredo, a monolith about 5m in height, balanced on a base of 50cm at the edge from the walls of more than 500m of difference in level. In this breathtaking itinerary, the visitor travels through the immensity and grandeur of one of the largest canyons in Brazil, with more than 8 kilometers of pure splendor, wonderful viewpoints, giant waterfalls, in a day that, of course, will be recorded in memory.

- **Balloon Flight in the Canyons**: this experience is sure to be engraved in memory and has become a local sensation in recent years. In this activity, you will be able to contemplate the huge walls of the Canyons of Aparados da Serra and Serra Geral at dawn, aboard an aircraft that literally floats in the skies, in a flight that can reach an incredible 1500m of altitude, depending on weather conditions.

The flight duration varies between 40 and 60 minutes, depending on the weather, as safety standards are always followed to ensure the best experience.

Photo Collection of the Praia Grande Tourism Office

- **4x4 tour**: this off-road tour starts in the center of Praia Grande, going through a "mini citytour" in relevant historical points of the city, heading to the interior roads, where wet bridges and small passages with water are crossed. In this activity it is possible to enjoy a panoramic view of the lower part of the Canyons and you will also be able to see a huge rice irrigation dam, which supplies the local agriculture of two cities, with a beautiful view for photos.

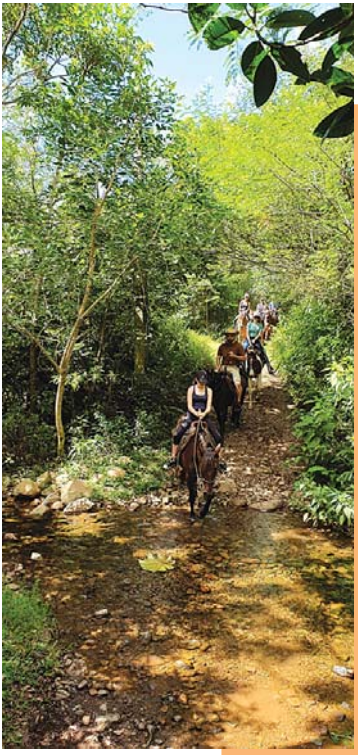
On this journey, you will also visit an artisanal sugar mill, where you have the opportunity to get to know a little of the simple and traditional life of people who are dedicated to family farming and organic production. You can also taste the products made there, of course!

Here it is possible to have authentic and personalized experiences and eventually very rustic, in contact with local culture, history and nature.

- **Quadricycle**: in the region there are several route options for UTV and ATV. You can do a more contemplative activity, traveling in a panoramic way along the lower slope of the canyons along side roads, or even opt for more technical paths, overcoming some obstacles such as rivers and quagmires. In addition, it is possible to visit different locations with these vehicles.

-**Horseback Ride**: in the south of Brazil, the rural work is part of the cultural tradition of the people. The horse is a fundamental element for the subsistence of many people and this animal was widely used by the drovers, who carried out the transport of goods

through the stings opened with a machete in the forest. The horse and the drover are part of the context of the gaucho, a character in typical clothes of the region who used yerba mate to drink mate and ate barbecue daily. To know more details about this and other stories, go on a horseback ride and get to know different places in the region being led by typical characters.



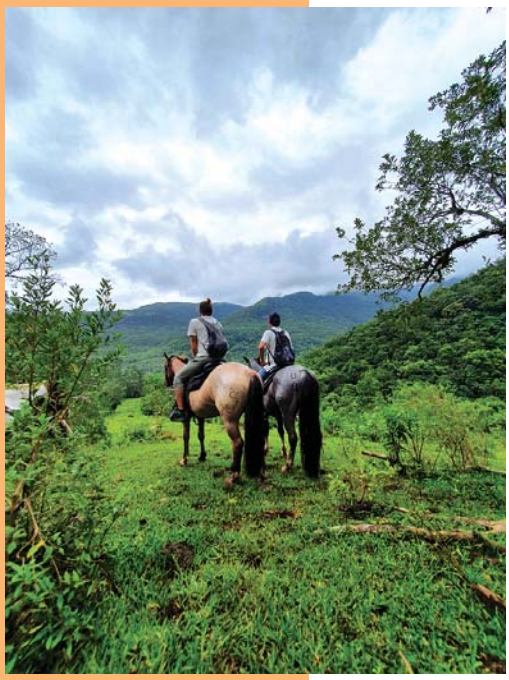


Photo Collection of the Praia Grande Tourism Office

- **Bike**: the entire territory surrounding Praia Grande has many kilometers of roads with beautiful landscapes, which can be covered by bicycle. There are short and long routes with a low degree of difficulty, as well as more demanding ones. You can bring your own bicycle, rent one or hire this service from local operators, which offer tours of hours or days in the region.

Photo Collection of the Praia Grande Tourism Office

Recommendations: before the more specific guidelines, it is worth noting that the main motivation here is activities in nature to contemplate and celebrate life outdoors. For this reason, some care is needed so that you can have a memorable experience in this territory. These are simple tips that can even save your life, let's see:

- Always have a backpack with you to carry your belongings and keep your hands free.
- Always carry water, sunscreen, repellent, warm clothing and something to eat.
- Wear closed shoes that protect your toes and ankles.
- Charged phone is important not only for taking pictures, but also for contacting help in case of need. Many locations are not yet covered by mobile phone service, so it's good to be prepared.
- Due to the geological formation of the region, the microclimate is unstable and can change quickly, always check the weather conditions.
- In case of rain, pay attention to the level of the rivers, so as not to be surprised by a sudden increase.

- On days of intense wind, be careful when carrying out activities between very closed walls, there is always the possibility of a block of rock coming off. Don't forget, you are in a geologically active region.
- In the Campos de Cima da Serra region, where the temperature is about 5 to 7 degrees lower than on the lower part of the slope, there is a typical phenomenon in the region called "viração", which is a kind of mist that appears unexpectedly, completely taking away the vision of the reference points, causing the disorientation of groups.
- The entire territory is formed by one of the largest basaltic spills on the planet. Basalt, because it is a rock with a large amount of iron, makes compasses not effective in orientation and even with electronic devices, navigation becomes difficult if you do not know the places well.
- Hire a tour guide and/or local driver and leader in adventure tourism to offer you not only important information about our territory, but also quality and safety for your visit so that you can return home in peace.

2.2 Bom Jardim da Serra, SC

Bom Jardim da Serra is the gateway to Serra Catarinense for those who choose to travel through the spectacular Serra do Rio do Rastro, with its sinuous curves and unique landscape. The municipality is known as the "Capital of Waters" due to the large number of rivers, waterfalls and streams that rise and flow throughout its territory. Its altitude in relation to sea level gives Bom Jardim da Serra one of the most beautiful topographies in the state, reaching 1,827 meters of altitude at its highest points. For this reason, Bom Jardim da Serra has the most beautiful canyons in Brazil inside, offering visitors a spectacular geography.

The Laranjeiras Canyon

The Laranjeiras canyon, despite being located within the demarcation of the São Joaquim National Park, the upper part is an area that was not regularly acquired by ICMBio, having its preservation and environmental protection under the responsibility of its owners, either for environmental awareness that for decades has been taking root in the generations that currently own the property, as well as by the simple application of environmental laws (constitution of legal reserves, Forest Code, Atlantic Forest Law). Therefore, as it is still an area of private

Photo Collection of the Bom Jardim da Serra Tourism Office

property, even within the limits of the park, it requires authorization for the entry of visitors.

There are several theories about the name of the Canyon, among the main ones the fact that the waters that cut the canyon flow into the Laranjeiras River, in the city of Orleans. Another aspect is associated with the ascent of the tropeiros to the Serra do Imaruí, who carried their bruacas with oranges from the orange groves at the foot of the mountain and climbed to the edge of the Canyon and there they made a rest stop tasting the fruit brought in the tropeadas. Another probable origin of the name would be from a "Laranguras Farm, in the city of Orleans, in the lower part of the canyon, from the imperial period, represented on maps from 1842.

The Laranjeiras canyon can be visited from both sides: Fazenda

Rincão da Palha (North side) or Fazenda Santa Cândida (South side). Each side has different viewpoints, with beautiful views. This true treasure hidden in the interior of Bom Jardim da Serra, is in the town of Santa Bárbara, one of the oldest in the region.

The Laranjeiras Canyon is the most imposing in the region, with deep crevices and surprising walls, waterfalls that reach 200 meters of waterfall, and its cliffs that frame the beautiful scenery among the native vegetation

Ronda Canyon

Ronda Canyon takes its name due to local history, as it served as a resting area for drovers who arrived on a trip with their goods and herds of animals. The formation of the canyon, together with the field, forms a round about, where the animals were left still and rounds were carried out so that the animals did not disperse in the field.

It is the canyon with the greatest ease of access for those coming from the city, but it does not leave anything to be desired, as it provides an incredible view for its visitors. It has two viewpoints, whose entrances are close to the viewpoint of Serra do Rio do Rastro, one of them is through Mirante Serra Parque next to Rodovia SC-390 and another access is through the Camping da Ronda property. The longest trail is 350 meters long and is covered almost entirely on a wooden deck.

Funil Canyon

The Funil Canyon, like the other canyons, is approximately 1,500 meters high and has an unparalleled beauty. From its location it is possible to see a part of Morro da Igreja, and all the towns at the foot of the Serra. It receives this name because at its main point it has a large rock that resembles an inverted funnel.

From the mountain region, it was the first canyon to have route opened by a team from France in 2000. Access is also through a private property, along the banks of the SC-390 highway and up to the main viewpoint, it is necessary to travel 7 km of trail.

Photo Collection of the Bom Jardim da Serra Tourism Office

2.3 Jacinto Machado, SC

A municipality in the extreme south of Santa Catarina, Jacinto Machado had its initial occupation with the Xokleng indigenous people and, later, Portuguese settlers, Italian, German and Polish immigrants.

Initially called Volta Grande, it was called this way because of the long turn needed to reach the small village, a path that bordered the stone river.

The current name was given to Jacinto Machado Bitencourt, a resident of the locality with the rank of brigadier in the Brazilian army who defended the country at war against Paraguay.

The city is located on the coastal plain of Santa Catarina, almost at the foot of Serra Geral, 254 km from Florianópolis. Sightseeing tours in the interior of the municipality, through centuries-old trails of the drovers, reserve surprises: old legends and the beautiful landscapes of Aparados da Serra.

The Serra Geral National Park guards Jacinto Machado's main tourist heritage: the canyons. Fortaleza is the great star, among other attractions such as sandstone mountains with natural sculptures, cliffs for rappelling, waterfalls, cliffs, valleys, almost untouched forests and also rural routes complemented by coffee-and-mixture, typical of the Italian colonies. In the center, there is the Geopark Museum and the Municipal Historical Museum, which stands out with old pieces used by Indians and colonizers.

Imposing Fortaleza Canyon through the tourist view of the city of Jacinto Machado/SC

Fortaleza Canyon: a geomonument formed by the largest set of escarpments in the canyon region of southern Brazil. With its beautiful cliffs of approximately 7.5km in length, it shows visitors its rocky walls with a maximum altitude of 1,157m. Its extensive escarpments give rise to its name, being the most imposing canyon in the Serra Geral National Park, on the border of the States of Santa Catarina and Rio Grande do Sul.

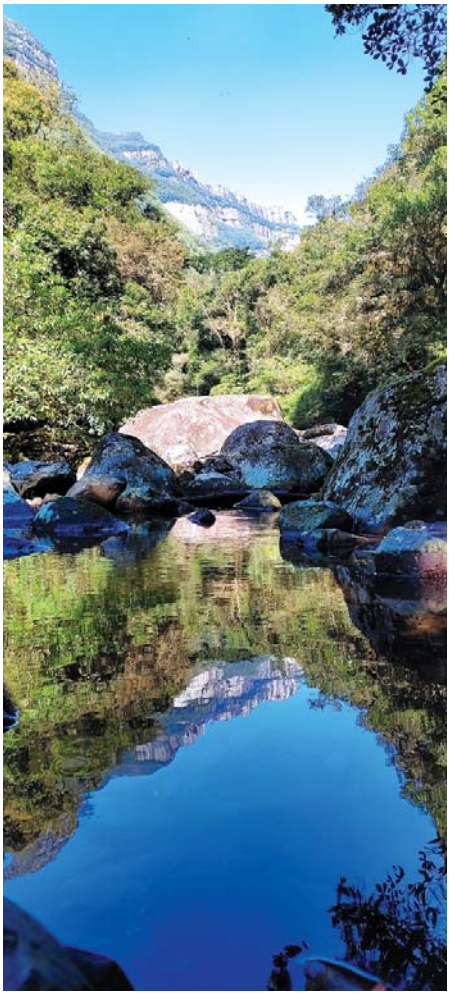
The region where it is located is recognized as a national geological heritage, which recently received the title of Geopark Caminho dos Cânions do Sul, through UNESCO International.

This important seal is based on the constant cultural, economic and environmental regional development of the city of Jacinto Machado, giving the adventure and nature tourism segment one of the main triggers in the growth of the sector in the extreme south of Santa Catarina.

Fortaleza Canyon: Large canyon eroded by the Rio da Pedra, whose walls resemble the walls of medieval fortresses, hence the origin of the name “Fortaleza”. In the past, the population of Macuco (a bird typical of the Atlantic Forest) was extraordinary and the place was a frequent target for hunters to visit. It was then that the name given by the first residents of Fundo do Macuco appeared.

The Tigre Preto trail, inside the Fortaleza Canyon, presents a

Photo Collection of the Jacinto Machado Tourism Office



unique opportunity to venture through beautiful outcrops of volcanic rocks. Anyone wishing to enter this imposing interior of canyons can identify up to 13 basaltic flows with perfectly tabular limits and thicknesses ranging from 15 to 55 meters, known as the Serra Geral Formation of the Cretaceous period.

For those who venture into the upper part of the Fortaleza canyon (city of Cambará do Sul/RS), it is possible to visit numerous viewpoints where you can contemplate the entire set of escarpments and have a privileged view of the entire Coastal Plain of the extreme south of Santa Catarina. .

The interior can be visited by the Coastal Plain, through our beautiful tourist city of Jacinto Machado/SC. Through easily accessible roads, it is possible to reach the Tigre Preto community and start the trail following the route of Rio da Pedra.

Favored by its scenic beauty and grandeur, combined with the tourist potential of the region, the Fortaleza Canyon and its majestic Tigre Preto trail are one of the main places to visit in the region, offering countless opportunities for interaction with the context of geodiversity and culture from the city of Jacinto Machado.

Nature tourism, health and well-being in the municipality are the priority products in the motivations of tourists who visit our city and region.

We hope to have been able to show a little bit of our city and its beauty. Feel invited to meet her and enjoy her hospitality.

Now that you are interested in this adventure, just choose the best time of the year and contact our team of specialists in services in the city. You can also count on the support of the Municipal Tourism Office for more information, by calling (48) 3533.1133, during business hours.

Photo Collection of the
Jacinto Machado Tourism Office

2.4 Lauro Muller, SC

Lauro Muller is a municipality located in the south of Brazil, in the state of Santa Catarina and is known as the historic birthplace of Carvão Nacional and also for having the most spectacular road in the world, Serra do Rio do Rastro, elected in 2013.

Its exploration appeared approximately in 1827, because of the mineral coal. Tropeiros went down the Serra do Rio do Rastro with their horses and mules to transport food and objects for the practice of barter in the foot region of the mountain, when one night when making the fire, they realized that the black stones were incandescent. This discovery brought to the place the investment of entrepreneurs in the coal sector.

The construction of the Dona Tereza Christina railroad, which connected the port of Imbituba to Lauro Müller, was what led to the exploitation of coal in the municipality around the year 1874.

Coal, also called "black gold" was taken to the port of Imbituba by means of wagons, pulled by a steam locomotive. This type of transport lasted until the destruction of the Dona Tereza Cristina railway line caused by the flood of February 1971, which devastated the municipality.

Although the extraction of coal for the production of electricity has a strong impact on the economic development index, the municipality has a thriving agricultural sector.

According to the last census, we are 15,313 inhabitants, in a territory of 270 square km, in a place, as our anthem says, a scenery framed by the mountains.

The municipality was graced by God with natural resources of

Photo Collection of the Municipal Department of Tourism of Lauro Muller

unparalleled beauty such as the Serra do Rio do Rastro, the Serra Geral canyons, with waterfalls, rivers, valleys and mountains, diversified vegetation and wild animals.

It also stands out for its cultural, historical and technical-scientific resources such as religion, music, ancient architecture, beliefs, archaeological sites, colonization based on the history of coal, drovers and Italian immigrants, and the Whitte column. , with 17 landmarks, which is the first stratigraphic column of the Paraná Basin, where all the rocky bodies that form the Earth's crust are described. In addition, it has the Serra do Rio do Rastro Municipal Eco Museum, created in May 2013, transforming 6,200 hectares of Serra Geral slopes into an asset of municipal public interest.

For all this, and also for the production of wines, cachaça, molasses, brown sugar, beers, milk and its derivatives, pork, handicrafts, colonial bread and so many other activities in the rural environment, that the municipality is recognized for having great potential for the exploration of rural, ecological, cultural, historical, religious, contemplation, adventure tourism, among others.

The tourist will certainly find rich attractions for fun, emotion, but also peace, quiet and harmony with nature due to the scenic beauty which provides a tourism of contemplation.

Funil Canyon

In Lauro Müller, located a few kilometers from Serra do Rio do Rastro, the most spectacular road in the world, the Cânion do Funil is also an unmissable tour in Serra Catarinense.

The canyon is on private property and there are a few ways to reach it, walking or by 4×4 van.

The Funil Canyon is at an altitude of 1590 m at its highest point (north side) and around 1450 m on the side. The edge of the canyon forms the natural border between two municipalities. At the top, Bom Jardim da Serra and at the bottom, Lauro Muller. It is 6 km in a straight line from the Serra do Rio do Rastro viewpoint and also from its access point on the highway.

It stands out from the other canyons for its pointed formations, between deep walls, which must have about 500 meters to the bottom of the canyon.

Ronda Canyon

If you are visiting the Serra do Rio do Rastro viewpoint, you cannot miss Ronda Canyon. The upper part of the canyon belongs to Bom Jardim da Serra and the lower part to Lauro Müller. With an altitude of 1485 meters, we have an incredible view.

Photo Collection of the Municipal Department of Tourism of Lauro Muller

2.5 Mampituba, RS

Located next to the most beautiful canyon chain in southern Brazil, which makes up the Caminho dos Cânions do Sul Geopark, Mampituba stands out for its valleys, canyon and crystalline waters, forming extensive rivers and waterfalls in its territory. With all this and its strong agriculture, the city demonstrates its identity in its strong rural tourism, with consolidated tourist itineraries, being the Rural Tour Contos & Encantos da Estância, Rural Tour of "Jirico" and Vale das Pitaias the most relevant, exposing all its history, culture and natural beauty along the way.

Photo Collection of the Municipal Department of Tourism of Mampituba (Fosafaz eco-farm).

In its geology, the Josafaz canyon and the stubborn Cachoeira canyon exude beauty in its waterfalls, contemplated in a light trail along its edges at more than 900m altitude, passing through the old Silveirão community, which illustrates in its legends, material remnants and intangibles of former residents and drovers of the region.

In the adventure, rappelling in waterfalls, trails, quadricycle and Sky Bike mark the visitor's experience and highlight the municipality in this context, making Mampituba Vale dos Canyons the Capital of Experience Tourism, demonstrating all the essence and hospitality of this people.

Photo Collection of the Municipal Department of Tourism of Mampituba (Fosafaz eco-farm).

2.6 Morrinhos do Sul, RS

Recanto dos Canyons

Morrinhos do Sul is a municipality on the northern coast of Rio Grande do Sul. With a population of just over 3,000 inhabitants, it is located in a region of great beauty and environmental wealth: at the foot of the great canyons of the Aparados da Serra Geral, in an enclave of Atlantic Forest interspersed with rivers and lakes, a few kilometers from the coastal gaucho.

Photo of Cascata do Forno in the middle of the Atlantic Forest (Collection of the Municipal Secretary of Tourism of Morrinhos do Sul).

A quiet and privileged corner, with many stories to tell. From European colonization - mainly Germanic - and "tropeira" influence, its paths, since the times when the Xokleng indigenous

walked through the region, link mountains and plain, mountain and coast. Close to completing 200 years of history, since the beginning of colonization in 1826, Morrinhos do Sul has a lot to offer those who are willing to visit its territory.

The environmental aspect is one of the main components of tourist activity, as it is the very environment in which all activity and all life takes place. When it comes to experiencing the environment, this is usually associated with the possibility of observing animals in their habitats natural landscapes, see and photograph beautiful landscapes, breathe purer air, learn more about the natural world, slow down from the pace of large urban centers, immerse yourself in a different world than usual, in which close contact with nature is the rule.

From typical gastronomy to walks through beautiful forest trails, from peaceful country life to adventure activities, from ancient stories to the desire for a future with better quality of life and prosperity.

As you advance inland, towards such walls, the sudden and increasing elevation offers the observer natural viewpoints that reveal the beauty of the lagoons and the coastal strip that extends between the north of Rio Grande do Sul and the extreme south of Santa Catarina. Located in the middle of the Atlantic Forest, the municipality has a relief characterized by hills covered with native vegetation, springs, rivers, lagoons, waterfalls and cascades. Hence a natural vocation for ecological, rural and adventure tourism, notably focused on activities carried out in the midst of nature.

The attractions

Some places are considered historic for the municipality and the region, such as the Rio dos Negros - site of former quilombos -, the Tropeiros trail in the Tajuvas region, the remnants of the presence of Xokleng indigenous peoples in the Morro do Forno region and the possible existence of an indigenous cemetery or place of worship next to Morro do Céu, according to local reports.

The main attraction is the Tajuvas Canyon, located in Serra Geral, which displays an exuberant panorama and possibilities of trails through the Canyon, enjoying every bit of it.

Some of the activities practiced are: rappelling, climbing, canyoning, hiking, trekking, quad biking, balloon flights and cycling tours.

Come and discover our little piece of paradise and enjoy incredible experiences in the midst of the nature that surrounds us. Be a fan of memorable moments at Recanto dos Canyons, we are waiting for you.

Illustrative image at the foot of Tajuvas Canyon.
Source Collection of the Secretary of Tourism of Morrinhos do Sul

2.7 Três Forquilhas, RS

The municipality of Três Forquilhas has been gaining evidence in some tourist segments such as adventure tourism, ecotourism and rural tourism. It has exuberant fauna and flora, full of natural beauties that have been gaining more and more attention for the sector.

Photo Collection of the Municipal Department of Tourism of Três Forquilhas

With a privileged location between the north coast of Rio Grande do Sul and the slopes of Serra do Mar, it has a relief that favors the formation of valleys, waterfalls such as Pedra Branca, which is one of the main attractions of the municipality and canyons such as Cânion Pedra Branca and the Josafaz Canyon, both receive trekking tourists who seek this contact with nature.

Other areas in expansion are those of tourist services, such as accommodation, food and receptive agency, to be able to drive tourists safely and consciously.

Photo Collection of the Municipal Department of Tourism of Três Forquilhas

3. Biology

Tatiana Bressel and colaborators

3.1 Flora - Biomes that make up the region and their peculiarities

Dra. Tatiana Bressel

Biologist with Master's and Doctorate Genetics and Molecular Biology by the Federal University of Rio Grande do South (UFRGS). Scientific manager of the Bressel Biologics company, biological consultancy.

3.1.1 Atlantic Forest

The Atlantic Forest is characterized by exuberant vegetation, with accentuated hygrophytes. It is one of the richest biomes in biodiversity in the world and also one of the most endangered, with only 21% of its original area. Various types of relief, forests and ecosystems make up this biome. Brazil - its main holder - along with parts of Paraguay and Argentina, can be seen on the map below:

Map of the Atlantic Forest defined by the WWF. The dark yellow line represents the boundaries of this ecoregion. NASA satellite image (source: https://pt.wikipedia.org/wiki/Mata_Atl%C3%A2ntica).

The Atlantic Forest is composed of native forest formations: Dense Ombrophilous Forest, Mixed Ombrophilous Forest, also called Araucaria Forest, Open Ombrophilous Forest, Seasonal Semideciduous Forest and Seasonal Deciduous Forest. And also by associated ecosystems: mangroves, restinga vegetation, altitude fields, inland swamps and forest enclaves in the Northeast.

This unique biome in the world is home to several endemic species of fauna and flora, many of which are currently protected in conservation units. **Endemism** indicates that the species does not occur anywhere else on the planet and if it disappears, it will be extinct globally. Therefore, areas of endemism are generally considered as priority areas for conservation.

It is estimated that there are about 20 thousand plant species - approximately 35% of the existing species in Brazil -, including several endangered species in the biome. This wealth is greater than that of some continents, such as North America, which has 17,000 plant species and Europe, with 12,500. This is one of the reasons that makes the Atlantic Forest one of the five priority hotspots for the conservation of global biodiversity.

Here we will talk a little about some of the plant formations belonging to the Atlantic Forest, where the canyons are located.

3.1.2 Campos de Cima da Serra

The upper part of the canyons is located on the Plateau of Rio Grande do Sul, in the so-called "Campos de Cima da Serra", characterized by a smooth relief and located at altitudes that vary between 900 and 1,200 meters above sea level. In addition to the forest formations, there are grasslands such as the Grassy-woody Savannas, in which the caninha grass, Andropogon lateralis, predominates. This grassy vegetation has allowed livestock activities to be developed over the centuries.

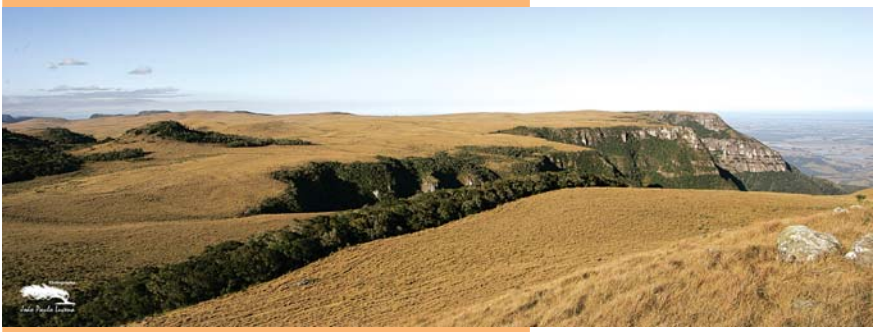


Photo of Campos de Cima da Serra, Malacara Canyon, Serra Geral National Park. Author: João Paulo Lucena

The region is characterized by a sudden variation in relief, the walls are steep, with up to 700 meters of unevenness. The lower part is located on the Coastal Plain.

Photo Coastal Plain and the canyon walls. Author: Sander Trento

3.1.3 Araucaria Forest, Mixed Ombrophilous Forest

In the "Campos de Cima da Serra", the predominant forest formation corresponds to the Mixed Ombrophilous Forest, also called Araucaria Forest, characterized by the presence of the araucaria, *Araucaria angustifolia*, also integrated by other typical species, such as xaxim, *Dicksonia sellowiana*, maritime pine, *Podocarpus lambertii*, tapir bark, *Drimys brasiliensis*, yerba mate, *Ilex paraguariensis* and cinnamon lageana, *Ocoteapulchella*.

Among the hundreds of typical plants, we can also find the "princess earring", *Fuchsia regia*, the symbol flower of Rio Grande do Sul.

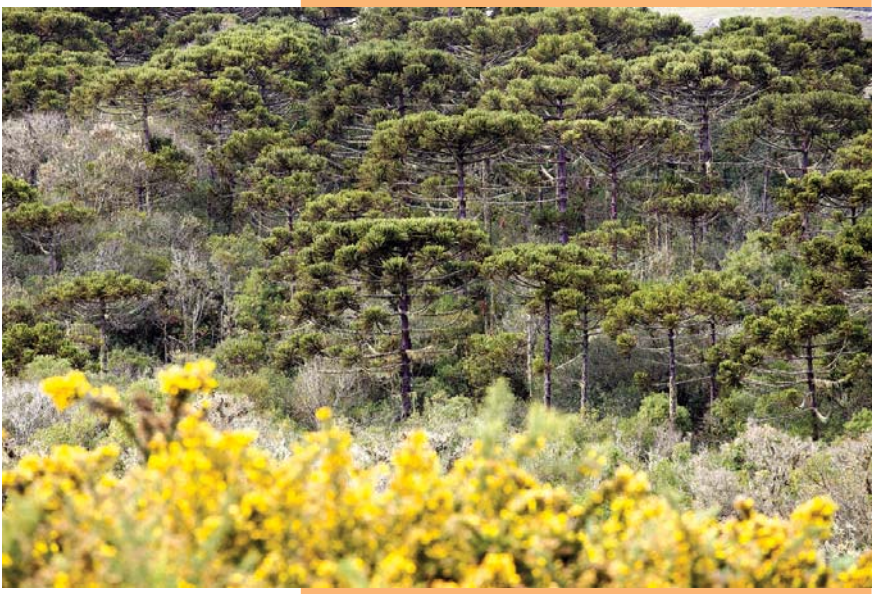


Photo: *Araucaria forest, Araucaria angustifolia*, in the Cambará do Sul region. Author: André Bastian

Photo Xaxim (*Dicksonia sellowiana*) in Cambará do Sul region (Author João Paulo Lucena)

Photo “Princess Earring” flower, *Fuchsia regia*, symbol flower of Rio Grande do Sul. Author: Tatiana Bressel.

Araucaria and tree fern are forest species with great ornamental and commercial value. Due to uncontrolled extractivism, they had their populations greatly reduced over time, leading these plants to the Brazilian list of endangered species.

Among the epiphytes found in the region, the orchid, *Cattleya coccinea*, with red flowers, and the lichen Us*nea barbata*, a species with a similar habit to the wooden beard bromeliad, *Tilandsia usneoides*, with which it is often confused, stand out.

Photo of the endemic orchid Ca*ttleya coccinea* in the Fortaleza Canyon. Author: Tatiana Bressel

3.1.4 Peatlands

In Campos de Cima da Serra, the presence of peat bogs and swamps is constant, which play an important role as water reservoirs and as rain flow regulators, also contributing to the supply of underground aquifers and the numerous rivers and streams in the region. Peatlands are plant elements that are created over pockets of water, forming a kind of sponge, a marshy pond. In bogs, flora species such as Gravatá, *Eryngium* spp., and dense mosses such as *Sphagnum spp*. They are formed by the accumulation of organic matter and present, in addition to their hydrological and hydrogeological importance, unique biotic communities with great potential for scientific research. It is noteworthy that the peatlands are protected by law and cannot be damaged, under penalty of liability, including criminal liability. Thus, if, on the way to the canyons, a peatland is identified, it must be bypassed, keeping a distance that avoids any damage to this area.

In the photo above, the peat bog can be identified by the dark green color band of the pasture. Photo author: João Paulo Lucena.

In the photo above, the peat bog can be identified by the dark green/ brown color band of the pasture, where the maned wolf is. Photo author: Wilson Sandes

3.1.5 Nebular Forest

On the edges of the plateau and on the slopes of Serra Geral, there is a vegetation called "Forest Nebular dos Aparados da Serra", formed by tortuous trees, such as cambuim, Siphoneu*genia reitzii*, gramimunha, *Weinmannia humilis*, and casca-d'anta, *Drimys angustifolia*, which are usually covered by mosses, bromeliads and orchids.

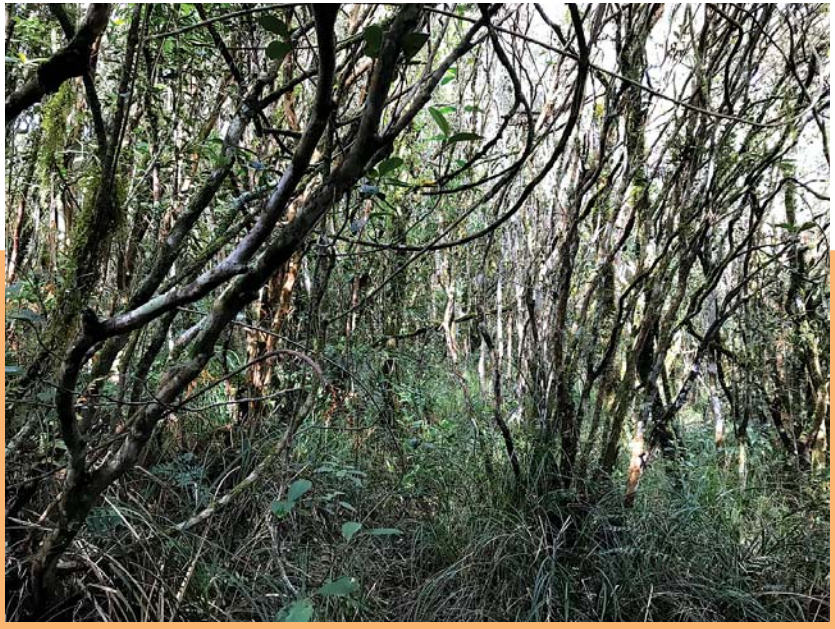


Photo of the Forest Nebular in the Fortaleza Canyon, Serra Geral National Park. Author: Tatiana Bressel

Photo of the mosses and epiphytes on the trees.
Author: Tatiana Bressel

This formation is called “Matinha Nebular”, due to the high occurrence of fog, drizzle or wind. In this forest are common species of myrtaceae, of leguminous plants of the genus Mimosa, with thorns in the branches of criciúmas, grasses of the bamboo group. In the autumn period, the color of the quaresmeira, *Tibochina sellowiana*, stands out in the vegetation.

Photo of quaresmeira, T*ibochina sellowiana*, standing out in the vegetation of Cânion dos Índios Coroados, Serra Geral National Park. Author: Tatiana Bressel

In the transition with the Cloud Forest, there is a rupicolous vegetation, composed of plants such as nettle, Gunnera manicata, yam-mimoso, *Chusquea mimosa*, and bracatinga, *Mimosa scabrella*.

Pictures of Urtigão, *Gunnera manicata*. Author: Tatiana Bressel

Nettle is a typical plant that occurs on the wet rocks of the region's canyons. It has large, kidney-shaped leaves that can reach 2 meters in diameter. Native to southern Brazil, it sometimes forms large clusters on slopes.

Photo Henry Lummertz and Pascal Baldin collecting rope in Malacara Canyon, in the background several Gunneras or nettles and a tree fern.

3.1.6 Dense Ombrophilous Forest

In the Coastal Plain, the forest formation that used to be predominant was the Lowland Dense Ombrophilous Forest or Tropical Forest of the southern Quaternary Plains, which has as characteristic species the jerivá, *Syagrus romanzoffiana*, the small-leaf fig tree, *Ficus organensis*, the jussara palm, *Euterpe edulis* and the yellow ipe, *Tabebuia umbellata*.

Photo: Jussara palm (*Euterpe edulis*) Author Jogares

Photo: Red-fronted Parakeet, Pyrr*hura frontalis*, eating açaí, fruit of the jussara palm heart, *Euterpe edulis*. Author: Nilton Nogueira

The vegetation of this forest is characterized as evergreen forest whose canopy is up to 50 m, with emergent trees up to 40 m in height. It has dense shrubby vegetation, composed of ferns, trees, bromeliads and palm trees. Vines and epiphytes - bromeliads and orchids - as well as cacti and ferns are also very abundant. A very common plant observed on the canyons' return trails and that draws attention for the color of its flowering is the Heliconia caeté or *Heliconia velloziana*.

Photo: Bromeliads under the trees. Author Tatiana Bressel

Photos: Caeté,
Heliconia velloziana.
Author: Tatiana Bressel

3.2 Fauna

The great diversity of vegetation types leads to an equally significant diversity of fauna in the region.

3.2.1 Mammals

Dra. Flavia P. Tirelli
Collaborator of the Postgraduate Program in Animal Biology, Institute of Biology, UFRGS and member of the Instituto Pró- Carnívoros

In the upper part of the canyons, several species of medium and large mammals can be found, including felids, canids, deer, primates, armadillos and several other groups. Among the felids can be found the bay lion or puma, *Puma concolor*, the ocelot, *Leopardus pardalis*, the southern wildcat, *L. guttulus*, margay cat, *L. wiedii* and the buckcat, *Herpailurus yagouaroundi.*

Photo of a camera trap located in the Serra region: Gato do Mato Pequeno do Sul, *L.guttulus* (Author Flávia P. Tirelli)

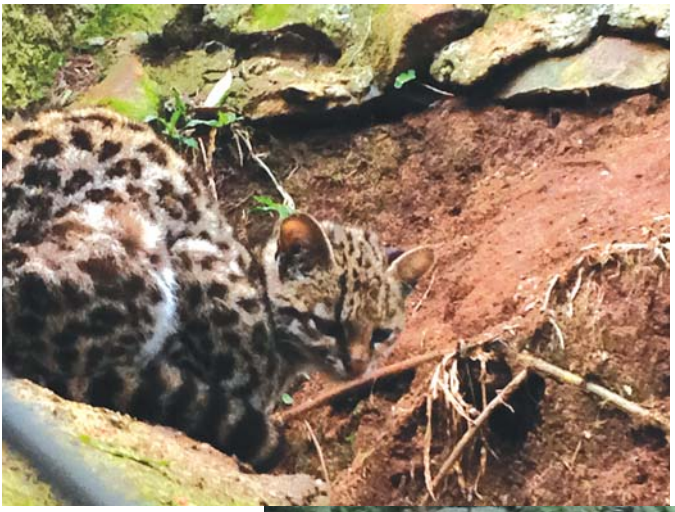


Photo of in the region: Gato do Mato Pequeno do Sul, *L.guttulus* (Author Flávia P. Tirelli)

Photo: Couple of a bay lion or puma, Puma concolor, sleeping (Author Flávia P. Tirelli)

The group of canids can be seen a lot during visits to the canyons, such as the Graxaim-do-campo, *Lycalopex gymnocercus* and the Graxaim do Mato, *Cerdocyon thous*, and if the person is at the right time in the park, they may even be able to see the famous maned wolf, *Chrysocyon brachyurus*, as was the case of the tourist Sandes Wilton who recorded beautiful images of this rare and critically endangered species in Rio Grande do Sul.

Photo Maned wolf, Chrys*ocyon brachyurus*,
in Amola Faca canyon (Author Sandes Wilton).

Photo Maned wolf, *Chrysocyon brachyurus*,
in Amola Faca canyon (Author Sandes Wilton).

Photo graxaim do mato, *Cerdocyon thous*,
in the Fortaleza canyon (Author Tatiana Bressel).

Photo graxaim do mato, *Cerdocyon thous*,
in the Fortaleza canyon (Author Tatiana Bressel).

Deer can also be seen in this region: pampas, brown and brown deer *(Ozotocerus bezoarticus, Mazama gouazoubira and M.americana*).

Photo of a camera trap located in the region: catingueiro deer, *M. guazoubira*. Author Flavia P. Tirelli

There are records of primates, such as the howler monkey, *Alouatta guariba clamitans*, and other curious species such as the zorrilho, *Conepatus chinga*, the coati, *Nasua nasua*, and the much observed in the Itaimbezinho Canyon, the armadillo, *Dasypus novemcinctus*, among others countless others. In this group, many species are threatened with extinction, mainly due to habitat reduction and illegal hunting.

Photo: Bugio-ruivo, *Alouatta guariba clamitans*
(Author: Júlio César Bicca-Marques)

Photo: Bugio-ruivo, *Alouatta guariba clamitans*
(Author: Júlio César Bicca-Marques)

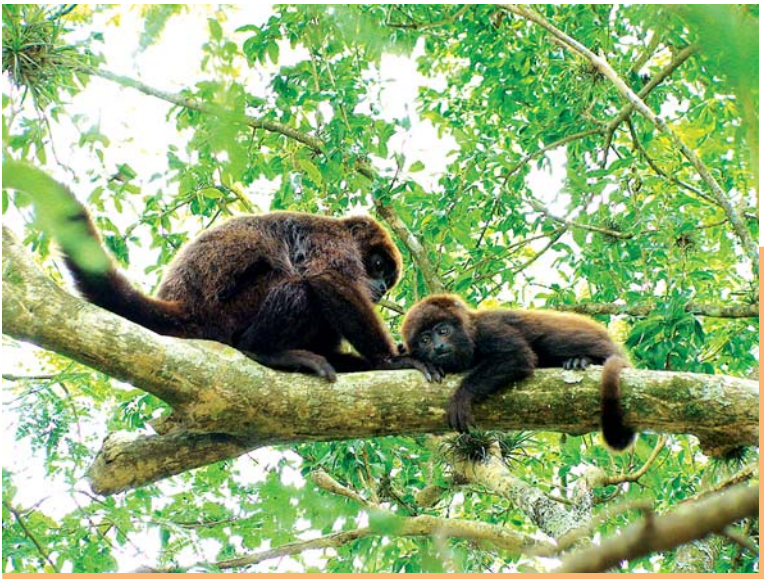


Photo: Female howler monkey with calf, *Alouatta guariba clamitans* (Author: Júlio César Bicca-Marques)

Photo: Coati, *Nasua nasua*, on the Rio do Boi trail, Aparados da Serra National Park (Author Nilton Nogueira).

Photo: nine-banded armadillo, *Dasypus novemcinctus*,
Author Carlos Tuyama

3.2.2 Birds

Bento Tadeu Leandro Junior

Biologist Graduated from Universidade do Extremo Sul Catarinense with specialization in vertebrate ecology. Founder of Naturama Cursos Outdoors and Ecological Tourism

Brazil is a megadiverse country in terms of avifauna, with 1,971 species. Brazil is the third country in the world in number of endemic species, that is, they only occur here, with 293 species. The south of Brazil, in particular the region around the SC/RS border, has peculiarities that allow the establishment of a large number of wild birds. So far, it is known that Santa Catarina has 661 species of birds and Rio Grande do Sul stands out with 683 species, most of them find habitat in the valleys, in the altitudinal gradients of the slopes of Serra Geral, in the rocky enclaves of the interior of the canyons and in the fields above the mountain range. The following is a very brief selection of this wealth, birds that can be seen in mountain environments and canyoning sites.

Autor: Andy Morffew

The Scissor Hawk, *Elanoides forficatus*, is a bird that, during the spring, migrates to southern Brazil to reproduce. It lives on the edges of forests and fields. Among the birds of prey it is one of the most sociable, living in small groups that can reach up to 30 individuals. In the air it is very agile, it flies with great skill between the trees, maneuvering quickly over the treetops or passing just below them, where it seeks its food.

Autor: Bento Junior

The Black-bellied Capeclinho, *Sporophila melanogaster*, lives in high-altitude country landscapes. Typical representative of the mountainous and rural regions of southern Brazil. Caboclinhos, in general, are nationally recognized as delicate chirps, knowing how to sing soft, pleasant melodies with several notes. It nests in isolated swamps.

Autor: Bento Junior

The Southern Quete, *Microspingus cabanis*i, occurs in the mountains of the south of the country, feeding on fruits and seeds. In times of lack of food, it can visit feeders with seeds: feeder for turtledoves, canaries and others. It lives in pairs or in small groups on the edges of woods and capoeiras.

Autor: Bento Junior

The Lesser Woodcreeper, *Xiphorhynchus fuscus*, uses its beak as a pincer, pulling slivers of lichen and bark from trees, looking for hidden arthropods. This species does not inhabit open areas, heavily degraded forests and despite not being a globally threatened bird, it is considered to be sensitive to habitat change.

Autor: Bento Junior

The Southern Bluebird, *Cyanoloxia glaucocaerulea*, sings fluently at a fast pace. Typical of edges of subtropical dry forests, araucaria forest and edges of humid forests in Brazil.

Autor: Bernard Dupont

The yellow-headed vulture, *Cathartes burrovianus*, is of fundamental importance in nature, through the consumption of carcasses, which reincorporate nutrients into the system, and its ability to resist infectious organisms is very high. It also has a keen sense of smell and quickly reaches carrion, being removed with the arrival of other species of vultures.

Autor: Bernard Dupont

The beetle, *Theristicus caudatus*, has a varied diet, consisting of arthropods, such as centipedes, spiders, adult insects and larvae, among other invertebrates, and can also prey on small lizards, mice, snails, amphibians and small snakes, and even smaller birds. Its long, curved beak is adapted for extracting beetle larvae and other insects from soft earth. It usually lives in small flocks or solitary, looking for food in grassy fields or in swamps. Likes to soar to great heights.

Autor: Chris Jimenez

The Eurasian Hawk, *Accipiter bicolor*, feeds on birds, especially thrushes and small doves; also eats small mammals and lizards. It hunts by using perches to locate its prey or by flying over the treetops. It is a forest accipitriform that is difficult to detect, due to its cryptic behavior. The species needs extensive and continuous areas to complete its life cycle.

Autor: Claudio Dias

The chimango, *Milvago chimango*, is capable of adapting to a varied diet: it eats cattle parasites, carrion, turtle eggs and even attacks adult birds. It is a bird of prey, which preferentially feeds on carrion, although it can attack animals that it perceives injured or sick, including sheep and even horses. Opportunist, it can use the force of the group to attack any prey. It lives in rural regions, fields of culture, seaside and beaches, in short, in any open place.

Autor: Daniel Sanches

The Carijó Hawk, *Rupornis magnirostris*, is found in different environments, being the terror of chicken coops. Its wide geographic distribution is also reflected in its generalist eating habits, as it consumes from insects to birds and lizards. It has the habit of using the same hunting perch for a long time, for days and even weeks.

Autor: Dario Niz

The yellow vest, *Xanthopsar flavus*, is an endangered bird, it feeds on insects and their larvae, such as grasshoppers and caterpillars. The flock feeds on the ground and usually associates with solitary individuals such as the Black-tailed Noivinha, *Xolmis dominicanus.* It lives in swamps, marshy areas and other open environments. It is almost always seen in flocks of 10 to 50 individuals. Its population is in decline in Brazil, due to the de-characterization of its habitat, destruction of nests by agricultural activities and also by the trafficking of wild animals.

Autor: Dario Sanches

The sea owl, *Asio flammeus*, is a specialist in small mammals, especially rodents, but also bats, birds and insects. It inhabits areas with sparse shrubs and trees, open fields, lowlands with patches of vegetation, clearings near forest edges and swamps, where it can be seen hunting during the day, perching on the ground. Fighter flying low, executing quick maneuvers and slow, flexible wing beats, then gliding through the air. In its "round", it passes over the same place several times, as if it had a defined territory.

Autor: Dick Daniels

The Purple-breasted Parrot, *Amazona vinacea*, is threatened by poaching and habitat destruction. The existing population is small and vulnerable. It inhabits dry forests, pine forests and edges of capons. Its movements are slow and serve to better hide in the woods. Causes of extinction: hunting, lives in forests and pine trees associated with rural environments. They need the availability of tree holes (trunk hollows) and cracks formed by the decomposition of the trunks. Pinhão, araucaria seed, is the main item consumed by the purple-breasted parrot in southern Brazil.

Autor: Diomar Muhlmann

The mountain parrot, *Amazona pretei*, feeds preferentially on the seeds of the araucaria, *Araucaria angustifolia*. The species is closely associated with araucaria forests in northeastern Rio Grande do Sul and southeastern Santa Catarina, during the maturation period of Brazilian pine seeds, mainly between March and July, when pine nuts are the main food item for parrots. The capture of young Parrots to be commercialized as pets is today the main factor responsible for the threat of extinction of the species.

Autor: Fabio Manfredini

The gray eagle, *Urubitinga coronata*, is currently very threatened. The loss and mischaracterization of its habitat by the advance of agriculture, monocultures of Pinus sp, hydroelectric and wind farms and the indiscriminate slaughter are the main causes of the current situation of this powerful bird. It is a naturally rare accipitriforme, in addition to being a large-sized species, which needs large prey and significant areas to constitute feeding and breeding territories. Its diet consists of mammals - skunks, hares, armadillos, wild mice - and birds and reptiles - especially snakes- ; eventually can consume carrion. It usually lurks on a branch high in the trees.

Autor: Feroze Omardeen

The Juruviara, *Vireo chivi*, roams the treetops in search of food, which consists of small insects and sometimes small berries or pieces of large fruits, such as the embaúba tree. The Juruviara is migratory and lives in the middle stratum of the trees.

Autor: Hector Bottai

The handkerchief, *Tangara cyanocephala*, feeds on berries, insects, larvae and flower nectar/pollen. They frequent orchards. They are commonly seen feeding on small bushes and even on undergrowth. Commonly seen in mixed flocks with other species of tanagers. They are found in wooded cities, forest edges and small forests.

Autor: Hector Bottai

The stonemason, *Cinclodes pabsti*, is a grassland terrestrial bird and feeds on arthropods. It builds its nest in rocky areas or at the end of a tunnel that it digs into the ground. The species seems to have some affinity with fields where there are rocky outcrops. Endemic species from southern Brazil, it occurs in the Campos de Cima da Serra region of northeastern Rio Grande do Sul and in the Serrano Plateau of southeastern Santa Catarina, at altitudes above 750 m.

Autor: José Fonseca

The seriema, *Cariama cristata*, has a diet similar to that of a hawk, eating from insects to small vertebrates such as rodents, reptiles and amphibians and even other species of birds. It kills prey with its beak, as the fingers are relatively small and clawless. Common in savannahs, dirty fields and pastures, benefiting from deforestation. If pursued, it runs away, leaving to fly only if pressed hard, reaching speeds of over 50 km/h before taking off.

Autor: Kleuber Mateiro

The king vulture, *Sarcoramphus papa*, as soon as it sees a carcass, quickly dives towards the ground and lands nearby. As hungry as he is, he waits cautiously for an hour. Then, convinced that there is no danger, he eats until he can barely move. Apparently, it expects the other vultures to find the carrion by smell or sight. When the smaller species are landing to feed, this behavior reveals the presence of carrion and the king vulture takes advantage of this to get to the food source. Diurnal bird, it lands in the highest trees of the forest, where it usually sleeps.

Autor: Kleuber Mateiro

The caracara, *Caracara plancus*, is taxonomically not an eagle, but a distant relative of hawks. It is either seen alone or in large flocks around carcasses. It occurs in open fields, savannahs, edges of forests and even urban centers of large cities. It is not a specialized predator but a generalist and opportunist, omnivorous, it feeds on almost everything it finds.

Autor: Marcos Guirado

The chestnut, *Castanozoster thoracicus*, a southern species endemic to the high mountains, frequently found in bamboo plantations, especially during the fructification of the rice-of-taquara, its main food. It is said that it also looks for insects in the bushes of nebular forests or in adjacent thickets.

Autor: Marcos Guirado

The Storm Swift*, Chaetura meridionalis*, reproduces during the summer in nests fixed internally in the chimneys of homes, in other human constructions or in sheltered places, such as hollows in trees and palm trees. The nests are built with dry branches, joined by saliva, hardening and then being attached to the inner wall of the chosen places.

Autor: Norton Defeis

The White-tailed Hawk, *Spizaetus tyrannus*, is a forest species. It feeds on mammals, birds and reptiles, largely taken from the trees of the forest. It commonly chooses a preferred perch from which it detects its prey before attack. Inhabits clearings and forest edges. This forest prey species needs extensive areas to fulfill its life cycle, and its populations may decline as a result of excessive fragmentation.

Autor: Petrus Silva

The mountain eagle, *Geranoaetus melanoleucus*, has a powerful and fast flight, being endowed with large eyes, aspects that help in hunting its preferred prey, other birds, snakes and even small mammals. It builds its nest on rocky cliffs with dry branches. It inhabits open areas, fields and mountainous regions, gliding for a long time in these regions looking for food.

Autor: Sergio Moreira

The black-tailed finch, *Heteroxolmis dominicanus*, inhabits natural grasslands and wetlands, such as swamps that develop in the lower parts of grasslands. The species' habitat has been intensely reduced in recent decades, mainly due to activities such as soybean, pine and eucalyptus plantations. It lives solitary in open areas and usually associates with flocks of the yellow vest, *Xanthopsar flavus*.

Autor: Terry Gray

The Cascade Swift, *Cypseloides senex*, feeds on insects caught in flight. They live by the hundreds, near waterfalls, over which they fly. During the day they hunt by flying high over the woods.

Autor: Tiago Dutra

The blue jay, *Cyanocorax caeruleus*, is associated with the Araucaria Forest, although not exclusively, occurring in forests without the presence of pine. It feeds on various fruits, pine nuts, eggs and young of other birds, small vertebrates and invertebrates. It has the habit of hiding pine seeds as a means of storing food, often forgetting some of them. This act can be considered as an act of dispersion. Therefore, it is believed that the blue jay is important for the germination and development of the Parana pine.

Autor: Vladimir Fernandes

The variegated surucuá, *Trogon surrucura*, feeds on insects and fruits, especially the jussara palm heart. It nests in arboreal termite mounds, with the couple digging the intact termite mound. During the breeding season, the male exhibits very territorial behavior, not only in the region where the nest is located, but also defends the areas where its food sources are located. It pursues other birds and predators even far from the nest site, through a direct flight towards the intruder, accompanied by the emission of screams.

Autor: Vladimir Fernandes

The blue-crested hummingbird, *Stephanoxis loddigesii*, is commonly seen in shrubby vegetation and in riparian forests of highland fields or on the edges of forests in the southern region, but disappears in areas with intense agriculture. During the winter it descends to lower altitudes, reaching sea level. During courtship, the male raises his forelock and emits strong whistles, until the female accepts him for mating.

Autor: Vladimir Fernandes

The white-collared taperuçu, *Streptoprocne zonaris*, can reach 100 kilometers per hour in flight. Taperuçus have very reduced feet, which prevent them from landing on electrification wires or branches, as swallows do. The nest is made of plant fibers, mosses and pebbles agglutinated with mud and saliva, it is fixed on rock walls and cliffs, around waterfalls and dark, damp caves. Always flying over forests, fields and cities. When the sky is cloudy or it's raining, they return to their hiding place, quickly leaving one by one when the sun comes out.

Autor: Vladimir Fernandes

The worm, *Leptasthenura setaria*, is a species totally associated with the araucaria-*Araucaria angustifolia*. It is considered almost threatened with extinction worldwide, due to the drastic reduction of the Mixed Ombrophilous Forest. It feeds on small arthropods, such as insects and their larvae and small spiders found on the leaves and branches of the Parana pine, the so-called "grimpa". It benefits from the spiky leaves of the pine as protection from predators.

Autor: Yoko Tomyla

The Penacho Blackbird, *Knipolegus lophotes*, feeds on insects that it captures in the air, after a quick flight performed from some preferred perches, to which it returns after hunting. Inhabits high altitude fields and open areas.

Autor: Paulo Durante

The green-billed toucan, *Ramphastos dicolorus*, is common in mountainous regions, being seen in the canopy of high forests, where it feeds on fruits, such as the fruits of the palm heart, *Euterpes edulis*. It also feeds on chicks and eggs of other birds, using its long beak to take them out of tree cavities. The species usually forms small flocks, always very noisy. It disappears in places where there is great deforestation, requiring large forested areas for survival.

3.2.3 Amphibians

Dr. Patrick Colombo
Biologist with a Masters in Ecology and a PhD in Biosciences (Zoology).
Museum of Natural Sciences, Herpetology Sector, Amphibians, Secretariat
State of the Environment and Infrastructure-RS.

Brazil is the country with the highest number of amphibian species in the world, with 1188 species recorded in the country. In the Campos de Cima da Serra (CCS) region, around 60 species of amphibians can be found so far. Among these, 17 only occur in Rio Grande do Sul and Santa Catarina, four of which are endemic to CCS. These characteristics reveal the importance of the region for amphibian conservation. One of the endemic species is the red-bellied green thrush, *Melanophryniscus cambaraensis*, which has a maximum of 3.8 cm and is notable for the peculiar color of its belly. Its skin is very rough, due to the presence of hundreds of glands of harmless venom for humans. The species was described in the late 1970s by Pedro Canísio Braun, a researcher at the Museum of Natural Sciences of the now-defunct Fundação Zoobotânica, now owned by the Secretary of the Environment and Infrastructure of Rio Grande do Sul, from specimens collected at the "Fortaleza dos Aparados , municipality of Cambará do Sul, RS, hence its scientific name. Intriguingly, since the 1990s, the red-bellied green thrush is no longer found there. Today, its occurrence is restricted to the São Francisco de Paula National Forest of the homonymous municipality. This fact, added to the threats to the species in the CCS, such as the advance of pine monocultures over native fields, the fires, the conversion of fields to farming areas, among others, make this amphibian threatened

with extinction. Efforts to search for populations in the region and to develop actions for the conservation of the species have been conducted through the National Action Plan for the Conservation of Endangered Reptiles and Amphibians of the Southern Region of Brazil (PAN Herpetofauna do Sul) coordinated by ICMBio, in partnership with several institutions in southern Brazil.

Another amphibian species restricted to southeastern Santa Catarina and northeastern Rio Grande do Sul, no longer found in the region, is the stone frog, *Cycloramphus valae*. This small frog, which reaches a maximum of 4 cm, has historical records only in one place in each of the following municipalities: Cambará do Sul, RS (Fortaleza dos Aparados), Praia Grande (at a point on the highway that goes to Cambará, in Serra do Faxinal), Timbé do Sul (a point on the road to Bom Jesus, in Serra da Rocinha) and Lauro Müller (in the cave of Serra do Rio do Rastro), the latter three in Santa Catarina. The species inhabits the humid stony slopes present in these places, in an altitude range that goes from 300 to 1000 meters approximately. The last record of the species was made in the early 1980s by the researcher who described the species, W. Ronald Heyer, at the time of the Smithsonian Institution. The stone frog is considered endangered in Santa Catarina and classified as insufficient data in Rio Grande do Sul. The main threat to the species is the paving of highways in Serra do Rio do Rastro and Serra da Rocinha. Recently, the species was included as a target species in the Planalto Sul Territorial Action Plan (PAT Planalto Sul). This initiative for the conservation of several endangered species is promoted in

partnership by WWF and the Ministry of the Environment and coordinated by the Santa Catarina Environment Institute and the Rio Grande do Sul Secretariat for the Environment and Infrastructure. In the Planalto Sul PAT, actions are planned to search for rock frog populations to support impact mitigation strategies for the conservation of the species.

Photo Red-bellied Green Thrush (*Melanophryniscus cambaraensis*) from the São Francisco de Paula National Forest, municipality of São Francisco de Paula, RS (Author: Patrick Colombo)

3.2.4 Reptiles

Dr. Roberto Baptista de Oliveira

Biologist with a Masters in Animal Biology and a PhD in Biosciences (Zoology). Museum of Natural Sciences, Department of Research and Maintenance of Scientific Collections, State Department of Environment and Infrastructure-RS.

Brazil ranks third in countries with the greatest reptile richness in the world, with approximately 800 species, behind Australia and Mexico. Among the Brazilian continental reptiles, about 128 species have records for Rio Grande do Sul and 120 for Santa Catarina, of which a large part can be found in the canyon region. Considering all the environments present in this region, from the highest portion, in Campos de Cima da Serra to the Coastal Plain, more than 60 species of reptiles can be found, and of these, more than 50 are snakes. Some of these species are abundant and occupy different types of environment, while others are rare and restricted to specific habitats, and the presentation of each of them would go far beyond the scope of this work, which consists of providing basic information for the practice of canyoning. In this way, we consider it more appropriate to highlight here only the snake species with medical importance, that is, those that are venomous and can cause serious accidents to humans, which will be presented below.

Rattlesnake (*Crotalus durissus*). Large-sized terrestrial species with a robust body, reaching 1.8 meters in length, characterized by the presence of a rattle at the tip of the tail. When threatened, it moves its tail rattle, producing a characteristic sound. Viviparous, it feeds mainly on rodents. It has daytime and nighttime activity. The venom has a neurotoxic, potentially lethal action; the serum used to treat accidents is anti-crotalic. In the region of the canyons, it can be found only in the rocky fields of Campos de Cima da Serra, where it is relatively frequent.

Author: Mariano Pairet

Cotiara (*Bothrops cotiara*). Medium-sized terrestrial species, reaching up to 1 meter in length. Viviparous, feeds on small rodents. It has daytime and nighttime activity. The venom has a potentially lethal proteolytic, coagulant and hemorrhagic action; the serum used to treat accidents is anti-bothropic. It is considered a rare species and lives exclusively associated with araucaria forests.

Author: Márcio Borges Martins

Cruzeira (*Bothrops alternatus*). Terrestrial species with a robust body, which can reach up to 1.7 meters in length. It is viviparous and feeds exclusively on rodents. It has daytime and nighttime activity. The venom has a potentially lethal proteolytic, coagulant and hemorrhagic action, and the anti-bothropic serum used to treat accidents is often found in the open areas of Campos de Cima da Serra and the Coastal Plain.

Author: Mariano Pairet

Jararaca (*Bothrops jararaca*). Terrestrial species with a slender body, reaching up to 1.5 meters in length. It is viviparous and presents ontogenetic variation in its diet, with juveniles feeding mainly on anuran amphibians, and adults preying mainly on rodents. It has daytime and nighttime activity. The venom has a potentially lethal proteolytic, coagulant and hemorrhagic action. The serum used to treat accidents is anti-bothropic. In the canyon region, it is very common in forested areas and forest edges, from Campos de Cima da Serra to the Coastal Plain.

Author: Mariano Pairet

True coral (*Micrurus altirostris*). Terrestrial/fossorial species with a slender body, reaching up to 1.3 meters in length. It stands out for its showy coloring, formed by red, black and yellow rings, which cover both the dorsal region and the belly of the individuals. The rings go all the way around the body, which allows you to easily differentiate it from the false coral species that occur in the region, which have different dorsal coloration from the ventral. Oviparous, it feeds on snake-like reptiles and amphibians. It has daytime activity. The venom has a strong, potentially lethal neurotoxic action; the serum used to treat accidents is anti-elapidic. Due to conspicuous coloration and mainly non-aggressive behavior, accidents with this species are extremely rare. In the region of the canyons, it is frequent in forested and open areas of the Coastal Plain and lower part of the slope, but it does not occur in Campos de Cima da Serra.

Photo: Coral-verdadeira (*Micrurus altirostris*)

Author: Mariano Pairet

Photo: Coral-verdadeira (*Micrurus altirostris*)

Author: Mariano Pairet

Prevention and procedures in case of snakebites

Photo: Cascavel (*Crotalus durissus*) - Author Mariano Pairet

Most snakebites occur in the lower region of the legs in situations where a person, walking or performing some activity in a natural environment, cannot detect the presence and gets too close, or even steps on a snake. This, as a defensive behavior, will strike and bite, inoculating venom, in the case of a venomous species. In this way, the use of gaiters/shin guards during the canyoneering activity will significantly reduce the risk of snakebite, in addition to protecting the legs from shocks against the basalt sheets and thus avoiding unwanted cuts. In addition to the use of protection, care must be taken when moving, observing the

place where you are going to step, the vegetation around the crossing point and especially the places where your hands will be placed for support, such as stones and branches, because even terrestrial species can use vegetation as a resting area. In the event of a snakebite accident, wash the bite site well with soap and water, keep the injured person calm, with the affected limb in an elevated position, avoid physical exertion as much as possible, and refer the injured person as soon as possible. possible to a health facility. Tourniquets, perforations to try to extract or suck the venom, placing substances on the bite site or drinking alcoholic beverages should **NOT** be performed under any circumstances. In case of a snakebite, contact the Toxicological Information Center of RS (Phone 0800 721 3000) or SC (Phone 0800 643 5252) for guidance.

3.2.5 Fish

Dr. Vinicius Renner Lampert
Biologist, Ichthyologist with Master's and Doctorate in Animal Biology,
Department of Zoology, Institute of Biosciences,
Federal University of Rio Grande do Sul.

The Neotropical region (from southern Mexico to southern South America) is home to the greatest diversity of freshwater fish on the planet, with estimates pointing to around 9,000 species. The Atlantic Forest stands out among the biomes of this region, having high diversity and endemism. It is estimated that more than 300 species of freshwater fish occur in rivers and streams of the Atlantic Forest, and about 130 of these can be considered endemic species.

In the Campos de Cima da Serra region are the formers of three of the main drainages in southern Brazil: springs that form the Uruguay River (Canoas River), springs that drain into the Laguna dos Patos System (Antas River) and Mampituba, which borders Santa Catarina. The Mampituba river basin is part of the freshwater ecoregion called Tramandaí-Mampituba, which also includes the basins of the Tramandaí rivers to the south and Tubarão and Araranguá to the north. There are rivers and streams of cold water, stony bottom and rapids, in addition to swamps and peat bogs.

Endemic fish species occur both in the rivers and streams of the plateau and in the bottom of the canyons. On the plateau there are small-bellied fish, *Cnesterodon brevirostratus,* cambevas*, Trichomycterus sp.,* electric fish, *Gymnotus* sp., panther

catfish, *Eurycheilichthys pantherinus*. In the canyons, especially in the Mampituba river basin, there are, among others, the striped lambari, *Hollandichthys taramandahy*, the blue lambari, *Mimagoniates rheocharis*, the penknife, *Characidium pterostictum*, and cascudos such as *Ancistrus multispinis*, *Pareiorhaphys hypselurus*, *Rhineloricaria aequalicuspis.*

Photo: Shellfish, *Rhineloricaria aequali cuspis*.
Author: Vinicius R. Lampert

Photo: Lambari azul, *Mimagoniates rheocharis.*
Author: Vinicius R. Lampert

Photo: Peixe canivete, *Characidium pterostictum.*
Author:Renato Bolson Dala-Corte

Photo: Peixe cascudo, *Ancistrus multispinis.*
Author: Vinicius R. Lampert

Photo: Peixe cascudo, *Pareiorhaphys hypselurus.*
Author:Renato Bolson Dala-Corte

Photo: Peixe cascudo, *Rhineloricaria aequali cuspis.*
Author: Vinicius R. Lampert

3.2.6 Butterflies

Prof. Cristiano Agra Iserhard
Department of Ecology, Zoology and Genetics,
Institute of Biology, Federal University of Pelotas

Butterflies, together with moths, belong to the order *Lepidoptera*, with etymology from the Greek-*lepido*s= scales; *ptera*=wing. Currently there are around 160,000 species described for science, being considered a megadiverse group. Butterflies are distributed in seven families: Hesperiidae, Nymphalidae, Lycaenidae, Riodinidae, Pieridae, Papilionidae and Hedylidae. They have complete metamorphosis, with a life cycle consisting

of egg, caterpillar (larva), pupa (chrysalis) and adult. Butterflies are very charismatic insects, given their beauty, their wide variety of shapes and sizes, as well as their coloring that catches the attention of the general public. These characteristics show the cultural importance of butterflies, demonstrated by their frequent appearance in the arts and literature, being animals of great interest since the great expeditions of naturalists in Brazil, carried out from the 19th century onwards. Therefore, they are relevant to environmental education activities.

These animals are models for a large number of biological and ecological studies, because they are easy to identify, because they have predominantly diurnal habits, because they have a short life cycle, because they are easy to find and observe in the most diverse environments, because they are very abundant and have high species richness. Adult butterflies have two types of eating habits: those that feed on nectar and, eventually, plant pollen, called nectarivores, and those species that feed on decaying organic matter such as animal carcasses, feces, and fermented fruits, called of frugivores. Butterflies can be found in most ecosystems on the planet and play an important ecological role in ecosystems, including 1) pollination, 2) participation in food chains serving the food for other animals and, as caterpillars, suppressing the growth of plants and 3) participation in the cycling of nutrients in terrestrial ecosystems.

Butterflies are distributed in different ways according

to the landscape or the type of ecosystem considered. Some species are restricted to forest habitats, while others are more associated with forest edges or native grasslands, faithful being to changes in vegetation from microhabitats to the landscape as a whole, altering its diversity and species composition. This sensitivity and intimate association with vegetation elements make butterflies considered excellent biological and ecosystem health indicators, being used for conservation planning, environmental diagnosis and monitoring of degraded areas and native habitats. In addition, they are considered a flag and/or umbrella group, in which their conservation ensures the conservation of several other species and their environments.

Rio Grande do Sul is a state that is part of the southern region of Brazil, typically having two biomes: the Pampa, in its southern portion, and the Atlantic Forest, in its northern portion. In the northeast region of the Atlantic Forest, there is a very peculiar situation in areas belonging to the Southern Basaltic Plateau, with the formation of a campo-forest mosaic. This region is known as Campos de Cima da Serra, comprising areas of native highland fields - not belonging to the Pampa - interspersed with the Araucaria Forest, constituting a unique and exclusive formation in the southern region of Brazil, very important for the balance and dynamics of the ecosystems in the region.

The butterflies of Campos de Cima da Serra are relatively well known through several inventories published in the

last 25 years, and so far, around 300 species of butterflies are known for this region. Among these, species that indicate preserved environments, endemic and exclusive species, as well as a genus and species new to Campos de Cima da Serra are pointed out. The diversity of butterflies in the region is very high and has been gradually suffering from the loss and fragmentation of habitats through activities carried out by anthropoic action. Such activities - forestry and agriculture - are degrading and replacing the ecosystems of Campos de Cima da Serra at a rate never seen before, causing the loss of biodiversity in this important region in Brazil.

Information about the butterfly species of Campos de Cima da Serra

Nymphalidae family

Caligo martia – Species of frugivorous butterfly, it can be found between January and February in areas of edge and interior of Forest with Araucaria. It has crepuscular habits with fast and vigorous flight. The individuals fly at mid-height, and the males defend their territories that can reach extensions of 100 meters at the edge and inside the forests. Large butterfly, with forewing size of approximately 6.0 cm each.

Morpho epistrophus – A frugivorous butterfly species characteristic of the Atlantic Forest. It is very abundant between January

and early April, observed both on the edge and in the interior of the Araucaria Forest. It can also be recorded along open trails with forest flying high in a gliding and slow way or along the ground in search of decomposing fruits. It has a large size with a forewing of approximately 5.5 cm each.

Taygetis ypthima – A species of frugivorous butterfly, found between May and August in late autumn and winter. Therefore, it is a species typical of the cold months, which is unusual for butterflies, and can be seen inside the Araucaria Forest. The individuals have agile flight and camouflage themselves with dry vegetation and the forest floor. It has a medium size with a forewing of 3.7 cm each.

Zaretis strigosus – Species of frugivorous butterfly, can be found most commonly between December and February. It inhabits the canopy of forests, but can also be seen at the edge when it descends from the treetops to feed or lay eggs on host plants, more characteristic of the edges of the Araucaria Forest. It has fast and erratic flight and medium size with forewings of 3.4 cm each.

Archaeoprepona chalciope – Species of frugivorous butterfly, can be found from October to April. It is also an inhabitant of the forest canopy, but can be found close to the ground in clearings inside the Araucaria Forest, when it descends to lay eggs on host plants found in the understory of these forests. A large species, it has a vigorous and fast flight, with wings measuring 4.8 cm each.

Epiphile orea – A species of frugivorous butterfly, it can be

recorded between November and May more commonly at the edge of forests and in open environments (along trails and clearings along the ground) in Campos de Cima da Serra. It can be an inhabitant of the forest canopy, being adapted to different types of environments. It has fast and agile flight, small size with forewings measuring 2.2 cm each.

Vanessa braziliensis – A nectarivorous butterfly species, it can be recorded from September to April in different environments in Campos de Cima da Serra: native fields, along open trails with high solar incidence and on the edge between the field and the Araucaria Forest where it can be seen visiting the most diverse flowers. It has fast flight and is usually seen flying close to the ground. It has medium size with forewings measuring 2.8 cm each.

Junonia evarete – Species of nectarivorous butterfly, can be observed between February and April in high altitude fields in open and sunny environments. It has fast and erratic flight close to the ground and is commonly seen perched on grass species or feeding on the flowers of native fields at altitude. It has medium size with forewings measuring 2.6 cm each.

Siproeta epaphus trayja – Species of nectarivorous butterfly, which very rarely can be observed feeding on decomposing fruits. It can be found between December and February on the edge and in clearings inside the Araucaria Forest. It has fast flight at mid-height, being easy to observe because it is conspicuous and large in size. It has forewings measuring 4.4 cm each.

Forsterinaria necys – A species of frugivorous butterfly, it can be observed throughout the year, with a lower occurrence in winter, and with peaks of abundance between January and February. It inhabits the edge, but mainly the interior of the Araucaria Forest, being recorded both in the canopy and in the forest understory. In the latter, it can be found lodged in the vegetation camouflaging itself with the dark interior of the forest. In forest edge environments it is more easily seen given the higher incidence of sun. It has fast and erratic flight, often close to the ground. It has small size with forewings measuring 2.1 cm each.

Pampasatyrus reticulara reticulata, Pampasatyrus quies, Prenda clarissa and Stegosatyrus periphas – All of them are frugivorous butterfly species, but in high altitude environments, where fruit availability is sometimes scarce at certain times, they can feed on flowers. *Pampasatyrus reticulate reticulata, Pampasatyrus quies and Prenda Clarissa* are found exclusively in native highland grassland environments, being closely associated with Campos de Cima da Serra in southern Brazil. S*tegosatyrus periphas* is commonly found in highland grasslands, associated with the Atlantic Forest, but also in lowland grasslands in Rio Grande do Sul, belonging to the Pampa Biome. Of all the species, *Stegosatyrus periphas* is the best distributed in the state, with the other three species having a much more restricted distribution, practically endemic to the high altitude fields of Campos de Cima da Serra. They can be considered sensitive species to disturbance and replacement, increasingly frequent, of high altitude fields by silviculture areas and plantation of exotic forage species for livestock activities. Species of this group can

be considered biological indicators as they are sensitive to changes in the environment and in the landscape as a whole. Many of them, due to the loss and fragmentation of native highland grasslands, may be severely threatened by human actions, but there is still little information about the biology and natural history of these species, as well as their population sizes and wider areas of occurrence. They are found in a very specific period of the year, between February and March, flying close to the ground of high altitude field environments perched on native grasses. They are difficult to observe due to the brown color of their backs, which is confused with the color of native grasses, in addition to being skittish and fast and erratic in flight. Therefore, it is necessary to be attentive when observing these butterflies. *Prenda Clarissa* was a species recently (2011) described by science, where until then it was not even known. In addition to being a new species, it was placed in a new genus, given its peculiar characteristics that differed from all the groups of butterflies more closely related to it. The genus Prenda is a tribute to the gaucho woman (because the first record in which the species was determined to be different was made in Campos de Cima da Serra do Rio Grande do Sul) and the species is a tribute to the gaucho writer Érico Veríssimo , through her work "Clarissa". This butterfly has records for the states of Rio Grande do Sul, Santa Catarina and Paraná. *Pampsatyrus reticulate reticulata, Prenda clarissa* and *Stegosatyrus periphas* are small in size, with forewings

ranging from 1.6 to 2.0 cm each. *Pampasatyrus quies* is slightly larger with forewings measuring 2.4 cm each.

Heliconius erato phyllis – Species of nectarivorous butterfly, which can also feed on pollen occasionally. It can be found from November to May in a variety of environments, including disturbed and regenerating forests, as well as clearings, edges and the interior of forests. It is very common in the Atlantic Forest. It is also known as the passion fruit butterfly, as it lays eggs in Passiflora species. It has slow and sometimes gliding flight and its colors (combination of yellow, red and black) are a warning signal to predators indicating that it has a bad taste. Medium-sized butterfly with forewings measuring 3.6 cm each.

Heliconius besckei – Species of nectarivorous butterfly, but that can also feed on pollen occasionally. It can be observed between December and April, and it has its southern limit of distribution and occurrence in the Atlantic Forest in the Araucaria Forest of Rio Grande do Sul. It has the same biological characteristics as *Heliconius erato phyllis*, and can also be seen in the most diverse environments associated with forested areas. However, it is very characteristic and restricted to the Araucaria Forest and does not occur in other Atlantic Forest formations, being, therefore, found only in regions with altitudes above 600 meters. It can be confused with *Heliconius erato phyllis* due to the great similarity between them. What makes it possible to differentiate these two species is the red line that outlines the edge of the ventral part of the

hindwing of Heliconiusbesckei, as shown in the photo in this chapter. It is a medium-sized butterfly with forewings measuring 3.4 cm.

Mechanitis lysimnia – Species of nectarivorous butterfly, found between October and April in the interior of Araucaria Forest. The group to which this species belongs, Ithomiini, is an indicator of better structured humid forests. Common in Araucaria Forest, it has a slow flight and its colors also warn of its unpalatability, being toxic and of bad taste to its predators. It is a medium-sized butterfly with forewings measuring 3.4 cm each.

Placidina euryanassa – Species of nectarivorous butterfly, seen between March and April on the edge and interior of Araucaria Forest. It has the same characteristics of biology and natural history as *Mechanitis lysimnia*, however, it is much less frequent in Campos de Cima da Serra. It is a medium-sized butterfly with forewings measuring up to 3.9 cm each.

Epityches eupompe – Species of nectarivorous butterfly, being observed from September to May, with a few individuals being able to be seen in winter. It is a very common species associated with the Araucaria Forest, being found in humid environments on the edge and in the interior of these forests, usually associated with different types of flowers. Its popular name is due to its lack of scales, being transparent.

It belongs to the same group as the *Mechanitis lysimniae Placidina euryanassa* species. It has a smaller size when compared to the

other two species mentioned above, with forewings measuring 2.5 cm each.

Adelpha syma – Species of nectarivorous butterfly, however, it can occasionally be seen feeding on decomposing fruits. It occurs between September and May and is very common in edge environments and in the more open forest interior of the Araucaria Forest of Rio Grande do Sul. It has low and fast flight, sometimes alternating with a gliding and agile flight. It is easily observed in flowering thickets at the edge of the forest or along more open trails, as it is very territorial in the defense of its habitat, therefore, being more restricted in these patches of flowering vegetation. It is a species that can be considered small with forewings measuring 2.0 cm each.

Hamadryas epinome – A species of frugivorous butterfly, it can be found between May and December in edge and interior environments of Araucaria Forest. It has a habit of camouflaging itself on the trunks of trees, landing with open wings, imitating the lichens of trees (see photo in this chapter). Its common name, snapper, comes from its territorial behavior that scares off its competitors with clicks made by a structure located between the fore and hind wings. It has fast, agile and erratic flight, and often flies high in search of sun in the middle of the forest. Medium-sized butterfly with forewings measuring 3.2 cm each.

Doxocopa laurentia – Species of nectarivorous butterfly that can be found between September and April in different types of environments in the Araucaria Forest. They appear along the edge between the field and the forest, in humid places and in the treetops within the Araucaria Forest, as well as in clearings. They

can also be found near bare ground and with rocks, where it sometimes warms up and sometimes feeds on moist soil with a large amount of mineral salts. It has fast and erratic flight, being considered of small size with forewings measuring 2.4 cm each.


Vanessa braziliensis – Vanessa

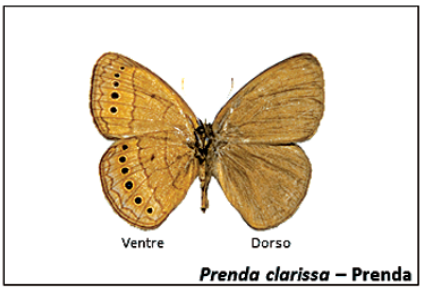

Junonia evarete – Pavão real


Siproeta epaphus trayja

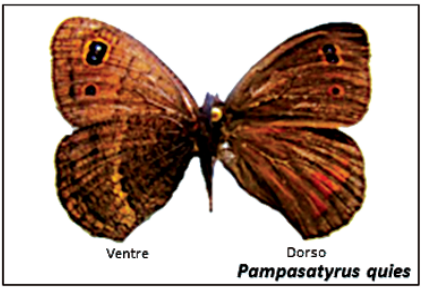

Forsterinaria necys

Pampasatyrus reticulata reticulata


Stegosatyrus periphas – Franjas pinza

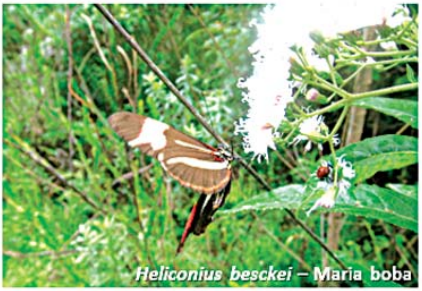


***Prenda clarissa* – Prenda**



Pampasatyrus quies


Heliconius erato phyllis – Maria boba


Heliconius besckei – Maria boba


Mechanitits lysimnia - Tigrada


Placidina euryanassa - Tigrada


Epityches eupompe – Borboleta vitral


Adelpha syma


Hamadryas epinome - Estalador


Fdeli Fedeigh
Doxocopa laurentia - Safira

Family Papilionidae

Pterourus scander – A nectarivorous butterfly species, it can be observed from November to March in general on the edge of the open trails of the Araucaria Forest. It is most commonly seen visiting clumps of flowers in these environments. It has vigorous flight and can fly high in search of flowers. It is a large size butterfly with forewings measuring 5.0 cm each.

Heraclides astyalus – A nectarivorous butterfly species, it can be observed from October to February, usually at the edge of open trails in Araucaria Forest and in open environments, such as forest clearings, almost always associated with flowers. It has strong, vigorous and fast flight, and can also fly high. It is a large butterfly with forewings measuring 4.8 cm each.

Heraclides hectorides – Species of nectarivorous butterfly, which can be seen from late September to early April. Unlike the other species, it is more commonly found associated with the interior of Araucaria Forest, being less frequent at the edges of trails. It also has a vigorous and fast flight, and is slightly smaller than the aforementioned species, with forewings measuring 4.5 cm each.

Protesilaus sp. – Species of nectarivorous butterfly, which can be recorded between September and February, associated with humid places on the edge of water bodies and on the edge of Araucaria Forest. They are butterflies with a predominance of white color, unlike the other species that have the most characteristic black coloration. They have a very fast, vigorous,

erratic and strong flight. They can be found visiting flowers along forest trails and edges. It is a large butterfly with forewings measuring between 4.0 and 4.2 cm each.


Pterourus scamander


Heraclides astyalus


Heraclides hectorides


Protesilaus sp. - Espadachim

Family Pieridae

Dysmorphia melia – It is a nectarivorous butterfly, which can be observed between December and May, with greater frequency in the months of March and April. It is considered an unusual species because it appears at certain times with greater abundance. It is associated with the edge or interior of Araucaria Forest

appearing in humid places or next to flowering shrubs at the edge of forests. It is a species that indicates resource-rich environments, deserving special attention for conservation. It has slow flight along the understory vegetation, and is considered a medium-sized butterfly, with forewings measuring 2.4 cm each.

Dysmorphia thermesia – Species of nectarivorous butterfly, being recorded between July and May. It is a common species in the Atlantic Forest, and very abundant in the Araucaria Forest region, where it can be found inside the forest, and sometimes on the edge of these forests. It has slow flight below the treetops and close to the understory. It has small size with forewings measuring 2.1 cm each.

Phoebis neocypris – Species of nectarivorous butterfly, which can be widely found throughout the year, predominantly in spring, summer and autumn. It is a very common and abundant species in the Araucaria Forest, using from disturbed environments in regeneration, open areas on wide trails, clearings within the forest, forest edges, river and stream banks, even crossing forest areas in the middle of fields of altitude. It is part of a generalist genus (Phoebis), with a wide geographical distribution and often migratory. Members of this species can be found in large flocks with other species near the moist soil on the banks of rivers and streams, feeding on mineral salts (this aggregation behavior is called Panapaná). Fast-flying, erratic and vigorous butterfly, of medium size with forewings measuring 3.1 cm each.

Theochila maenacte – Species of nectarivorous butterfly, which can be recorded throughout the year, being common and characteristic of the Araucaria Forest. In general, it is a species that occurs at higher altitudes in the Atlantic Forest, being found at the edge of forests and in open environments with an abundance of flowers in Campos de Cima da Serra do Rio Grande do Sul. It has slow and low flight together, has small size with forewings ranging from 2.0 to 2.4 cm each.


Dismorphia melia


Dismorphia thermesia


Phoebis neocypris – Folha-amarela


Theochila maenacte

Family Lycaenidae

Arcas ducalise Chalybschloris – Nectarivorous butterflies, given their infrequency and small population sizes, it is difficult to indicate the months of occurrence. However, they can be recorded in the summer in areas with a large amount of flowers

in environments on the edge of the Araucaria Forest in Rio Grande do Sul, at altitudes above 600 meters. Their tiny sizes make it difficult to see, and it is not frequent to observe many individuals in the environments they inhabit. Like all Lycaenidae, they have a beautiful metallic blue back with some black bands and outlines (see photo of Arcas ducalis), which attracts attention by reflecting the sun during flight. Ducalis arks can indicate environments rich and abundant in floral resources, worthy of conservation. Both are small species, with forewings measuring between 1.3 and 1.6 cm each.

Laothus phydela – Species of nectarivorous butterfly, can be found in January, February, March, May, June, July, August and November. Therefore, it occurs in all seasons of the year, including all winter months. It is a common butterfly on forest edges in the Araucaria Forest, where it is close to shrubby vegetation close to flowers. It has a faster and more erratic flight, and has a small size with forewings measuring around 1.5 cm each.

Arawacus meliboeus – A species of nectarivorous butterfly, found in almost every month of the year and very common on the edge and inside the forest in the Araucaria Forest in Rio Grande do Sul. Like other Lycaenidae species, it is associated with the understory and shrub stratum in search of flowers for food. It has fast and erratic flight, it is a species of small size with forewings measuring between 1.4 and 1.6 cm each.

Family Riodinidae

Charis cadytis – Species of nectarivorous butterfly, can be observed in the months of November to April, being restricted more to the summer and beginning of autumn in the forest edge of Forest with Araucaria. It can be found in the shrubby stratum inn in search of sun or flowers for food and reproduction. It has slow and low flight, sometimes close to the ground, small in size with forewings measuring around 1.5 cm each.

*Pseudotinea s*p. –Nectarivorous butterfly, of very restricted occurrence and can be seen mainly in December. Like the Lycaenidae, the Riodinidae family has representatives with very small and inconstant populations. Species of the Pseudotinea

genus occur only in environments with high altitudes, are considered rare, threatened and potential indicators of conserved environments. In this genus, there are species that occur in the Atlantic Forest at elevations above 800 meters. For Rio Grande do Sul, it was recorded for the first time in 2006 in the São Francisco de Paula National Forest, therefore, it is endemic to Campos de Cima da Serraa. Pseudotinea adults are recorded in late spring and early summer on the forest edge of Araucaria Forest in sunny locations. Species of difficult visualization due to its small size and brownish coloration with orange details, it has forewings measuring 1.0 cm.

Stichelia bocchoris – Species of nectarivorous butterfly, can be seen between November and March. It can be found in the shrub stratum of the Araucaria Forest in search of sun or flowers for food and reproduction. It has slow and low flight, sometimes close to the ground, small in size with forewings measuring around 1.5 cm each.

Emesis melancholica – Species of nectarivorous butterfly, can be observed throughout the year. Very common in the Araucaria Forest, where it can be recorded in the shrub layer of the embroidered inn forest in search of sun or flowers for food and reproduction. Small species, but larger than the previous ones, of fast and low flight. Their forewings measure between 2.0 and 2.2 cm each.

Family Hesperiidae

Pythonides lancea, Heliopetes alana, Vehilius clavicula, Pyrgus orcus – Nectarivorous butterfly species, being commonly found and easily observed between November and April on the edge of the forest and in open areas next to flowering thickets in the Araucaria Forest. Heperiidae is a family that indicates abundant floral resources, therefore, very important for the pollination of several plant species. They have fast, erratic, agile, bouncy and low flight close to shrubby vegetation. They are small in size, where the forewings measure between 1.1 to 1.8 cm each.

Sarbia damippe – A species of nectarivorous butterfly, abundant

at one time of the year, being found only in March when it can be seen visiting flowers at the edge of the forest and along trails in the Araucaria Forest. As it is of restricted occurrence, its observation should occur between the end of summer and the beginning of autumn. It is characteristic of the Atlantic Forest and Araucaria Forest in Campos de Cima da Serra do Rio Grande do Sul. It has fast, vigorous and agile flight and is of medium size with forewings measuring 3.0 cm each.

Urbanus teleus – A nectarivorous butterfly species, commonly found between August and April in different environments of the Campos de Cima da Serra, including border areas between Campo de Altitude and Araucaria Forest, open areas in trails, secondary forests in regeneration and areas close to human constructions. Butterfly with generalist habits and very abundant in these environments, it has fast, erratic and vigorous flight very close to the ground. Visit flowers of various plant species, including wildflowers. It is small to medium in size with forewings measuring between 2.1 and 2.5 cm each.


Pythonides lancea


Heliopetes alana


Sarbia damippe


Vehilius clavicula


Pyrgus orcus


Urbanus teleus

3.3 Climate

Tatiana Bressel and
Leandro Bazotti
Athletes and members of the organizing committee of RIC 2022

The great difference in altitude imposes significant climatic differences on the region, especially with regard to rainfall and average annual temperatures. In Campos de Cima da Serra, rainfall varies between 1,700 and 2,000 mm and the average annual temperature is around 15º C, with a climate that can be characterized as temperate. In the Coastal Plain, the rainfall varies between 1,300 and 1,500 mm and the average annual temperatures are between 18ºC and 20ºC, snow precipitation.

Photo Itaimbezinho Canyon with snow (Author: Grupo Moradas)

Another phenomenon characteristic of the region is the fog that forms on the slopes of the mountains, due to the rise of masses of hot and humid air that comes from the sea. When such fogs form inside the canyons, they are called “turning” because they significantly reduce visibility. We’ll talk more about flipping and its risks in Part II of this Guide, in the risks and warnings section.

The hydrographic basins that form the rivers inside the canyons are within a radius of about 10 km from the edges of the canyons, in Campos de Cima da Serra. The region at the top of the canyons has many springs and streams, which form numerous waterfalls. In addition, depending on the amount of rain, non-perennial waterfalls may appear, increasing the risk of flooding inside the canyons.

4. Aparados da Serra and Serra Geral National Parks

ICMBio

Photo: Itaimbezinho Canyon with fog. Author: João Paulo Lucena

The extreme south of Santa Catarina and the extreme northeast of Rio Grande are joined by two Federal Conservation Units that together total 30,442 hectares and were created by the Brazilian government to protect and conserve a significant sample of plant formations and representative native fauna of the region known as “Aparados da Serra”, as well as protecting the landscapes and

the geological and geomorphological aspects present there. These parks are entirely in the Atlantic Forest Biome.

The Aparados da Serra National Park was created in 1959, based on the various research and articulations carried out by the botanist, writer, teacher, journalist and Jesuit priest Balduíno Rambo (1906-1961), who was passionate about the region of the Itaimbezinho Canyon, defined by him. as "Gardens of God". The Serra Geral National Park was created in May 1992, shortly before RIO'92 or ECO'92, as a strategy to expand the territory protected by the Aparados da Serra National Park. This explains the fact that the second park is formed by two separate plots of land adjacent to the North and South limits of the Aparados da Serra National Park.

The boundary between the states is located in these parks so that the plateau is in Rio Grande do Sul, while the walls, the bottom of the canyons and the plain are part of Santa Catarina. The wide gradient of altitude provides a wide variety of environments and contributes to the great wealth of biodiversity found there. Together, these National Parks shelter in their territory a series of animal and plant species that exist only in that region of the planet, constituting endemic species. In its portion located in Rio Grande do Sul, it is possible to appreciate the scenic beauty of Campos de Cima da Serra, contrasting with the leafy araucarias and constituting an ecosystem of rare beauty.

The Aparados da Serra and Serra Geral National Parks have the following objectives: to protect native species, water resources and existing landscapes in their territory, guarantee special

protection for endangered and/or rare and/or migratory species, guarantee opportunities and places for visitation and recreation in natural areas, to collaborate for the sustainable development of the surrounding communities, to encourage and support the generation of scientific research and to stimulate environmental education actions in order to sensitize society to the vital need to protect the environment. Neither of these goals is more important than the other, and when one is not achieved - or is neglected -, the others also suffer negative effects, even if some of these effects can only be perceived in the long term.

At some points, resulting from landslides, natural rock faults and water erosion processes, there are grandiose canyons, among which the best known are the Itaimbezinho, the Índios Coroados, the Churriado, the Malacara and the Fortaleza, the last four within the Serra Geral National Park.

'Itaimbezinho' comes from Tupi-Guarani and means ita (stone), aibé (sharp). Made up of rhyodacite and rhyolite, the splinters of these sharp rocks were used by the Indians to manufacture arrowheads and spears. The "opening" of the great crevice of this canyon is the result of a very slow and continuous geological process, basically caused by the physical effect of erosion caused by the water flowing into the Itaimbezinho, either through perennial waterfalls or that only appear during the rains, either by the slow and barely perceptible runoff of the waters, which

flow from the peat bogs and swamps in the vicinity. The 'vertex' of the canyon is the point at which it continues to 'grow'.

The name "Malacara" is an allusion to the head of a horse with a white-stained forehead, an image similar to the one that can be seen when looking at a certain part of the canyon that receives this name.

From the top of Fortaleza canyon, with an average altitude of 950 meters, on clear days you can see the Atlantic Ocean, as well as several cities close to the coast - Torres beach, RS.

Photo: Itaimbezinho Canyon. Author: Sander Trento

The Aparados da Serra and Serra Geral National Parks are the first Brazilian national parks to have the practice of canyoneering provided for in their Management Plan (2004). In 2022, the process of reviewing this Plan should begin and there is already a forecast that the number of authorized canyoning routes in these parks will be increased.

Information on Visiting the Parks

Some of the canyoning routes that can be accessed during RIC 2022 are located within the Serra Geral National Park, a Federal Conservation Unit under the responsibility of ICMBio. In these canyons, it is imperative to respect the **Rules of National Parks**, under penalty of civil, administrative and even criminal liability.

The Aparados da Serra National Park is open to visitors from Tuesdays to Sundays with entry from 8 am to 5 pm and departure of all visitors until 6 pm. Prior scheduling is required only to visit the Rio do Boi Trail, as this trail has a maximum load capacity of 132 people/day.

Serra Geral National Park is open to visitors from Wednesdays to Mondays with entry from 8 am to 5 pm and departure of all visitors until 6 pm.

If you wish to access these Parks at different times or even carry out activities outside the trails open to the general public, contact ICMBio via e-mail:

ngi.aparadosdaserrageral@icmbio.gov.br

and inquire about the possibility of issuing of special permits.

Events authorized by ICMBio usually have different schedules and conditions, which are explained in the specific authorization granted and must be obeyed by all event organizers and participants.

Attractions

The biggest tourist attraction of the Aparados da Serra National Park is the Itaimbezinho Canyon. With a depth of up to 700m, vertical walls and a narrow crevice, it is one of the largest canyons in the Americas. In Serra Geral Park, the biggest tourist attraction is the Fortaleza Canyon, with 7.5 km long and walls that can reach 800 meters in height and which are covered with dense vegetation representative of the Atlantic Forest.

The National Parks of Aparados da Serra and Serra Geral are formed by Araucaria Forest, Dense Ombrophilous Forest, Cloud Forests, fields, swamps and peat bogs, rocky outcrops, cliffs and stony rivers with crystal clear and icy water. They are home to the Blue Jackdaw, the Purple-breasted Parrot, the Ocelot, the Swallows and Swifts, the Gray Graxaim, the Tanager, the Red-bellied Thrush, the Bay Lion, blue butterfly, the sponge crow and hundreds of other species of animals. Half of the bird species that occur in Rio Grande do Sul and Santa Catarina can be found in these Parks, making them a very favorable place for bird watching tourism.

The characteristic cold of the Aparados da Serra region, with minimum temperatures that can reach -8ºC in winter (June to August), as well as the 'wind', the formation of frost, the possibility of seeing and having experiences in the snow and the production of pinhão - fruit of the araucaria -, with the peak of the harvest between the months of April and June, are part of the attractions of these National Parks in southern Brazil.

In 2019, before the COVID-19 pandemic, the trails and attractions located in the Serra Geral National Park received 95,422 visitors, while in 2021 - even during the pandemic - this park received an impressive 122,998 visitors. Better known, the Aparados da Serra National Park received 137,294 visitors in 2019 and 134,415 visitors in 2021. limits and the recent granting of visitor support services to URBIA CÂNIONS VERDES S.A., in the coming years will certainly result in a significant expansion of the tourist attractiveness of these federal Conservation Units and, consequently, in the growth of the number of visitors/year.

Photo Trail of Rio do Boi, Itaimbezinho Canyon
(Author Nilton Nogueira)

Inside these National Parks it is not allowed:

- Entering with pets (dogs, cats or others)
- Camping (Note: the concessionaire should soon make it possible and make this possible)
- Overcoming barriers to delimitation of access
- Swimming or walking in waterways (except on the Rio do Boi Trail, the Malacara Pools Trail and the Tigre Preto Trail)
- Collect mineral or biological material (vegetable or animal) without authorization from ICMBio
- Collect flowers and/or seeds (including pine nuts)
- Make use of fire
- Feed the wild animals
- Walking outside the demarcated trails open to the public (unless you have specific authorization from ICMBio)
- Flying with a drone without obtaining prior authorization
- Hold an event without prior authorization
- Use collective sound equipment (the use of headphones is mandatory)
- Persecute, scare away or harass wildlife
- Enter the Park through points other than the official ordinances (unless you have specific authorization from ICMBio)

- Throwing any type of waste (including toilet paper) out of the bins
- Remain in the park after 6 pm without authorization from ICMBio and the concessionaire.

When traveling to the canyons and attractions, it is mandatory to follow the defined access trail, and any detour is prohibited. This is because an eventual detour can make one enter a primitive zone, where access is prohibited to guarantee the protection of fragile environments and or the protection of rare or threatened species, or even to avoid the transit of people in areas where the risk of collapse (and fatal accidents) is high. A possible detour can also lead the visitor to an area of peat bogs.

The access trails are described in the files of each canyon and in the QR-code present in the topo of the canyon.

Information about drones and images in the park

A specific authorization from ICMBio is required for the descents of canyons inside these Conservation Units, as well as for capturing images using drones, for personal or commercial use of the images or even for associating the images of the Parks with services, brands or products. As for the capture of images without the use of a drone and whose exclusive purpose is for

personal purposes - souvenirs, memories - prior authorization is not required.

Authorization for the use of drone images and/or authorization for commercial use of National Parks images, under the terms of the aforementioned ICMBio Normative Instruction nº 19/2011, must be requested through the PORTAL GOV.BR (https://www.gov.br/pt-br/servicos/request-authorization-of-use-of-image-in-federal-conservation-units). The deadline for analyzing your request is 5 working days for requests in only one Park and 10 calendar days for requests covering both Parks

5. A brief history of Canyoning in the region

Tatiana Bressel
Canyonist and member of the RIC 2022 organization

In the Aparados da Serra region there are reports of crossings of canyons such as Itaimbezinho, Malacara and Fortaleza since the 60s. These crossings were intensified in the 1980s and 1990s.

In 1988, the I Congress of Speleology in Latin America and the Caribbean took place in Belo Horizonte (Minas Gerais, BR), at which "Speleology in the open" was presented. , perhaps one of the first news about canyoneering in Brazil.

In the region of Aparados da Serra Geral, the practice of canyoning began in 1997, at the initiative of members of Canyon Inc. who started the equipment of the Malacara canyon.

In 1998, ACASERGE (Associação Cânions da Serra Geral) was created, the first civil association of canyoners in Brazil. The activity began to be organized, with priority being given to training the members of the Association and equipping the Canyons located within the Serra Geral National Park.

Associação Cânions da Serra Geral

In November 1998, the Franco-Brazilian expedition was carried out with members of ACASERGE and FFS (French Speleology Federation). The Malacara, Índios, Molha-Coco, Corujão canyons and the Amigos and Espigão do Meio ravines were equipped.

Photo of the Franco-Brazilian expedition in 1998. In this photo: Rafael Britto, Pascal Badin, Henry Lummertz, Philipe Roskam and Patrick Gimat. Photo author: Neyton Reis.

The Aparados da Serra and Serra Geral National Parks are home to some of the best canyons in southern Brazil. To ensure the practice of canyoning in the parks, Associação Cânions da Serra Geral (ACASERGE) worked together with those responsible for preparing the Management Plan, in order to demonstrate the feasibility of practicing the activity within the conservation units. He participated in voluntary work on topographical surveys, environmental impact, canyoning routes, canyon sketches, workshops, in addition to participating in the parks' advisory board, assisting in the management plan, among others.

In 2004, the parks management plan was published and the practice of canyoning was allowed, albeit under many conditions, in order to become compatible with the environmental protection of the parks. One of these conditions is the rotation of canyons – opening for practice only in certain periods of the year, which are different for each canyon.

This is the first National Park in Brazil where the practice of canyoning is allowed in the management plan, opening the door for other parks to follow in this direction.

It is worth mentioning that in the early 2000s an association emerged that had canyoneering in its scope, APECAM (Associação Portoalegrense de Escalada, Canionismo e Alta Montanha). This association also collaborated in the work for the development of the sport with the National Parks, participating in the meetings of the advisory council, in addition to incursions with technicians from the federal government.

During this period, some athletes from the Praia Grande region began to emerge and other avenues were opened. The

region surrounding the National Parks began to be explored with the opening of the Café, Kaingang and Silveirão canyons, among others.

ACASERGE members present the canyons of the Aparados da Serra region in different countries during the RIC events and also the GORGS, in order to publicize this excellent region for canyoning. There were performances in Spain, France, Greece, Italy and the United States. In 2008, in France, during the RIC Vercors, the president of the French Canyoning Federation, at that time the RIC was organized by the FFS, confirmed the coming of the RIC to Brazil, to the region of Aparados da Serra for the year 2012. Despite the efforts of this group, the event ended up being transferred to Serra da Canastra, in Minas Gerais, Brazil, as the Aparados da Serra and Serra Geral National Parks did not allow the practice of canyoneering within the conservation units, among other factors.

After 10 years, there was a new initiative to hold the event in the Aparados da Serra region. APKanion, the local sports organization, embraced the idea and with the new vision of the National Parks administration and the support of municipal management bodies, the event became possible in 2022.

APKANION
Associação Praiagrandense de Canionismo

On June 21, 2021, APKanion was created in the city of Praia Grande, SC. The entity, focused on the practice of canyoneering in the Aparados da Serra region, has as one of its objectives to promote and encourage the practice of canyoneering in the region in a safe, responsible and minimal way. In addition, it seeks to promote the technical and ethical improvement of its members.

The association was founded by a group of 35 canyoners from the southern region of the state of Santa Catarina and northern Rio Grande do Sul. Its members bring together a series of curricula and actions in favor of canyoneering, which date back to more than 25 years working in the region.

PART II

Important Practical Information

Leandro Bazotti and Tatiana Bressel

1. Tips from the Region

The Aparados da Serra region is characterized by a plateau that extends to the coastal plain. The altitudes of the upper part of the plateau oscillate around 1000 m and plummet abruptly to sea level, justifying the name of the region, as it is as if the plateau had really been "trimmed".

This abrupt reduction in altitude causes the region's canyons to present quite significant gaps, which can reach 850 meters in a few kilometers. The abrupt change in altitude also causes a sharp variation in temperature, with a difference of approximately 5 to 7 degrees centigrade between the bottom of the canyons and the top.

Photo of Malacara Canyon, located in Serra Geral National Park.
Author: João Paulo Lucena

Canyons located inside the National Parks

The canyons located within the Aparados da Serra and Serra Geral parks are large. The geological formation is of volcanic origin, the canyons of this region have a depth that approaches 1,000 meters and the extension can reach 7.5 kilometers, being characterized by steep slopes and numerous waterfalls, often with dimensions that exceed 60 meters.

Photo of Malacara Canyon, located in Serra Geral National Park.
Author: João Paulo Lucena

These imposing environments are extremely demanding, so the practitioners of this modality must be physically, technically and psychologically prepared to be able to progress in autonomy and safety in these canyons.

Photos at the Índios Coroados Canyon.
Author: Rafael Britto

The region's canyons are essentially formed by basaltic rock, originating from one of the largest magma spills in the planet's history. Basalt in the region has the characteristic of having a high iron density, a characteristic that makes it difficult to use compasses, due to the natural magnetism of the rocks, which can impair navigation through the Campos de Cima da Serra, where the canyons' entrances are located. In addition to this characteristic, basalt is extremely hard, sharp and cutting, often presenting sharp edges, which can cause significant damage to the ropes.

Because it is a geologically active area, vertical displacements of rock blocks are frequently recorded, especially in the portion of the more vertical walls, on days of heavy rain, wind, lightning or even thermal amplitude.

It is worth mentioning that, electrical storms with large discharges are frequent and in the upper part of the canyons this requires a lot of attention, in case of facing this type of situation.

Climate

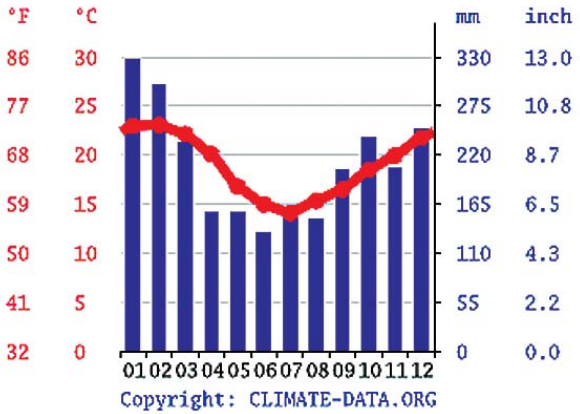
The average temperature in the spring period is between 17 to 27 degrees Celsius in the lower part of the canyons and between 5 to 7 degrees Celsius lower in the upper part of the canyons. The water temperature is between 12 to 17 degrees Celsius, but the thermal sensation inside the canyons can be lower. The rainfall recorded at this time of year is considered relevant, and

may present instability and unexpected rain showers, requiring extra attention with the water level inside the canyons.

*The water is cold, we recommend wearing **5mm neoprene**.

Taking into account the period in which the event takes place - month of September -, it is possible that we have rains that, if in large volume, may make some routes unfeasible, but even so, there is a possibility of descents in canyons with greater flow, always under evaluation.

Average Temperatures and Rainfall in Praia Grande



Risk of Floods

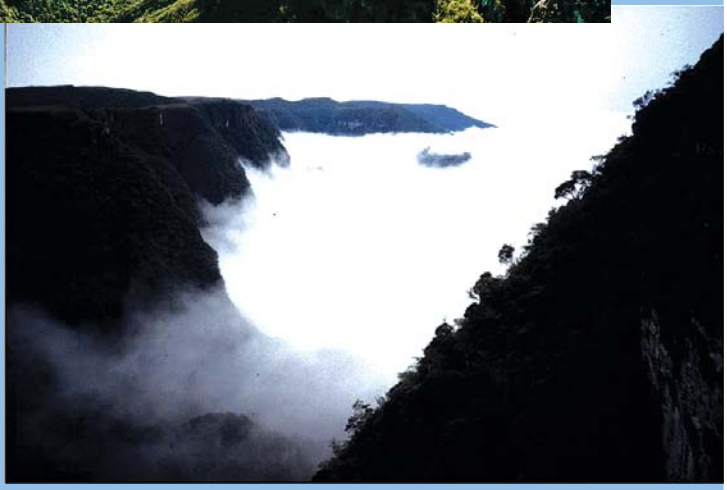
The hydrographic basins that form the rivers inside the canyons are at a radius of about 10 km from the edges of the canyons, in the fields above the mountain range. Thus, it may happen that the river level rises without raining inside the canyon, as this formation works like a funnel, channeling all the water that falls on the plateau into the canyons, often forming numerous seasonal waterfalls, increasing the risk of floods.

Photos demonstrating the same location with different flow levels on the R6 of the Café Canyon. Authors Christian Bassis and Ramonn Tomaz, respectively.

"Turning" Phenomenon

Photo: Cânion dos Índios Coroados with the beginning of the formation of the viração. Author: João Paulo Lucena.

A very characteristic phenomenon in the region is the so-called "viração", a kind of mist that unexpectedly appears on all sides, causing reference points to be lost and possibly causing the disorientation of groups. A clear and crystalline sky can be replaced by this fog very quickly. The wind is a thick fog, the result of the thermal shock of the cold air mass of the mountains with the heat coming from the coast. It reaches the edge of the plateau, but does not advance due to the temperature difference.



Photos of the Fortaleza Canyon without wind and with the wind. Authors João Paulo Lucena and Rafael Britto, respectively.

Within this fog, you often can't see beyond two meters. In addition, the vortex also makes the temperature drop sharply; this situation, added to being in an extremely humid place and at a thousand meters of altitude, can cause risk situations if you are not prepared.

Photo: Group of canyoners walking on the trail to Malacara Canyon in the middle of the fog. Author: João Paulo Lucena.

If you happen to get lost in the flow, don't just walk around. Wait for the weather to improve before resuming the hike, especially since close to the edge of the canyons there are crevices hidden by grass, slippery rocks and lots of moss and lichens. Also know that the turn may last until the next day.

2. Authorizations - Prohibitions - Rules

Some of the canyoning routes that can be accessed during the RIC 2022 are located within the Serra Geral National Park, a Federal Conservation Unit under the responsibility of ICMBio. In these canyons, it is imperative to respect the **Rules of National Parks**, under penalty of civil, administrative and even criminal liability.

A specific authorization from ICMBio is required to carry out canyon descents inside these Conservation Units, as well as to capture images with the use of drones, for personal or commercial use of the images, or even to associate the images of the Parks with services, brands or products. As for the capture of images without the use of a drone and whose exclusive purpose is for personal purposes - souvenirs, memories - prior authorization is not required.

To request authorization to descend canyons within conservation units, contact ICMBio via the email

ngi.aparadosdaserrageral@icmbio.gov.br

and inquire about the possibility of issuing special permits.

Authorization for the use of drone imagery and/or authorization for commercial use of National Parks images, pursuant to the aforementioned ICMBio Normative Instruction No. 19/2011, must be requested through the PORTAL GOV.BR (https://www.gov .br/pt-br/servicos/request-authorization-of-use-

of-image-in-federal-conservation-units). The deadline for analyzing your request is 5 working days for requests for only one Park and 10 calendar days for requests covering both Parks.

Inside these National Parks it is not allowed:

- Entering with pets (dogs, cats or others)
- Camping (Note: the concessionaire should soon make it possible and make this possible)
- Overcoming barriers to delimitation of access
- Swimming or walking in waterways (except on the Rio do Boi Trail, the Malacara Pools Trail and the Tigre Preto Trail)
- Collect mineral or biological material (vegetable or animal) without authorization from ICMBio
- Collect flowers and/or seeds (including pine nuts)
- Make use of fire
- Feed the wild animals
- Walking outside the demarcated trails open to the public (unless you have specific authorization from ICMBio)
- Flying with a drone without obtaining prior authorization

- Hold an event without prior authorization
- Use collective sound equipment (the use of headphones is mandatory)
- Persecute, scare away or harass wildlife
- Enter the Park through points other than the official ordinances (unless you have specific authorization from ICMBio)
- Throwing any type of waste (including toilet paper) out of the bins
- Remain in the park after 6 pm without authorization from ICMBio and the concessionaire (Urbia Cânions Verdes).

3. Tyrol Declaration on Good Practice in Mountain Sports

"Extend your limits, lift your spirits and aim for the top" - adopted by the Conference on the Future of Mountain Sports, Innsbruck, 6 – 8 September 2002.

All over the world, millions of people practice mountaineering, hiking, trekking and rock climbing. In many countries, mountain sports have become a significant factor in everyday life.

Almost no other activity encompasses as broad a motivational spectrum as mountain sports. They provide people with the opportunity to achieve personal goals and participate in a meaningful activity for a lifetime. The reasons for being active in the mountains and on the rocks extend to health benefits, enjoyment of movement, contact with nature and social incentives for the thrill of exploration and adventure.

The Tyrol Declaration on Best Practice in Mountain Sports, promulgated by the Conference on the Future of Mountain Sports in Innsbruck on 8 September 2002, contains a set of values and maxims that provide guidance on best practice in mountain sports. of mountain. These are not detailed rules or instructions – instead they:

1. Define the current fundamental values in mountain sports

2. Contain principles and standards of conduct

3. Formulate ethical criteria for decision-making in uncertain situations

4. Present ethical principles by which the public can judge mountain sports

5. Introduce beginners to the values and moral principles of their sport.

It is the aim of the Tyrol Declaration to help realize the innate potential of mountain sports for recreation and personal growth, as well as for promoting social development, cultural understanding and environmental awareness. To that end, the Tyrol Declaration takes the unwritten values and codes of conduct inherent in sport and expands them to meet the demands of our time. The core values on which the Tyrol Declaration is based apply to all mountain sport practitioners around the world – whether they are hikers and hikers, sport climbers or mountaineers looking to extend their limits at high altitudes. Even though some of the guidelines for conduct are only relevant to a small elite, many of the proposals formulated in the Tyrol Declaration are addressed to the mountain sports community as a whole. With these suggestions, we want to reach young people, as they are the future of mountain sports.

The Tyrol Declaration is an appeal to:

- Accept the risks and take responsibility
- Balance your goals with your skills and equipment
- Play by reasonable means and report honestly
- Strive for best practice and never stop learning
- Be tolerant, respectful and help each other
- Protect the wild and natural character of mountains and walls
- Support local communities and their sustainable development.

The Tyrol Declaration is based on the following hierarchy of values:

- **Human dignity** – the premise that human beings are born free and equal in dignity and rights and that they should treat one another in a spirit of brotherhood. Particular attention must be paid to equalizing the rights of men and women.
- **Life, liberty and happiness** – as inalienable human rights and with a special responsibility in mountain sports, to help protect the rights of communities in mountainous areas.
- **Nature protection** – as a commitment to ensure the

ecological value and natural features of mountains and walls around the world. This includes protecting endangered species of flora and fauna, their ecosystems and the landscape.

• **Solidarity** – with an opportunity, through participation in mountain sports, to promote teamwork, cooperation and understanding, and to overcome barriers based on gender, age, nationality, skill level, social or ethnic origin, religion or belief.

• **Personal Fulfillment** – as a chance, through participation in mountain sports, to make significant progress towards important goals and achieve personal satisfaction.

• **Truth** – as a recognition that honesty in mountain sports is essential for the evaluation of achievements. If arbitrariness takes the place of truth, it becomes impossible to value climbing performance.

• **Excellence** – as an opportunity, through participation in mountain sports, to strive to achieve goals still unattained and to set higher standards.

• **Adventure** – in recognition that, in mountain sports, risk management through careful assessment, skills and personal responsibility is an essential factor. The diversity of mountain sports allows anyone to choose their own adventure, in which skills and dangers are in balance.

The Articles of the Tyrol Declaration

The Maxims and Guidelines of the Tyrol Declaration

Article 1 - Individual Liability

MAXIMUM

Mountaineers and climbers practice their sports in situations where there is a risk of accidents and where outside help may not be available. With that in mind, they engage in these activities under their own responsibility, with their own safety in mind. The actions of an individual must not expose to danger neither the neighbor nor the environment.

1. We choose our goals according to our real abilities or those of the team and according to the conditions on the mountain. Giving up climbing should be a valid option.

2. We make sure that we have the proper training for our purpose, that we plan our climb or hike carefully, having made the necessary preparations.

3. We make sure that we are properly equipped on each tour and that we know how to use the equipment.

Article 2 - Team Spirit

MAXIMUM

Team members must be willing to make compromises to balance the interests and abilities of the entire group.

1. Each team member must cherish his teammates and must take responsibility for their safety.

2. No team member should be left alone if doing so would jeopardize their well-being

Article 3 - Climbing & Mountaineering Community

MAXIMUM

We owe every person we meet in the mountains or on the rocks an equal share of respect. Even in isolated and stressful situations, we must not forget to treat others the way we want them to treat us.

1. We do everything we can to not expose others to danger and we warn others of potential dangers.

2. We ensure that no one is discriminated against.

3. As visitors, we respect local rules.

4. We don't disturb or disturb others more than necessary. We give way to faster groups. We don't take up lanes that others are waiting to do.

5. Our climbing reports truthfully reflect real events in detail.

Article 4 – Visiting Foreign Countries

MAXIMUM

As guests in foreign cultures, we must always behave politely and with restraint towards the natives – our hosts. We will respect sacred mountains and other sacred places, while seeking to benefit and help the local economy and the natives. Understanding foreign cultures is part of a complete climbing experience.

1. Always treat the people of the host country with sympathy, tolerance and respect.

2. Strictly comply with any climbing regulations implemented by the host country

3. It is advisable to read about the history, society, political structure, art and religion of the country to be visited before embarking on the trip to improve our understanding of its people and environment. In the event of political uncertainty, seek official advice.

4. It is wise to develop some basic skills in the host country's language: forms of greeting, please and thank you, days of the week, time, numbers, etc. It is always impressive to see how such a small investment improves the quality of communication. In this way, we contribute to understanding between cultures.

5. Never pass up an opportunity to share your climbing skills with interested locals. Joint expeditions with native climbers are the best scenario for exchanging experiences.

6. We avoid at all costs offending the religious feelings of our hosts. For example, we should not show bare skin in places where it is unacceptable for religious or social reasons. If some expressions of other religions are beyond our comprehension, we are tolerant and avoid judging.

7. We provide all possible assistance to local people in

need. An expedition doctor is always in a position to make a decisive difference in the life of an extremely ill person.

8. To economically benefit mountain communities, we purchase regional products, if feasible, and avail ourselves of local services.

9. We are encouraged to assist mountain communities in initiating and sustaining enterprises that favor sustainable development, such as training and education services or ecologically compatible economic initiatives.

Article 5 – Responsibilities of Mountain Guides and Other Leaders

MAXIMUM

Every professional mountain guide, leader and group member must understand their respective role and respect the freedoms and rights of other groups and individuals. To be prepared guides, group leaders and members must understand the demands, hazards and risks of the objective, have the necessary skills, experience and proper equipment, and check the weather and other conditions.

1. The guide or leader informs the client or group about the risk inherent in an escalation and the actual level of danger, and, if the participants have sufficient experience, involves them in the decision-making process.

2. The route selected must be suited to the skill and experience of the client or group in order to ensure that the experience is pleasant and enriching.

3. If necessary, the guide or leader recognizes the limits of his or her own ability and, where appropriate, assigns more capable colleagues to clients or groups. It is the responsibility of clients and group members to make it clear whether they believe a risk or danger is too great and whether return or alternative options should be pursued.

4. In circumstances such as extreme climbing and high mountain ascents, guides and leaders should carefully inform their clients and groups to make sure everyone is fully aware of the limits of support that guides and leaders can provide.

5. Local guides inform fellow visitors about the characteristic features of their area and current conditions.

Article 6 - Emergencies, Morbidity and Death

MAXIMUM

To be prepared for emergencies and situations involving

serious injury and death, all mountain sports practitioners must clearly understand the risks and hazards and the need for adequate skills, knowledge and equipment. All practitioners need to be ready to help others in the event of an emergency or accident, and also be prepared to face the consequences of a tragedy.

1. Helping someone in trouble takes absolute priority over achieving goals we set for ourselves in the mountains. Saving a life or reducing the damage to an injured person's health is far more valuable than the most difficult of all conquests.

2. In an emergency, if outside help is not available and we are in a position to help, we should be prepared to give all the support we can to people in trouble, as long as it is feasible without exposing ourselves to danger.

3. Anyone who is seriously injured or dying should be provided with every possible comfort, as well as life-saving support.

4. In a remote area, if it is not possible to recover the body, the location should be recorded as accurately as possible, as well as any indications of the deceased's identity.

5. Objects such as a camera, diary, notebook, photos, letters and other personal artifacts must be kept and delivered to family members.

6. Under no circumstances may photos of the deceased be published without the prior consent of the family.

Article 7 - Access and Conservation

MAXIMUM

We believe that freedom of access to mountains and walls in a responsible manner is a fundamental right. We must always carry out our activities in an environmentally sensitive manner and we must be proactive in preserving nature. We respect restrictions on access and regulations agreed between climbers and nature conservation organizations and authorities.

1. We respect the measures to preserve the wall and mountain environments and the wildlife they support, and we encourage our fellow climbers to do the same. By avoiding making noise, we strive to keep wildlife disturbance to a minimum.

2. If possible, we travel to our destinations using public transport or other public transport to minimize road traffic.

3. To avoid erosion and not disturb wildlife, we stay on the trails during approaches and descents and, when off the trail, we choose the route that is least aggressive to the environment.

4. During the mating and nesting periods of mountain-dwelling species, we respect seasonal access restrictions. As soon as we become aware of any mating activity, we should pass this information along to other climbers and ensure they stay out of the nesting area.

5. During conquests, we take care not to threaten the biotope of rare plant and animal species. When equipping or retrofitting roads, we must take every precaution to minimize their environmental impact.

6. The consequences of popularizing areas through backstapling must be carefully considered. Increasing numbers can cause access problems.

7. We minimize rock damage by using the least harmful protection technique.

8. We not only carry our own garbage back to civilization, we also pick up any debris left behind by others.

9. In the absence of sanitary facilities, we maintain adequate distance from homes, campsites, streams, rivers and lakes during defecation and take all necessary measures to avoid damage to the ecosystem. We try not to attack people's aesthetic sense. In heavily frequented areas with a low level of biological activity, climbers are in charge of carrying back their faeces.

10. We keep the campsite clean by avoiding generating waste as much as possible or disposing of it properly. All climbing materials – fixed ropes, tents and oxygen bottles – must be removed from the mountain.

11. We keep energy consumption to a minimum. Especially in countries with a lack of firewood, we avoid actions that could contribute to the destruction of forests. In countries with threatened forests, we need to bring enough fuel to prepare food for all expedition participants.

12. Helicopter tourism should be minimized where it is harmful to nature or culture.

13. In disputes over matters of access, landowners, authorities and associations must negotiate solutions satisfactory to all parties.

14. We play an active role in implementing regulations, especially publicizing them and implementing the necessary infrastructure.

15. Alongside mountaineering associations and other conservation groups, we are proactive at the political level when it comes to protecting natural habitats and the environment.

Article 8 - Style

MAXIMUM

The quality of the experience and how we solve the problem is more important than whether we solve it. We strive to leave no traces.

1. We aim to preserve the original character of all climbs, especially those of historical importance. This means climbers should not increase the amount of fixed guardrails on existing routes. The exception is when there is local consensus – including the approval of the conquerors – to change the level of fixed guards by placing new parts or removing existing guards.

2. We respect the diversity of regional traditions and will not try to impose our views on other climbing cultures – nor will we accept the values of others imposed on our own.

3. Rocks and mountains are a limited resource for adventure that must be shared by climbers of all interests and for many generations to come. We understand that future generations will need to find their own NEW adventures within this limited resource. We try to develop walls or mountains in a way that doesn't steal the opportunity of the future.

4. In a region where crampons are accepted, it is desirable to keep roads, sections of hills or entire hills free of crampons in order to preserve a haven for adventure and to show respect for diverse climbing interests.

5. Naturally guarded routes can be just as fun and safe for recreational climbers as clipped routes. Most climbers can learn to put on safe natural protection and everyone should be educated that this provides additional adventure and a rich, natural experience with comparable safety once the techniques are learned.

6. In the case of groups with conflicting interests, climbers must resolve their differences through dialogue and negotiation to prevent access being threatened.

7. Commercial pressures must never influence a person's or a region's climbing ethics.

8. Good high-mountain style implies no use of fixed ropes, performance-enhancing drugs or bottled oxygen.

Article 9 - Achievements

MAXIMUM

The conquest of a road or a mountain is an act of creation. It must be done in good style in keeping with the traditions of the region and must show responsibility to the local climbing community and the needs of future climbers.

1. Achievements must be environmentally responsible and compatible with local regulations, the wishes of landowners and the spiritual values of the local population.

2. We will not deface the rock by breaking it or adding grips.

3. In alpine regions, achievements must be made exclusively by driving (no part prefixed above).

4. Once local traditions are respected, it is up to the conqueror to determine the level of fixed protections on his roads (taking into account the suggestions in article 8).

5. In areas designated as wild or nature reserves by administrators or the local access committee, wiretaps should be limited to the absolute minimum to preserve access.

6. Digging holes and hitting cleats while conquering artificial ways should be kept to a minimum (clamps should be avoided even at stop anchors unless absolutely necessary).

7. Adventure routes should be made as natural as possible, with movable protection whenever feasible, using clamps only when necessary and always subject to local traditions.

8. The independent character of adjacent roads must not be compromised.

9. In the achievements report, it is important to report the details as accurately as possible. A climber's honesty and integrity will be presumed unless there is compromising evidence.

10. High mountains are a limited resource. We encourage esclators to use the best style.

Article 10 - Sponsorship, Advertising and Public Relations

MAXIMUM

Cooperation between sponsors and athletes must be a professional relationship that serves the best interests of mountain sports. It is the responsibility of the mountain sports community, in all its aspects, to educate and inform both the media and the public in a proactive manner.

1. Mutual understanding between the sponsor and the athlete is necessary for the definition of common goals. The many facets of mountain sports require clearly identifying the expertise of both the athlete and the sponsor to maximize opportunities.

2. To maintain and improve their performance levels, climbers are dependent on ongoing support from their sponsors. For this reason, it is important for sponsors to maintain their partners' coverage even after a series of failures. Under no circumstances may the sponsor pressure the climber to obtain results.

3. To establish a permanent presence across all media, clear channels of communication must be organized and maintained.

4. Climbers should make an effort to report their activities realistically. An accurate report improves not only the climber's credibility, but also the public reputation of his sport.

5. The athlete is ultimately responsible for representing to the sponsor and the media the ethics, style and environmental responsibility set forth in the Tyrol Declaration.

The Pluralism of Climbing Games

Modern rock climbing encompasses a wide spectrum of activities, ranging from hiking and bouldering to wall climbing and mountaineering. Mountaineering comprises extreme forms of high mountain climbing and climbing expeditions in high altitudes such as the Andes or the Himalayas. Although the dividing lines between the various forms of climbing are by no means rigid, the following categorization makes it possible to present the vast diversity of mountain sports in an intelligible way:

Hiking and Trekking

Hiking to mountain shelters, collars and ridges is the most widespread form of mountaineering. A multi-day hike in the mountain and other wilderness areas, especially off the

beaten track, is often called a trek. A hike becomes a more technically demanding form of mountaineering as soon as the hands have to be used for progress.

Via ferrata climbing

Roads in steep rocky terrain equipped with steel cables and iron steps are becoming more and more popular. An arena hitherto reserved for technical rock climbing becomes accessible through an elaborate infrastructure and special protection systems.

Classic mountaineering

A climber in this category will climb slopes of up to 2nd degree and climb slopes of snow and ice of up to 50º of inclination. Typical targets in this category are the normal peak routes in the alpine zone.

Ski mountaineering

Practitioners of this classic form of mountaineering use alpine skis or telemark skis to climb mountains or make long journeys. Due to the complexity of the skills required, this discipline ranks among the most demanding – and dangerous – forms of mountaineering.

The Hierarchy of "Climbing Games"

A system for categorizing the different types of climbing introduced by Lito Tejada Flores has proved useful in describing the many facets that modern technical climbing has acquired. Each specialized type of climbing "game" is defined by an informal but precise set of rules formulated in a way that makes the task at hand difficult – and therefore more interesting. The greater the danger in a particular climbing game due to the natural environment, the more lenient the restrictions on the use of technical equipment. The lower the objective risks, the stricter the rules become.

Climbing Rocks or Boulders

In boulder climbing, difficult shots on rock close to the ground are worked, usually without rope. Allowed equipment is reduced to sneakers, magnesium and – these days – "crash pad". Boulder climbing is practiced both on natural boulders and rocks and on artificial objects.

Climbing on artificial objects

Nowadays many climbers use artificial walls for training and leisure, both at home, in gyms or even in open environments. An increasing number of climbers dedicate themselves exclusively to artificial walls. There are also new forms such as therapeutic climbing and artistic climbing, such as dance or ballet, for example.

Climbing on cliffs

Routes with one to three points are called cliffs. As they are short routes and with almost total absence of objective dangers, the ethics of free climbing has gained international acceptance for this type of climbing in the last two decades. This means that a route only counts if no artificial support points have been employed for progression during the ascent.

Continuous climbing

If a climb is longer than three or four steps, it is called a continuous climbing route.

Big wall climbing/artificial climbing

In this climbing game developed in Yosemite Valley, practitioners climb walls, which cannot be free-climbing, with specially designed equipment. They strive to reduce as much as possible the drilling of holes for the placement of clamps or other means of progress, thus leaving minimal traces after completing the ascent.

Alpine climbing

In the “alpine game”, practitioners not only have to deal with the problems posed by the climb itself, but also with the “objective” dangers of the often hostile environment of high mountains. As survival often depends not only on the ability to safely master the technical problems of the route, but also on the speed of the rope, the unwritten rules of the alpine game classically allow the use of studs and movable guards for progression. However, in a process that began in the late 1960s, free-climbing principles have been increasingly applied to high mountains. Although at the beginning of the new era the focus was on free climbing of routes normally climbed on artificial, it didn’t take long for new difficult climbs – conquered according to stricter rules – to appear in the mountains. They include both extremely audacious adventure routes and hedonistic sport climbing.

An important aspect of alpine climbing is the ascent of ice routes. This ranges from classic ice slopes to incredibly difficult futuristic endeavors. One type of ice climbing that has become popular recently is the ascent of frozen

waterfalls, ice stalactites and rocks with thin ice sheets. Modern mixed rock and ice routes sometimes involve very difficult rock movements with the aid of crampons and ice tools. The game is governed by the rules of free climbing. Ice and mixed routes can range from short-stretch play to daring high-altitude operations that can take many weeks.

Adventure climbing and sport climbing

Modern climbing terminology differentiates between adventure or traditional climbing styles and sport climbing. Adventure climbing or "trad" has the following elements:

• Performance is judged by the amount of stress resistance required to ascend the road.

• The climber is responsible for putting on protection or has to do without it.

• Mistakes made by the guide can have drastic consequences.

Sport climbing is characterized as follows:

• Performance is judged by the technical grade of the route climbed.

• The kinesthetic element is dominant.

• Clamps provide perfect protection.

• If modern securing techniques are properly employed, falls from guides tend not to be severely punished.

Adventure and sport climbing styles can be applied to both hills and alpine walls.

Between the pure adventure climbing and sport climbing/ plaisir versions there are numerous hybrid forms.

Different safety games and "philosophies" correspond to differing individual needs of climbers. The richness of form in mountain sports brings pleasure and personal fulfillment to a large number of people – a fact that we celebrate.

Both lovers of sport climbing and followers of the philosophy of adventure have the right to climb according to their desires and abilities.

It must be our goal to preserve the pluralism of climbing styles, leaving each one its specific arena.

Super alpine climbing

This mountaineering discipline applies alpine climbing rules

to high mountain terrain on peaks of six, seven and eight thousand meters long reserved for traditional expeditions. In the super alpine game, fixed ropes, help from outside sources or setting up a camp chain and oxygen bottles are all rejected.

Expedition climbing

Two forms of this game have been developed: The first variant has the function of allowing the maximum number of members to reach prestigious summits in high mountains through the normal route. They optimize the probability of success through the liberal use of chargers, fixed ropes and artificial oxygen.

In contrast, the extreme form of expedition climbing employs efforts to push the limits of technical difficulty with the help of most modern equipment, excluding bottled oxygen: fixed ropes, portaledge camps, and equipment depots.

***Be considerate of other visitors.**

Further details can be obtained at:

https://lnt.org/why/7-principles/

https://www.rei.com/learn/expert-advice/leave-no-trace.html

https://www.curtlo.com.br/responsabilidade-socioambiental/pega-leve

https://travessia.tur.br/conduta-consciente-em-ambientes-naturais/

4. Minimum Impact and *Leave no Treace* Rules

Leave No Trace is a set of minimal impact practices for those visiting outdoor environments, developed by the Leave No Trace Center for Outdoor Ethics, promoting the conservation of natural environments. In free translation into Portuguese it would be "Leave no traces, leave no traces". Although Leave No Trace has its roots in remote environments, the principles have been adapted so that they can be applied anywhere — from remote wilderness areas, local parks and even in your own backyard. They also apply to almost all recreational activities. Each principle covers a specific topic. The seven principles are:

*Plan ahead and prepare.

*Travel and camp on durable surfaces.

*Dispose of waste properly.

*Leave what you find.

*Minimize bonfire impacts (be careful with fire).

*Respect wildlife.

*Be considerate of other visitors.

Further details can be obtained at:

https://lnt.org/why/7-principles/

https://www.rei.com/learn/expert-advice/leave-no-trace.html

https://www.curtlo.com.br/responsabilidade-socioambiental/pega-leve

https://travessia.tur.br/conduta-consciente-em-ambientes-naturais/

5. Prevention and procedures in case of accidents with animals

5.1. Snakebites

Photo Cascavel (Crotalus durissus) Author Mariano Pairet

Most snakebites occur in the lower region of the legs in situations where a person walking or performing some activity in a natural environment cannot detect the presence and gets too close, or even steps on a snake, which, as a defensive behavior, will strike and bite, inoculating venom, in the case of a venomous species.

Prevention

The use of gaiters / shin guards during canyoneering activity will significantly reduce the risk of snakebite, in addition to protecting the legs from shocks against the basalt sheets and thus preventing unwanted cuts. In addition to the use of protection, care must be taken when moving, observing the place where you are going to step, the vegetation around the crossing point and especially the places where your hands will be placed for support, such as stones and branches, because even terrestrial species can use vegetation as a resting area.

First aid in case of accidents

In the event of a snakebite accident, wash the bite site well with soap and water, keep the injured person calm with the affected limb in an elevated position, avoid physical exertion as much as possible, and direct the injured person as quickly as possible to a health unit. Tourniquets, perforations to try to extract or suck the venom, placing substances on the bite site or drinking alcoholic beverages should **NOT** be performed under any circumstances. In case of a snakebite, contact the Toxicological Information Center of RS (Phone 0800 721 3000) or SC (Phone 0800 643 5252) for guidance.

5.2. Accidents with caterpillars

These caterpillars are greenish-brown in color, with pine-shaped bristles, green at the base and black at the tips. During the day they are found on the stems of trees forming colonies, at night they climb to the treetops to feed. They are most active in the period between October and April, varying according to weather conditions. Therefore, care must be taken with the trunks of the trees, as they cluster, mainly in fruit trees such as loquat (yellow plum), avocado, mango and guava.

Two species are involved in serious and fatal human accidents: *Lonomia oblique* and *Lonomia achelous*. The accident occurs when a person "touches" the bristles that cover the caterpillar, causing "burns". The inoculated venom can result in a severe hemorrhagic syndrome; accident of medical importance due to the seriousness of the cases.

Prevention

The use of protection such as leather gloves, clothes with long sleeves, in addition to observing where you will support your hands, especially on tree trunks.

First aid in case of accidents

In the event of an accident, wash the affected area with plenty of cold or ice water. Find the nearest health facility immediately. If possible, take a picture of the caterpillar (because there is a specific serum). Do not try to capture the animal. Rest to avoid trauma.

5.3 Accidents with Bees / Wasps and Ants

Bees are insects of the order Hymenoptera, as are wasps and ants. Accident by bee (Wasps/Ants) is the case of poisoning resulting from the inoculation of toxins through the stinger. Manifestations after a sting vary from person to person, depending on the amount of venom applied and whether the individual has an allergic reaction to the venom. A person can be stung by one or hundreds of bees. In the case of few bites, the clinical picture can vary from a local inflammation to a strong allergic reaction, which is also known as anaphylactic shock. In the case of multiple

bites, a more serious and sometimes even fatal toxic manifestation can also occur. Among the 5 main types of accidents by venomous animals, the bee accident is the only one that does not have a specific serum for treatment in Brazil.

Poison actions

The venom is composed of a complex mixture of chemical substances such as peptides, enzymes and biogenic amines, which have pharmacological and allergic activities. Allergenic factors are enzymes such as phospholipases, hyaluronidases, lipases and phosphotases, antigenic proteins that, when inoculated during the sting, initiate immune responses responsible for the hypersensitivity of some individuals and the onset of the allergic reaction. They are neuromuscular blocking agents and have a powerful hemolytic action, in addition to antiarrhythmic properties.

First aid in case of accidents

In the event of an accident caused by multiple bee stings, it is necessary to take the injured person quickly to the hospital, along with some of the insects that caused the accident.

The removal of the stingers can be done by scraping with blades, not with tweezers, as this procedure results in the inoculation of the venom that still exists in the stinger.

Prevention

· Be aware of the presence of bees or wasps;

· Avoid walking and running in the flight path of these insects;

· Avoid approaching hives;

· Noises, strong perfumes, deodorants, body sweat and dark colors - especially black and navy blue - trigger aggressive behavior and, consequently, bee attacks.

6. Important contacts

Medical Emergencies - SAMU = 192

Firefighters = 193

Military Police = 190

Praia Grande Military Police, SC – 190 orWhatsapp (48) 9124-0199

Hospital Praia Grande - Hospital Nossa Senhora de Fátima

Phone **(48) 5320 139**

Rua Frei Protásio, 431 - Center - Praia Grande, SC

Santa Catarina Toxicological Information Center 0800 643 5252

Hospital Cambará do Sul - São José Hospital Foundation

Phone **(54) 3251 1167**

Rua Padre João Paza, 315 - Cente - Cambará do Sul, RS

Rio Grande do Sul Toxicological Information Center 0800 721 3000

Aparados da Serra and Serra Geral Parks:

ngi.aparadosdaserrageral@icmbio.gov.br

https://www.icmbio.gov.br/parnaaparadosdaserra

Contato Urbia (Concessionaire supporting tourist visitation that manages the Serra and Serra Geral Trimmed Parks) telephone 0800 321 0101

https://canionsverdes.eleventickets.com/pt/produto/canions-verdes

APKanion Associação Praiagrandense de Canionismo (association of canyoners): apkanion@gmail.com

CAT - Tourist Service Center

CAT Praia Grande, SC

Rua das Fábricas 331, Praia Grande SC, Brazil

Phone: (48) 35321425

CAT Bom Jardim da Serra, SC

Rodovia SC 390

Phone: (49) 3232-0454

E-mail: turismo@bomjardimdaserra

CAT Jacinto Machado, SC

Rua Pool Jorge Zacca, Nº 1, Center

Jacinto Machado – SC

Phone: (48) 3535 1133

CAT Lauro Muller, SC

Rodovia 390, Bairro Bela Vista, s/n

Lauro Muller, SC

Phone: (48) 3464-3430

CAT Mampituba, RS

Av. Herculano Lopes, Center 220

Mampituba, RS

Phone: (51) 23130701

CAT Morrinhos do Sul, RS

Rua Antônio José Carlos, Nº1, Center

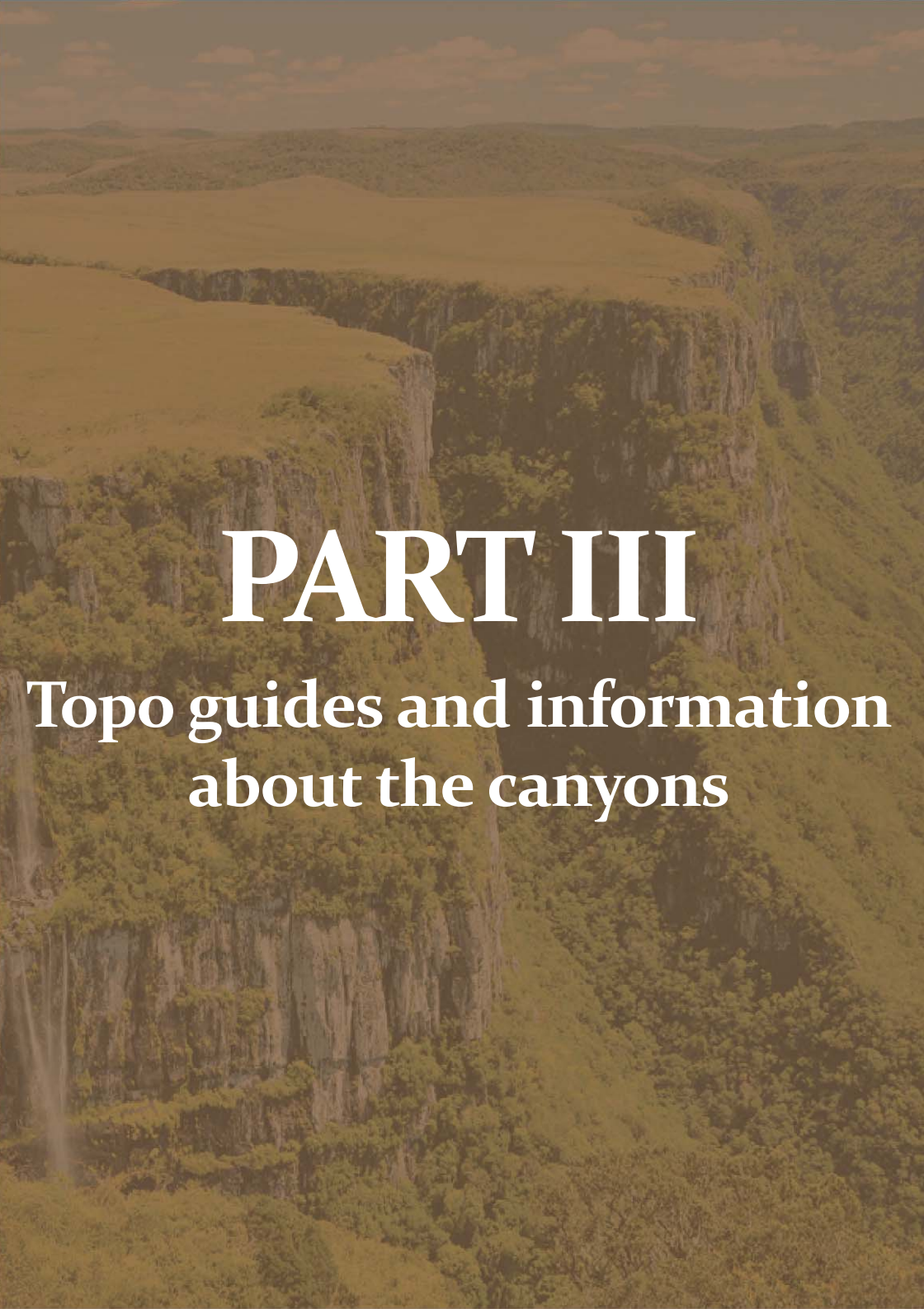
Morrinhos do Sul, RS

Phone: (51) 3605 10 55

CAT Três Forquilhas, RS

Av. dos Imigrantes 4123, bairro Center

Phone: (51) 36285102



PART III

Topo guides and information about the canyons

1. Warning

Canyoning or descent of canyons requires specific techniques, as well as adapted equipment in addition to in-depth knowledge of the environment. The information contained in this Topoguide/ Sketchbook is not a substitute for in-depth knowledge of the environment and sports practice.

This material is intended for autonomous athletes. These imposing environments in the canyons of southern Brazil are extremely demanding, so that practitioners of this modality must be physically, technically and psychologically prepared to be able to progress in autonomy and safety in these canyons.

***Each of the canyons proposed by the organization of RIC Brazil 2022 were checked by the organization prior to the event, seeking to minimize the risks inherent to this adventure sport in a natural environment.**

However, due to the fact that the canyons are subject to floods, rockslides, among other factors, and changes in the environment may occur, the organizing committee cannot guarantee the safety of access, equipment or anchorages. For this reason, each

participant is responsible for checking the hotspots, the situation as they progress through the canyon and each individual anchor point.

***The organizing committee of RIC Brazil 2022 will not be responsible for safety in the canyons.**

All teams must respect weather conditions or the level of river flow. Each participant will assume personal responsibility and responsibility for the team on which they participate.

***Some of these canyons are only for independent or "autonomous" canyoners, with vast technical knowledge and good physical condition (NOT recommended for beginners).**

Enough food and water, enough ropes - 2X the longest abseiling recommended - and complete first aid supplies should be part of your personal equipment whenever you enter a canyon.

***Any entry and descent into the canyon is the sole responsibility of teams and individuals.**

Canyoning can only be carried out with suitable personal equipment, namely, all the equipment necessary for the specific canyon, technical knowledge that allows the descent into the canyon in complete safety, as well as verification of the conditions: climate, risk of rising water, the physical condition of the participants, the state of the equipment, others.

INSTRUCTIONS - ADVICE BEFORE YOU BEGIN

1. Always check the weather forecast before entering any canyon;

2. Always check the water flow, which must be adequate for a safe descent;

3. Always have an anchor set for eventual use in an emergency; in other situations, the placement of new anchors is prohibited;

4. Always wear a helmet;

5. Always carry a thermal blanket/aluminum blanket, a flashlight and a first aid kit;

6. Always check-in/check-out with the event organization, indicating the canyon and the team with the scheduled time to return;

7. Always request information about possible changes or corrections related to access to the canyon;

8. Always keep the organization's or rescue team's phone numbers on your own phone;

9. Always bring extra lifeline, lots of water and food;

10. Always respect the safety rules, your technical skills and physical resistance;

11. We recommend not going down in groups smaller than 4 people;

12. Do not enter a canyon if you are out of shape or poorly trained;

13. Do not disturb the fauna or collect the flora and minerals;

14. Don't scream, don't make noise and don't throw garbage;

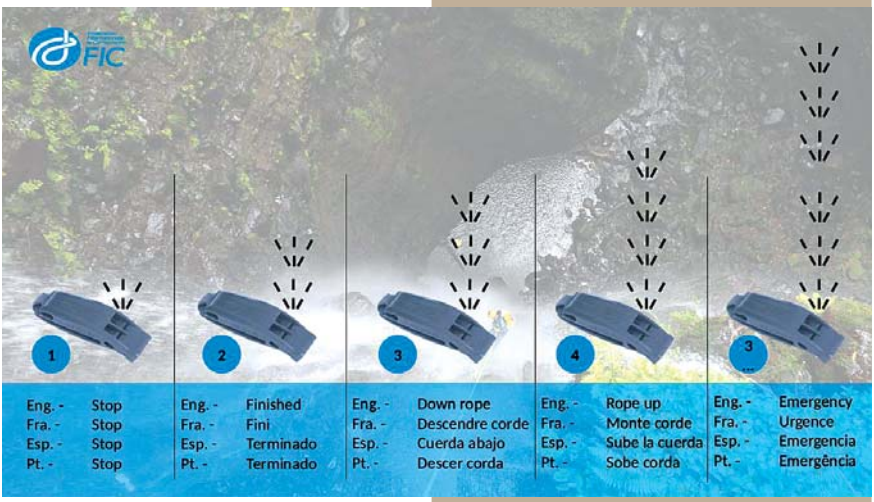
15. If you are a beginner, always go with a more experienced team;

16. Individual equipment must be complete and in good working order;

17. Your physical condition must be good enough for the planned excursion.

2. Symbology

2.1 Sound Symbology Guided by the FIC



2.2 Visual Symbology in the event of Helicopter Rescue

• Never approach a helicopter until instructed to do so by the crew;

• Collect the backpacks and protect yourself and the victim from projections (falling rocks, others) due to the wind caused by the helicopter;

• Use the following visual signals:

Yes, I need help

I don't need help

2.3 Simbologia Croquis

	PORTUGUÉS	ESPAÑOL	ENGLISH	FRANÇAIS
	Rapel Seco	Ráapel por afuera del agua	Dry Rappel	Rappel sec
	Rapel Molhado	Ráapel por dentro del agua	Wet Rappel	Rappel aquatique
	Rapel Guiado	Ráapel Guiado	Guide Rappel	Rappel guidé
	Desescalada	Destrepe	Down climb	Désescalade
	Escalada	Escalada	Climb	Escalade
	Salto	Salto	Jump	Saut
	Corrimão	Passamanos	Traverseline	Maincourante
	Fracionamento	Fraccionamiento	Fractionation	Fractionnement
	Desvio	Desvio	Deviation	Déviation
	Tobogã	Tobogán	Toboggan	Toboggan
	Percurso não descrito	Trayecto no descrito	Route not described	Itinéraire non décrit
Ra	Aproximação em rapel	Aproximación de ráapel	Rappeling approach	Approche em rappel
R1	Rapel nº 1	Ráapel nº 1	Rappel nº 1	Rappel nº1
md	Margem direita	Orilla derecha	Right bank	Rive droite
me	Margem esquerda	Orilla izquierda	Left bank	Rive Gauche
AA	Ancoragem natural	Anclaje natural	Natural anchoring	Amarrage naturel
	Pitons	Pitón	Piton	Piton
	Ancoragens fixas	Anclaje fija	Fixed anchor	Ancres fixes
	Passo chave	Paso llave	Key step	Passageclé
	Zona de Perigo	Área de perigo	Danger zone	Zone dangereuse
	Rio	Rio	River	Rivière
	Afluente	Afluente	Inflowingcreek	Afluent
	Sifão	Sifón	Siphon	Siphon
	Refluxo	Rebufo	Reflux/backflow	Reflux

Marmita	Marmita	Deep Pool	Bassin
Drosagem	Drosage	Drosage	Drosage
Estreitos	Estrechos	Narrowsection	Passage Étroit
Blocos abatidos	Blocos resbalados	Rock slide	Blocs dans la rivière
Blocos entalados	Blocos empotrados	Chock stone	Blocs enchâssés
Arvores	Arboles	Trees	Arbres
Estrada	Carretera	Road	Route
Trilha	Sendero	Path	Sentier/Chemin
Via de Escape	Via de Escape	Escape route	Échappatoire
Via de Escape Delicada	Via de Escape expuesta	Delicate Escape route	Escapade difficile
Entrada do Cânion	Entrada del Barranco	Canyon entry	Entrée Du canyon
Saída do Cânion	Salidadel Barranco	Canyon exit	Sortie Du canyon
Cotação da via	Cotización del curso	Canyon rating	Cotation Du Canyon
Tipo de Rocha	Tipo de roca	Type of stone	Type de roche
Carros necessários	Coches necesarios	Carshuttle	Voitures nécessaires
Tempo estimado da caminhada de aproximação	Tiempo estimado de caminata de aproximación	Estimated approach time on foot	Durée estimée de la marche d'approche
Tempo estimado de Progressão	Tiempo de progresión estimado	Estimated duration of descent	Durée estimée de descente
Tempo estimado da caminhada de retorno	Tiempo estimado de caminata de regreso	Estimated return time on foot	Durée estimée de la marche de retour
Desnível	Desnivel	Elevation	Dénivelée
Altura do maior rapel	Altura rapel más grande	Highest rappel	Hauteur du plus grand rappel
Cordas necessárias	Cuerdas necessarias	Require rope	Corde nécessarie

3. Classification of Canyons based on French Quotation

The quote is valid for a normal descent, in the usual period of canyoneering in the canyon, with a normal amount of water, not having to be too low.

The quotation is defined for a group of five people, in a situation of conquering the canyon (opening) and whose level of practice is appropriate to the technical level of the canyon.

The opening and equipping of the canyon must be carried out in order to prepare it for a normal and adequate practice of canyoning, for the sake of safety and efficiency of descents (a personal search for greater or lesser difficulty will not increase or decrease the initial classification).

Canyons will be ranked according to difficulty:

Aquatics A 1-7

Verticals V 1-7

Vertical and Aquatic Features

Difficulty	Vertical Characteristic (V)	Water Feature (A)
1 - Very Easy	*No abseiling, rope normally unnecessary for progression *No climbs and de-escalations	* Absence of water or walking in calm waters *Optional swimming
2 - Easy	*Easy access and execution of rappels (equal to or less than 10 m) *Easy and unexposed climbs and de-escalations	*Swimming not exceeding 10m in calm waters *Single execution jumps of up to 3 m *Short or low slope slides
3 – Little difficult	*Access and simple execution rappels (height equal to or less than 30 m), separated by spaces that allow regrouping; *Verticals with low amount of water *Reception in calm pools or without swimming * Placing simple handrails *Technical progression that requires particular attention, seeking the best route on a route that can be slippery, unstable,	*Swimming not exceeding 30m in calm waters *Progression with weak current *Single execution jumps from 3 to 5 m * Long or medium slope slide

	bumpy, overcast or underwater *Climbs/de-escalations (up to 3c), poorly exposed, which may require the use of a cutter	
4 – Fairly Difficult	*Hard to reach rappels or heights greater than 30 m *Verticals with low or medium amount of water, which can start to create imbalance or blockage problems * Fractionation of rappels on the wall with a comfortable stopping point for changing the rope * Friction management required; *Complicated handrail installation *rappelling or abseiling arrival not visible from the point where the rappel starts * arrival of rappel in pit with swimming required *Climbing/de-climbing (up to 4c or A0) exposed or requiring the use of safety or rope progression techniques	* Prolonged immersion in water, with significant loss of body heat; *Progression with average current *Single execution jumps from 5 to 8 m *Jump with difficulty in the beginning, in the trajectory or in the finish of up to 5 m *Large toboggan with steep slope *Large siphon less than 1m long and/or deep;
5 - Difficult	*Verticals with a medium or large amount of water, difficult to cross and which require trajectory and/or balance management *Difficult access and/or execution rappel; *Success of wall abseiling with rope passing without support (in the air) or need to cross pits during descent *Difficult rope recovery (swimming) *Slippery terrain or obstacles *Climbing/de-climbing (up	* Prolonged immersion in water, with significant loss of body heat; *Progression with strong current that can harm the swimming trajectory, the stops and the restart of swimming; *Need to overcome obstacles of white water (vortex, drosage, reflux, lunch box, etc) that can cause the momentary block of the canyon operator; *Single execution jump from 8 to 10 m;

	to 5c or A1) exposed (5c), only possible to perform with rope;	*Jump with difficulty at the beginning, on the trajectory and/or on the finish from 5 to 8 m; *Large siphon up to 2 m deep and/or wide
6 - Very Difficult - Exposed	*Verticals with very large or extremely large amounts of water; * Very consistent waterfalls *Extremely difficult transposition requiring anticipation, specific management of rope, trajectory, balance, supports and rhythm; *Climbing and/or de-escalation passages above 6th or A2 exposed; *Very slippery or unstable terrain; *Reception of abseiling in agitated water with a lot of foam formation, which makes it difficult to float	*Progression in strong currents that make it difficult to define the aquatic trajectory, stop and resume swimming * Well-marked water movements (dragging, counter-current, ebbs, waves, eddies,... *Single execution jump from 10 to 14 m; *Jump with difficulty in the exit, trajectory and/or arrival from 8 to 10 m; *large siphon up to 3 m deep and/or long; *Technical siphon up to 1 m, with chain or narrowing;
7 – Extremely Difficult very exposed	*Verticals with very large or extremely large amounts of water; * Very consistent waterfalls *Extremely difficult transposition requiring anticipation, specific management of rope, trajectory, balance, supports and rhythm; *Climbing and/or de-escalation passages above 6th or A2 exposed; *Limited visibility and frequent obstacles * possibility of passing in pools with strong water movements at the end of the rappel or during the rappel *Recovery of rope in jellyfish; * Breathing control (apnea passage).	*Progression in very strong current, which makes swimming, stopping and resuming swimming extremely difficult *Violent water movements (dragons, counter-current, waves, eddies,...) that can cause a prolonged blockage of the canyoneer; *Single execution jump over 14 m; * Jump with difficulty in the exit, trajectory and/or arrival of more than 10 m; *Siphon with more than 3 m in length and/or depth; * Technical and narrow siphon of more than 1 m, with chain or without visibility.

French quotation of the Canyons

Wingspan

Wingspan (approach + descent + return) E I-VI

Difficulty	Wingspan = Approach + Descent + Return
I	*Possibility to stay in a safe place if there is a rapid increase in the amount of water (runoff); *Escapes along the entire route; *Total time less than 2 hours.
II	*Possibility to reach a safe place in up to 15 minutes if there is a rapid increase in the amount of water (runoff); *Possibility to reach an Escape within 30 minutes; *Total time from 2 to 4 hours.
III	*Possibility to reach a safe place in up to 30 minutes if there is a rapid increase in the amount of water (runoff); *possibility of reaching an Escape within 1 hour; *Total time from 4 to 8 hours.
IV	*Possibility to reach a safe place in up to 1 hour if there is a rapid increase in the amount of water (runoff); *Possibility to reach an Escape within 2 hours; *Total time from 8 hours to 1 day.
V	*Possibility to reach a safe place in up to 2 hours if there is a rapid increase in the amount of water (runoff); *Possibility to reach an Escape within 4 hours; *Total time from 1 to 2 days.
VI	*Time greater than 2 hours to reach a safe place if there is a rapid increase in the amount of water (runoff); *Time greater than 4 hours to reach an Escape *Total time greater than 2 days.

4. Sector 1

Canyons located inside the Aparados da Serra and Serra Geral National Parks: Malacara, Índios Coroados, Ravina dos Amigos and Fortaleza

Google Earth image showing the location from the canyons of Sector 1.

Access to sector 1

Leaving the city of Praia Grande, in SC, go up the Faxinal highlands (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. Right after the ascent, next to the old ICM post, on the right side of the road, it will be the starting point of the access hike to Índios Corados Canyon via South, via Rolador and Ravina dos Amigos. Heading towards Cambará do Sul, also on the right side of the road, in front of the entrance to the Aparados da Serra National Park, is the beginning of the access trail to the Malacara canyon. The travel time by car from Praia Grande to the beginning of the Malacara trail is about an hour. The parking place at the exit of the Índios Coroados, Ravina dos Amigos and Malacara canyons is in Vila Rosa, in Praia Grande.

Google Earth image showing the location of the city of Praia Grande, Serra do Faxinal road (SC-290) and the parking places to access the Índios Coroados, Malacara and Ravina dos Amigos (RA) canyons.

Geographical Coordinates Parking access to the Sector 1 Canyons

Datum WGS84 UTM Coordinates

CANYON	ENTRY	EXIT
Malacara Superior	-29.154685 -50.059892	-29.154685 -50.059892
Malacara Inferior	-29.154685 -50.059892	-29.160480 -49.979927
Malacara Integral	-29.154685 -50.059892	-29.160480 -49.979927
Índios Coroados Via Sul	-29.174100 -50.032371	-29.170610 -49.981533
Índios Coroados Via Rolador	-29.174100 -50.032371	-29.170610 -49.981533
Ravina dos Amigos	-29.174100 -50.032371	-29.170610 -49.981533

Photo Malacara Canyon (Author Léo Sassen)

Canyon Malacara

In the region of Aparados da Serra Geral (highland), the practice of canyoning began in 1997, at the initiative of members of Canyon Inc., who began to equip the Malacara canyon.

Upper part opened Equipment: Henry Lummertz, Marcelo Rigo, Michael Bressel and Rafael Britto.

Opening completed in the Franco-Brazilian expedition: Henry Lummertz; Neyton Reis, Rafael Britto, Pascal Badin, Philippe Rosckam and Patrick Gimat.

Lower part: Opening started in 1997 by: Fabrizio Riatto; Henry Lummertz; Marcelo Rigo; Michael Bressel and Rafael Britto.

First integral descent from the bottom in October 1998 by Henry Lummertz; Neyton Reis and Rafael Britto.

Whole Malacara: Opening started in 1997.

Equipment by: Fabrizio Riatto, Henry Lummertz, Marcelo Rigo, Michael Bressel and Rafael Britto

The first full descent was made in the Monitor Preparation Stage, by Henry Lummertz, Marcelo Caccia, Neyton Reis, Rafael Britto and Thierry Achmetoff
Re-stapling in March 2022 during a stapling workshop promoted by APKanion: Rafael Britto, Ramonn Tomaz, Daniel Lima, Flávio Getúlio, Nicolas Amaya, Eliton Ferreira, Vitor Viana and Rafael Bianchini.

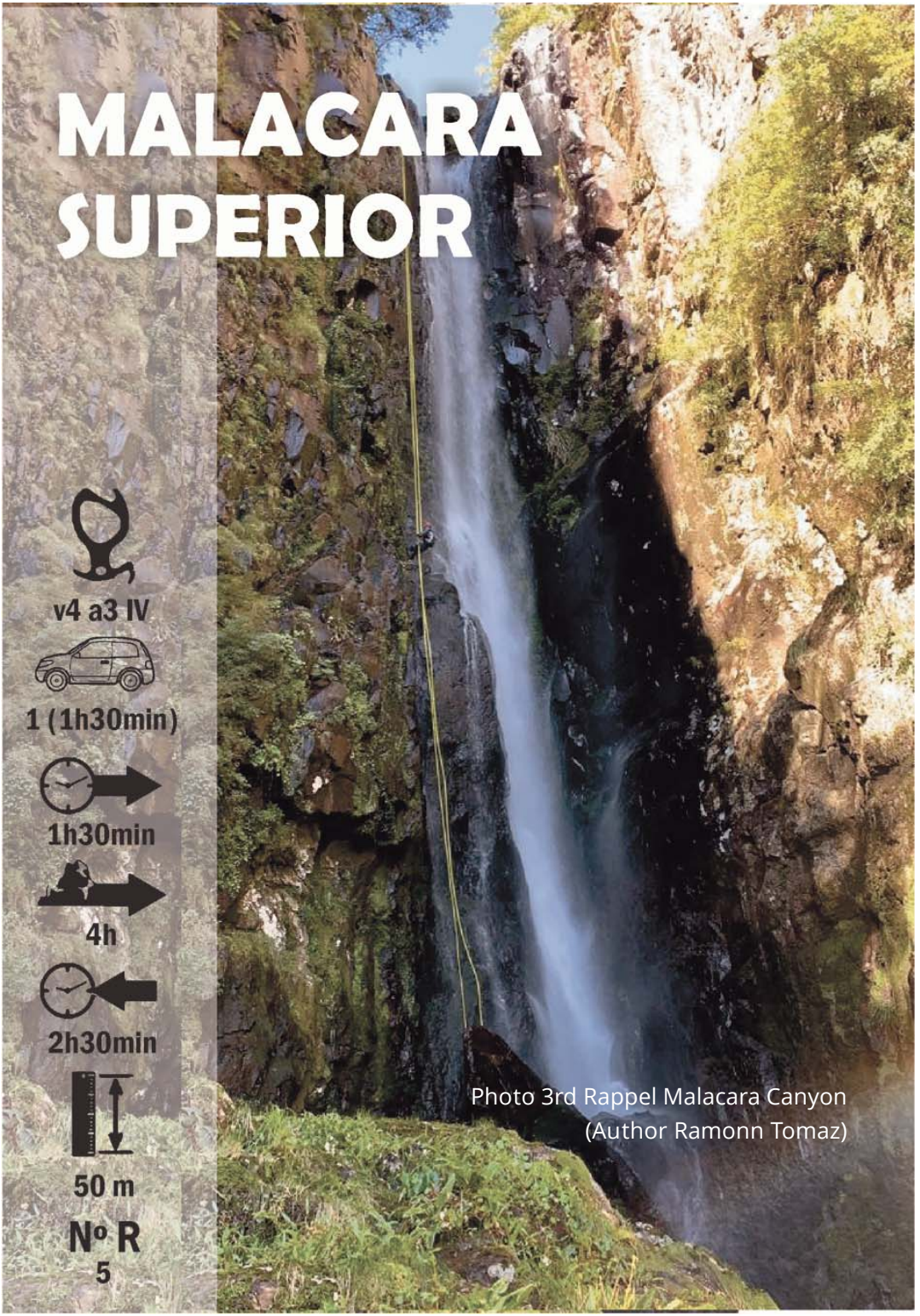
Curiosity: According to the report of the oldest residents of the region, the name originated from the name of the old local farm: Fazenda Malacara. A horse is called a Malacara when it has a white spot on the front of its head, regardless of breed.

Malacara Canyon is certainly the best and best known canyon in the Aparados da Serra region. Magnificent canyon of unique, imposing scenic beauty, with dimensions of approximately 780 meters deep, 3.5 km long and 1 km wide. The canyoneering activity in Malacara canyon, in the classification in degree of difficulty, is considered very difficult, demanding from the practitioner high technical knowledge, physical, mental and emotional conditioning. It takes an average of 10-15 hours to complete.

There are two canyoning routes - **Malacara Superior** and **Malacara Inferior** - that can be carried out in sequence to complete the **Integral** crossing of the canyon. These three canyoning routes are allowed for the RIC with the authorization of the Serra Geral National Park, ICMBio.

Photo Malacara Canyon (Author Léo Sassen)

MALACARA SUPERIOR



v4 a3 IV

1 (1h30min)

1h30min

4h

2h30min

50 m

Nº R
5

Photo 3rd Rappel Malacara Canyon
(Author Ramonn Tomaz)

Car access time and logistics

Malacara Superior - leaving the city of Praia Grande, in SC, go up the faxinal mountain range (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. On the right side of the road, opposite the entrance to the headquarters of the Aparados da Serra National Park, is the beginning of the access trail to the Malacara Canyon (**UTM -29.154685, -50.059892**). The estimated time of this journey by car is 1 hour.

Geographical Coordinates Parking access to Malacara Superior

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Malacara Superior	-29.154685 -50.059892	-29.154685 -50.059892

Access trail

Access to **Malacara Superior** is a walk of about an hour through Campos de Cima da Serra. Leaving the parking spot to access Malacara, walk along the farm road, following the trail marked on Wikiloc present in the topo - it takes about 20 minutes to walk through the farm. After half an hour from the start of the walk, you will begin a path with ascents and descents. After an hour and fifteen minutes of walking, turn right (**UTM -29.130507, -50.017268**) and walk another 5 minutes until reaching the end of the Malacara Superior trail (**UTM -29.128545, -50.014214**), at the apex of the canyon.

In the upper part of the canyon, close to its edge, at the point (**UTM -29.1278071, -50.013382**) there is cell signal and at the end of the canyon, at the 5 Fios waterfall, there is also cell signal from the operator Claro.

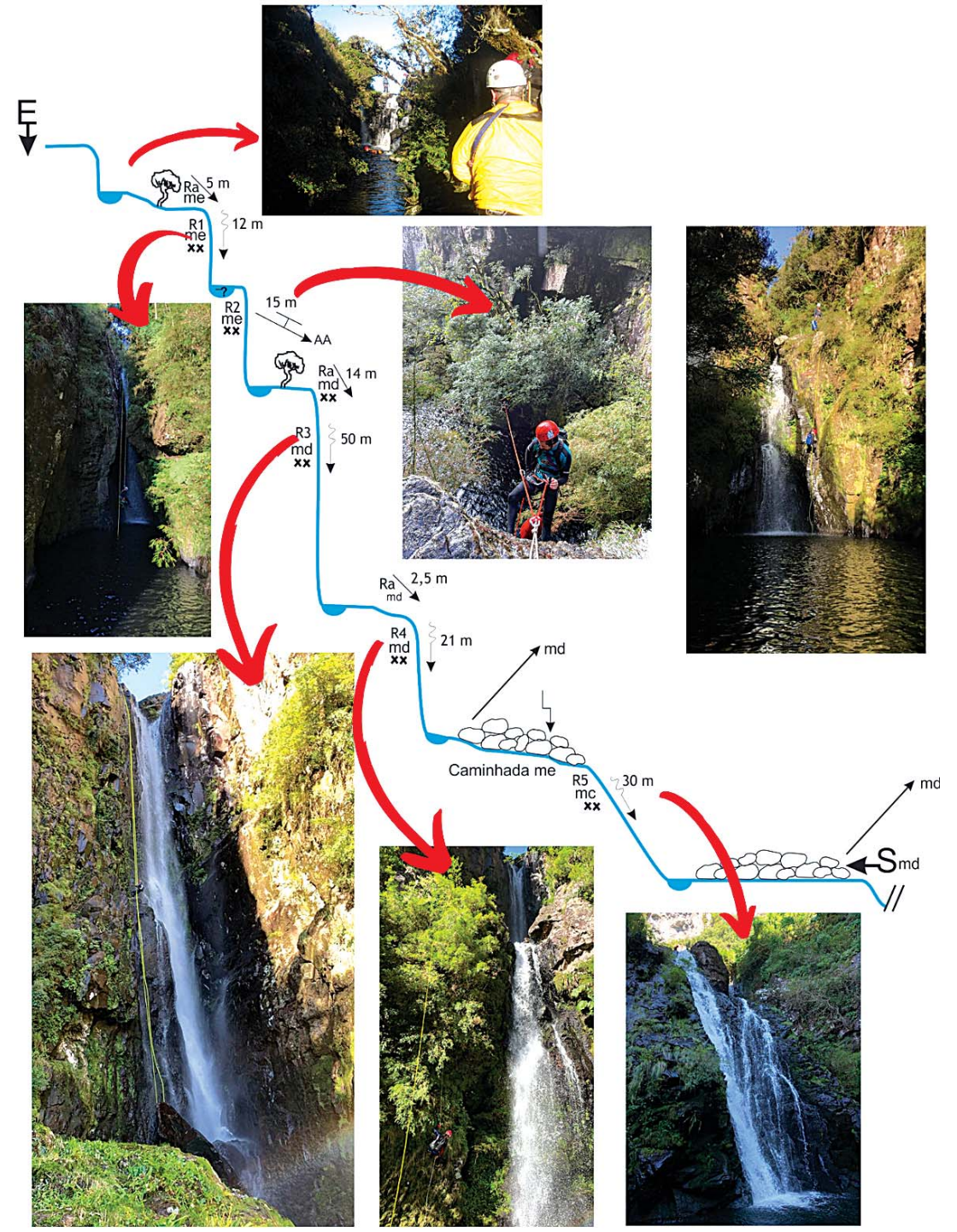
Geographical Coordinates - Entrances and Exits of the Malacara Canyon routes

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Malacara Superior	-29.128902, -50.014430	-29.128015, -50.011960

The **Malacara Superior** route comprises the sequence of the first five rappels, followed by the return through a "climbing" through the canyon escape route (**UTM -29.128015, -50.011960**), until reaching the edge (**UTM -29.129436, -50.013874**). A lot of attention is needed in this "climbing", as there are many loose blocks, rotten roots and the presence of venomous animals. From this point, take the return path along the same access route. This route was opened during the Franco-Brazilian expedition in 1998. The longest rappel of this route is the third, measuring 50 m. On this route, there is the possibility of jumping, upon prior verification of the conditions, in addition to abseiling and de-climbing, glimpsing an exuberant scenery. Approximate descent time is four hours. The return trail to the edge of the canyon takes about an hour. From the edge of the canyon, the walk back to the car takes about an hour and a half.

Photo of R4 Malacara Canyon
(Author RamonnTomaz)

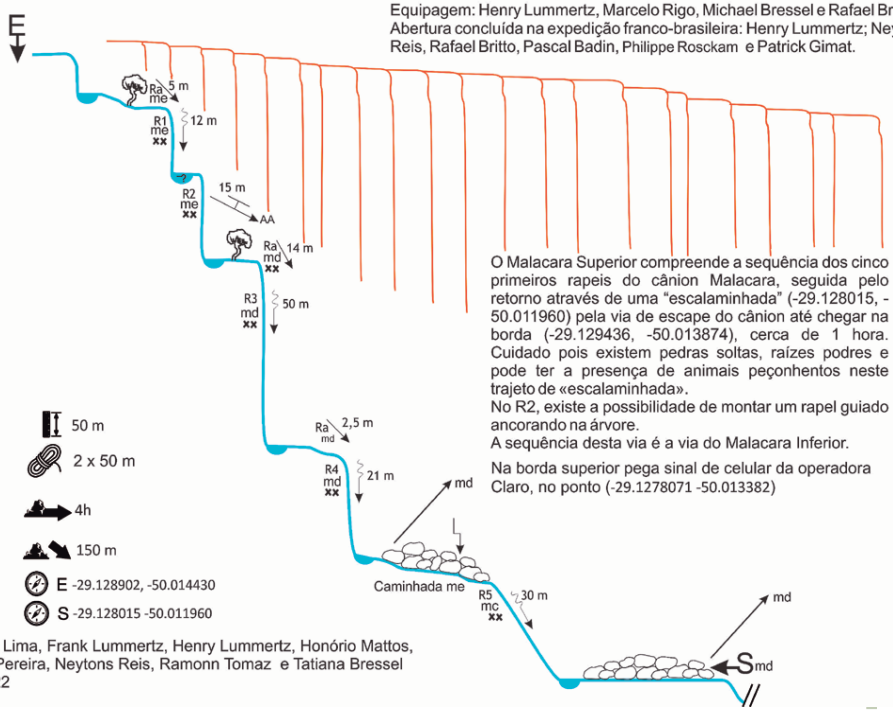


Fotos: Flávio Getúlio, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel

Cânion Malacara - Via Superior
Parque Nacional da Serra Geral

v4 a3 IV

Equipagem: Henry Lummertz, Marcelo Rigo, Michael Bressel e Rafael Britto.
Abertura concluída na expedição franco-brasileira: Henry Lummertz; Neyton Reis, Rafael Britto, Pascal Badin, Philippe Rosckam e Patrick Gimat.



O Malacara Superior compreende a sequência dos cinco primeiros rapeis do cânion Malacara, seguida pelo retorno através de uma "escalaminhada" (-29.128015, -50.011960) pela via de escape do cânion até chegar na borda (-29.129436, -50.013874), cerca de 1 hora. Cuidado pois existem pedras soltas, raízes podres e pode ter a presença de animais peçonhentos neste trajeto de «escalaminhada».
No R2, existe a possibilidade de montar um rapel guiado ancorando na árvore.
A sequência desta via é a via do Malacara Inferior.

Na borda superior pega sinal de celular da operadora Claro, no ponto (-29.1278071 -50.013382)

Basalto 1

1 h

2 h 30m

E -29.154685, -50.059892

50 m

2 x 50 m

4h

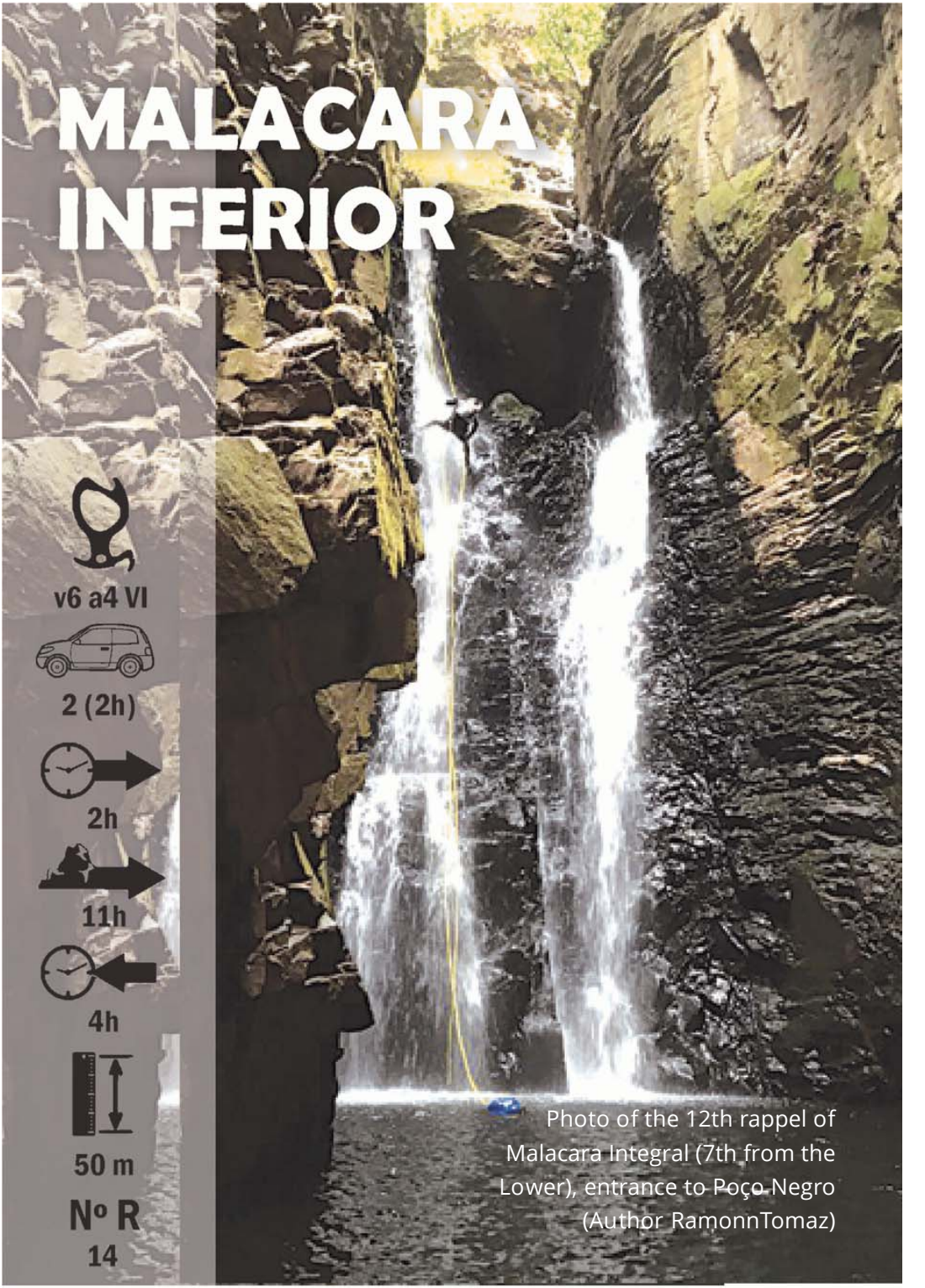
150 m

E -29.128902, -50.014430

S -29.128015 -50.011960

Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Henry Lummertz, Honório Mattos, Leandro Bazotti, Michel Pereira, Neytons Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

MALACARA INFERIOR



v6 a4 VI

2 (2h)

2h

11h

4h

50 m

Nº R
14

Photo of the 12th rappel of Malacara Integral (7th from the Lower), entrance to Poço Negro (Author RamonnTomaz)

Car access time and logistics

Malacara Inferior - leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon, to leave one of the cars in the parking lot located at coordinates **UTM -29.160480, -49.979927**. This parking spot is located on private property, which charges a fixed amount per parked car. From this point, climb the faxinal mountain range (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. On the right side of the road, opposite the entrance to the headquarters of the Aparados da Serra National Park, is the beginning of the access trail to the Malacara Canyon (**UTM -29.154685, -50.059892**). The estimated time of this journey and logistics by car is 2 hours.

Geographical Coordinates Parking access to Malacara Inferior

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Malacara Inferior	-29.154685 -50.059892	-29.160480 -49.979927

Access Trail

In the case of doing only the **Malacara Inferior** route, access is the same walk of about an hour through Campos de Cima da Serra, only the end point of the trail is a little different (**UTM -29.129436, -50.013874),** you must use the coordinates present in the sketch referring to the route you want to make. Leaving the parking spot to access Malacara, walk along the farm road, following the trail marked on Wikiloc present in the sketch - it takes about 20 minutes to walk through the farm. After half an hour from the start of the walk, you will begin a path with ascents and descents. After an hour and fifteen minutes of walking, turn right (**UTM -29.130507, -50.017268**) and walk until reaching the end of the Malacara Inferior trail (**UTM -29.129436, -50.013874)**. From this stretch, you will perform a "de-escalation" through the canyon escape route until you reach the point **(UTM -29.128015, -50.011960**), where you will start the canyoneering path with the anchoring of the first abseiling - of 25 m - located in the region waterfall center. A lot of attention is needed in this "de-escalation" because there are many loose blocks, rotten roots and the presence of venomous animals.

In the upper part of the canyon, close to its edge, at the point (**UTM -29.1278071, -50.013382**) there is cell signal and at the end of the canyon, at the 5 Fios waterfall, there is also cell signal from the operator Claro.

Geographical Coordinates - Entrances and Exits of the Malacara Canyon routes

Datum WGS84 UTM Coordinates

CANYON	ENTRY	EXIT
Malacara Inferior	-29.128015, -50.011960	-29.133785, -50.005298

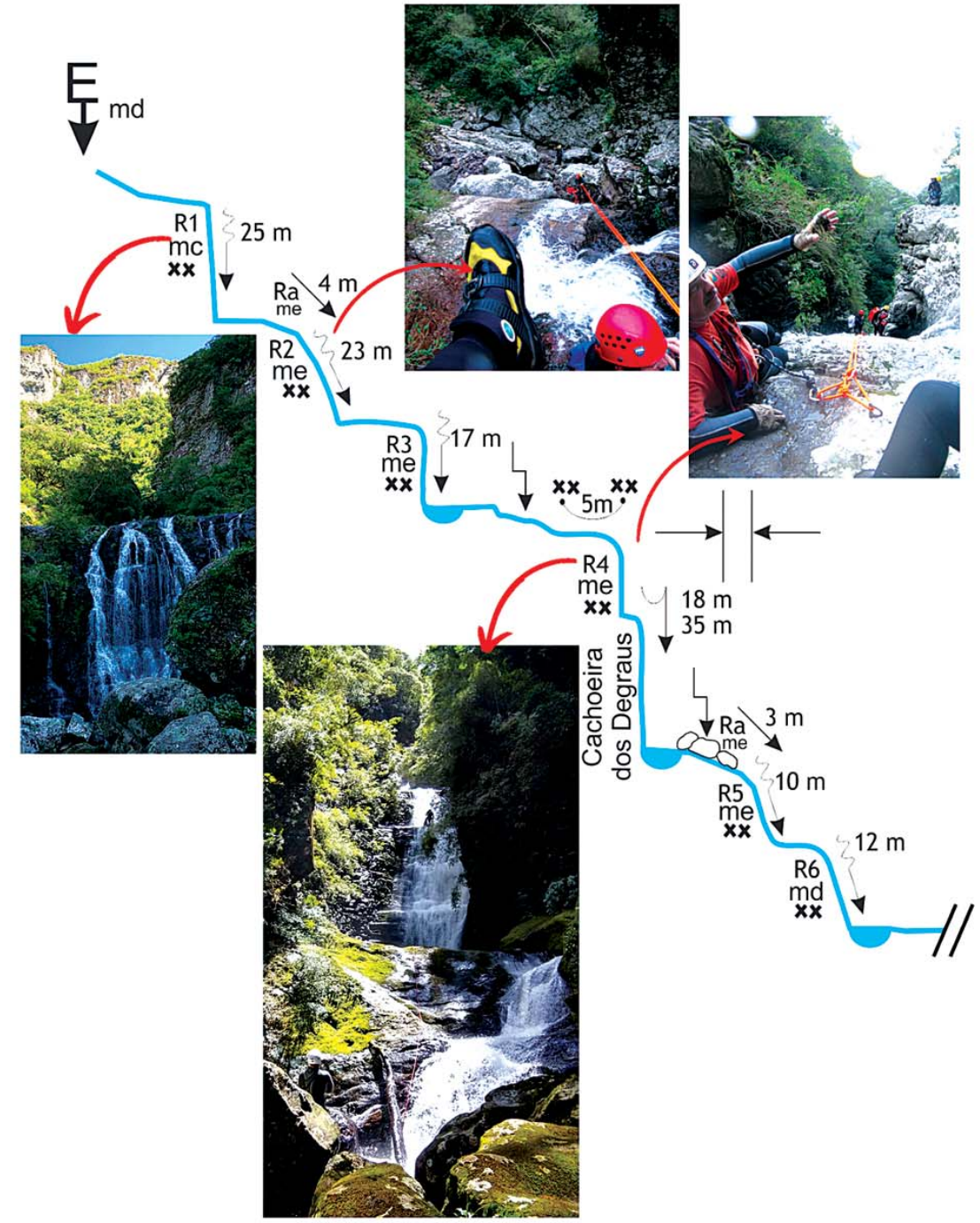
Photo: View of the R1 of Malacara Inferior (Author: RamonnTomaz)

On the **Malacara Inferior** route there are confined stretches, swimming stretches, for example, in Poço Negro and technical abseiling with the presence of guided abseiling. The total number of abseiling on this route is 14, the largest of which is a guided abseiling of 60 meters, in the Kalu waterfall. In the

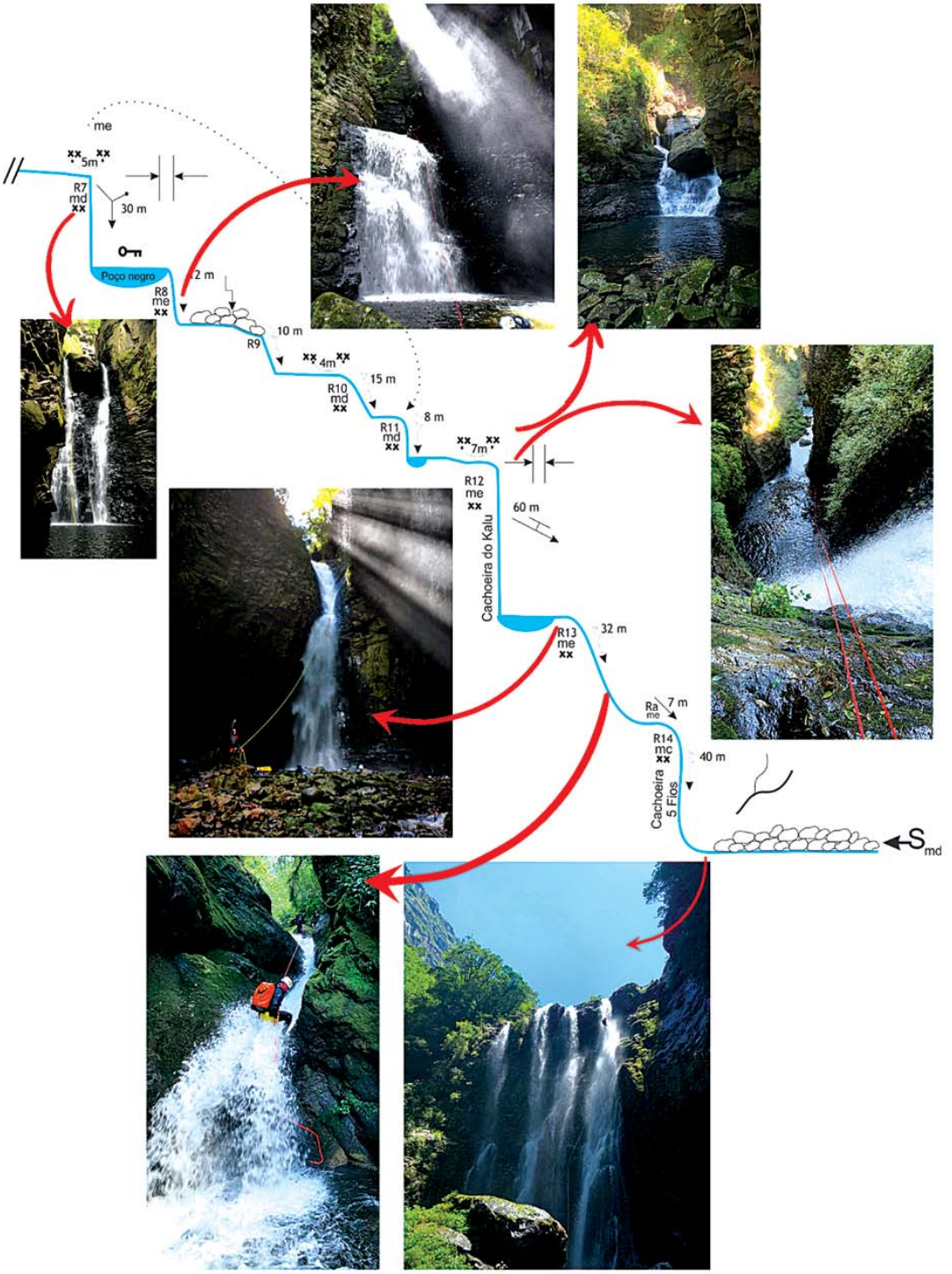
most confined part of the canyon, there is the possibility of making a detour to avoid it. Take the trail on the left bank, before the R7 and go around the chute until you exit at the R11.

The route ends after abseiling at the 5 Fios waterfall (14th abseiling from Malacara Inferior). At the 5 Fios waterfall you get a cell signal from the operator Claro. After this rappel, walk for about a minute and the exit trail will be on the right bank. From this point to the parking spot, it takes about 4 hours.

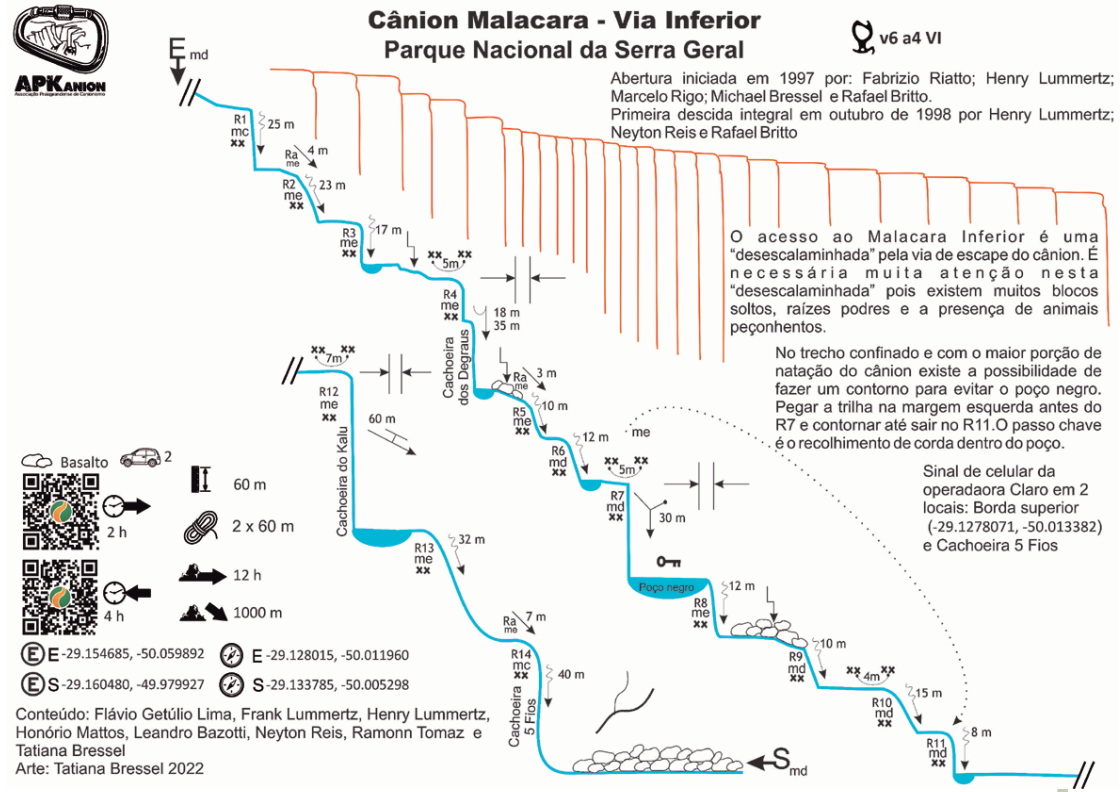
Photo of the 14th rappel of Malacara Inferior, Cinco Fios waterfall (Author RamonnTomaz)



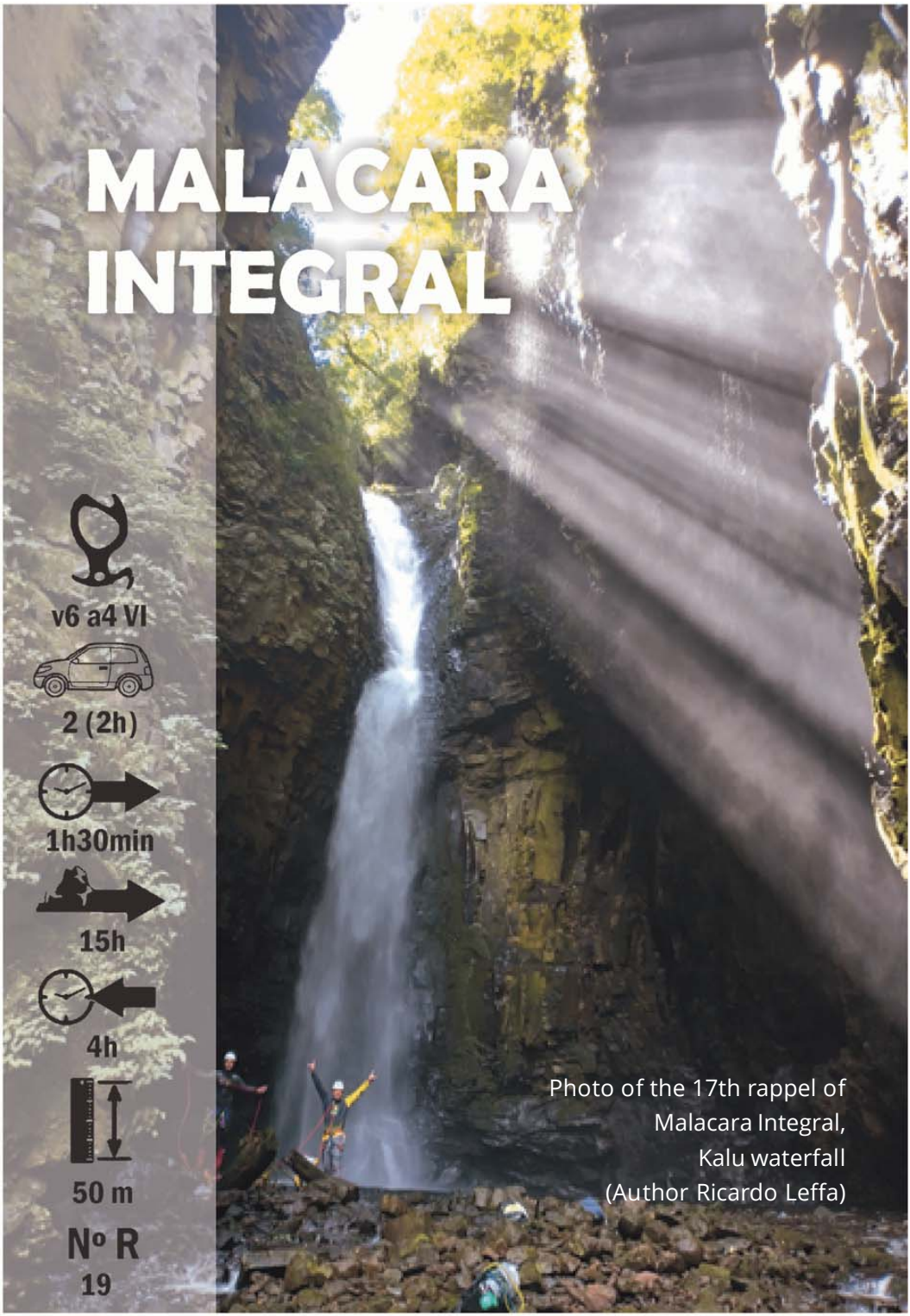
Fotos: Ramonn Tomaz, Ricardo Leffa e Tatiana Bressel
Arte: Tatiana Bressel



Fotos: Ramonn Tomaz e Ricardo Leffa
Arte: Tatiana Bressel


Cânion Malacara - Via Inferior
Parque Nacional da Serra Geral
v6 a4 VI
APK Anion
Abertura iniciada em 1997 por: Fabrizio Riatto; Henry Lummertz; Marcelo Rigo; Michael Bressel e Rafael Britto.
Primeira descida integral em outubro de 1998 por Henry Lummertz; Neyton Reis e Rafael Britto
O acesso ao Malacara Inferior é uma "desescalaminhada" pela via de escape do cânion. É necessária muita atenção nesta "desescalaminhada" pois existem muitos blocos soltos, raízes podres e a presença de animais peçonhentos.
No trecho confinado e com o maior porção de natação do cânion existe a possibilidade de fazer um contorno para evitar o poço negro. Pegar a trilha na margem esquerda antes do R7 e contornar até sair no R11.O passo chave é o recolhimento de corda dentro do poço.
Sinal de celular da operadaora Claro em 2 locais: Borda superior (-29.1278071, -50.013382) e Cachoeira 5 Fios
E md
R1 mc xx 25 m
Ra me 4 m
R2 me xx 23 m
R3 me xx 17 m
xx 5m xx
R4 me xx 18 m 35 m
Cachoeira dos Degraus
Ra me 3 m
R5 me xx 10 m
R6 md xx 12 m
xx 5m xx
R7 md xx 30 m
Poço negro
R8 me xx 12 m
R9 md xx 10 m
xx 4m xx
R10 md xx 15 m
R11 md xx 8 m
S md
xx 7m xx
R12 me xx 60 m
Cachoeira do Kalu
R13 me xx 32 m
Ra ma 7 m
R14 mc xx 40 m
Cachoeira 5 Fios
Basalto
2
2 h
4 h
60 m
2 x 60 m
12 h
1000 m
E -29.154685, -50.059892
S -29.160480, -49.979927
E -29.128015, -50.011960
S -29.133785, -50.005298
Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Henry Lummertz, Honório Mattos, Leandro Bazotti, Neyton Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

MALACARA INTEGRAL



v6 a4 VI

2 (2h)

1h30min

15h

4h

50 m

Nº R
19

Photo of the 17th rappel of Malacara Integral, Kalu waterfall (Author Ricardo Leffa)

Car access time and logistics

Malacara Integral - leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon, to leave one of the cars in the parking lot located at coordinates **UTM -29.160480, -49.979927**. This parking spot is located on private property, which charges a fixed amount per parked car. From this point, climb the faxinal mountain range (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. On the right side of the road, opposite the entrance to the headquarters of the Aparados da Serra National Park, is the beginning of the access trail to the Malacara Canyon (**UTM -29.154685, -50.059892**). The estimated time of this journey and logistics by car is 2 hours.

Geographical Coordinates Parking access to Malacara Integral

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Malacara Integral	-29.154685 -50.059892	-29.160480 -49.979927

Access Trail

Access to **Malacara Integral** is a walk of about an hour through Campos de Cima da Serra. Leaving the parking spot to access Malacara, walk along the farm road, following the trail marked on Wikiloc present in the sketch - it takes about 20 minutes to walk through the farm. After half an hour from the start of the walk, you will begin a path with ascents and descents. After an hour and fifteen minutes of walking, turn right (**UTM -29.130507, -50.017268**) and walk another 5 minutes until reaching the end of the Malacara Integral trail (**UTM -29.128545, -50.014214**), at the apex of the canyon.

In the upper part of the canyon, close to its edge, at the point (**UTM -29.1278071, -50.013382**) there is cell signal and at the end of the canyon, at the 5 Fios waterfall, there is also cell signal from the operator Claro.

Geographical Coordinates - Entrances and Exits of the Malacara Canyon routes

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Malacara Integral	-29.128015, -50.011960	-29.133785, -50.005298

The **Malacara Integral** route comprises the Upper and Lower Malacara sequence, accounting for a total of 19 rappels. On this route, there is the possibility of jumping upon prior verification of the conditions, in addition to abseiling and de-climbing, glimpsing an exuberant scenery. There are confined stretches, swimming stretches (in Poço Negro) and technical abseiling with the presence of guided abseiling. The total number of rappels on this route is 19, the largest of which is a guided rappel of 60 meters (at the Kalu waterfall). In the most confined part of the canyon there is the possibility of making a detour to avoid it. Take the trail on the left bank, before the R12 and go around the chute until you exit at the R16.

The route ends after abseiling at the 5 Fios waterfall (19th abseiling). At the 5 Fios waterfall there is a cell phone signal from the operator Claro. After this rappel walk for about a minute and the exit trail will be on the right bank. From this point to the parking spot takes about 4 hours.

The **Malacara Integral** is considered the most difficult canyon because in addition to demanding high physical conditioning, it also requires high technical knowledge from the practitioner, as well as mental and emotional preparation. It has an average duration of 10-15 hours of descent for its full realization. If we consider travel times and access and return trails, the total time is around 22 to 23 hours of activity.

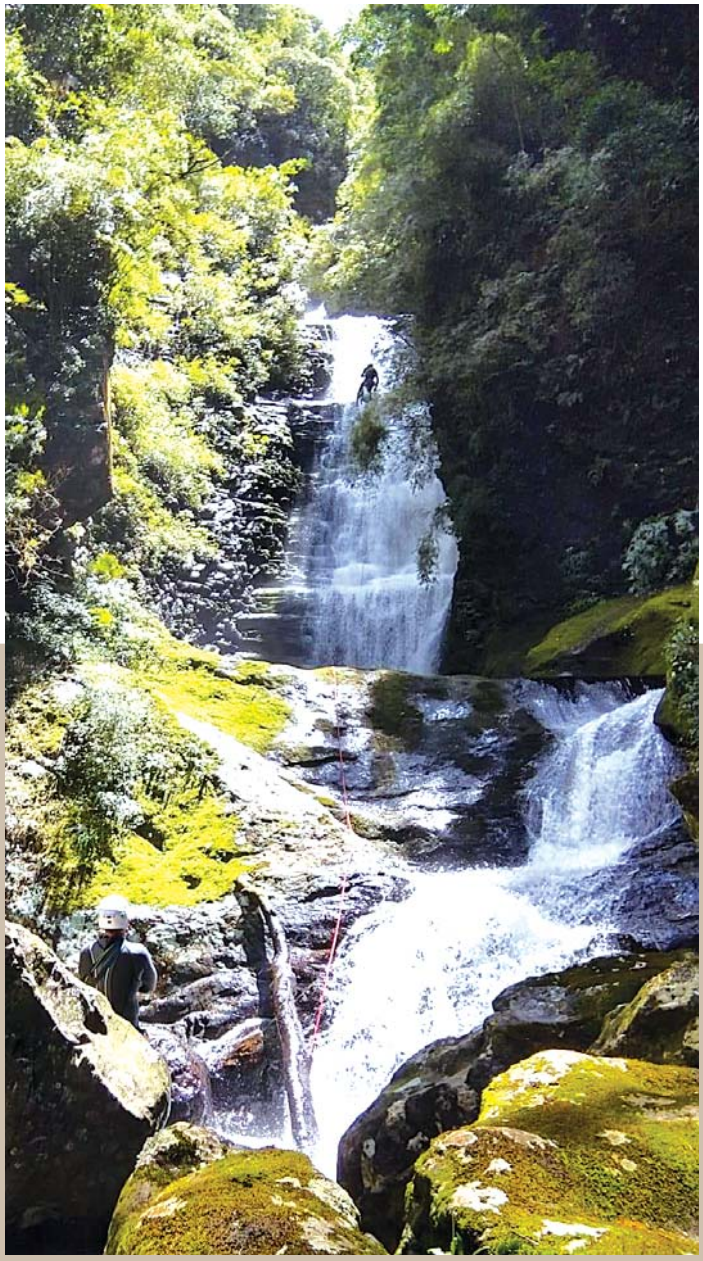
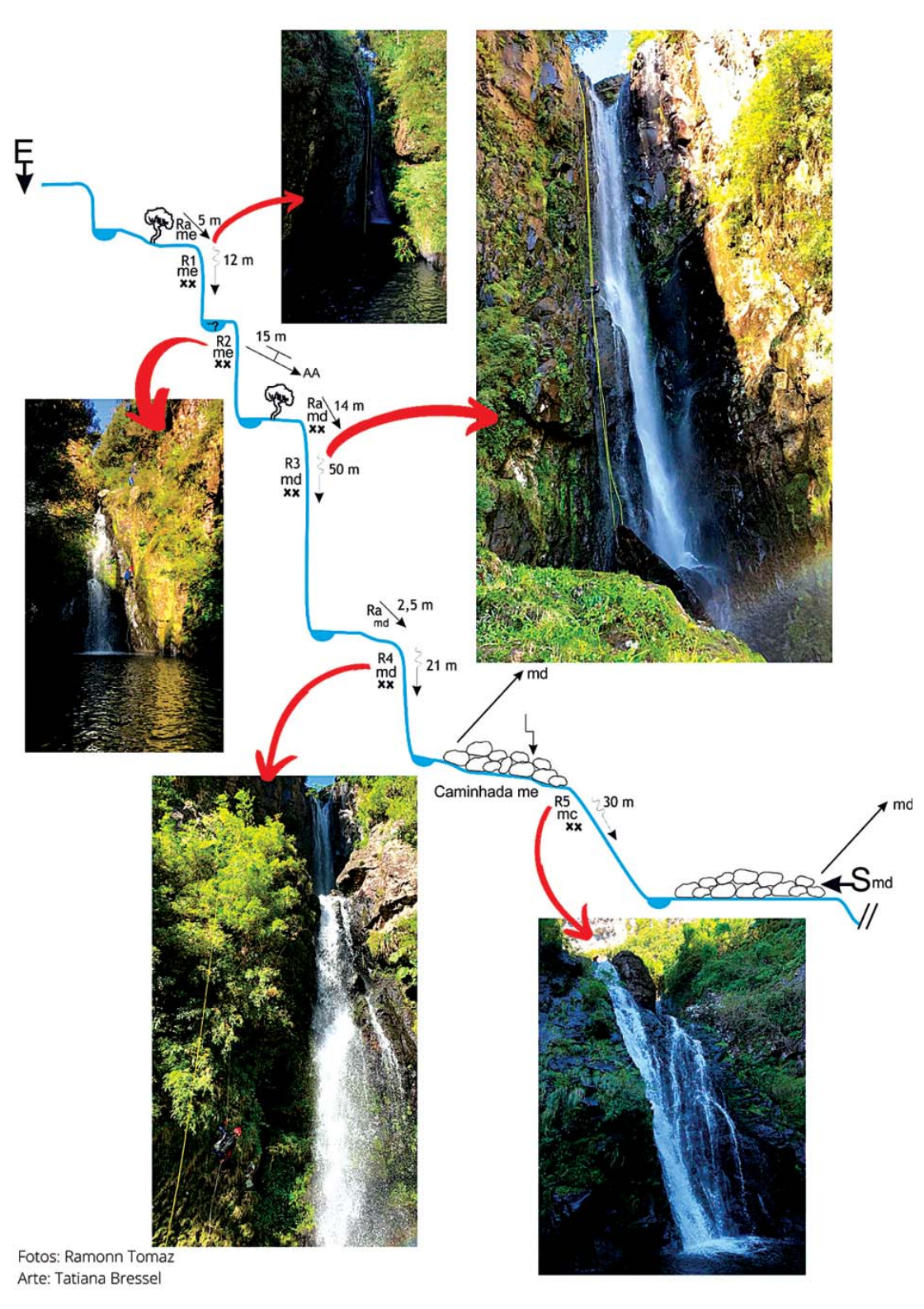
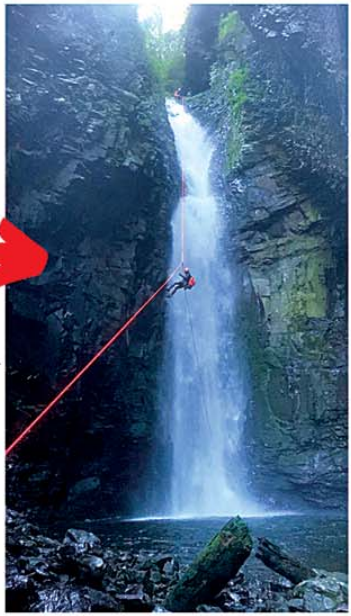


Photo Waterfall Degraus, R9 from Malacara Integral
(Author Ricardo Leffa)



Fotos: Ramonn Tomaz
Arte: Tatiana Bressel

Fotos: Ramonn Tomaz e Ricardo Leffa
Arte: Tatiana Bressel



xx 7m xx

R17
me

60 m

Cachoeira do Kalu

32 m

R18
me
xx

Ra
me

7 m

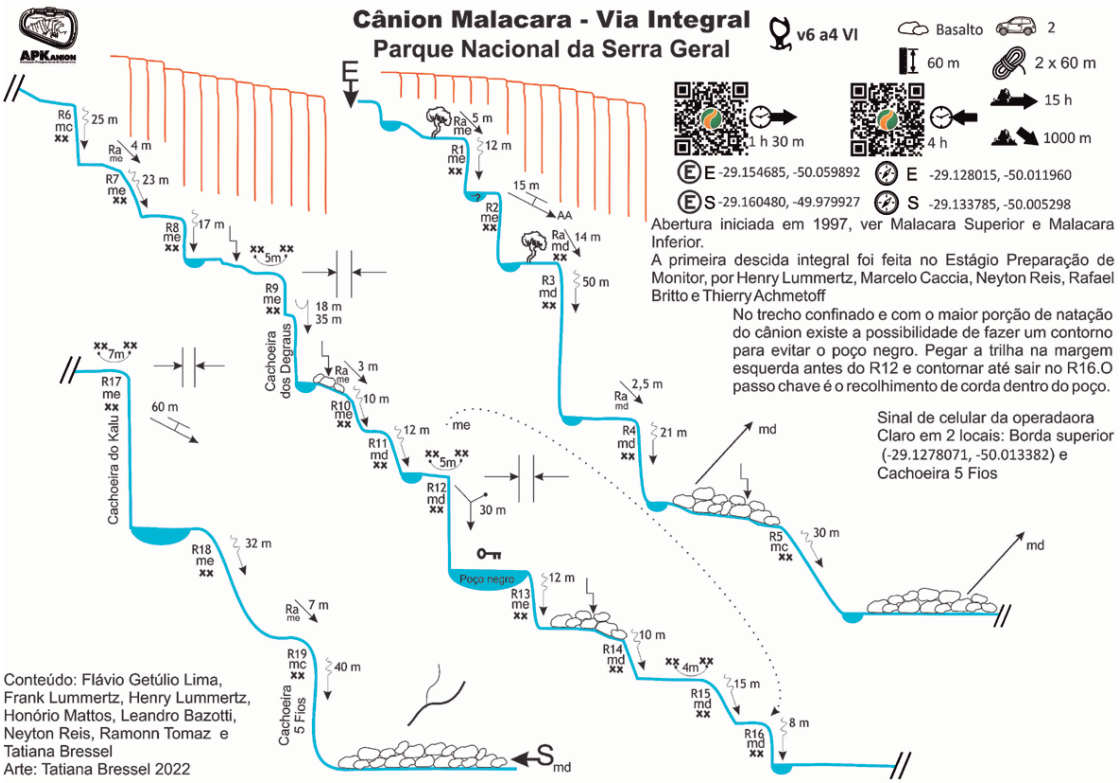
R19
mc
xx

40 m

Cachoeira
5 Fios

S_{md}

Fotos: Ramonn Tomaz
Arte: Tatiana Bressel



Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Henry Lummertz, Honório Mattos, Leandro Bazotti, Neyton Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

MALACARA
VIA DA CASCAVEL

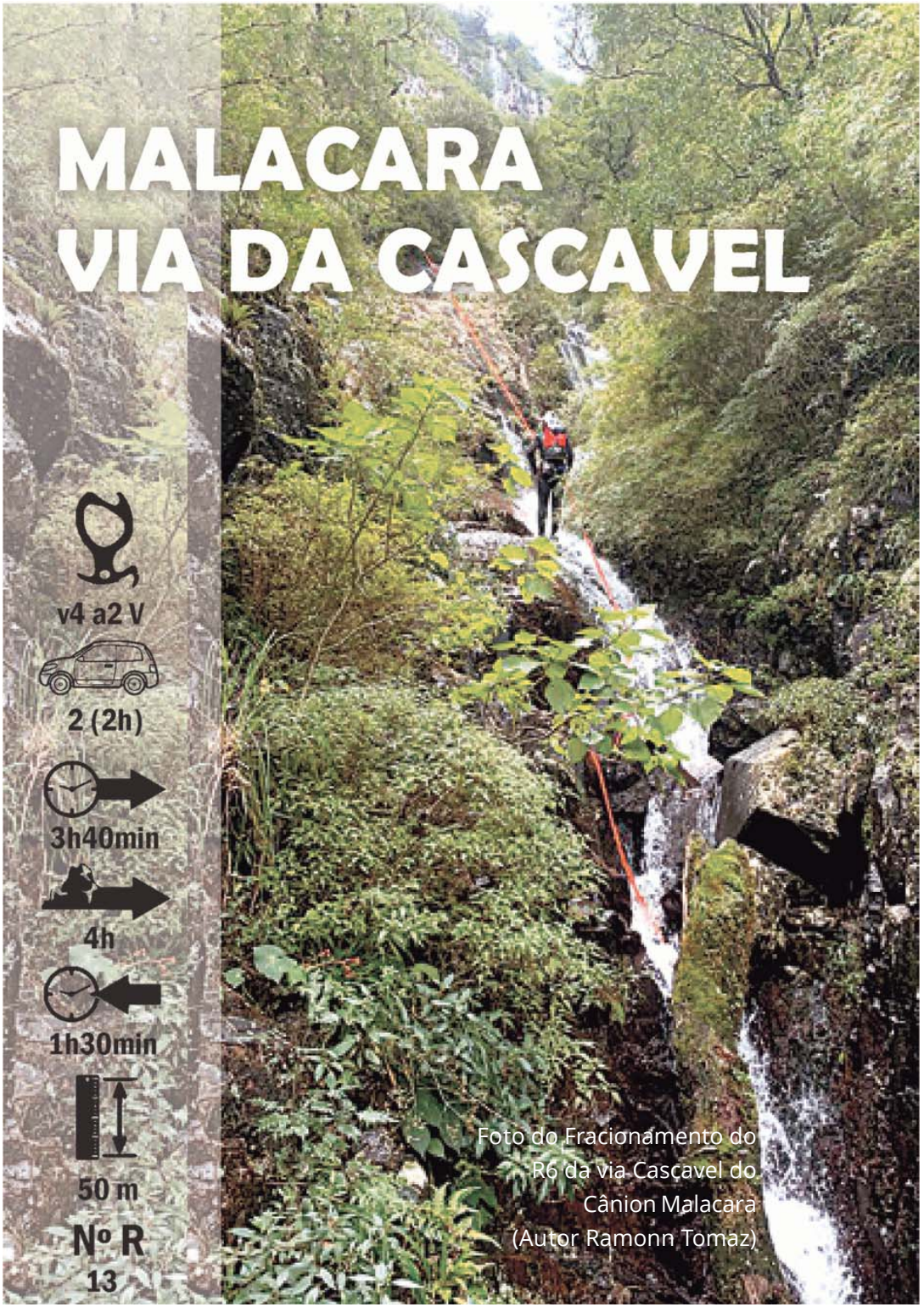


Foto do Fracionamento do R6 da via Cascavel do Cânion Malacara (Autor Ramonn Tomaz)

Malacara Canyon via Cascavel

Car access time and logistics

Malacara via Cascavel - leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon, to leave one of the cars in the parking lot located at coordinates **UTM -29.160480, -49.979927.** This parking spot is located on private property, which charges a fixed amount per parked car. From this point, climb the faxinal mountain range (SC-290), towards the city of Cambará do Sul in Rio Grande do Sul. On the right side of the road, opposite the entrance to the headquarters of the Aparados da Serra National Park, is the beginning of the access trail to the Malacara canyon (**UTM -29.154685, -50.059892**). The estimated time of this journey and logistics by car is 2 hours.

Geographical Coordinates Parking access to Malacara Canyon Via Cascavel

Datum WGS84 **UTM Coordinates**

CÂNION	ENTRADA	SAÍDA
Malacara via Cascavel	-29.154685 -50.059892	-29.160480 -49.979927

Access Trail

Access to Malacara via Cascavel is a walk of about three hours and 40 minutes through Campos de Cima da Serra. Leaving the parking spot to access Malacara, walk along the farm road, following the trail marked on Wikiloc present in the topo - about 20 minutes of walking until you pass the farm. Half an hour after the start of the walk, you will begin a path with ups and downs. After an hour and fifteen minutes of walking, turn right (**UTM - 29.130507, -50.017268**) and walk for another 5 minutes until reaching the end of the upper/integral Malacara trail (**UTM - 29.128545, -50.014214),** at the apex of the canyon. Pass by the Malacara viewpoint and follow the trail indicated in the topo of the route, bypassing the Malacara canyon until you reach the north wall, at the starting point of the canyoning route (**UTM - 29.13565, -49.985644).**

In the upper part of the canyon, close to its edge, at the point (**UTM -29.1278071, -50.013382)** there is a cell signal from the Claro operator.

Geographical Coordinates Entrances and Exits of the Malacara Canyon via Cascavel

Datum WGS84 UTM Coordinates

CANYON	ENTRY	EXIT
Malacara via Cascavel	-29.135650, -49.985644	-29.147544, -49.992341

Conquest in 2002 by Carlos Alberto Réus (Kaloca) and Flávio Getúlio Lima. Re-recording in August 2022, by Carlos Alberto Réus (Kaloca), Flávio Getúlio Lima, Lucas dal Pont and Ramonn Tomaz.

Photo above the R3 of via Cascavel (Author RamonnTomaz).

The Malacara via Cascavel is a canyoning that occurs on the northern wall of the Malacara canyon. It comprises a well-placed sequence of 13 rappels with a rappel immediately following the previous one. The biggest one is a fractional rappel of 50 + 35 meters. This canyoning route takes about 4 hours to complete. The rappels and de-escalations envision an exuberant scenery. After the last rappel, the return trail to the main river takes about 45 minutes. From this point to the car, it takes another 40 minutes to reach the parking lot at the exit, totaling about 1 hour and 30 minutes of walking.

Photo of the R3 of Via Cascavel, with 50 meters, in the Malacara Canyon (Author Ramonn Tomaz)

E

Ra 2 m
me
xx
R1
me
xx
25 m
R2
md
xx
50 m
Ra 5 m
md
xx
R3
md
xx
50 m
R4
md
xx
15 m
md
xx
30 m
R5
md
xx
15 m
md
xx
25 m

Ra 6 m
me
xx
R6
md
xx
50 m
md
xx
35 m
R7
md
xx
13 m
R8
md
xx
8 m
R9
md
xx
14 m
R10
mc
xx
8 m

Ra 4 m
mc
xx
R11
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R12
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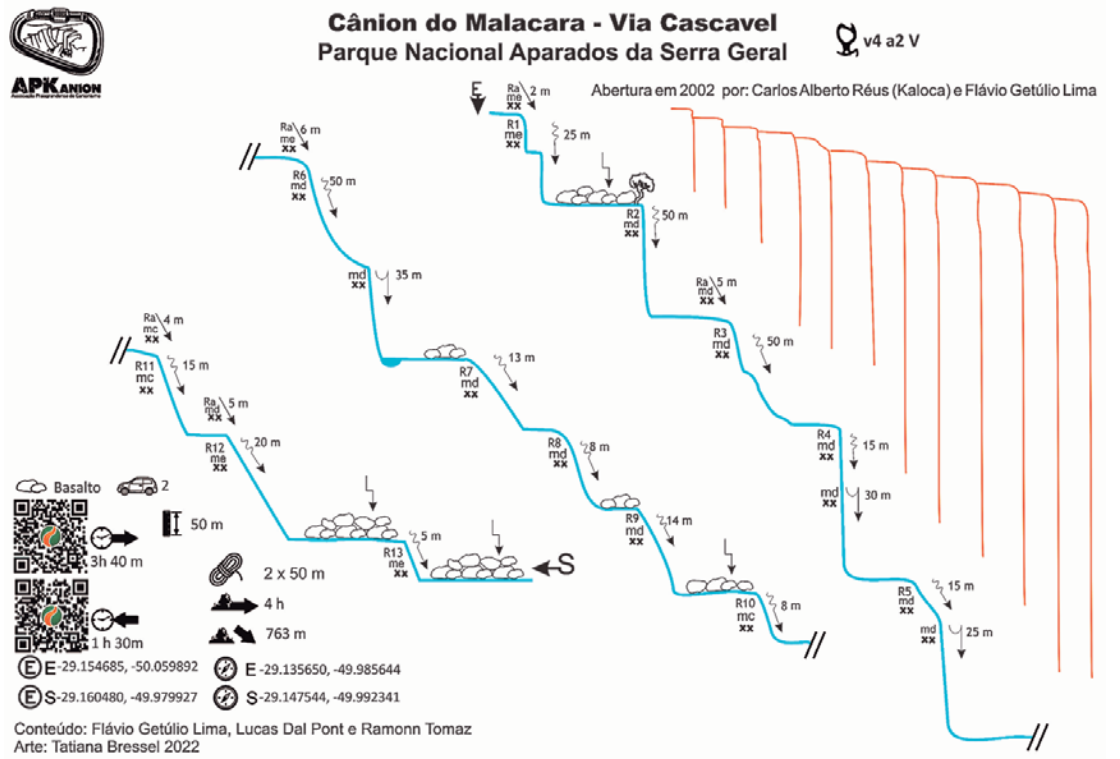
xx
20 m
R13
me
xx
5 m
S



Conteúdo: Flávio Getúlio Lima, Lucas Dal Pont e Ramonn Tomaz
Arte: Tatiana Bressel 2022

Photo Cânion dos Índios Coroados
(Collection of the Praia Grande Tourism Office)

Índios Coroados Canyon

The **Índios Coroados** canyon is another icon of the region. A beautiful canyon located at the end of Serra do Faxinal. It is approximately 1.5 km long and 700 meters deep, and is considered one of the giants of Aparados da Serra. The classic canyoneering route through the main entrance, the South route, was carried out during the Franco-Brazilian expedition in 1998 by members of ACASERGE in partnership with members of the French Speleology Federation. The canyoning activity in the Índios Coroados canyon, in the classification in degree of difficulty, is considered very difficult, demanding from the practitioner high technical knowledge, physical, mental and emotional conditioning. It has an average duration of 8-12 hours for its full realization.

There are two canyoning routes allowed by the Serra Geral National Park, ICMBio: **Via Sul** and **Via Rolador**.

Curiosity: the name of Índios Coroados is an allusion to the Indians who inhabited the upper plateau. When the settlers arrived in the region, they noticed that the circular haircut of these Indians resembled a crown and started to call them crowned Indians.

Entrance Vértice da Cascata

First descent through the water November 2, 1998: Átila Portal, Henry Lummertz and Rafael Britto.

Main entrance or via South

Conquest on November 28, 1998: Henry Lummertz, João Paulo Lucena, Neyton Reis, Rafael Britto, Pascal Badin (France) and Patrick Gimat (France).

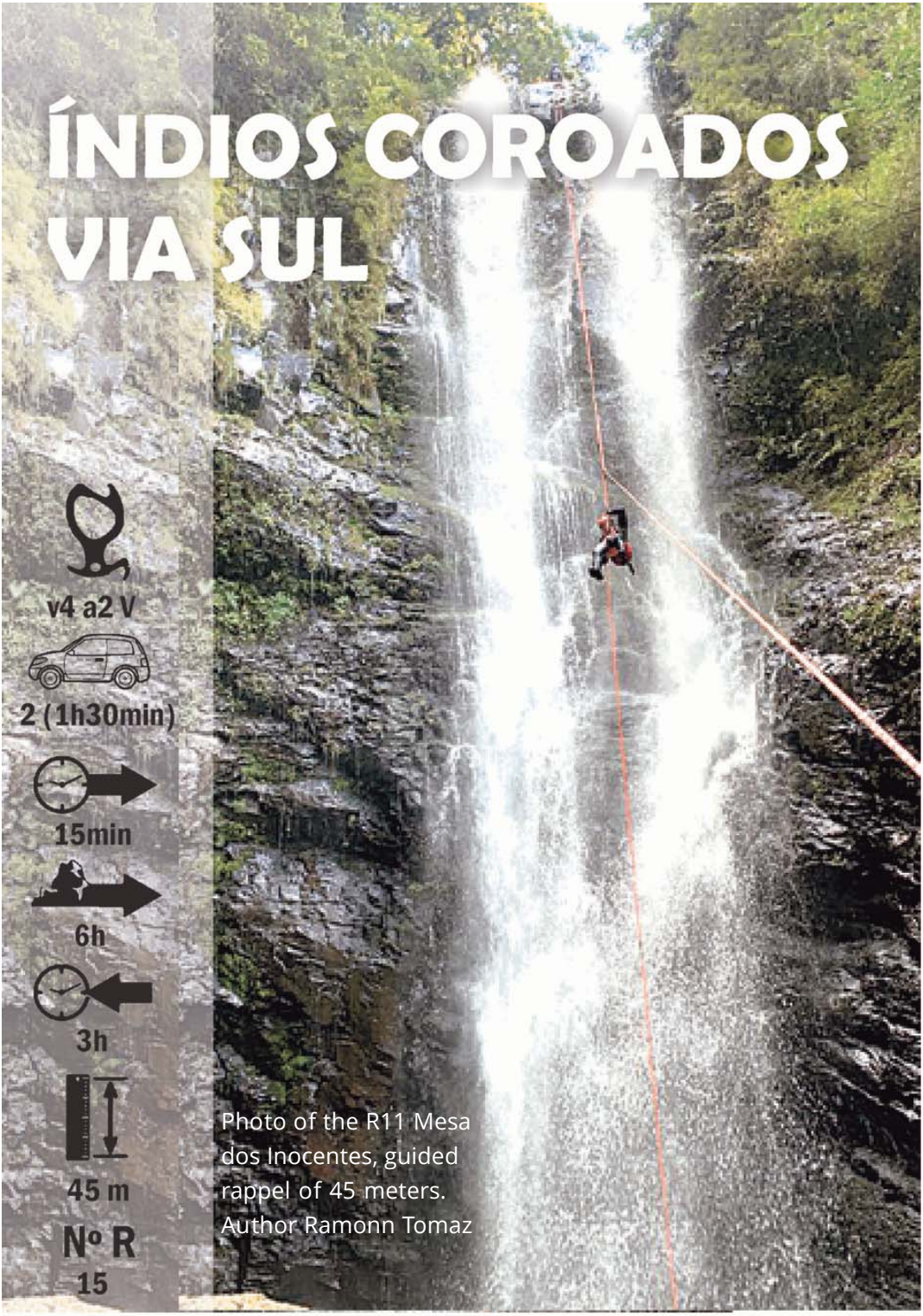
Re-stapling in March 2022 during the APKanion stapling workshop: Rafael Britto, Ramonn Tomaz, Henry Lummertz, Vitor Viana, Michel Pereira, Eliton Ferreira, Rafael Bianchini and Jhocelyto Coelho.

Via Rolador

Conquest in 2008: Carlos Alberto Réus (Kaloca), Geovani Aguiar and Bastian Gimat (France)

Re-stapling in July 2022 by Carlos Alberto Réus (Kaloca), Flavio Getúlio, Lucas dal Pont, Ramonn Tomaz and Vitor Viana.

ÍNDIOS COROADOS VIA SUL



v4 a2 V

2 (1h30min)

15min

6h

3h

45 m

Nº R 15

Photo of the R11 Mesa dos Inocentes, guided rappel of 45 meters. Author Ramonn Tomaz

Car access time and logistics

Índios Coroados via Sul: leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon to leave one of the cars in the parking lot located at the coordinates (**UTM -29.170610, -49.981533**). From this point, climb the faxinal highland (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. Right after the ascent, next to the old ICM post, on the right side of the road will be the parking point located at the coordinates **(UTM -29.174100, -50.032371**) and the beginning of the access walk to the Canyon of the South and Rolador Indians. The estimated time of this journey by car is 1 hour and 30 minutes.

Geographical Coordinates Parking access to Índios Coroados via Sul

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Índios Coroados Via Sul	-29.174100 -50.032371	-29.170610 -49.981533

Access trail

To access Via Sul, the walk takes about 10 minutes through Campos de Cima da Serra until entering the cloud forest at coordinates **UTM -29.171892, -50.026571**. Walk in the woods until you reach the starting point (**UTM -29.172074, -50.029783**) which is a de-escalation until you reach two flaps on the right bank for an access handrail to the first rappel (right bank) with 22 meters reaching a well.

Geographical Coordinates Entrances and Exits of the Índios Coroados via Sul

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Índios Coroados Via Sul	-29.172074, -50.029783	-29.170167 -49.994148

Photo of the R11 Mesa dos Inocentes,
45-meter guided rappel (Author Rafael Britto)

Main entrance or via South – Conquest on November 28, 1998: Henry Lummertz, João Paulo Lucena, Neyton Reis, Rafael Britto, Pascal Badin (France) and Patrick Gimat (France).

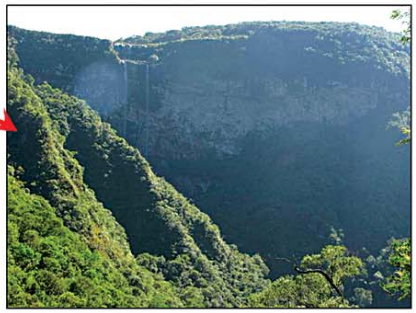
Re-stapling in March 2022 during the APKanion stapling workshop: Rafael Britto, Ramonn Tomaz, Henry Lummertz, Vitor Viana, Michel Pereira, Eliton Ferreira, Rafael Bianchini and Jhocelyto Coelho.

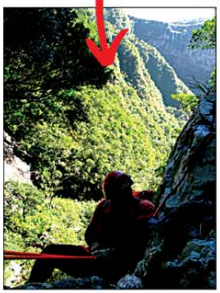
The **Via Sul** comprises a sequence of 15 abseiling, the longest abseiling being a 45 meter guided: R11, at Mesa dos Inocentes. Inside this canyon, on the R6, there is a cell phone signal from the operator TIM. On this route, there are confined stretches, swimming stretches and technical abseiling with the presence of guided abseiling.

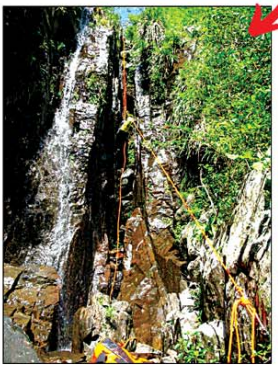
The average progression time of this canyon is 6 hours and the return time to the car is about 3 hours. Canyon of incomparable scenic beauty. The first part of the **Via Sul** is carried out overlooking the waterfalls of the North tributary of the Cânion dos Índios Coroados. In the most confined part of the canyon, there is the possibility of making a detour, however delicate, with exposed passages, to avoid the confined part. Take the trail on the right bank, before the R6 and go around the chute until you exit at the R9.

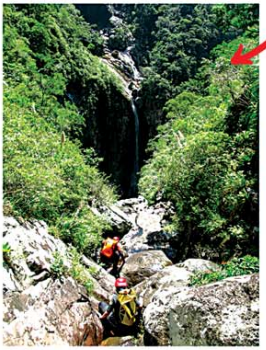
Photo on the R6 overlooking the northern tributary of the Crowned Indians (Author RamonnTomaz)

From the end of the R15, it is a 5-minute walk to the exit for the trail on the right bank of the river. The return journey to the car takes about 3 hours of walking.









Fotos: Rafael Britto e Ramonn Tomaz
Arte: Tatiana Bressel

15 minutos de caminhada/ desescalada até o R10.

R10
md
xx

10 m

15 min

Ra
md
xx

7 m

R11
mc
xx

45 m

md
xx

Mesa dos Inocentes

R12
md
xx

15 m

R13
me
xx

11 m

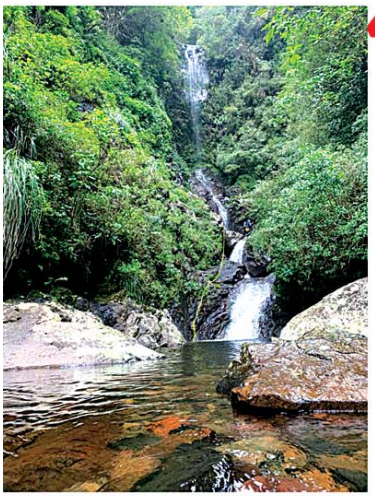
R14
me
xx

10 m

R15
mc

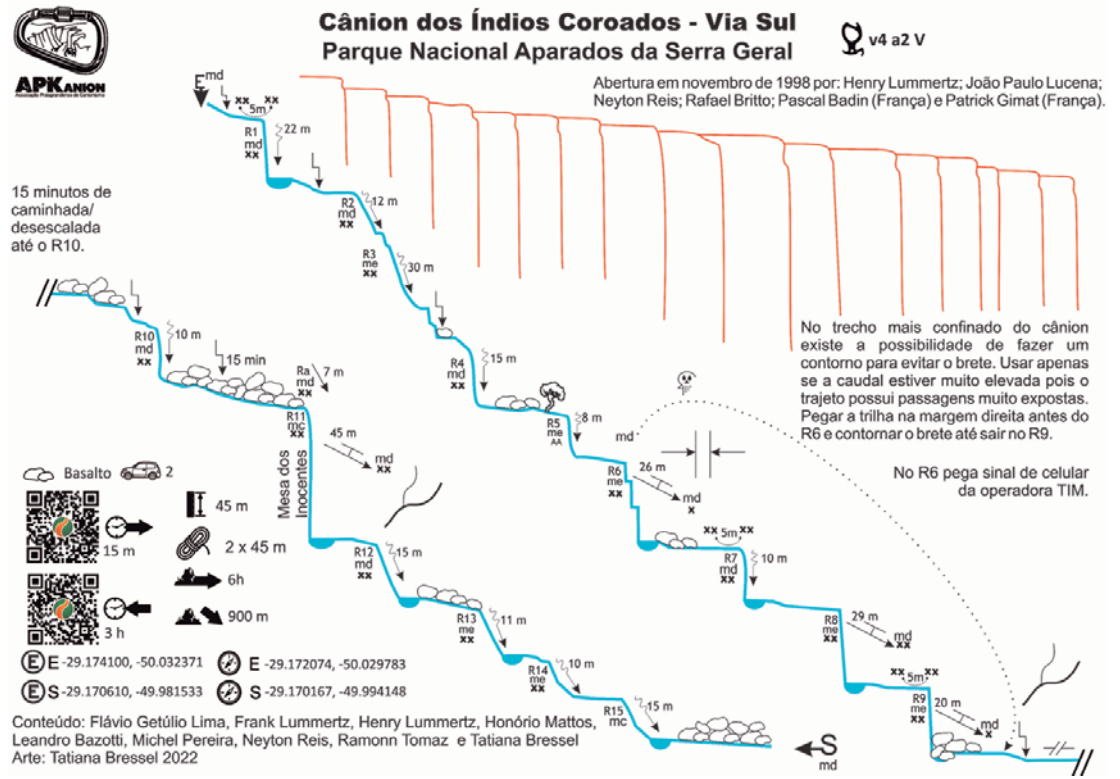
15 m

S
md



Fotos: Rafael Britto e Ramonn Tomaz

Arte: Tatiana Bressel


Cânion dos Índios Coroados - Via Sul
Parque Nacional Aparados da Serra Geral
v4 a2 V
APK Canion
Abertura em novembro de 1998 por: Henry Lummertz; João Paulo Lucena; Neyton Reis; Rafael Britto; Pascal Badin (França) e Patrick Gimat (França).
15 minutos de caminhada/ desescalada até o R10.
No trecho mais confinado do cânion existe a possibilidade de fazer um contorno para evitar o brete. Usar apenas se a caudal estiver muito elevada pois o trajeto possui passagens muito expostas. Pegar a trilha na margem direita antes do R6 e contornar o brete até sair no R9.
No R6 pega sinal de celular da operadora TIM.
Mesa dos Inocentes
Basalto
2
15 m
3 h
45 m
2 x 45 m
6h
900 m
E -29.174100, -50.032371
S -29.170610, -49.981533
E -29.172074, -50.029783
S -29.170167, -49.994148
Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Henry Lummertz, Honório Mattos, Leandro Bazotti, Michel Pereira, Neyton Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

ÍNDIOS COROADOS VIA ROLADOR

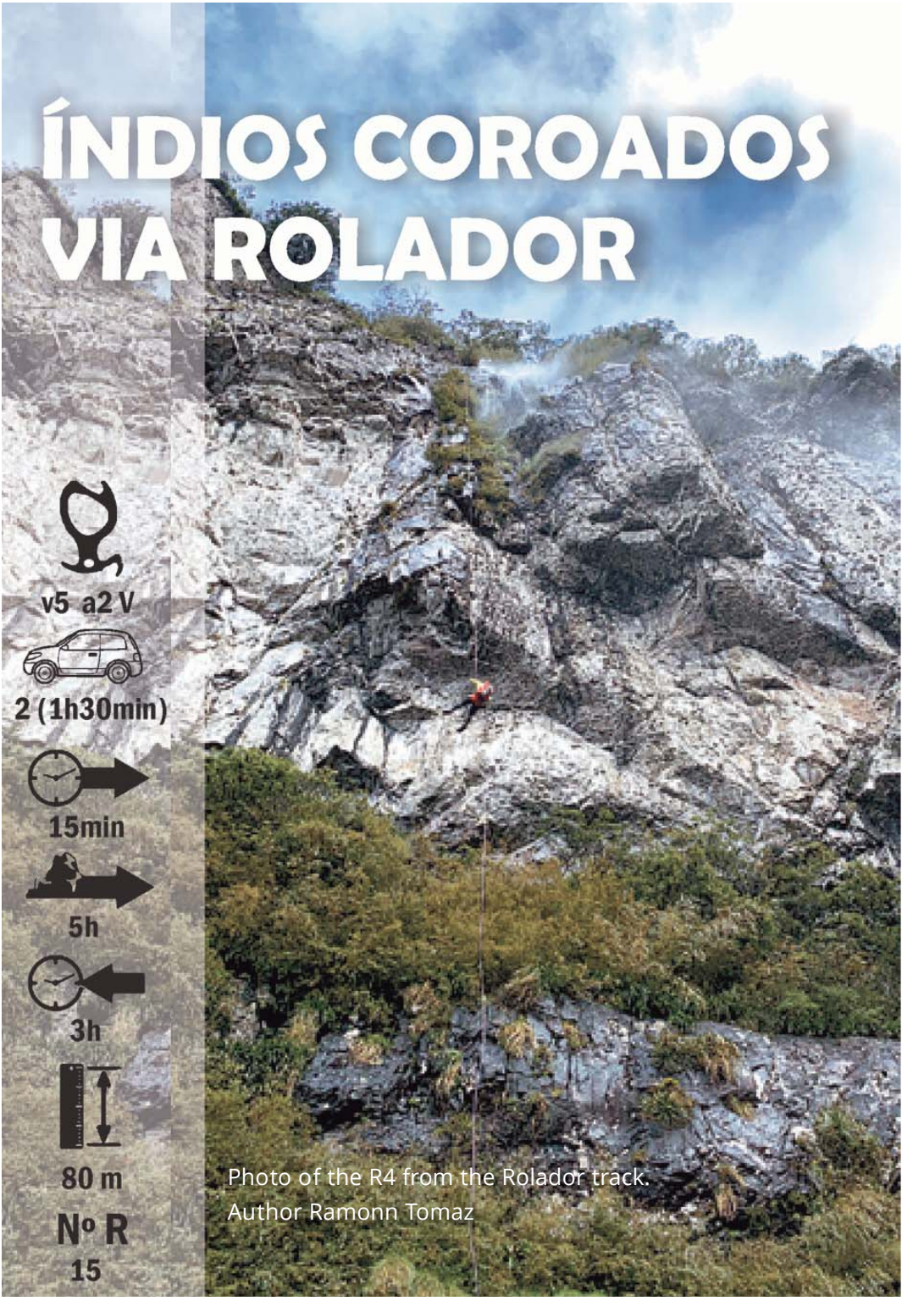


Photo of the R4 from the Rolador track.
Author Ramonn Tomaz

Car access time and logistics

Índios Coroados via Rolador: leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon to leave one of the cars in the parking lot located at the coordinates (**UTM -29.170610, -49.981533**). From this point, climb the faxinal highland (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. Right after the ascent, on the right side of the road will be the parking point located at the coordinates **(UTM -29.174100, -50.032371**) and the beginning of the access walk to the Canyon of the South and Rolador Indians. The estimated time of this journey by car is 1 hour and 30 minutes.

Geographical Coordinates Parking access to Índios Coroados via Rolador

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Índios Coroados Via Rolador	-29.174100 -50.032371	-29.170610 -49.981533

Access trail

To access **Via Rolador**, the walk takes about 15 minutes through Campos de Cima da Serra, from the same parking spot as access to Via Sul do Cânion dos Índios Coroados. Follow the marked Wikloc trail (QR-CODE present in the sketch of the road), until you reach the anchorage (**UTM -29.173668, -50.024006**) of the first abseil, located on the left bank, 5 meters high.

Geographical Coordinates Entrances and Exits of the Índios Coroados via Rolador

Datum WGS84 **UTM Coordinates**

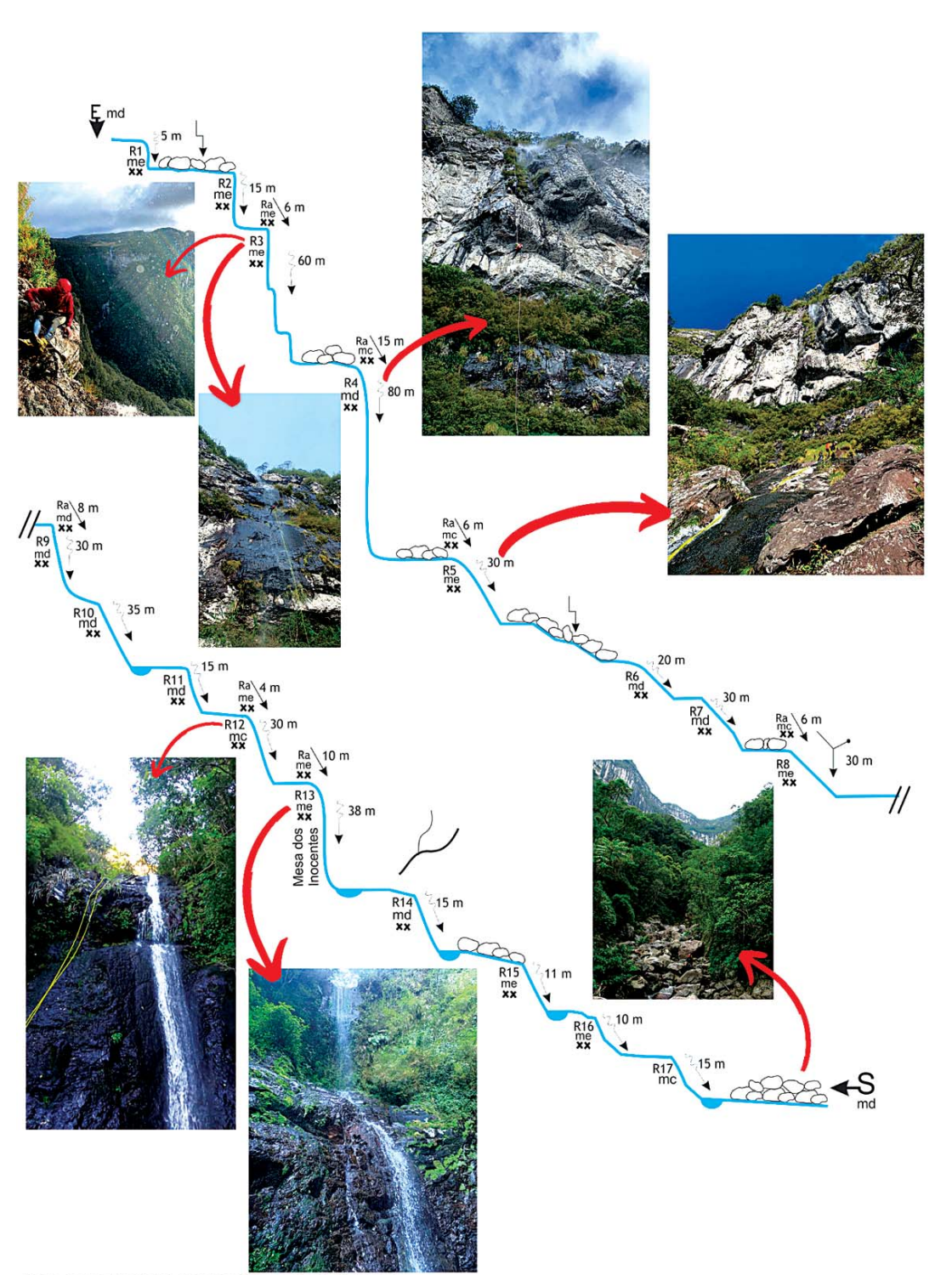
CANYON	ENTRY	EXIT
Índios Coroados Via Rolador	-29.173668, -50.024006	-29.169916, -50.015232

Índios Coroados - Via Rolador

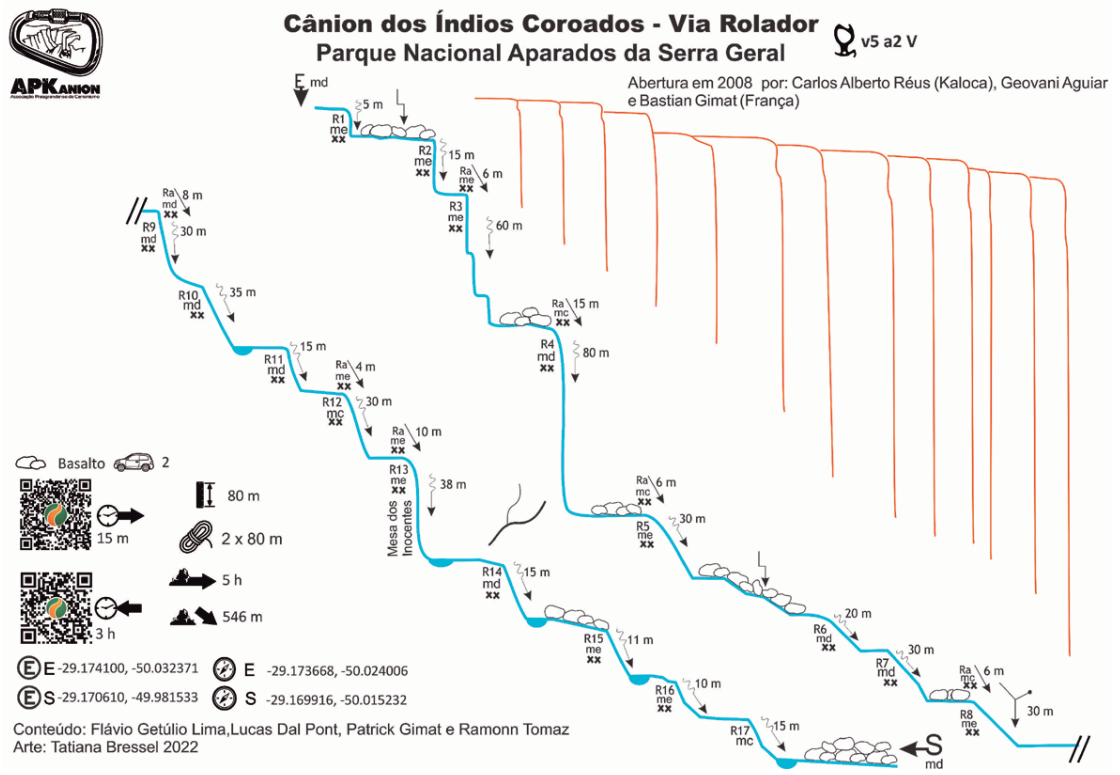
Achievements in 2008: Carlos Alberto Réus (Kaloca), Geovani Aguiar and Bastian Gimat (France)
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca), Flavio Getúlio, Lucas dal Pont, Ramonn Tomaz and Vitor Viana.

It is one of the most beautiful canyons in the region. The average progression time of this canyon is 5 hours and the return time to the car is about three hours. Canyon of incomparable scenic beauty. The first part of the route is carried out overlooking the waterfalls of the North tributary of the Índios Coroados Canyon. With a total of 17 abseiling, the 4th abseiling is the largest, with 80 m high. In this route, there is the presence of diverted abseiling, stretches of walks in blocks with de-escalations. On the 13th rappel, the route meets the Southern route of the Índios Coroados, inside the Mesa dos Inocentes. The sequence of the last 4 rappels is the same as for the South route. From the end of the R17, it is a 5-minute walk to the exit for the trail on the right bank of the river. The return journey to the car takes about 3 hours of walking.

Photo on the R3 of Via do Rolador, with the view of the northern arm of the Índios Coroados Canyon. Author Ramonn Tomaz.



Fotos: Lucas dal Pont, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel


Cânion dos Índios Coroados - Via Rolador
Parque Nacional Aparados da Serra Geral
v5 a2 V
APK Canion
Abertura em 2008 por: Carlos Alberto Réus (Kaloca), Geovani Aguiar e Bastian Gimat (França)
E md
R1 me xx
5 m
R2 me xx
15 m
Ra me xx
6 m
R3 me xx
60 m
Ra mc xx
15 m
R4 md xx
80 m
Ra mc xx
6 m
R5 me xx
30 m
R6 md xx
20 m
R7 md xx
30 m
Ra mc xx
6 m
30 m
R8 me xx
S md
R9 md xx
Ra md xx
8 m
30 m
R10 md xx
35 m
R11 md xx
15 m
Ra me xx
4 m
R12 mc xx
30 m
Ra me xx
10 m
R13 me xx
38 m
Mesa dos Inocentes
R14 md xx
15 m
R15 me xx
11 m
R16 me xx
10 m
R17 mc
15 m
Basalto
2
80 m
2 x 80 m
5 h
546 m
15 m
3 h
E -29.174100, -50.032371
S -29.170610, -49.981533
E -29.173668, -50.024006
S -29.169916, -50.015232
Conteúdo: Flávio Getúlio Lima,Lucas Dal Pont, Patrick Gimat e Ramonn Tomaz
Arte: Tatiana Bressel 2022

RAVINA DOS AMIGOS

v4 a1 IV

2 (1h30min)

20min

8h

30min

40 m

Nº R
13

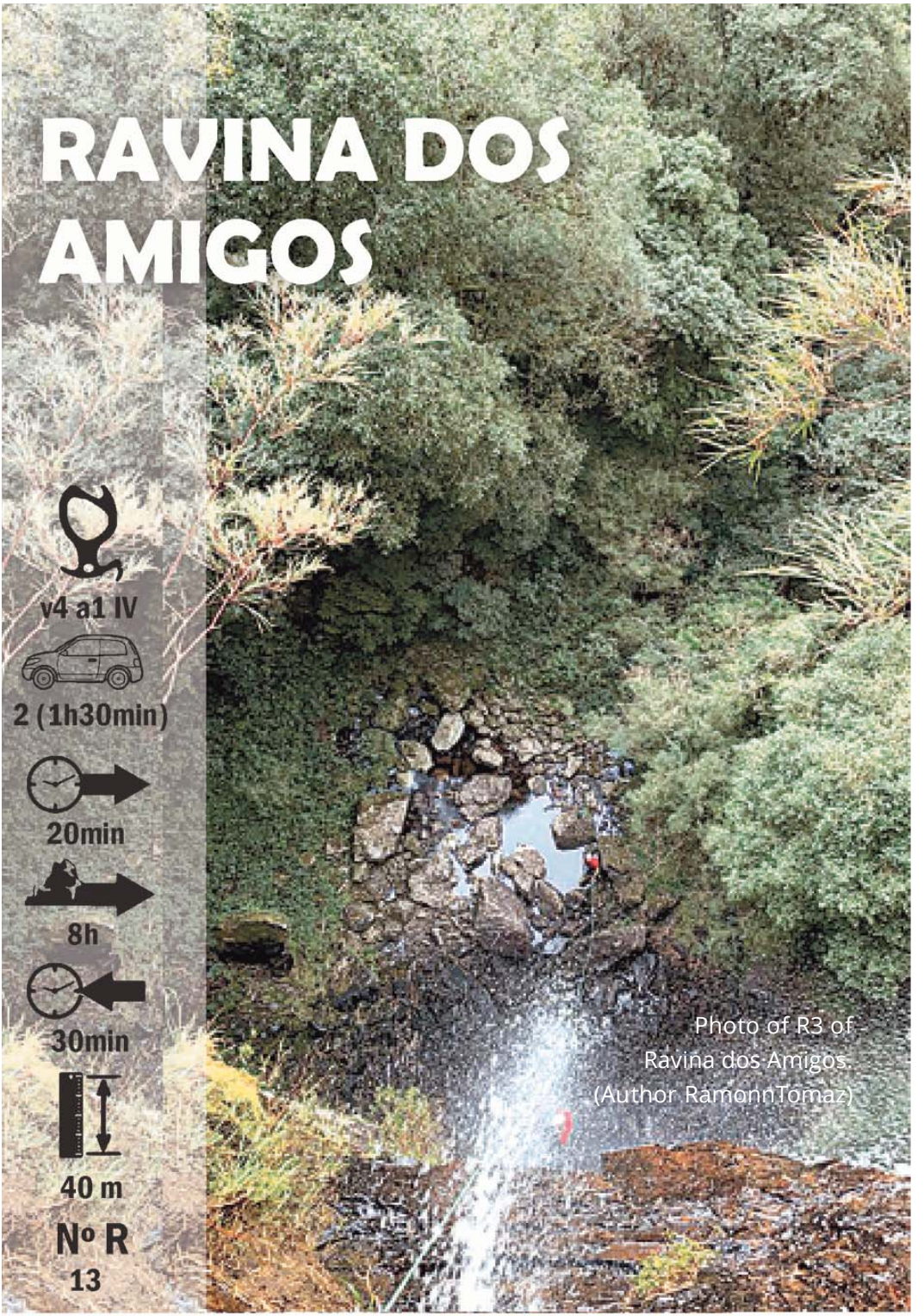


Photo of R3 of Ravina dos Amigos. (Author: RamonnTomaz)

Car access time and logistics

Ravina dos Amigos (Friends Ravine): leaving the central square of Praia Grande, head towards Vila Rosa, at the exit of the canyon to leave one of the cars in the parking lot located at the coordinates (**UTM -29.170610, -49.981533**). From this point, climb the faxinal highland (SC-290) towards the city of Cambará do Sul in Rio Grande do Sul. Right after the ascent, next to the old ICM post, on the right side of the road will be the parking point located at the coordinates **(UTM -29.174100, -50.032371**) and the beginning of the access walk to the Friends Ravine. The estimated time of this journey by car is 1 hour and 30 minutes.

Geographical Coordinates Parking access to Ravina dos Amigos

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Ravina dos Amigos	-29.174100 -50.032371	-29.170610 -49.981533

Access trail

With a light walk of approximately 20 minutes, you can access this canyoning route of Ravina dos Amigos, from the same parking spot as access to the Cânion dos Índios Coroados. Displacement.

Geographical Coordinates Entrances and Exits of the Ravina dos Amigos

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Ravina dos Amigos	-29.175960, -50.020465	-29.170973, -49.981821

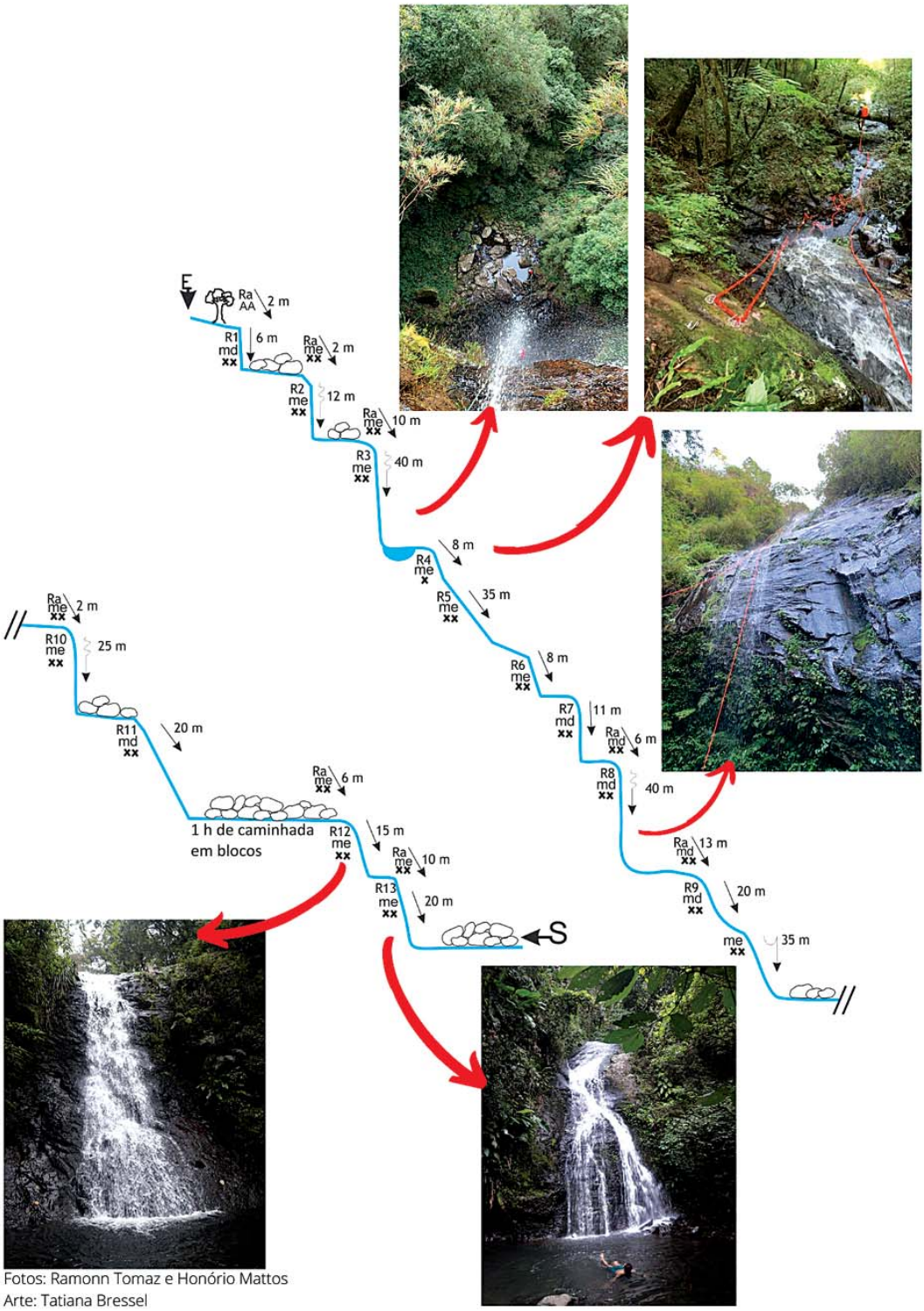
Ravina dos Amigos

Conquest November 19, 1999: João Paulo Lucena, Mauro Cesar, Marcelo Cassia, Fabricio, Neyton Reis and Patrick Gimat (France).

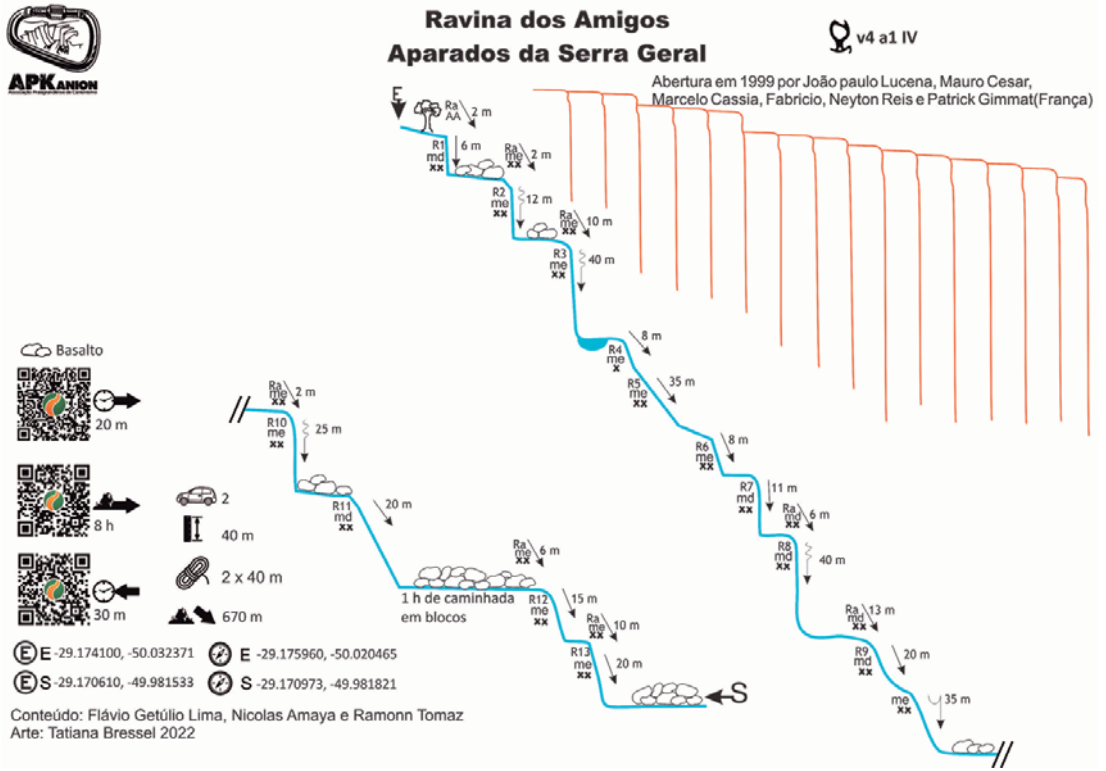
Re-recording in May 2022, Flavio Geúlio, RamonnTomaz and VitorViana.

The **friends ravine** was opened during the preparation course for FFS Monitors in 1999. It is a ravine with little water, lush vegetation and good verticals. In the final portion, there is a route of about 1 hour of walking in blocks, between the R11 and R12. Easy access ravine, with 13 rappels and lots of vegetation. This vegetation prevents the sun from entering the ravine, making the rock a little more slippery in view of the humidity.

Photo of the R12 from Friends Ravine (Author Honório Mattos)



Fotos: Ramonn Tomaz e Honório Mattos
Arte: Tatiana Bressel


Ravina dos Amigos
Aparados da Serra Geral
v4 a1 IV
Abertura em 1999 por João paulo Lucena, Mauro Cesar, Marcelo Cassia, Fabricio, Neyton Reis e Patrick Gimmat(França)
APK ANION
Basalto
20 m
8 h
30 m
2
40 m
2 x 40 m
670 m
1 h de caminhada em blocos
E -29.174100, -50.032371
S -29.170610, -49.981533
E -29.175960, -50.020465
S -29.170973, -49.981821
Conteúdo: Flávio Getúlio Lima, Nicolas Amaya e Ramonn Tomaz
Arte: Tatiana Bressel 2022

Fortaleza Canyon

To access the Fortaleza Canyon, leave the city of Praia Grande, in SC, go up the faxinal highland (SC-290) until reaching the city of Cambará do Sul, observing the signs to the Fortaleza Canyon. The parking place at the exit of the Fortaleza canyon is in Jacinto Machado, the suggestion is to arrange a rescue.

Fortaleza Canyon

Conquered on November 3 and 4, 2001 by Henry Lummertz, Neyton Reis, Rafael Britto, Marcelo Rigo, Felipe Falcão, Alberto da Silva, Marcelo Winkler Caccia, Guillaume Baudin, Ludovic Vigier and Sérgio Soares.

This is the largest canyon, which requires the greatest physical effort in the entire region, requiring an overnight stay inside the canyon. Fortaleza canyon is considered one of the most exuberant. It is 7.5 km long, 2,000 meters wide and has an altitude of 1,240 meters above sea level. Its walls resemble walls. The exuberance of the forest environment in its interior gives it a unique scenic aspect of great beauty and an important stronghold for several species of fauna.

The canyoning route, described in the 2004 Management Plan, starts at the apex and ends at the Tigre Preto peak.

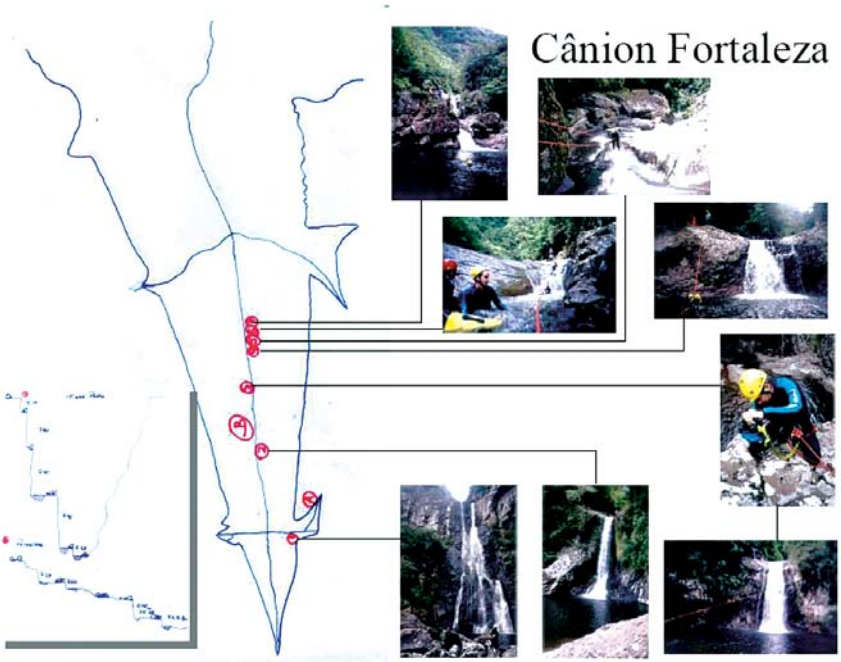


Image provided by ACASERGE detailing the canyoning profile in the Fortaleza canyon, present in the Management Plan of the Aparados da Serra and Serra Geral National Park (IBAMA, 2004).

5. Sector 2

Canyons located in the area surrounding the Aparados da Serra Geral National Parks. Canyons: Café, Silveirão, Kaingang, Iniciantes, Ravina dos Carijós, Cachoeirismo Vista Alegre/ Carrapicho and Átila

Access to the Café Canyon

There are 2 options for canyoning routes in the Café canyon (Full, with 10 abseiling or Lower, with 5 abseiling). To access any of these roads, the route to the canyon exit parking lot is the same. Both the entrance to Café Integral and the entrance to Café Inferior and their respective exits are located on different private properties. Authorization and entrance fees are required to access these properties.

Google Earth image showing the location of the city of Praia Grande, Serra do Faxinal and the parking places to access the Café canyon.

Café Canyon

Conquest in 2002 by Bruno Magnus, Flávio Getúlio and Geovani Aguiar. Re-recording in May 2022 by Flavio Getulio and Ramonn Tomaz.

Curiosity: at the opening, it was named as the sinister route; later, to make it more attractive to tourists, it changed the name to Café, for having one located at the end of the rout, on arrival from the old property.

It is a shorter canyon, very beautiful, with lush forest, easy access and return. Excellent option to do in just one shift. Quite explored by canyonists in the region, including commercially. In its final part there is a sequence of waterfalls in a more confined stretch, in which the difficulty can vary a lot, according to the level of the flow. The biggest rappel is at the end of the canyon and is 35 meters long.

Photos of the R6 of Cânion do Café in different situations, with different volumes of water (First photo Cristiano Bassis; second photo Ramonn Tomaz).

CAFÉ INTEGRAL

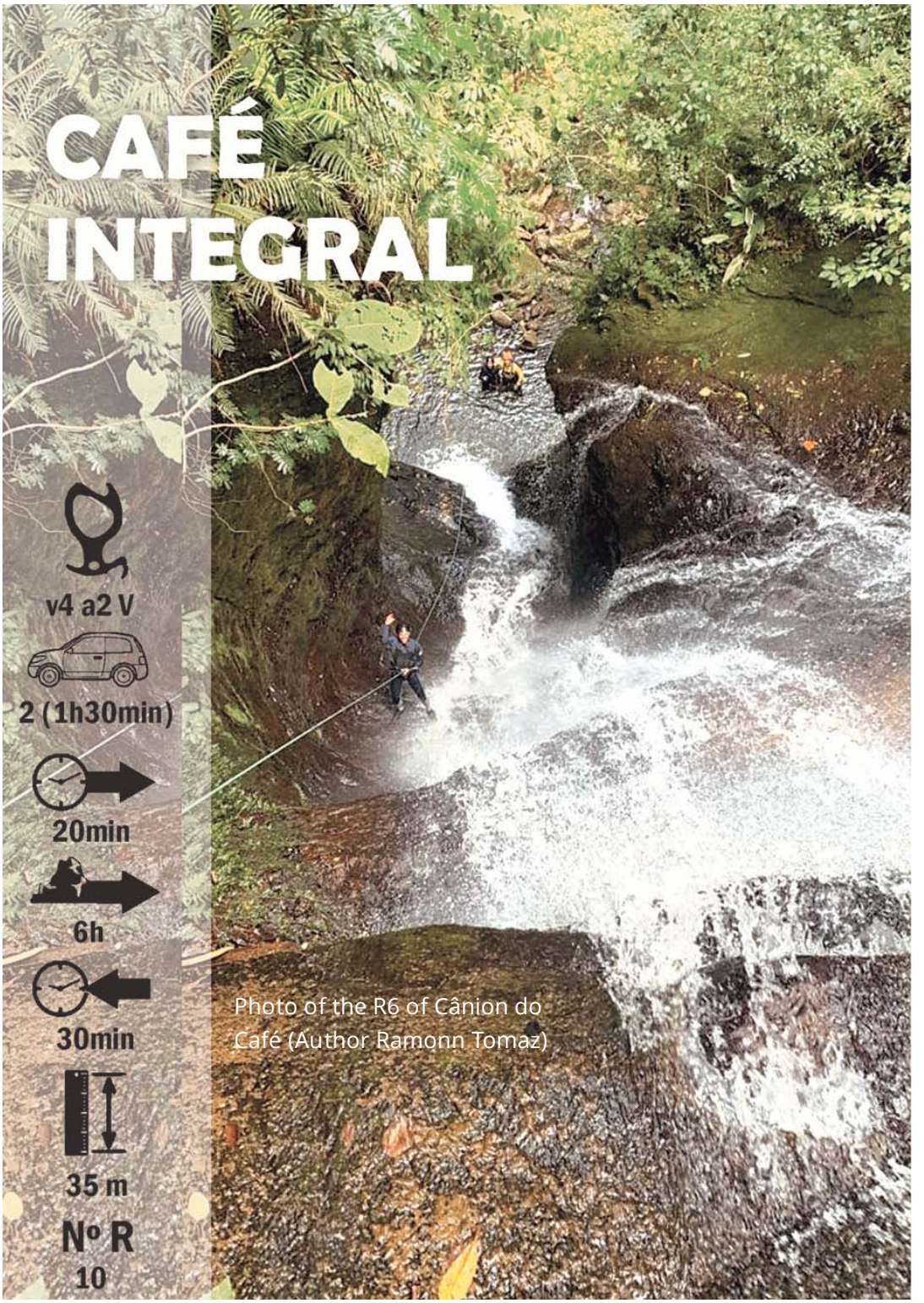


Photo of the R6 of Cânion do Café (Author Ramonn Tomaz)

Car access time and logistics

Café Integral: leaving the central square of Praia Grande, heading towards Serra do Faxinal (SC-290), at the beginning of the climb up the mountain, where there is a curve to the right, take a turn to the left (6km) on the general road of the white stone. After 2.8 km, turn right towards Rio do Boi. Leave one of the cars on the property identified as Cachoeira dos Inácio, located at coordinates (**UTM -29.207357, -50.004038**). Leaving this place, return to the road and climb Serra do Faxinal towards the city of Cambará do Sul in Rio Grande do Sul, for another 1.5 km. Near the middle of the ascent of the Faxinal Mountains, on the left at the point located at the coordinates (**UTM -29.184996, -49.994406**), is the private property Sítio Encosta dos Canyons, where you can access the entrance to the full Café Canyon (10 abseiling). The parking space is inside the property (**UTM -29.188224, -49.995843**). The estimated time for this entire journey by car, from the square, leaving one of the cars parked and arriving at the approach point, is 1 hour and 30 min.

Geographical Coordinates Parking access to Café Integral Canyon

Datum WGS84 **UTM Coordinates**

CÂNION	ENTRADA	SAÍDA
Café Integral	-29.188224 -49.995843	-29.207357 -50.004038

Access trail

Café Integral: from Sítio Encosta dos Canyons, it is a very light walk, following the road inside the property, taking about 20 minutes to reach the river. On the left bank are located the anchors to access the R1 in the following geographic coordinates: **UTM -29.186734, -50.010016.**

Geographical Coordinates Entrances and Exits of the roads of the Canyon of Café Integral

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Café Integral	-29.186734 -50.010016	-29.197465 -50.003278

Café Canyon

Conquest in 2002 by Bruno Magnus, Flávio Getúlio and Geovani Aguiar.
Re-recording in May 2022 by Flavio Getulio and RamonnTomaz.
Curiosity: at the opening, it was named as the sinister route; later, to make it more attractive to tourists, it changed the name to Café.

The canyoning at **Café Integral** is a short route, very beautiful, with lush forest, easy access and return. The sequence of 10 rappels surrounded by Atlantic forest, makes this canyoning route

an excellent option to do in just one turn. Quite explored by canyonists in the region, including commercially. In its final part there is a sequence of waterfalls in a more confined stretch, in which the difficulty can vary greatly, according to the level of flow. The biggest rappel is at the end of the canyon and is 35 meters long. Good option for those who are starting in canyoneering or want something light to relax.

It is quite common to see snakes of the Jararaca species on the access and exit trail of this canyon. Be aware that this species of snake, despite being terrestrial, can be found both on the ground and under vegetation. Be careful where you put your hands and we suggest the use of leg warmers / shin guards for protection. At the exit of this canyon there are also buffaloes, be careful when passing them.

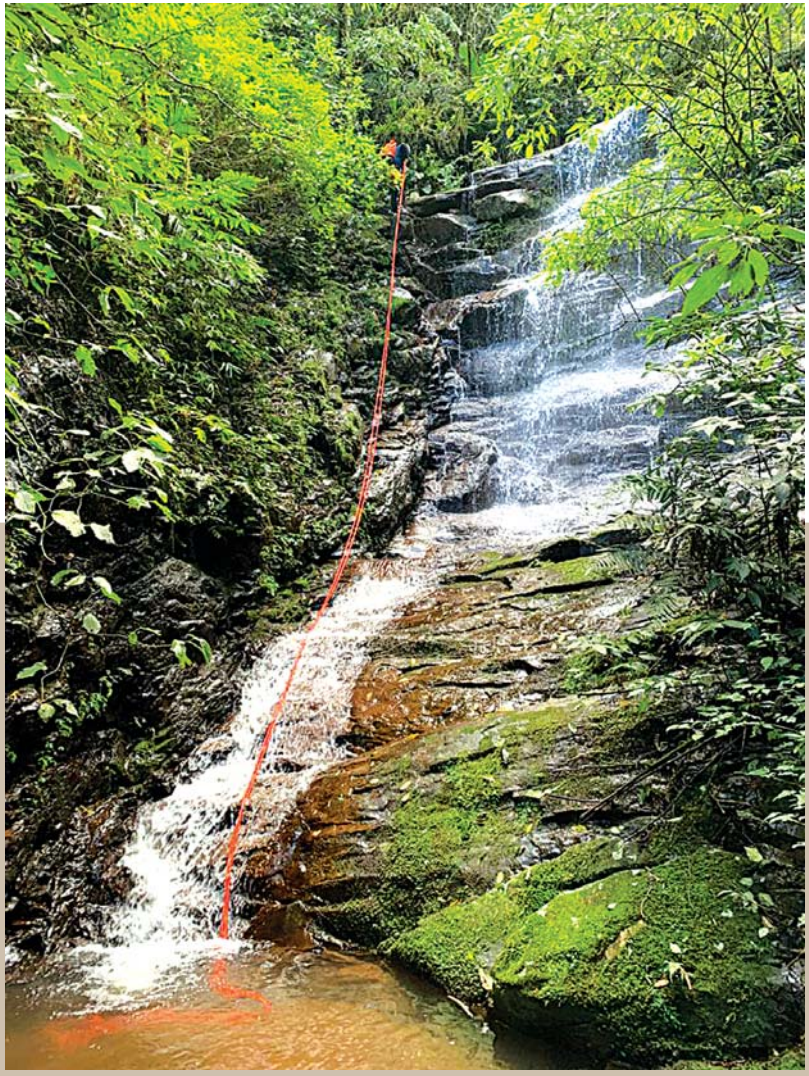


Photo R3 of the Integral Coffee. (Author Ramonn Tomaz)

E

Ra
me
xx

9 m

R1
mc
xx

15 m

R2
me
xx

22 m

Ra
md
AA

R3
md
xx

6m

14 m

Ra
md
xx

R4
mc
xx

10 m

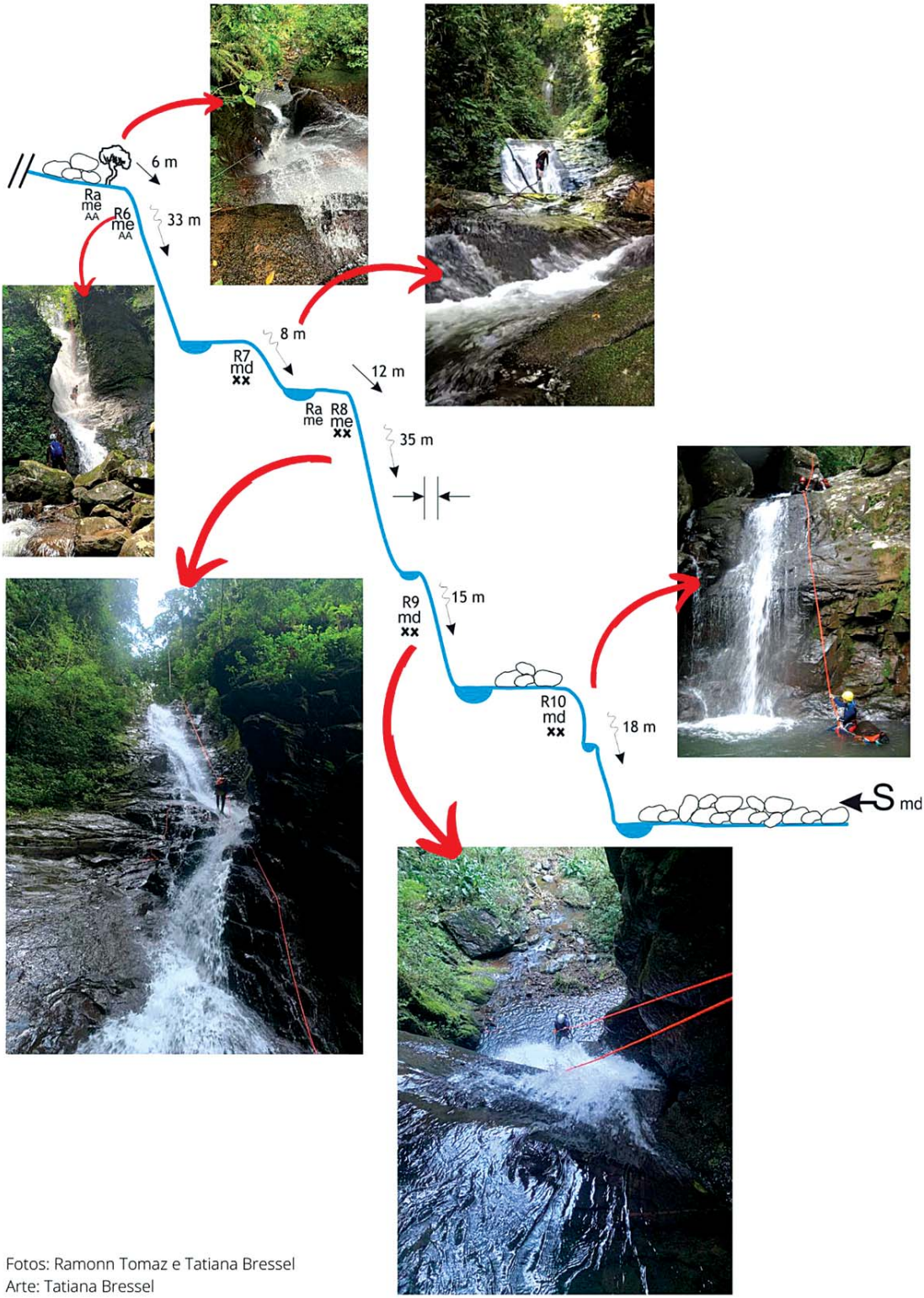
22 m

R5
md
AA

22 m

me

Fotos: Ramonn Tomaz
Arte: Tatiana Bressel



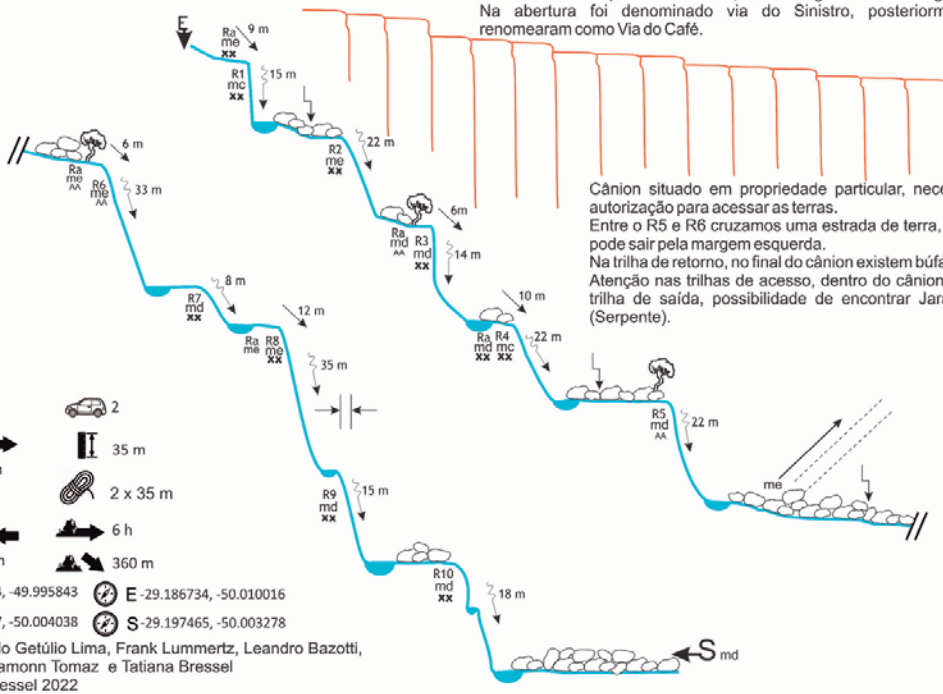
Fotos: Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel

Cânion do Café
Serrado Faxinal

v4 a2 V

Abertura em 2002 por Flávio Getúlio, Geovani Aguiar e Bruno Magnus. Na abertura foi denominado via do Sinistro, posteriormente renomearam como Via do Café.

Cânion situado em propriedade particular, necessita autorização para acessar as terras.
Entre o R5 e R6 cruzamos uma estrada de terra, onde pode sair pela margem esquerda.
Na trilha de retorno, no final do cânion existem búfalos.
Atenção nas trilhas de acesso, dentro do cânion e na trilha de saída, possibilidade de encontrar Jararaca (Serpente).



Basalto

15 m

30 m

2

35 m

2 x 35 m

6 h

360 m

E -29.188224, -49.995843

S -29.207357, -50.004038

E -29.186734, -50.010016

S -29.197465, -50.003278

Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Leandro Bazotti, Neyton Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

CAFÉ INFERIOR

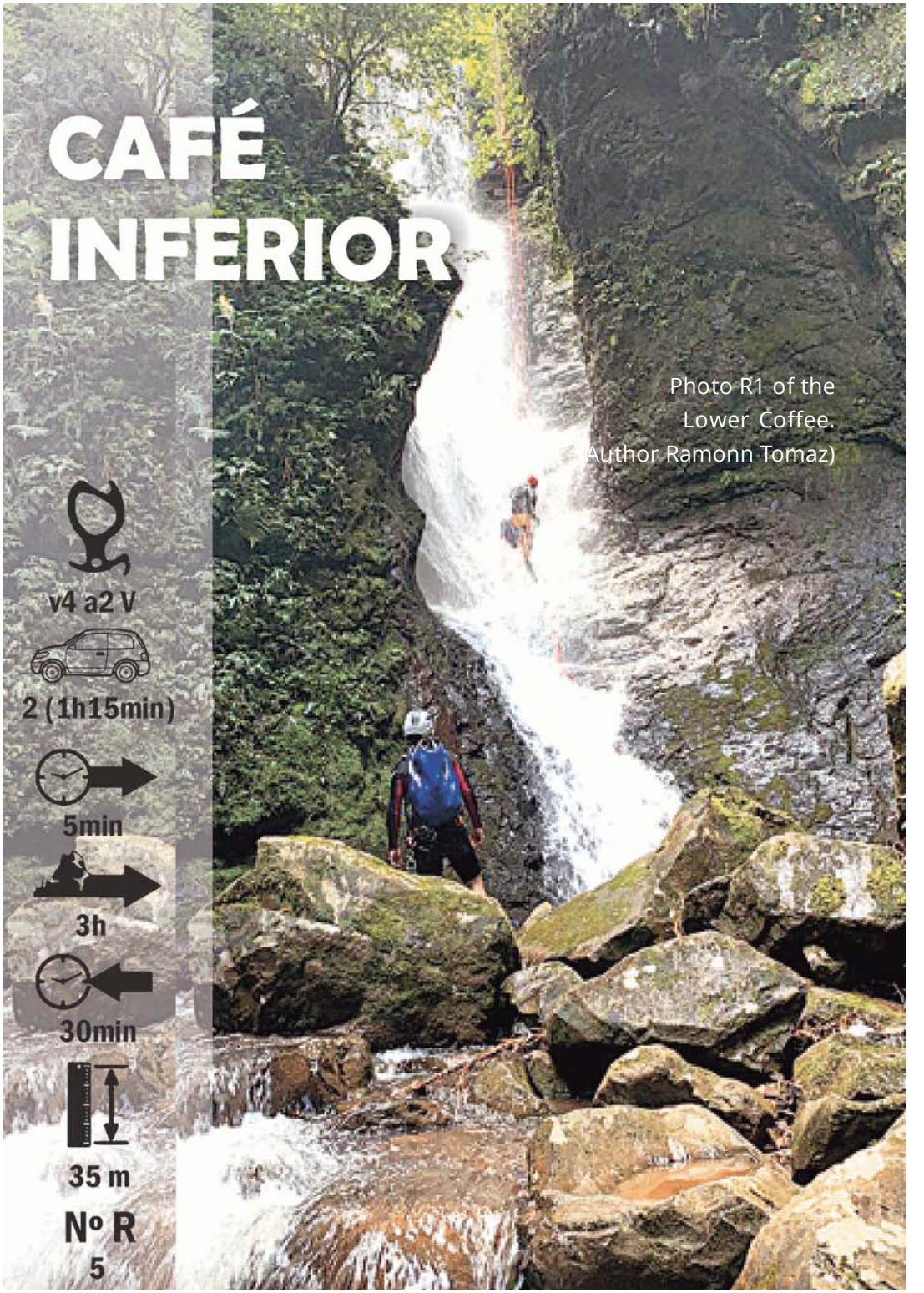


Photo R1 of the Lower Coffee. Author Ramonn Tomaz)

v4 a2 V

2 (1h15min)

5min

3h

30min

35 m

Nº R 5

Car access time and logistics

Café Inferior: leaving the central square of Praia Grande, continue towards Serra do faxinal (SC-290), at the beginning of the climb up the mountain, where there is a curve to the right, take a turn to the left (6km) on the general road of the white stone. After 2.8 km, turn right towards Rio do Boi. Leave the car at the property identified as Cachoeira dos Inácio, located at coordinates (**UTM -29.207357, -50.004038**). From there, continue on foot, on the road to Rio do Boi. The estimated time of the car journey, from the square, leaving the car parked and starting the approach walk, is 20 min.

Geographical Coordinates Access parking lot to the Lower Café Canyon

Datum WGS84 **UTM Coordinates**

CANYON	PARKING
Café Inferior	-29.207357 -50.004038

Geographical Coordinates Entrances and Exits of the Malacara Canyon routes

Datum WGS84 UTM Coordinates

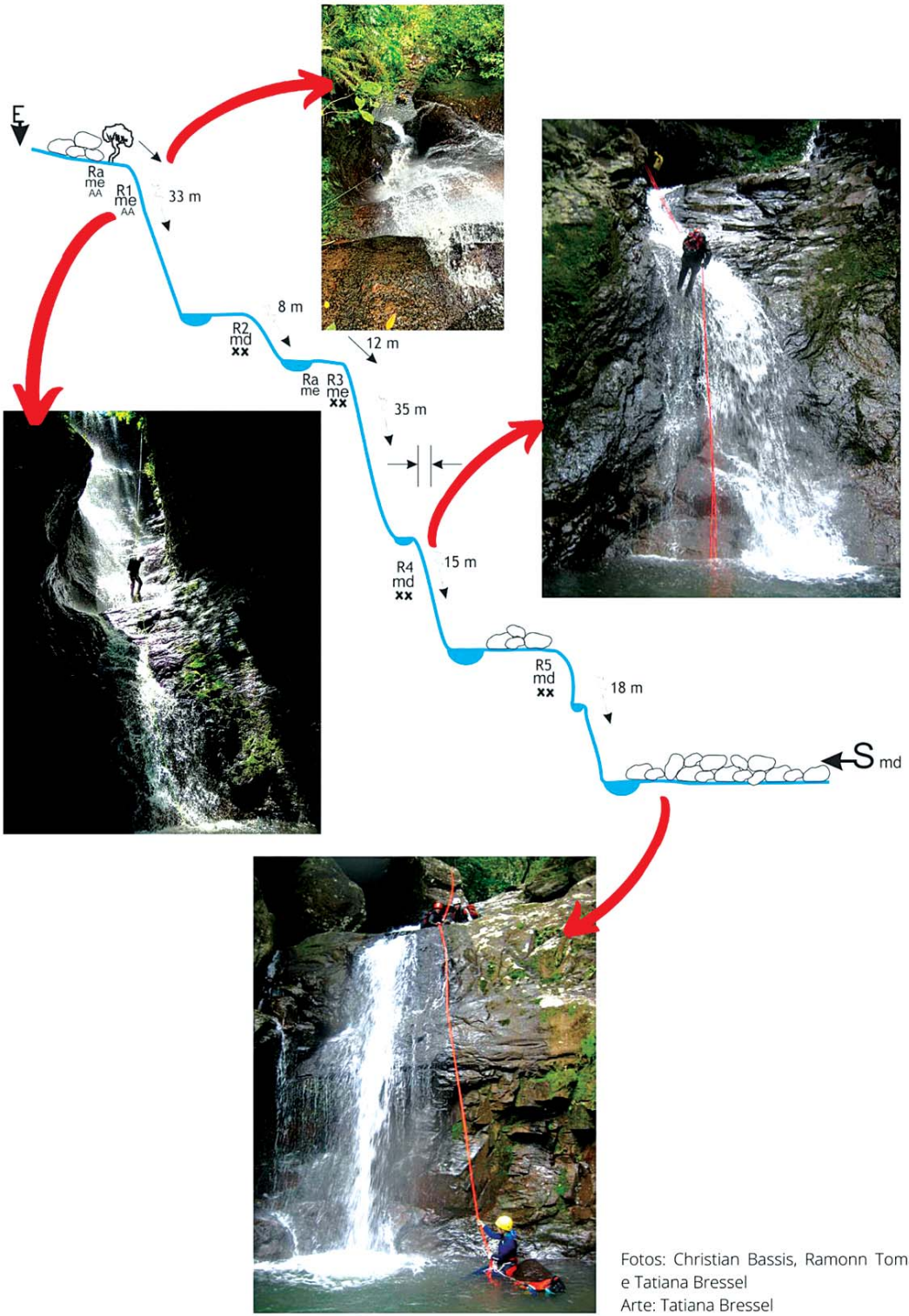
CANYON	ENTRY	EXIT
Café Inferior	-29.195879 -50.003347	-29.197465 -50.003278

Café Canyon

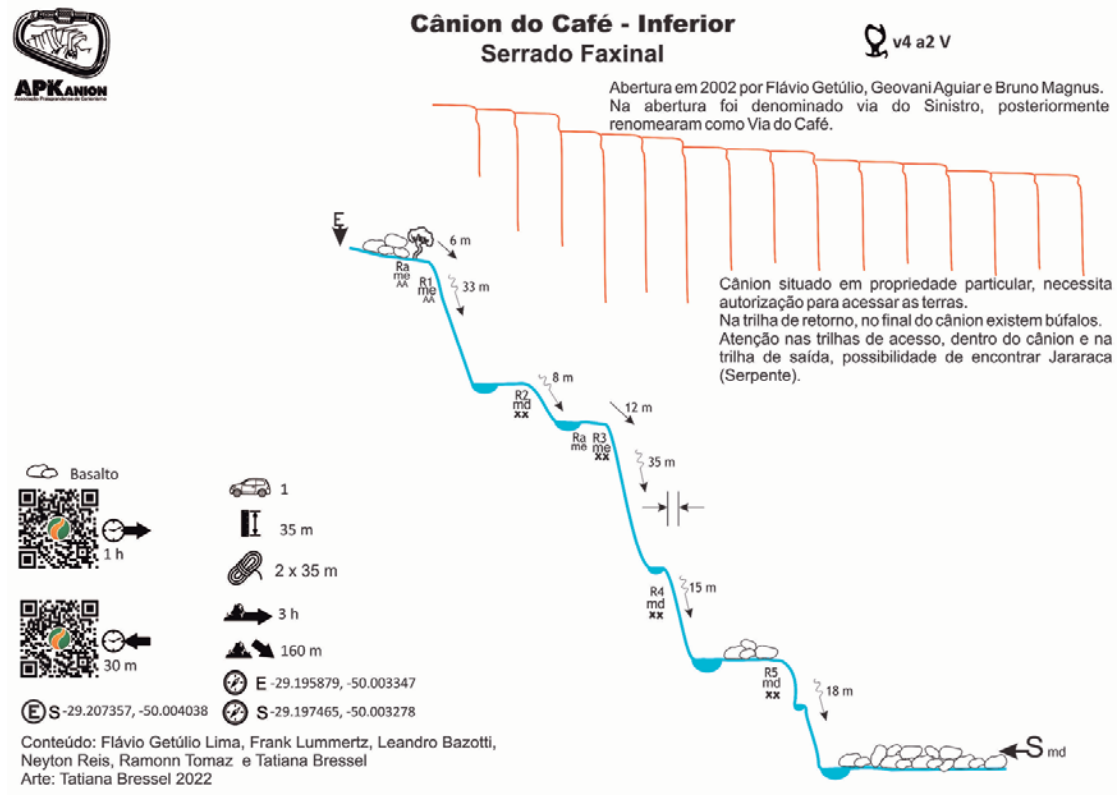
Conquest in 2002 by Bruno Magnus, Flávio Getúlio and Geovani Aguiar.
Re-recording in May 2022 by Flavio Getulio and Ramonn Tomaz.
Curiosity: at the opening, it was named as the sinister route; later, to make it more attractive to tourists, it changed the name to Café.

The **Café Inferior** canyoning is a shorter, lighter, easily accessible and fun route. The sequence of 5 rappels surrounded by Atlantic forest, with a variable amount of water, makes this canyon an excellent option to do in just one turn. Quite explored by canyonists in the region, including commercially. Halfway through the route there is a sequence of waterfalls in a more confined stretch, in which the difficulty can vary greatly, according to the level of flow. The biggest rappel is in this part, it has 35 meters. Good option for those who are starting in canyoneering or want something light to relax.

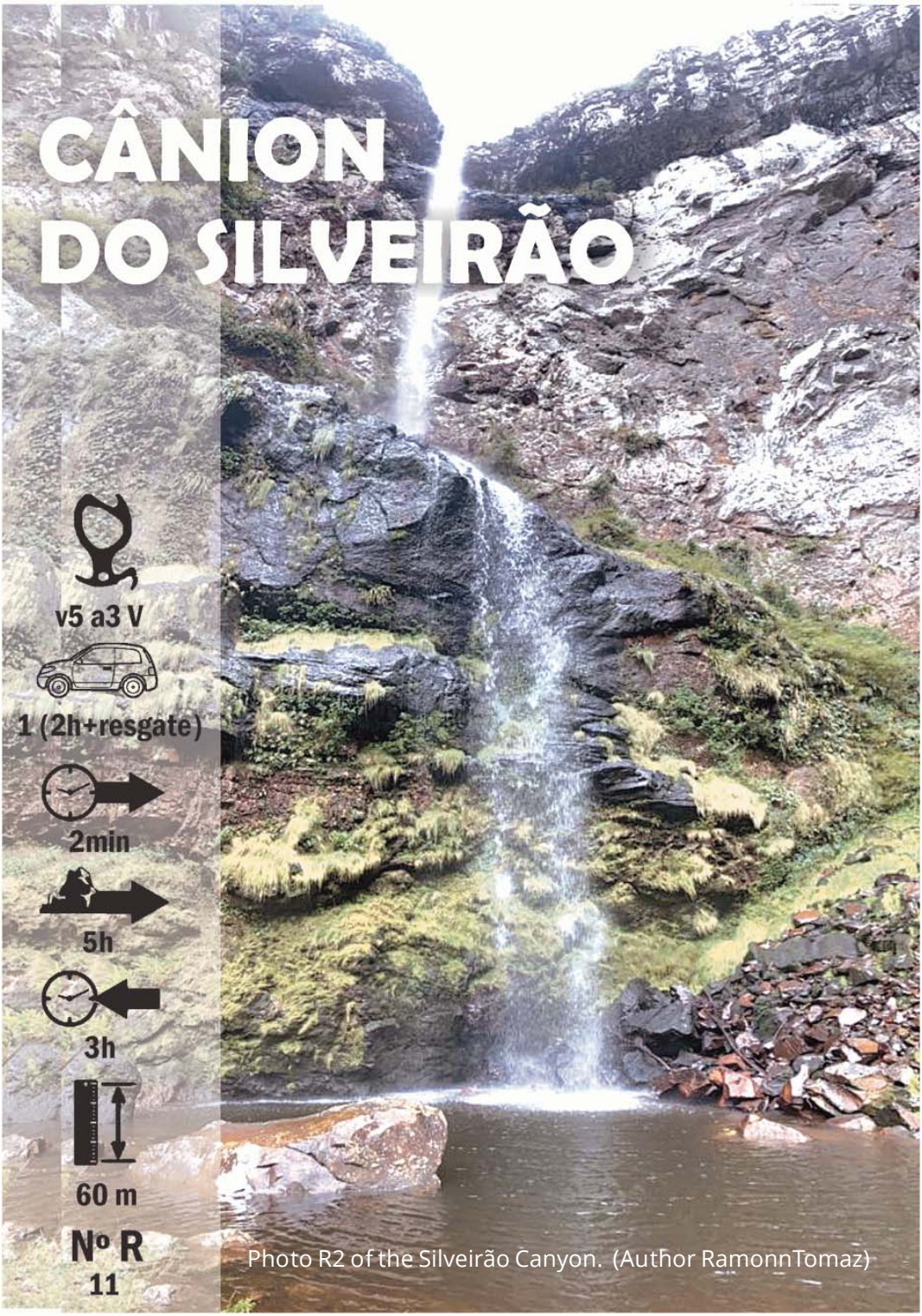
It is quite common to see snakes of the Jararaca species on the access and exit trail of this canyon. Be aware that this species of snake, despite being terrestrial, can be found both on the ground and under vegetation. Be careful where you put your hands and we suggest the use of leg warmers / shin guards for protection. At the exit of this canyon there are also buffaloes, be careful when passing them.



Fotos: Christian Bassis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel


Cânion do Café - Inferior
Serrado Faxinal
v4 a2 V
Abertura em 2002 por Flávio Getúlio, Geovani Aguiar e Bruno Magnus. Na abertura foi denominado via do Sinistro, posteriormente renomearam como Via do Café.
Cânion situado em propriedade particular, necessita autorização para acessar as terras.
Na trilha de retorno, no final do cânion existem búfalos.
Atenção nas trilhas de acesso, dentro do cânion e na trilha de saída, possibilidade de encontrar Jararaca (Serpente).
E
6 m
33 m
8 m
12 m
35 m
15 m
18 m
S md
Basalto
1 h
30 m
1
35 m
2 x 35 m
3 h
160 m
E -29.195879, -50.003347
S -29.197465, -50.003278
S -29.207357, -50.004038
Conteúdo: Flávio Getúlio Lima, Frank Lummertz, Leandro Bazotti, Neyton Reis, Ramonn Tomaz e Tatiana Bressel
Arte: Tatiana Bressel 2022

CÂNION DO SILVEIRÃO



v5 a3 V

1 (2h+resgate)

2min

5h

3h

60 m

Nº R 11

Photo R2 of the Silveirão Canyon. (Author RamonnTomaz)

Access to Silveirão Canyon

The Silveirão Canyon is located in Serra do Silveirão, in the Canyon de Josafaz. To access this canyon, it is necessary to follow the RS 494 road, and this route takes around 2 hours by car from Praia Grande, SC. It is necessary to organize a 4x4 rescue to exit the canyon.

Image from Google Earth, which shows the location of the city of Praia Grande, the RS-494 highway and the parking spaces to access the canyon of Silveirão.

Geographical coordinates - access parking to Canyon of Silveirão

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Silveirão	-29.30651 -50.04847	-29.293031 -50.094718

Car access time and logistics

Leaving from the city of Praia Grande, in SC, take the RS 494 route to the Rua Nova route, towards Roça da Estância. In Roça da Estância, turn right before the Rio Panela toward to Serra do Silveirão. In Serra do Silveirão, go up about 12 km to the farm where there is a doorway. The place to leave the car is located inside a private property at the coordinates (**UTM -29.30651, -50.04847**), authorization from the owner and entry fee is required to access this property. This trip by car from Praia Grande takes around 2 hours by car and the initial stretch requires a 4x4. It is necessary to organize the car rescue to the exit of the canyon.

The rescue takes place on the banks of the Mampituba River, at the end of the general road in Pedra Branca (**UTM -29.293031, -50.094718**), 21 km from Praia Grande, at the last access to the property known as Zé Fernandes. This town is located within the Josafaz Valley, where the road ends at the riverside.

Geographical Coordinates - Entrances and Exits of the Canyon of Silveirão

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Cânion do Silveirão	-29.306270 -50.048469	-29.310618 -50.064653

Access trail

The access route to the **Silveirão Canyon** is very short, the canyon starts a few meters from the parking lot, approximately 2 minutes walk. It takes about 3 hours to walk along the Mampituba river channel to reach the rescue point.

Image from Google Earth, which shows the parking spaces, entrance and exit of the Silveirão canyon.

Silveirão Canyon

Conquest in 2009 by Carlos Alberto Réus (Kaloca) and Flávio Getúlio.

May and July 2022 rewrite by Carlos Alberto Réus (Kaloca), Ramonn Tomaz, Lucas dal Pont and Flavio Getúlio.

Canyon of Silveirão is a canyon with low water level and great verticals. Surrounded by lush woods with views of the Josafaz valley. In this route of ravine there is the presence of fractionated rappel and also the possibility of descending in toboggan. The main rappel of this route is the R7, a rappel divided into 60 m + 70 m. This ravine route ends at the Mampituba river, arriving at the river turns right and walks about 3 hours along the river channel until the point of rescue (**UTM -29.293003, -50.094792).** If you find yourself on the property known as Zé Fernandes.

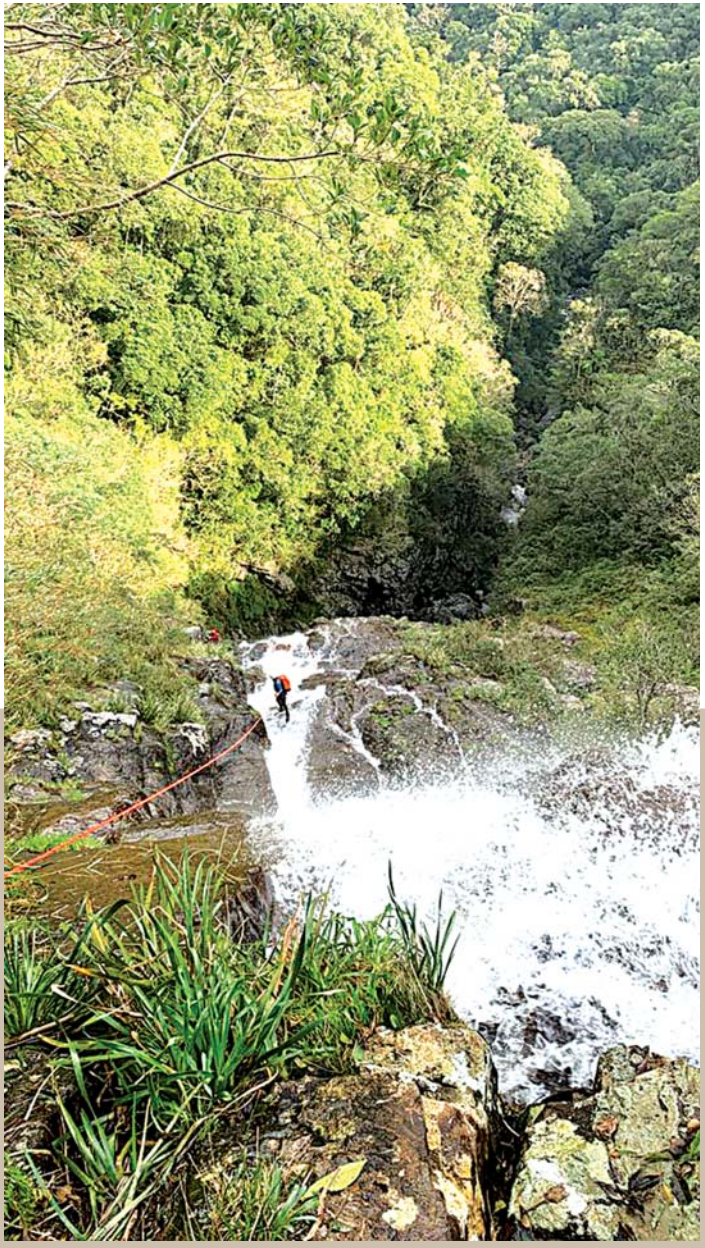
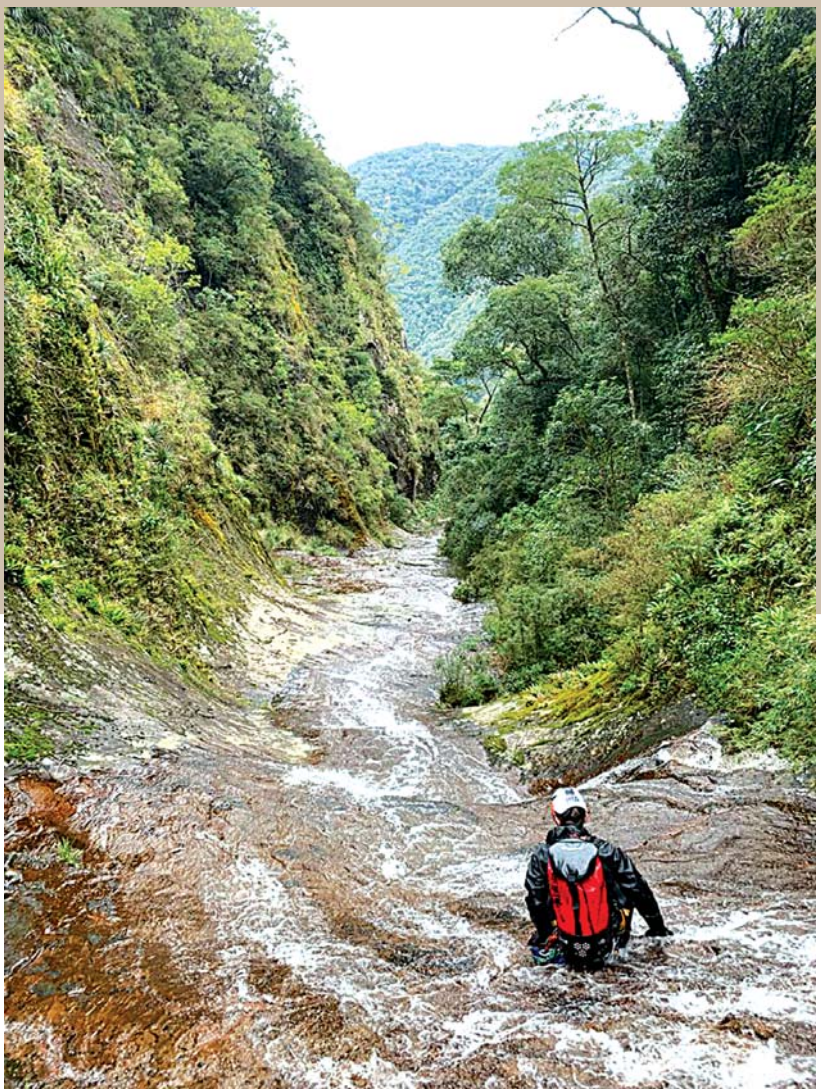
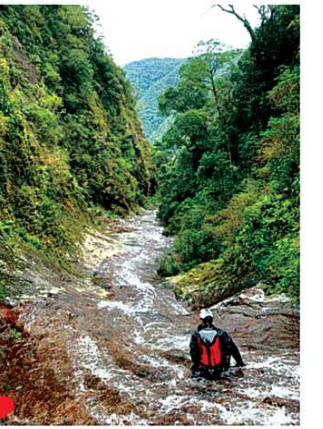
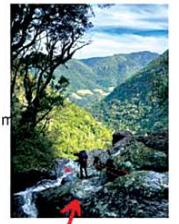


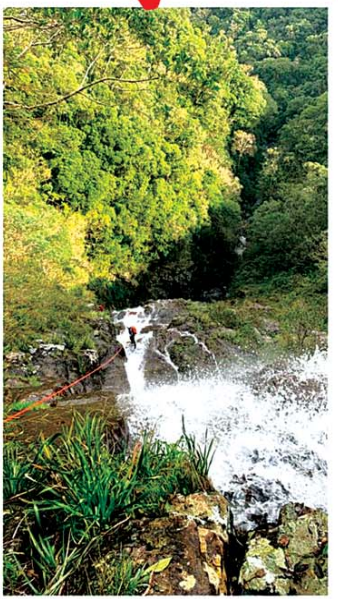
Photo R7, fraction of 70 meters. Author: Ramon Tomaz



Toboggan photo between R2 and R3. Author: Ramon Tomaz







E

Ra mc xx 6 m

R1 md xx 25 m

10 min

Ra mc xx 4 m

R2 me xx 60 m

xx 10m xx

R5 me xx

50 m

me xx 20 m

Ra me xx 6 m

R3 me xx 40 m

xx 6m xx

R4 me xx 30 m

R6 md xx 20 m

R7 me xx 60 m

md xx 70

R8 md xx 10 m

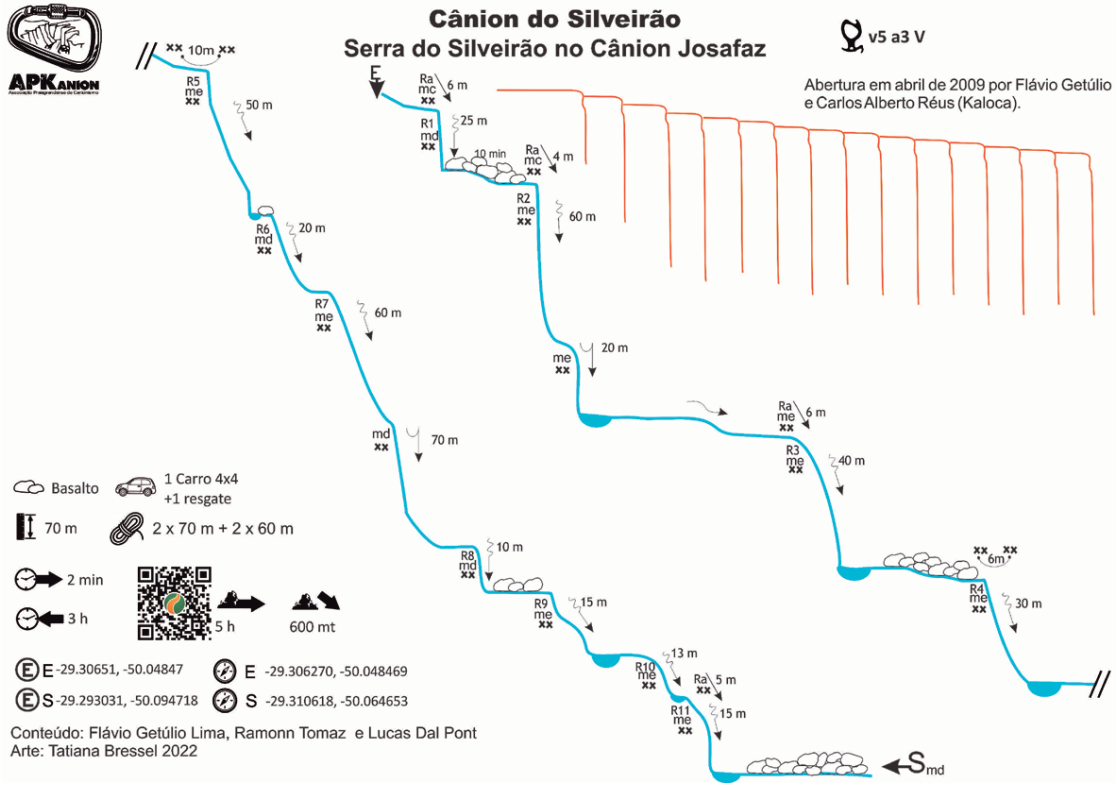
R9 me xx 15 m

R10 me xx 8 m

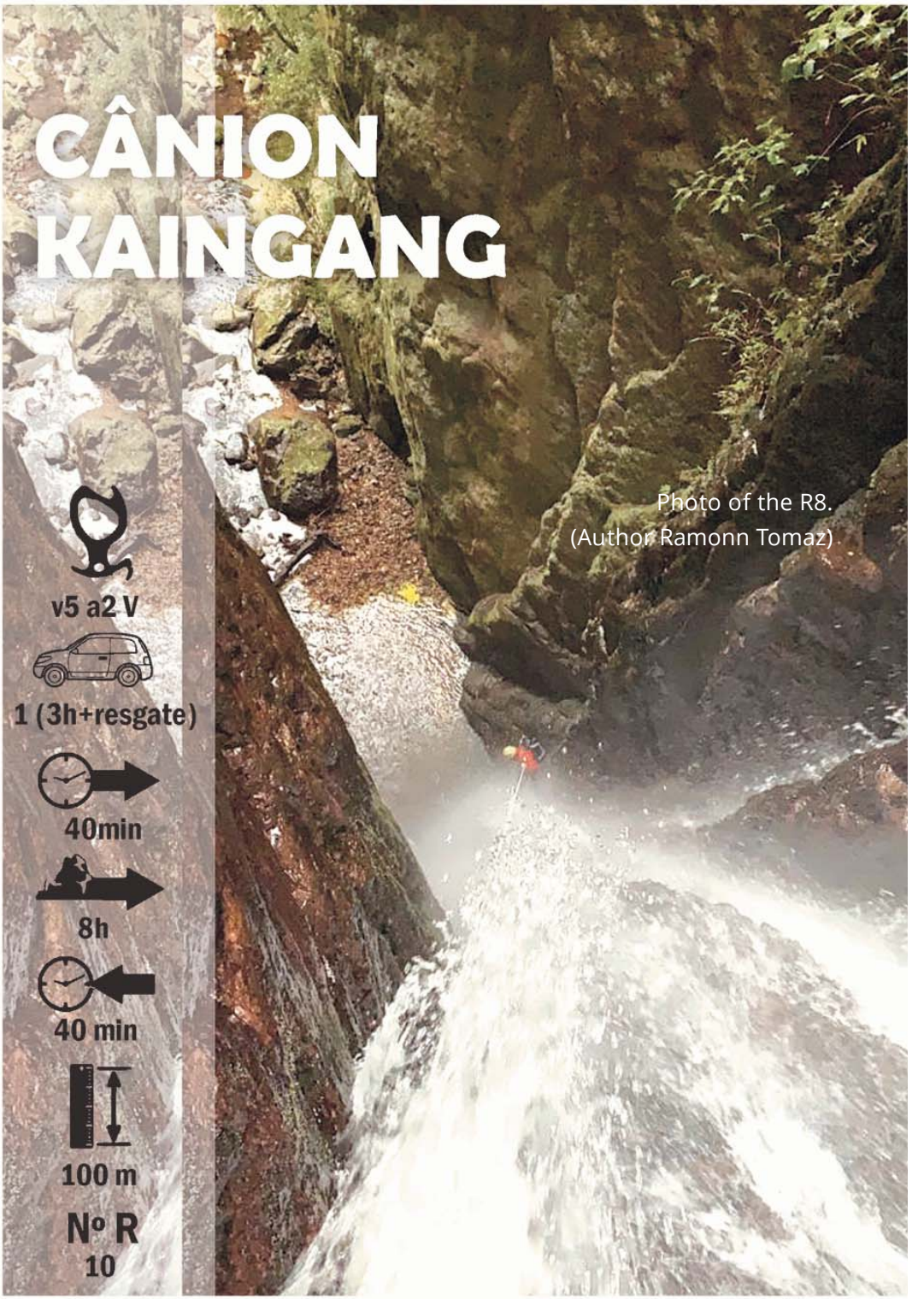
R11 me xx 20 m

S md

Fotos: Flávio Getúlio e Ramonn Tomaz
Arte: Tatiana Bressel


Cânion do Silveirão
Serra do Silveirão no Cânion Josafaz
v5 a3 V
Abertura em abril de 2009 por Flávio Getúlio e Carlos Alberto Réus (Kaloca).
APK Anion
E
R5 me xx
10m
50 m
R6 md xx
20 m
R7 me xx
60 m
md xx
70 m
R8 md xx
10 m
R9 me xx
15 m
R10 me xx
13 m
Ra xx
5 m
R11 me xx
15 m
Smd
Ra mc xx
6 m
R1 md xx
25 m
10 min
Ra mc xx
4 m
R2 me xx
60 m
me xx
20 m
Ra me xx
6 m
R3 me xx
40 m
xx
6m
R4 me xx
30 m
Basalto
1 Carro 4x4 +1 resgate
70 m
2 x 70 m + 2 x 60 m
2 min
3 h
5 h
600 mt
E -29.30651, -50.04847
S -29.293031, -50.094718
E -29.306270, -50.048469
S -29.310618, -50.064653
Conteúdo: Flávio Getúlio Lima, Ramonn Tomaz e Lucas Dal Pont
Arte: Tatiana Bressel 2022

CÂNION KAINGANG



v5 a2 V

1 (3h+resgate)

40min

8h

40 min

100 m

Nº R
10

Photo of the R8.
(Author Ramonn Tomaz)

Access to Kaingang Canyon

The entrance to Kaingang canyon is close to the Rota do Sol (RS 453) highway, which requires a journey of approximately 3 hours by car from Praia Grande, SC. It is necessary to organize a 4x4 rescue to exit the canyon.

Google Earth image showing the location of the city of Praia Grande and the RS 453 highways (Rota do Sol) and the parking spaces to access the Kaingang Canyon.

Car access time and logistics

Leaving from the central plaza of Praia Grande, go along the BR101 highway and continue along Rio Grande do Sul, Porto Alegre. Follow this road until the road Rota do Sol (RS 453). Take the Rota do Sol road to the town of Josafaz, at the coordinates (**UTM -29.331504, -50.191022**), take the right road at the Rota do Sol, follow this road and park the car at the coordinates (**UTM -29.318859, -50.110336**). The estimated time for this car journey, from the square, to the approach point is 3 hours. Necessary to combine car rescue at the exit of the canyon.

The rescue is carried out on the banks of the Mampituba River, at the end of the general road of Pedra Branca (**UTM -29.293031, -50.094718**), 21 km from Praia Grande, at the last access to the property known as Zé Fernandes. This location is within the Josafaz valley, where the road ends at the riverbank.

Geographical Coordinates Parking access to Kaingang Canyon

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Kaingang	-29.318859 -50.110336	-29.293031 -50.094718

Access trail

The access trail to Kaingang Canyon takes about 40 minutes of walking. The Kaingang Canyon also ends at the Mampituba River and the walk to the rescue site takes about 40 minutes along the riverbed.

Geographical Coordinates Entrances and Exits of the Kaingang Canyon

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Kaingang	-29.310760 -50.100574	-29.301707 -50.096055

Kaingang Canyon

Conquest in 2008 by Carlos Alberto Réus (Kaloca) and Gezaela. Re-recording in 2021 by Carlos Alberto Réus (Kaloca), Flávio Getúlio and Ramonn Tomaz.

Kaingang Canyon is the canyon with the highest verticals in the region and low water level. Surrounded by lush forest

overlooking the Josafaz valley. In this canyoning route there is the presence of guided abseiling and confined stretch. The biggest rappel of this route is the R6, a rappel with 100 m. There is one place that needs more attention: R6 needs to put on a rope protector. This canyoning route ends in the Mampituba River, when you reach the river, turn left and walk for about 40 minutes along the riverbed to the rescue point (**UTM -29.293003, -50.094792**). Located on the property known as Zé Fernandes.

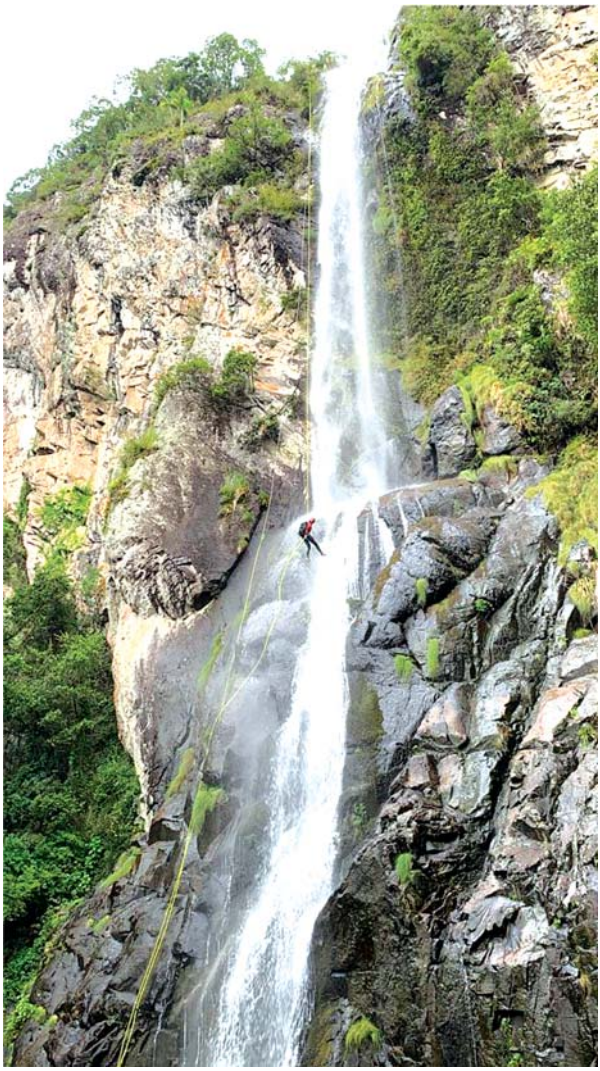
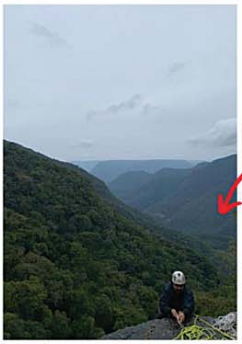
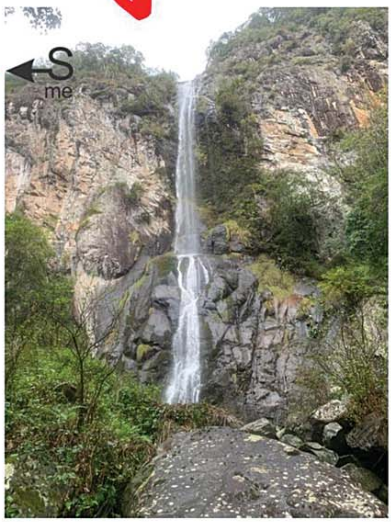


Photo of the R6, the biggest rappel of this route with 100 meters. (Author RamonnTomaz)

Photo of the R9, a 60 m guided rappel. (Author Ramonn Tomaz)





E

Ra
md
××
3 m

R1
md
××
80 m

R2
mc
××
10 m

R3
mc
××
50 m

R4
md
××
30 m

R5
md
××
15 m

Ra
md
××
4 m

R6
md
××
100 m

R7
me
AA
30 m

××
4m
××

R8
me
××
35 m
× md

Ra
me
××
15m

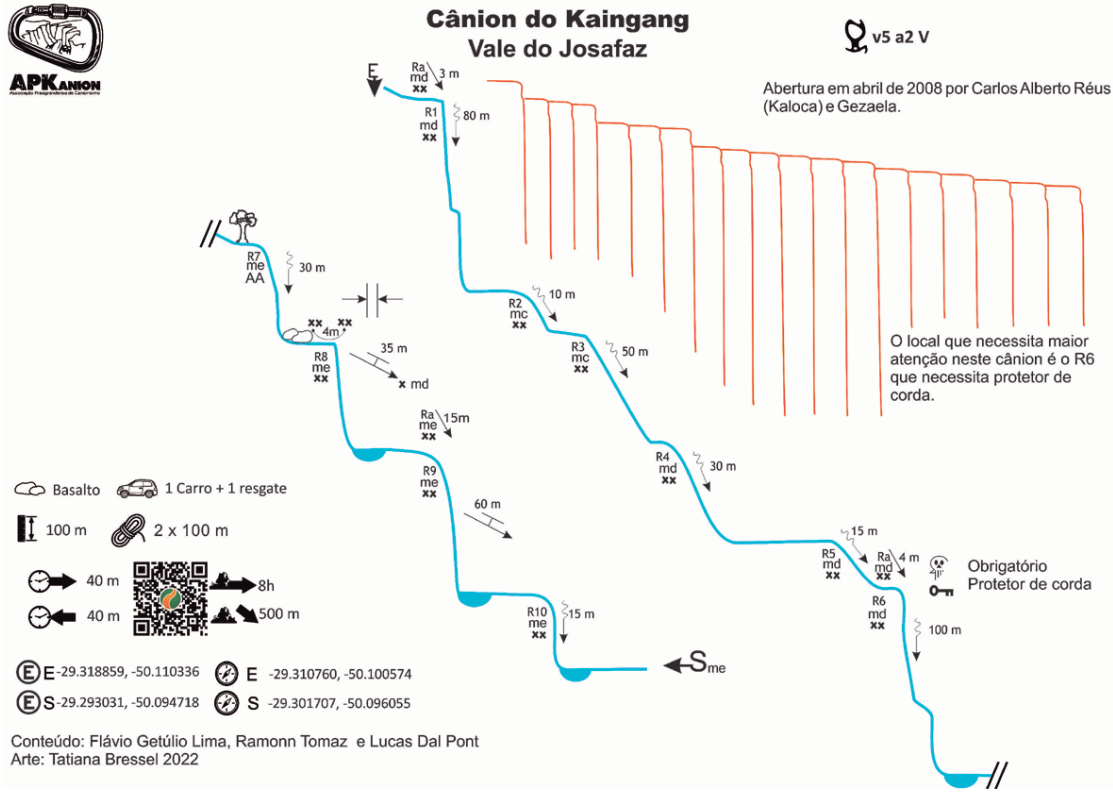
R9
me
××
60 m

R10
me
××
15 m

S
me

Obrigatório
Protetor de corda

Fotos: Ramonn Tomaz
Arte: Tatiana Bressel


Cânion do Kaingang
Vale do Josafaz
v5 a2 V
Abertura em abril de 2008 por Carlos Alberto Réus (Kaloca) e Gezaela.
O local que necessita maior atenção neste cânion é o R6 que necessita protetor de corda.
E
Ra md xx 3 m
R1 md xx 80 m
R2 mc xx 10 m
R3 mc xx 50 m
R4 md xx 30 m
R5 md xx 15 m
Ra md xx 4 m
R6 md xx 100 m
R7 me AA 30 m
4m
R8 me xx 35 m
md
Ra me xx 15m
R9 me xx 60 m
R10 me xx 15 m
Sme
Obrigatório Protetor de corda
Basalto
1 Carro + 1 resgate
100 m
2 x 100 m
40 m
40 m
8h
500 m
E -29.318859, -50.110336
S -29.293031, -50.094718
E -29.310760, -50.100574
S -29.301707, -50.096055
Conteúdo: Flávio Getúlio Lima, Ramonn Tomaz e Lucas Dal Pont
Arte: Tatiana Bressel 2022

CÂNION DOS INICIANTES

v3 a2 I

1 (40 min)

5 min

1h30min

40 min

30 m

Nº R
7

Photo of the R5. (Author Ramonn Tomaz)

Access to Iniciantes Canyon

Google Earth image showing the location of the city of Praia Grande, Serra do Faxinal and the parking place to access the Iniciantes canyon.

Geographical Coordinates Parking access to Iniciantes Canyon

Datum WGS84 **UTM Coordinates**

CÁNYON	PARKING
Iniciantes	-29.250110 -50.096338

Car access

Leaving the central square of Praia Grande towards Serra do Faxinal (SC-290), at the beginning of the ascent of the mountain, where there is a curve to the right, continue through the retreat to turn left (6km), on the general road of Pedra Branca. Walk 16 km to the parking place, to access the canyons at the coordinates (**UTM -29.250110, -50.096338**). This journey by car, leaving the central square of Praia Grande, takes about 40 minutes.

Geographical Coordinates Entrances and Exits from Iniciantes Canyon

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Iniciantes	-29.248972 -50.094779	-29.251252 -50.094791

Access trail

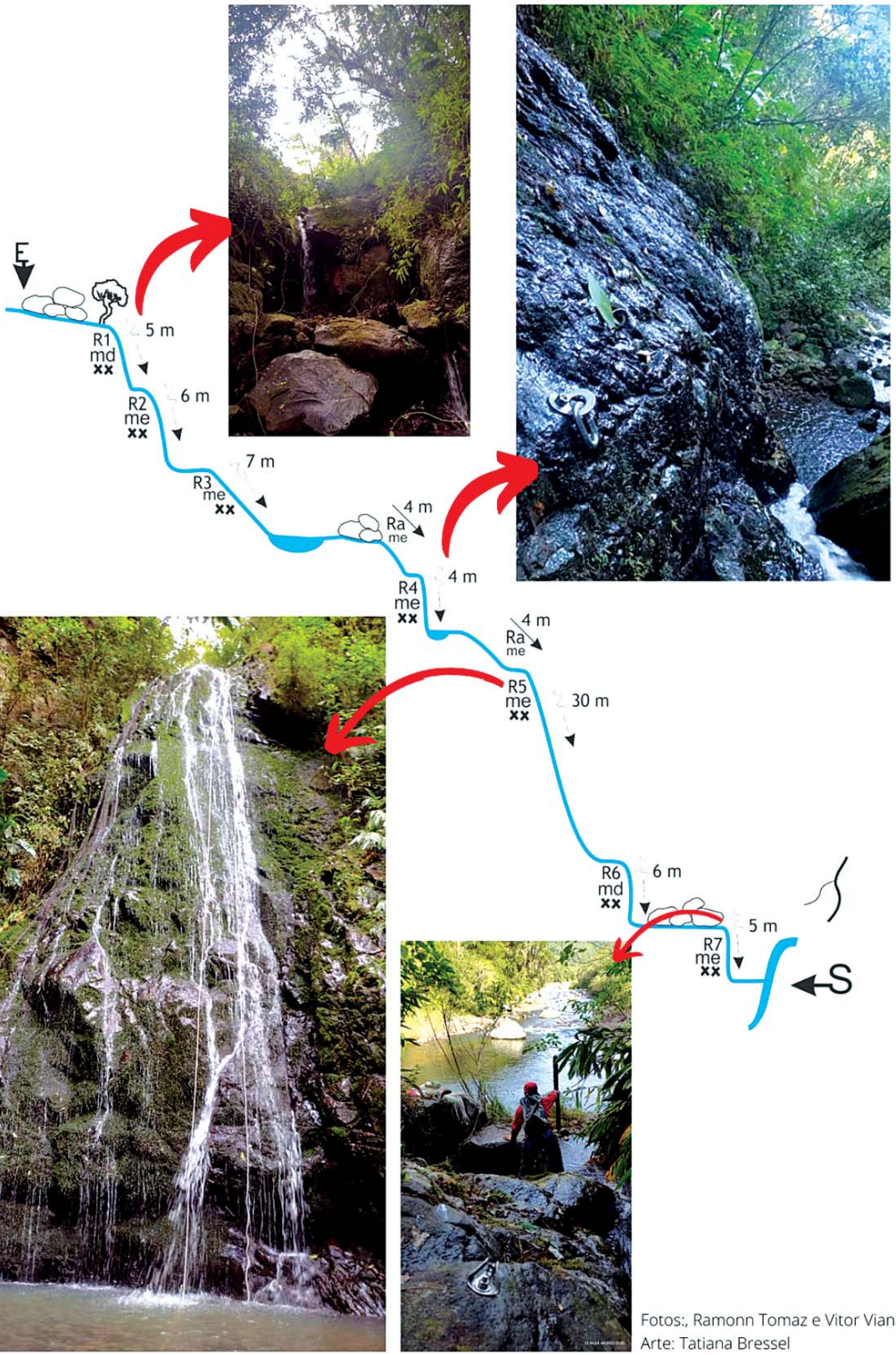
The access trail to Iniciantes canyon is very short, taking about 5 minutes of walking approach. The return is a little longer, with about 40 minutes of walking.

Iniciantes Canyon

Conquest in 2008/2009 by Carlos Alberto Réus (Kaloca) and Flávio Getúlio.
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca), Flávio Getúlio, Lucas dal Pont, Ramonn Tomaz and Vitor Viana.

The **Iniciantes canyon** is a short, light, easy access and fun canyoning. Surrounded by Atlantic forest, with a little water; however, the possibility of swimming does not exceed 10 meters. This canyoning route comprises a sequence of 7 rappels, the largest being 30 meters high. Excellent option for those who are starting canyoning and want to know the canyons of the region. The beginners route ends at the Mampituba river, where you can do a 5-meter rappel or, depending on the conditions, a jump.

Photo of the R7, demonstrating the end of the Iniciantes' canyoning route, ending in the Mampituba river. (Author Vitor Viana)

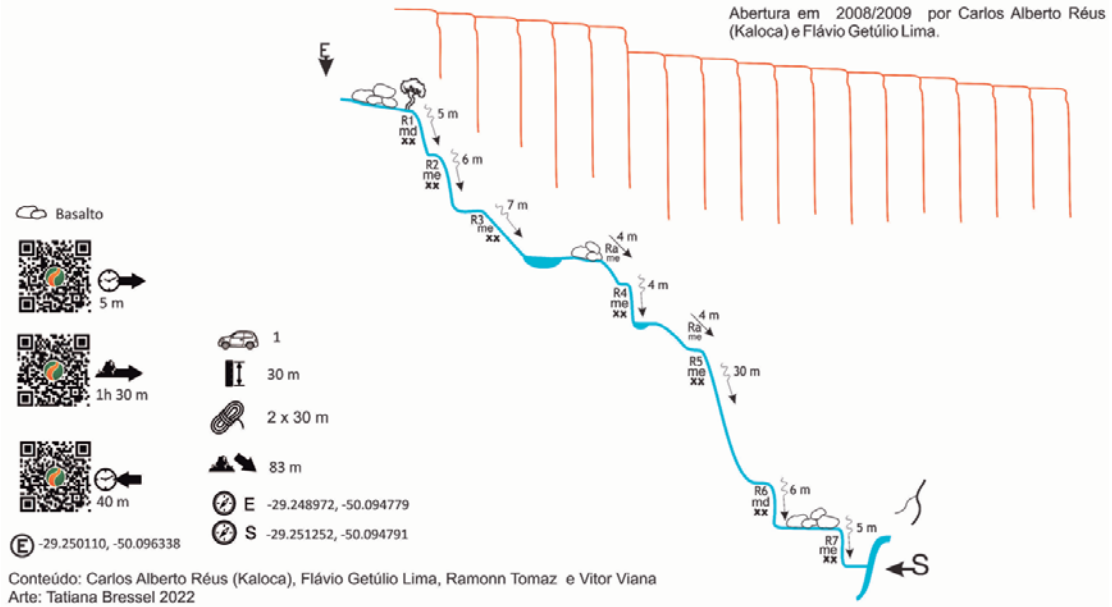


Fotos:, Ramonn Tomaz e Vitor Viana
Arte: Tatiana Bressel

APK ANION

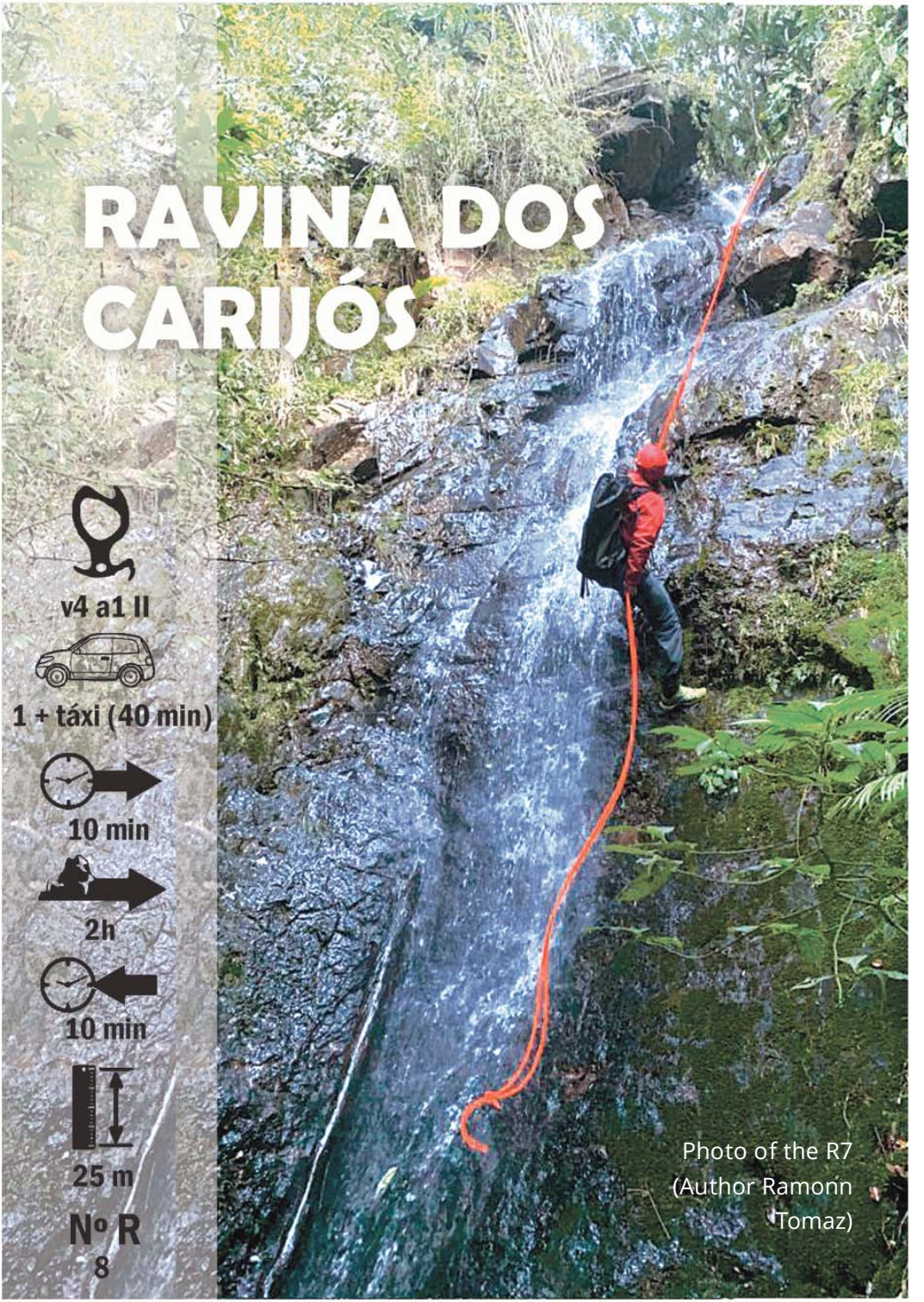
Cânion Iniciantes
Vale da Pedra Branca

v3 a2 I



Conteúdo: Carlos Alberto Réus (Kaloca), Flávio Getúlio Lima, Ramonn Tomaz e Vitor Viana
Arte: Tatiana Bressel 2022

RAVINA DOS CARIJÓS



v4 a1 II

1 + táxi (40 min)

10 min

2h

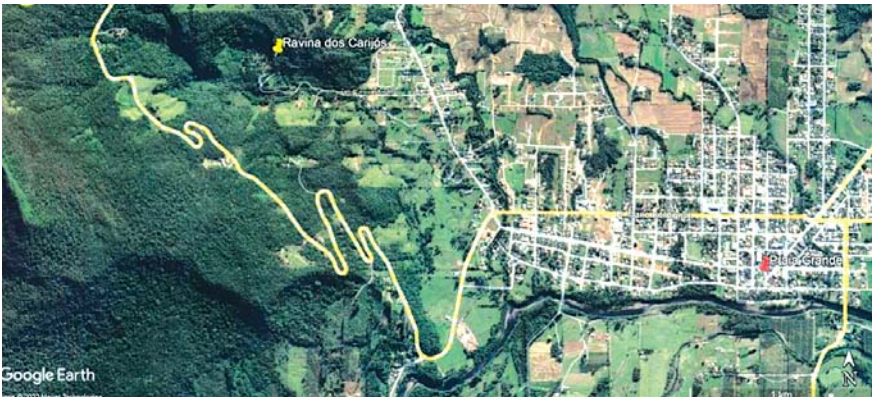
10 min

25 m

Nº R 8

Photo of the R7 (Author Ramonn Tomaz)

Access to the Carijós Ravine



Google Earth image showing the location of Praia Grande, Serra do Faxinal and the parking place to access Ravina dos Carijós.

Car access

Leaving the central square, head towards Vila Rosa. A little before arriving at the CTG, turn left and go to the Itaimbé inn. Leave the car at the inn and request a taxi to drop off people up the faxinal mountain range, at the ready next to the canyon entrance (**UTM -29.190076 -49.983162**). This journey by car, leaving the central square of Praia Grande, takes about 40 minutes.

Geographical Coordinates Parking access to Ravina dos Carijós

Datum WGS84 **UTM Coordinates**

CANYON	PARKING
Ravina dos Carijós	-29.18718 -49.97797

Access trail

The access trail to **Ravina dos Carijós** is very short, taking about an 8-minute walk from the point indicated in Serra do Faxinal. The return is also quite short, taking about 8 minutes to walk to the Itaimbé inn.

Geographical Coordinates Entrances and Exits to Ravina dos Carijós

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Ravina dos Carijós	-29.189464 -49.982442	-29.188421 -49.981953

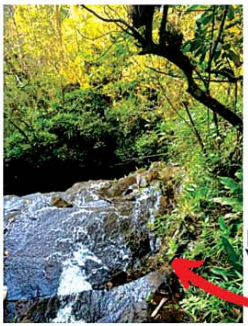
Ravina dos Carijós

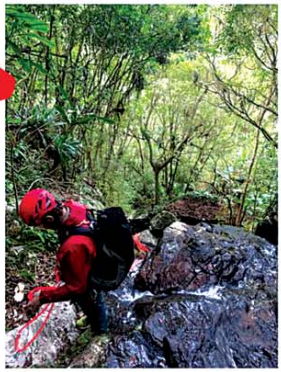
Conquest in 2000/2002 by Carlos Alberto Réus (Kaloca).
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca) and Ramonn Tomaz.

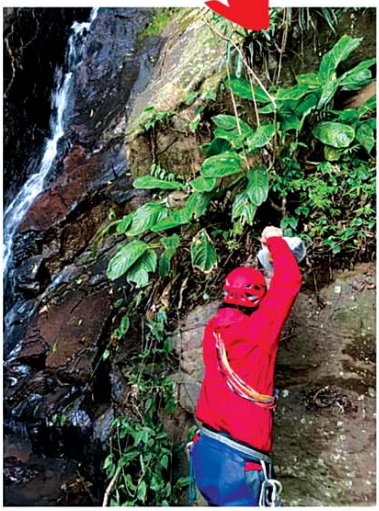
Canyoning in **Ravina dos Carijós** is a short, light, easy-to-access and fun route. The sequence of 8 rappels surrounded by Atlantic forest, with little water, makes this ravine an excellent option to do in just one turn. The biggest rappel is 25 meters high. Good option for those who are starting in canyoneering or want something light to relax.

Photo of R2 of Ravina dos Carijós. (Author Ramonn Tomaz)

Photo of R2 of Ravina dos Carijós. Author Ramonn Tomaz







E

R1 md ××
10 m

R2 md ××
5 m
2 m
Ra me

R3 md ××
25 m

6 m
Ra me

R4 me ××
25 m

5 m
Ra mc

R5 me ××
15 m

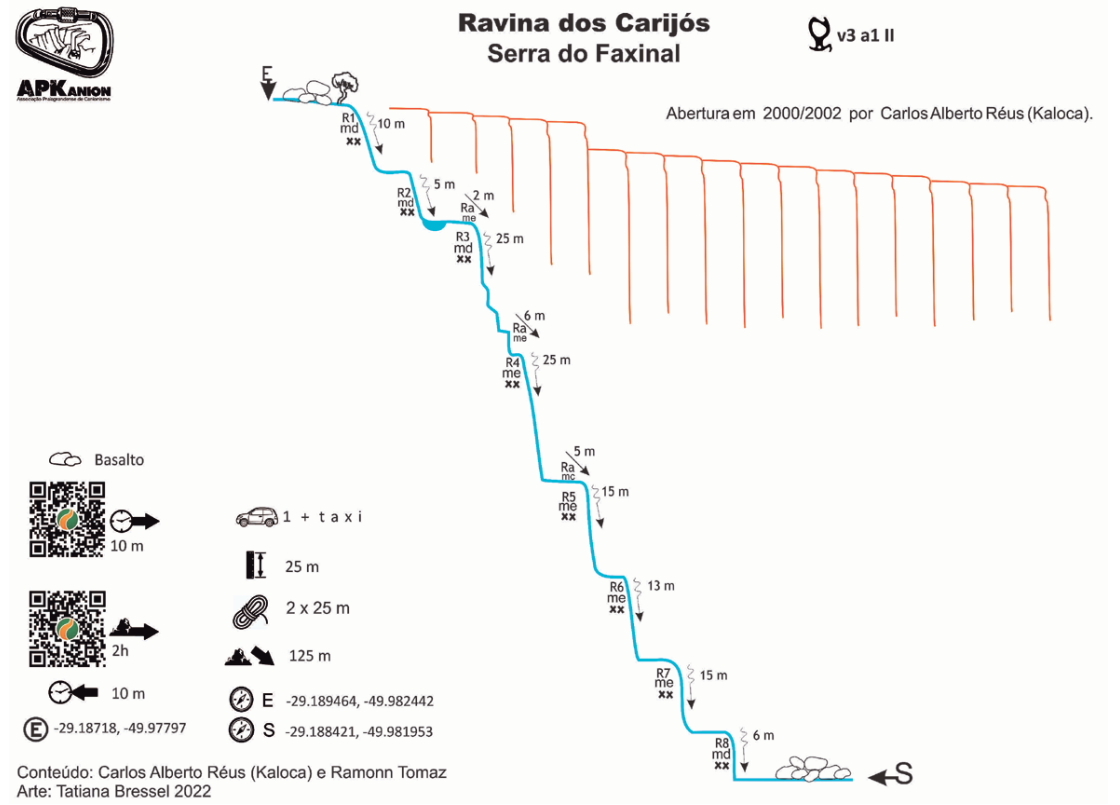
R6 me ××
13 m

R7 me ××
15 m

R8 md ××
6 m

S

Fotos: Ramonn Tomaz
Arte: Tatiana Bressel



Conteúdo: Carlos Alberto Réus (Kaloca) e Ramonn Tomaz
Arte: Tatiana Bressel 2022

CACHOEIRISMO VISTA ALEGRE

v4 a2 III

1 (40 min)

30 min

1h

15 min

45 m

Nº R
3

Photo R2 Cachoeirismo Bela Vista. Author Ramonn Tomaz

Access to Cascading Vista Alegre / Carrapicho

Google Earth image showing the location of the city of Praia Grande, Serra do Faxinal and the parking place to access the Vista Alegre - Carrapicho Cascading.

Car access

Leaving the central square, head towards the community of Fortaleza – Zona Nova. On the general road Costão Novo, a little after the inn Costão da Fortaleza Lodge in the geographic coordinates **(UTM -29.129502, -49.938165**), is the parking place to access Cachoeirismo Vista Alegre / Carrapicho. It is a place of private property, which charges access to the waterfall. This journey by car, leaving the central square of Praia Grande, takes about 40 minutes.

Geographical Coordinates Access parking Cachoeirismo Vista Alegre / Carrapicho

Datum WGS84 **UTM Coordinates**

CANYON	PARKING
Vista Alegre Carrapicho	-29.129502 -49.938165

Access trail

The access trail to Cachoeirismo Vista Alegre / Carrapicho is short, taking about a 30-minute walk from the parking lot. The return is also short, taking about 15 minutes to walk back to the car.

Geographical Coordinates Entrances and Exits of the Cachoeirismo Vista Alegre / Carrapicho

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Vista Alegre Carrapicho	-29.128917 -49.941974	-29.128621 -49.941141

Cachoeirismo Vista Alegre / Carrapicho

Unknown achievement. Re-recording in July 2022 by Carlos Alberto Réus (Kaloca), Leonel Leonhardt and RamonnTomaz.

This is a very short Cascading route, with only 3 rappels, the 3rd being a fractional rappel of 40 + 45 meters. Although there are few rappels, these are not small. There is the presence of a more confined stretch in the 2nd rappel. The view of this Cascading is very beautiful. Excellent option to do in just one shift.

Photo R1 Cachoeirismo Bela Vista. Author Ramonn Tomaz

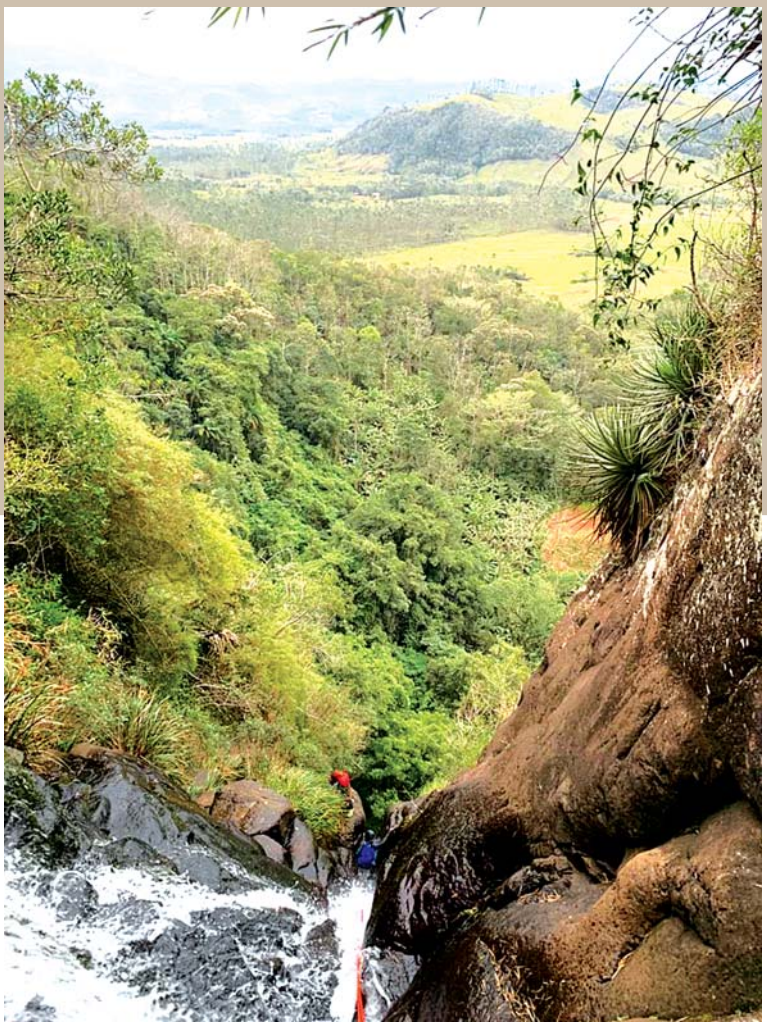
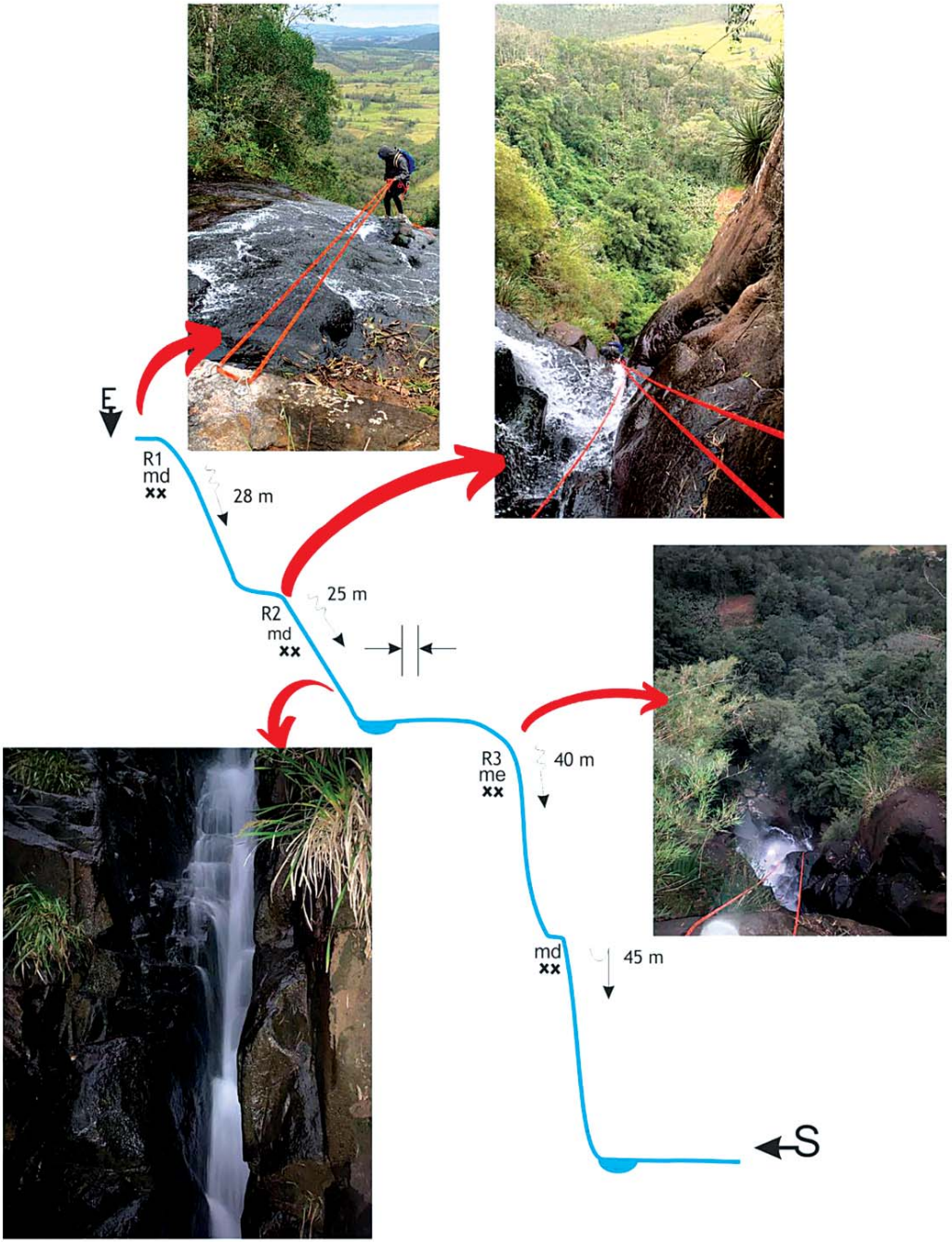


Photo R2 Cachoeirismo Bela Vista. Author Ramonn Tomaz.

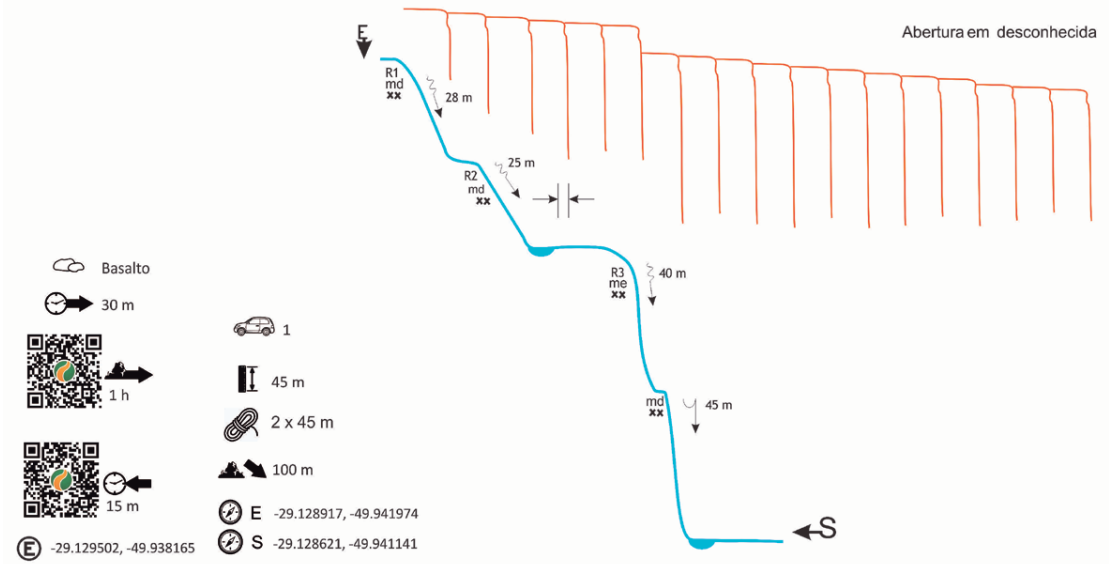


Fotos:, Ramonn Tomaz
Arte: Tatiana Bressel

APKANION

Cachoeirismo Vista Alegre / Carrapicho
Serra dos Porcos

v4 a2 III



Conteúdo: Carlos Alberto Réus (Kaloca) e Ramonn Tomaz
Arte: Tatiana Bressel 2022

CÂNION DO ÁTILA

v4 a2 V

1 (3h) + resgate

45 min

10h

30 min

50 m

Nº R
17

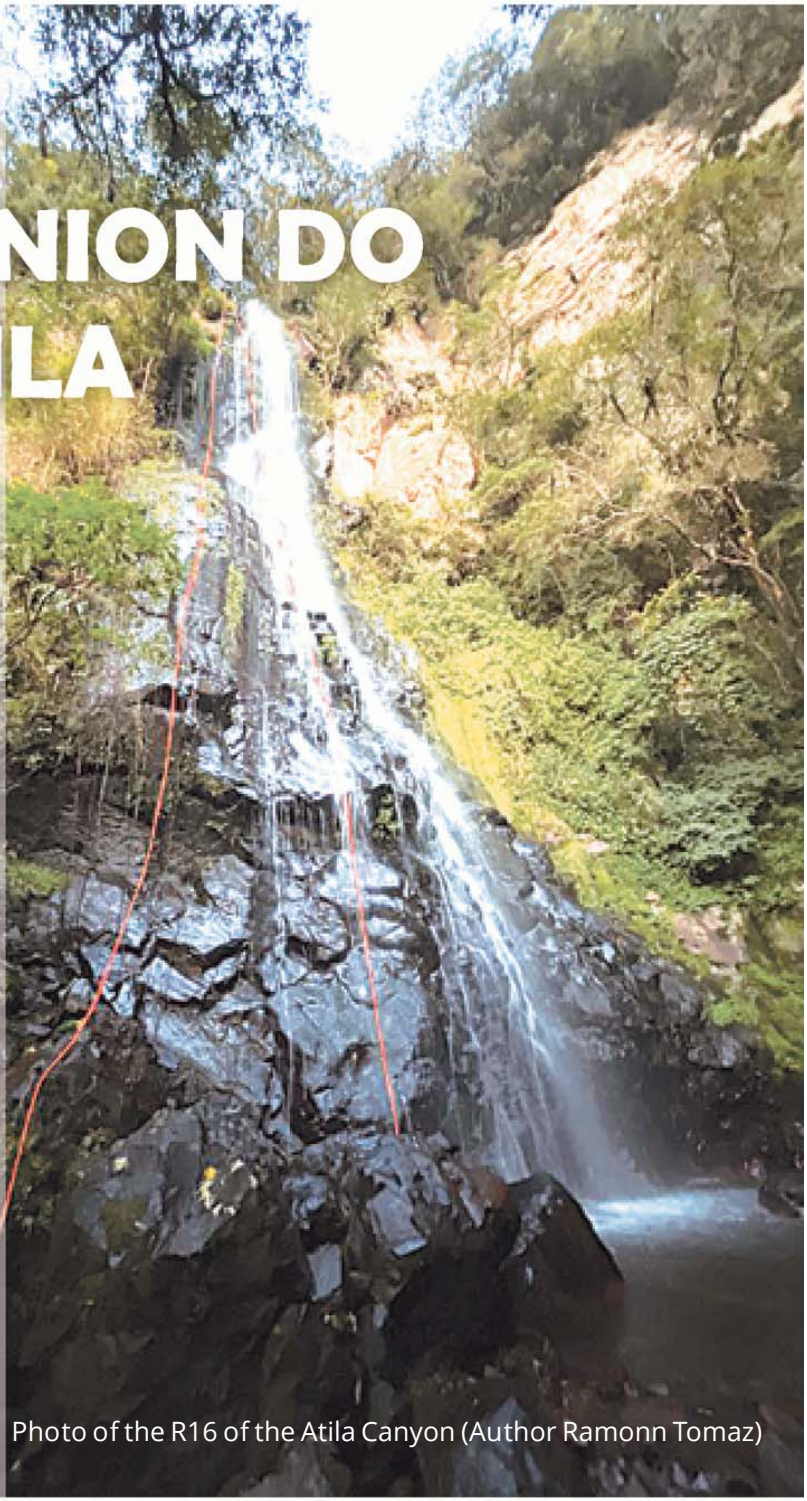


Photo of the R16 of the Atila Canyon (Author Ramonn Tomaz)

Access to Cânion do Átila

The Átila Canyon is located in Serra do Silveirão, in the Josafaz Canyon. To access this canyon it is necessary to follow the RS 494 highway, and this journey takes about 2 hours by car from Praia Grande, SC. It is necessary to arrange a 4x4 rescue to exit the canyon.

Image from Google Earth, showing the location of the city of Praia Grande, RS-494 road and the parking places to access the Átila canyon.

Geographical Coordinates Parking access to Cânion do Átila

Datum WGS84 **UTM Coordinates**

CANYON	ENTRY	EXIT
Cânion do Átila	-29.275156, -50.077111	-29.277188, -50.109338

Access trail

From the parking place, start the approach walk, following the trail marked on Wikiloc present in the sketch of the canyon. This walk takes about 45 minutes.

Geographical Coordinates Entrances and Exits of the Cânion do Átila

Datum WGS84 **UTM Coordinates**

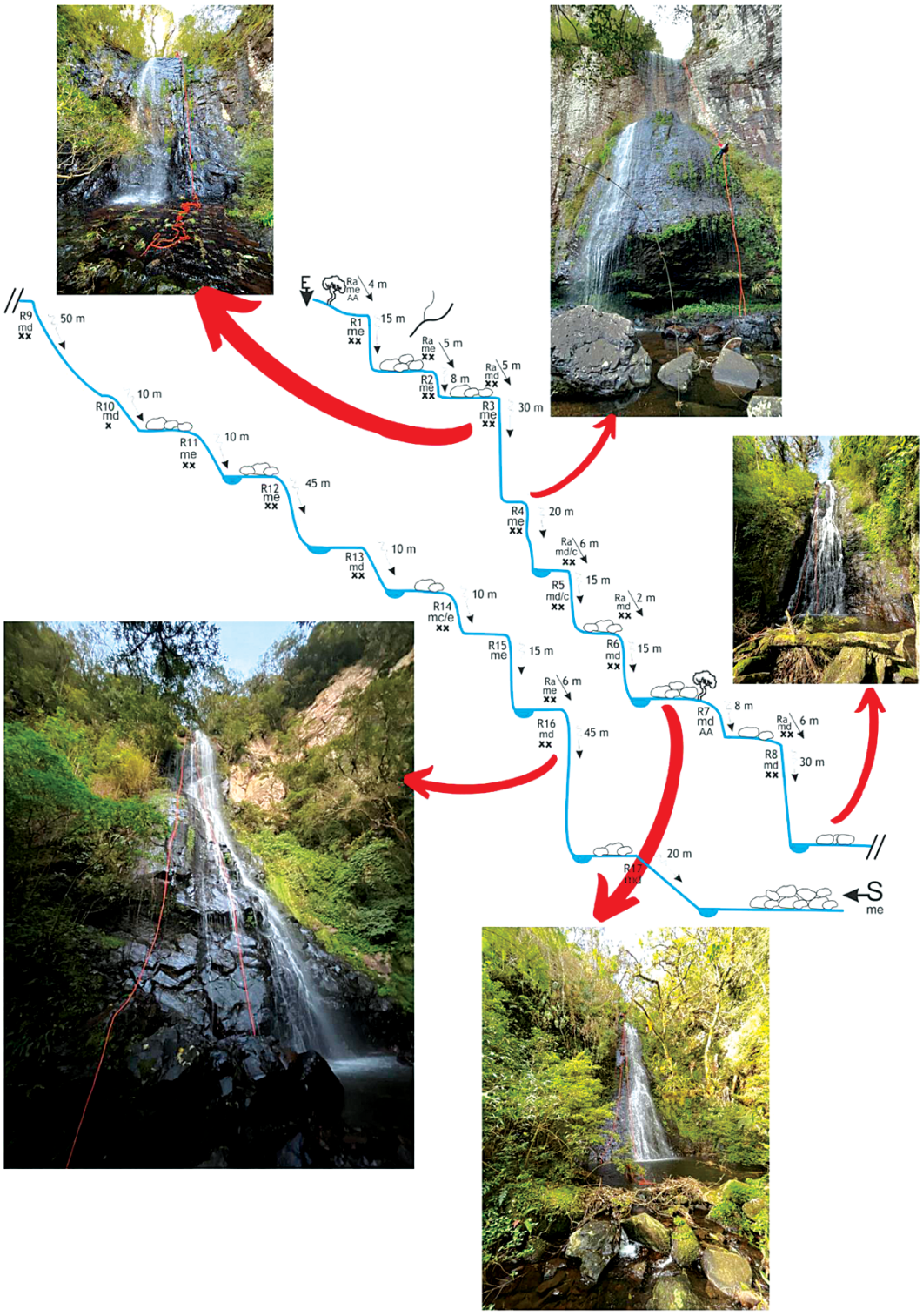
CANYON	ENTRY	EXIT
Cânion do Átila	-29.276563, -50.080616	-29.272434, -50.099772

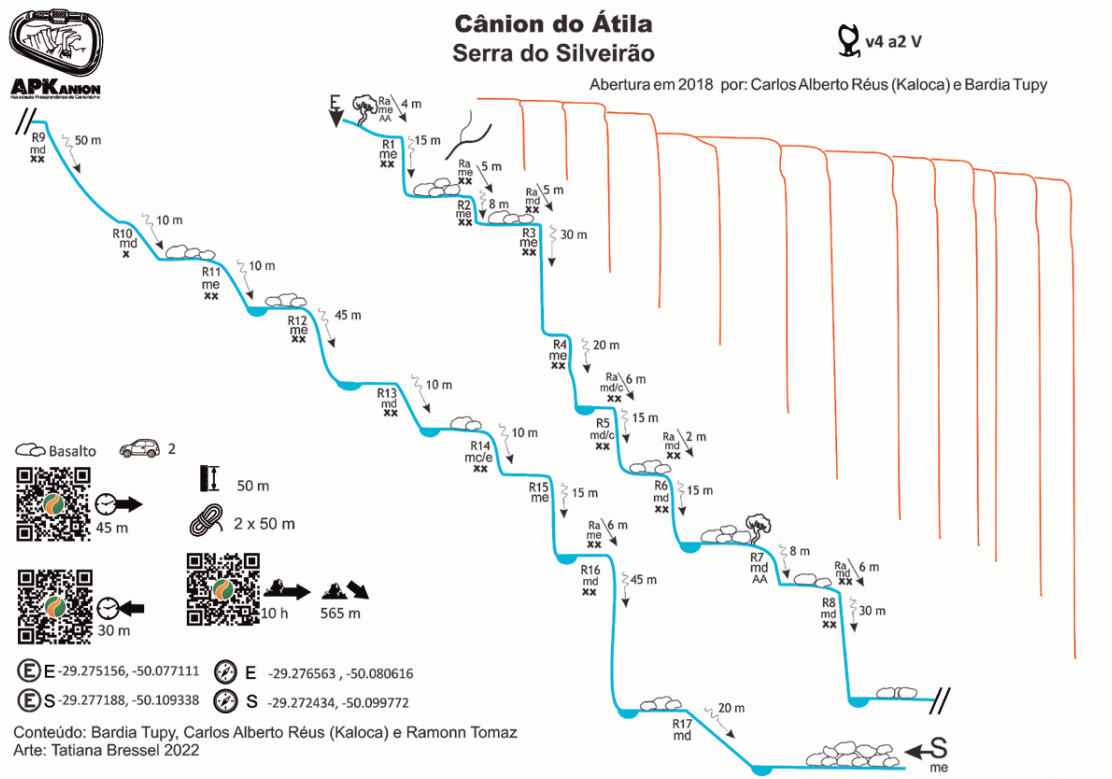
Átila Canyon

Conquest in September 2018 by BardiaTupy and Carlos Alberto Réus (Kaloca).
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca) and RamonnTomaz.

The **Átila Canyon** is located in the border region of the states of Rio Grande do Sul and Santa Catarina. Starting at Serra do Silveirão and ending at the Mampituba River. Canyon composed of full slabs with 3 to 4 sequential waterfalls between 30 to 50 meters in the initial third of the canyon without much need for aquatic progression. Middle of the wide paved canyon with channels in transverse diagonals with woods and progression without many swimming pits. The final part is a sequence of abseiling with waterfalls from 10 to 45 meters, progression with easy to medium climbing. The total number of rappels on this route is 17 and the largest is 50 meters.

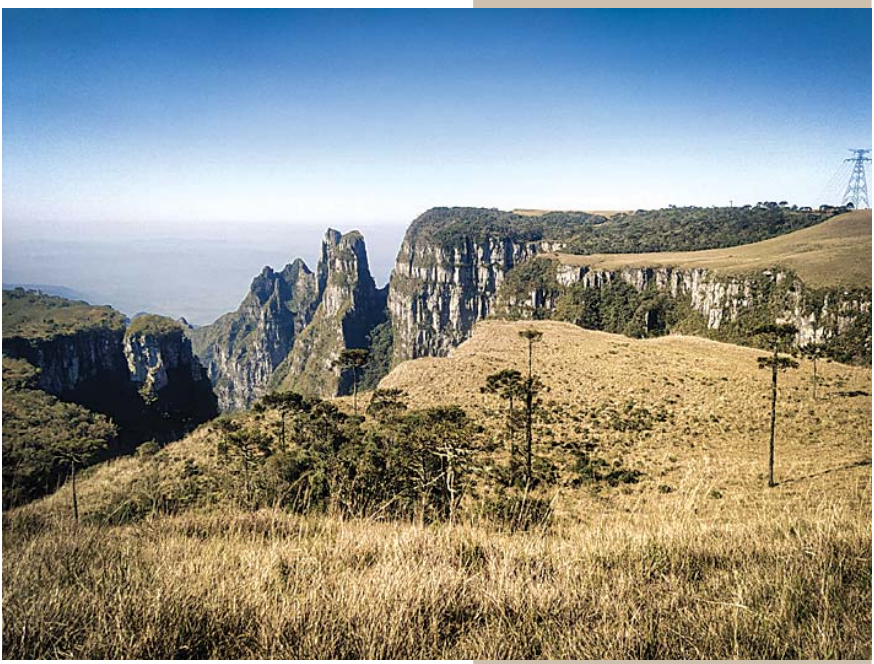
Photo of the R4 of the Átila Canyon (Author Ramonn Tomaz).


E
Ra me AA 4 m
R1 me xx 15 m
Ra me xx 5 m
R2 me xx 8 m
Ra md xx 5 m
R3 me xx 30 m
R4 me xx 20 m
Ra md/c xx 6 m
R5 md/c xx 15 m
Ra md xx 2 m
R6 md xx 15 m
R7 md AA 8 m
Ra md xx 6 m
R8 md xx 30 m
R9 md xx 50 m
R10 md x 10 m
R11 me xx 10 m
R12 me xx 45 m
R13 md xx 10 m
R14 mc/e xx 10 m
R15 me 15 m
Ra me xx 6 m
R16 md xx 45 m
20 m
S
me


Cânion do Átila
Serra do Silveirão
v4 a2 V
Abertura em 2018 por: Carlos Alberto Réus (Kaloca) e Bardia Tupy
APK Anion
E
R1 me xx 15 m
R2 me xx 8 m
R3 me xx 30 m
R4 me xx 20 m
R5 md/c xx 15 m
R6 md xx 15 m
R7 md AA 8 m
R8 md xx 30 m
R9 md xx 50 m
R10 md x 10 m
R11 me xx 10 m
R12 me xx 45 m
R13 md xx 10 m
R14 mc/e xx 10 m
R15 me 15 m
R16 md xx 45 m
R17 md 20 m
S me
Ra me AA 4 m
Ra me xx 5 m
Ra md xx 5 m
Ra md/c xx 6 m
Ra md xx 2 m
Ra me xx 6 m
Ra md xx 6 m
Basalto
2
50 m
2 x 50 m
45 m
30 m
10 h
565 m
E -29.275156, -50.077111
S -29.277188, -50.109338
E -29.276563 , -50.080616
S -29.272434, -50.099772
Conteúdo: Bardia Tupy, Carlos Alberto Réus (Kaloca) e Ramonn Tomaz
Arte: Tatiana Bressel 2022

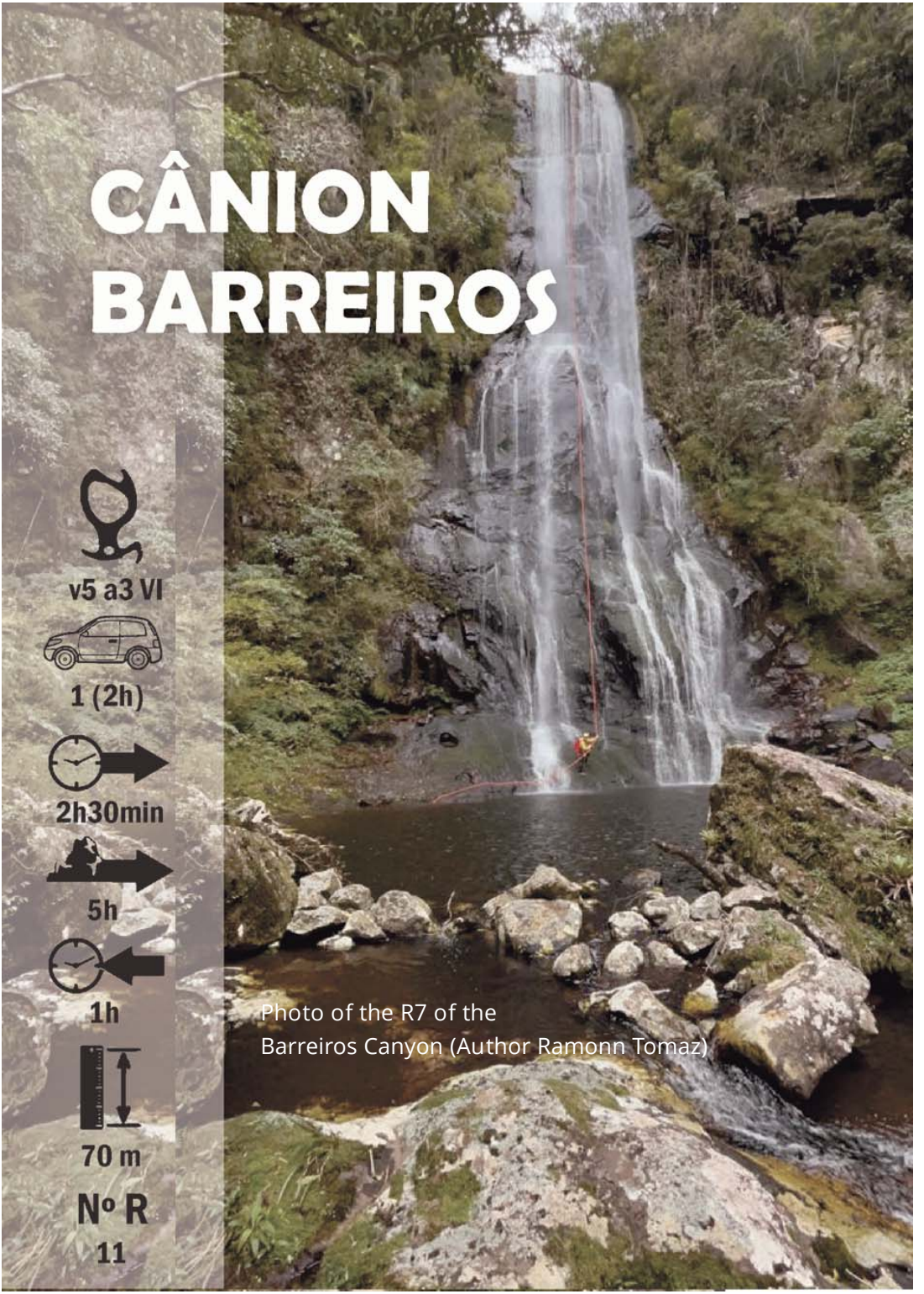
6. Sector 3

Canyons located more than 100 km from Praia Grande, SC.
South: Barreiros Canyon
North: Funil Canyon



Cânion do Funil Author Léo Baschirotto

CÂNION BARREIROS



v5 a3 VI

1 (2h)

2h30min

5h

1h

70 m

Nº R
11

Photo of the R7 of the
Barreiros Canyon (Author Ramonn Tomaz)

Access to the Barreiros Canyon

Leaving from Praia Grande on SC 290 towards BR101. On BR 101, head south (towards Porto Alegre) and enter Três Forquilhas via Rota do Sol, entering the community of Barreiros, where the car will be at the end of the road. This journey by car takes about 2 hours.

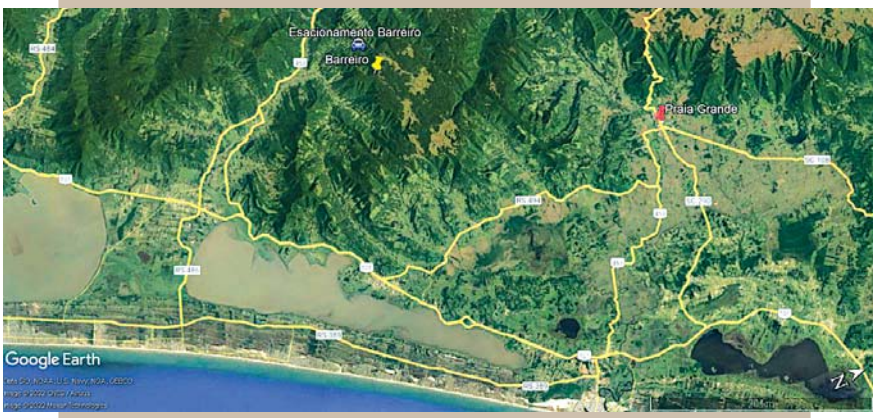


Image from Google Earth, showing the location of the city of Praia Grande, RS-494, BR 101 roads and the parking place to access the Barreiro canyon.

Geographical Coordinates Parking access to Barreiros Canyon

Datum WGS84 **UTM Coordinates**

CANYON	PARKING
Barreiros	-29.396253, -50.125148

Access trail

From the parking place, go up the mountain, following the trail marked on Wikiloc present in the sketch of the canyon. This hike takes about 2 and a half hours, starting with a steep climb.

Photo of the R5 (Autor Ramonn Tomaz)

Geographical Coordinates Entrances and Exits of the Barreiros Canyon

Datum WGS84 **UTM Coordinates**

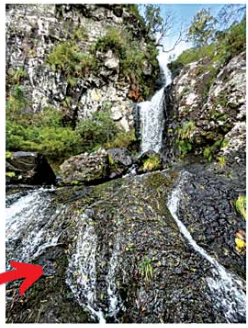
CANYON	ENTRY	EXIT
Barreiros	-29.391724, -50.100108	-29.393611, -50.105922

Barreiros Canyon

Conquest in May 2011 by Carlos Alberto Réus (Kaloca), Dr Schuster, and La Hore.
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca), Ramonn Tomaz and Vitor Viana.

The **Barreiros Canyon**, located south of Praia Grande, is a very beautiful ravine, green and with good verticals. The canyoning path is composed of 11 rappels, the largest of which is 70 m. It is one of the canyons with the greatest amount of water in the event, apart from Malacara (because it doesn't have so many pools). The waterfalls have a good volume of water and the rappels are high, with the presence of fractionation. Presence of pools, the largest with 10 to 15 meters. The route is very beautiful with a fantastic view, it is one of the most beautiful canyons of the event.

Photo of the R11 of the Barreiros Canyon (Author Ramonn Tomaz)



E

Ra
me
××
6 m

R1
me
××
30 m

Ra
me
××
1 m

R2
me
××
15 m

R3
me
××
50 m

Ra
md
××
6 m

R8
md
××
15 m

R9
md
××
5 m

R10
md
××
8 m

Ra
md
××
15 m

R11
md
××
70 m

S

Ra
me
××
5 m

R4
me
××
30 m

Ra
me
××
6 m

R5
md
××
65 m

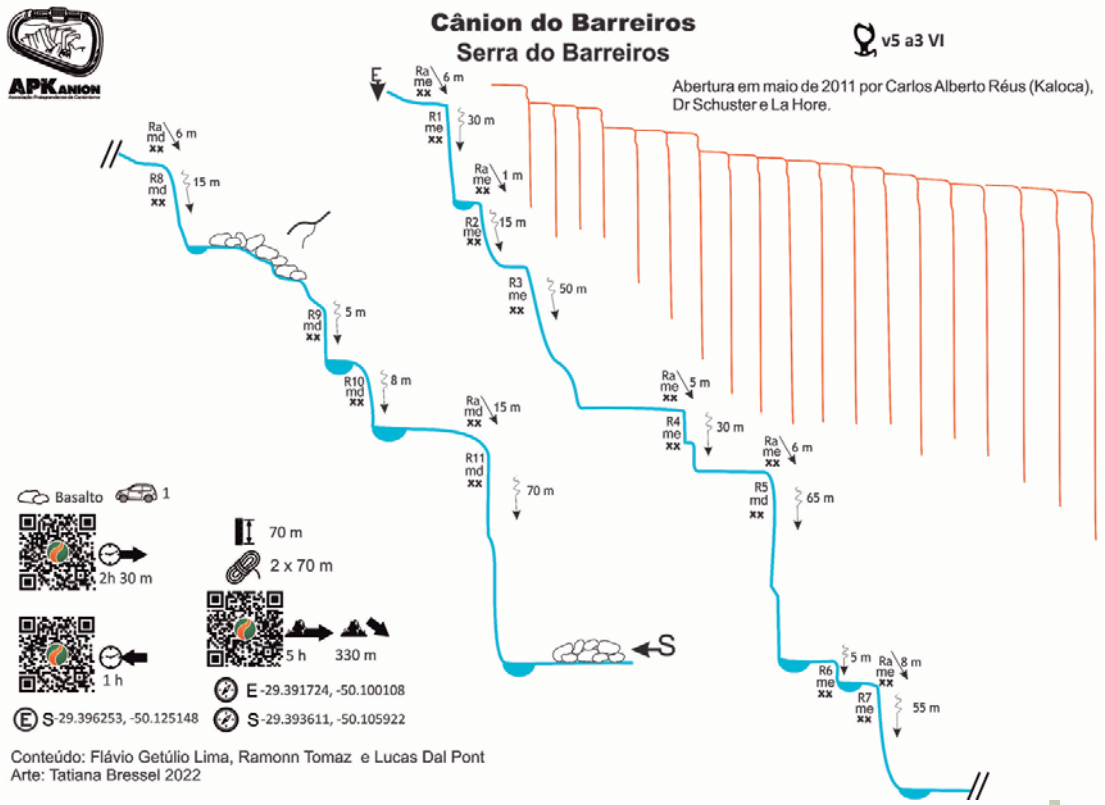
5 m

R6
me
××

Ra
me
××
8 m

R7
me
××
55 m

Fotos: Ramonn Tomaz
Arte: Tatiana Bressel



Conteúdo: Flávio Getúlio Lima, Ramonn Tomaz e Lucas Dal Pont
Arte: Tatiana Bressel 2022

CÂNION FUNIL

v4 a3 VI

1 (3h) + transfer

1h30min

9h

3h40min

50 m

Nº R 8

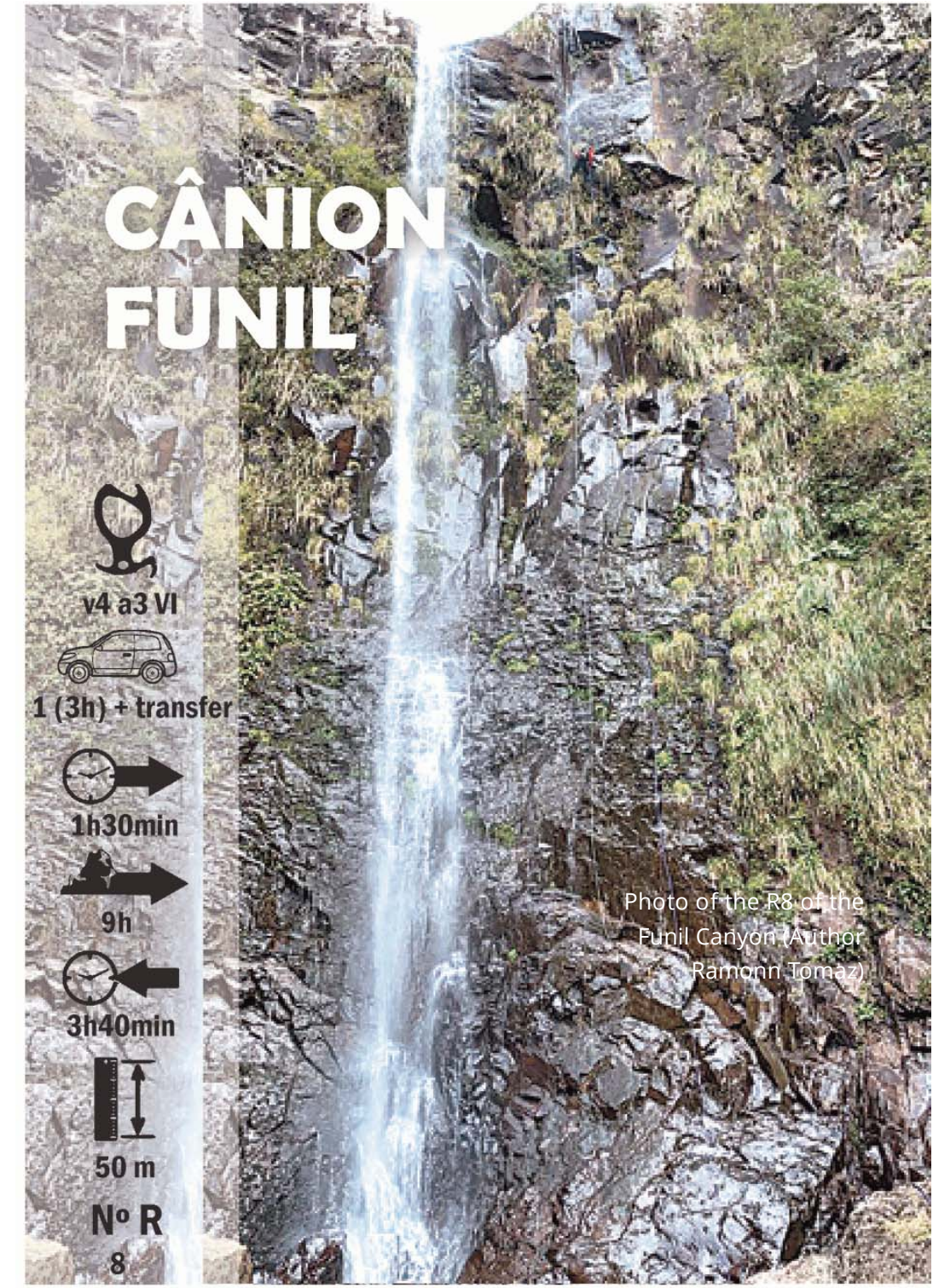


Photo of the R8 of the Funil Canyon (Author Ramonn Tomaz)

Access to Funil Canyon

Leaving from Praia Grande on SC290 towards BR 101. On BR 101, head north towards Florianópolis until the first entrance to the city of Criciúma. Move towards Forquilhinha, from there go towards Nova Veneza. From this location, head towards Siderópolis, passing this city to Guatá. The meeting point for logistics is at a gas station near the Redivo inn, next to the highway police (SC 390). This journey by car takes about 3 hours.

Image from Google Earth, showing the location of the city of Praia Grande, road BR 101 and the parking place to access the Funil canyon.

From this location, a person will help with the logistics. He will accompany you to leave the car at the exit of the canyon (about 20 minutes) and then take you to the top, along the edge of the canyon, on the edge of the river.

Geographical Coordinates Parking access to Funil Canyon

Datum WGS84 **UTM Coordinates**

CANYON	PARKING
Funil	-28.339498, -49.498879

Access trail

The access trail to the Funil Canyon takes about 1 hour and 20 minutes to approach the first rappel, entering the canyon. The return, after the last rappel, takes about 3 and a half hours to reach the car. It is advisable to follow the wikiloc return trail present in the sketch of the Funil canyon.

Photo of the top of the last rappel (R8) of the Funil Canyon (Author Ramonn Tomaz)

Geographical Coordinates Entrances and Exits of the Funil Canyon

Datum WGS84 **UTM Coordinates**

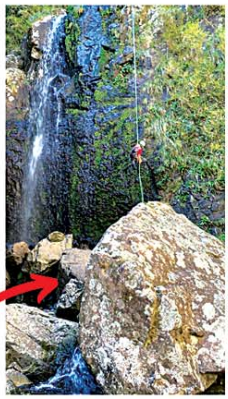
CANYON	ENTRY	EXIT
Funil	-28.342368, -49.540745	-28.339425, -49.535156

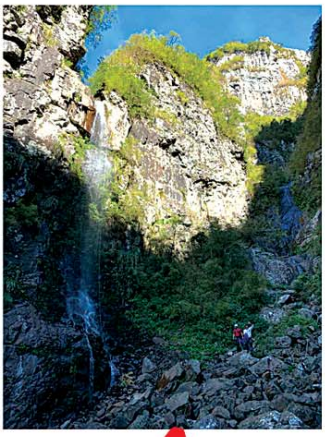
Funil Canyon

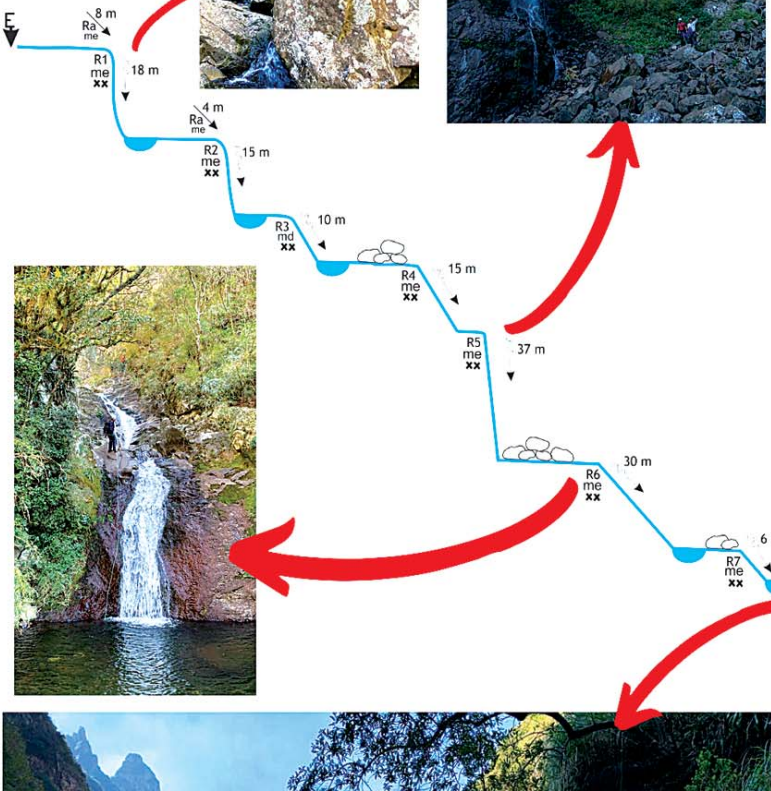
Conquered in March 2000 by the French Pascal Badin, Marc Boureau, Alain Cutullic and Patrick Gimat.
Re-recording in July 2022 by Carlos Alberto Réus (Kaloca), FlávioGetúlio, and RamonnTomaz.

The **Funil Canyon** is another icon of the southern region of Brazil. Its highlight is the pointed shapes of its cliffs, making it one of the most beautiful in the region. This canyon located at an altitude of 1590 m (at its highest point to the north) is approximately 2 km long and its width varies from 500 to 1000 m. Canyon of incomparable scenic beauty. The canyoning route has 8 rope works with the longest rappel measuring 50 m. A difference of this canyon in relation to the others indicated in the RIC Brasil 2022 is that it is located in a transition region between the two rock formations of the Aparados da Serra, the Serra Geral formation, of igneous rocks (predominantly basalt), and the Botucatu formation, of sedimentary rocks (predominantly sandstone). We started the descent of the canyon on basalt and ended it on sandstone, allowing us to observe the differences between the two rock formations.

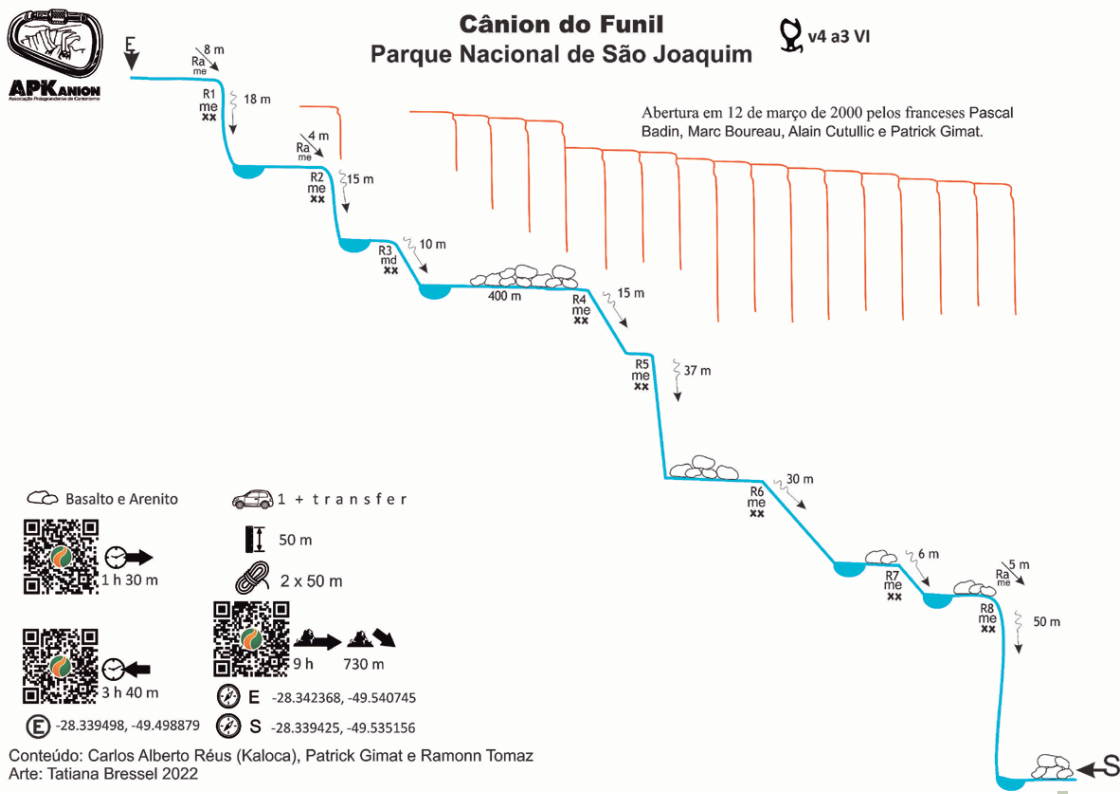
Photo of the R6 of the Funil Canyon (Author Ramonn Tomaz)







Fotos: Ramonn Tomaz
Arte: Tatiana Bressel



Conteúdo: Carlos Alberto Réus (Kaloca), Patrick Gimat e Ramonn Tomaz
Arte: Tatiana Bressel 2022

RIC Brasil 2022

Vias de Canionismo

Nº	Via de Canionismo					Nº R	Pág.
1	Malacara Superior	v4 a3 IV	1(1h30min)	1h30min	4h	2h30min	50 m	5	100
2	Malacara Inferior	v6 a4 VI	2(2h)	2h	11h	4h	50 m	14	106
3	Malacara Integral	v6 a4 VI	2(2h)	1h30min	15h	4h	50 m	19	114
4	Malacara Via da Cascavel	v4 a2 V	2(2h)	3h40min	4h	1h30min	50 m	13	123
5	Índios Coroados Via Sul	v4 a2 V	2(1h30min)	15min	6h	3h	45 m	15	133
6	Índios Coroados Via Rolador	v5 a2 V	2(1h30min)	15min	5h	3h	80 m	15	142
7	Ravina dos Amigos / Orbal	v4 a1 IV	2(1h30min)	20min	8h	30min	40m	13	149
8	Café Integral	v4 a2 V	2(1h30min)	20min	6h	30min	35 m	10	159
9	Café Inferior	v4 a2 V	2(1h15min)	5min	3h	30min	35 m	5	168
10	Silveirão	v5 a3 V	1(2h)+resgate	2min	5h	3h	60 m	11	174
11	Kaingang	v5 a2 V	1(3h)+resgate	40min	8h	40min	100 m	10	184
12	Iniciantes	v3 a2 I	1(40min)	5min	1h30min	40min	30 m	7	192
13	Ravina dos Carijós	v4 a1 II	1+táxi(40min)	10min	2h	10min	25 m	8	199
14	Cachoeirismo Vista Alegre	v4 a2 III	1(40min)	30min	1h	15min	45 m	3	207
15	Átila	v4 a2 V	1(3h)+resgate	45min	10h	30min	50 m	17	215
16	Barreiros	v5 a3 VI	1(2h)	2h30min	5 h	1h	70 m	11	223
17	Funil	v4 a3 VI	1(3h)+transfer	1h30min	9h	3h40min	50 m	8	231

Malacara Canyon, author of the photo Ramonn Tomaz

The idea of creating this canyoneering guide book emerged during the first meetings about RIC Brazil 2022.Thinking of a way to present the richness of our fauna, flora, geology and history of this region, we gathered different texts and photos in a didactic, illustrative and collaborative material. It was with this objective in mind that two members of the organizing committee of the RIC (a tourismologist and a biologist) decided to join forces and gather the other collaborators to produce this material for their appreciation. We believe that in this way, the participants of the event will be able to enjoy even more the days they will spend here, enriching their experience in our territory.

The book has topo guides, geographic coordinates, access descriptions and photos of the 17 canyoning routes selected for RIC Brazil 2022, in addition to extensive information for your benefit.

Enjoy this material, and good waters for all!

Leandro Bazotti
Tatiana Bressel

9 786500 506723