



# SERRANO, A GIFT FROM THE GARIMPO

POINT OF GEOLOGIC INTEREST



## EVOLUTION OF THE SERRANO

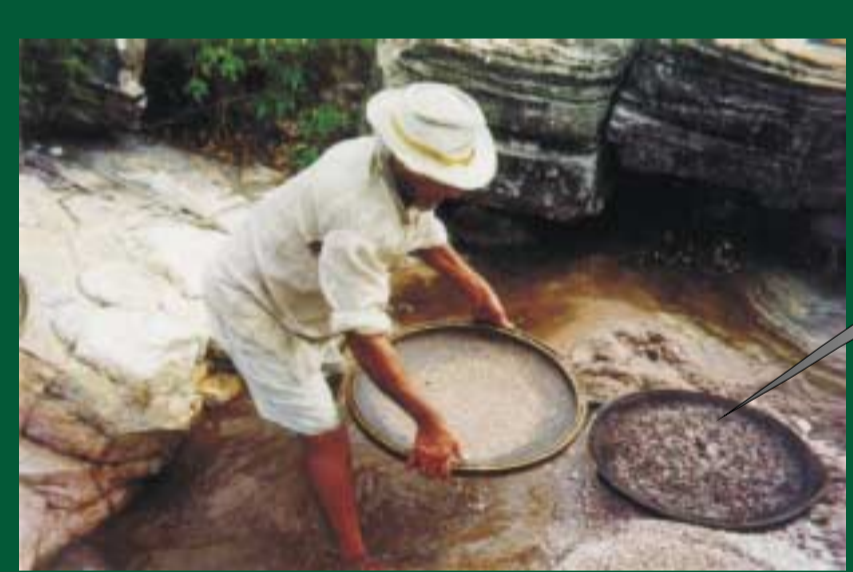
### HOW EVERYTHING BEGAN

In this region lived the Cariris or Maracás Indians, from whose languages comes a great part of the place names of the region; they were expelled or killed by the bandeirante raiders in 1600. It was an area of thick forest, ranges and much water, respected because the "common" "mosquito diseases". Crossing the region was built, starting in the year of 1600, the Royal Trail connecting the Gold-producing regions of Bahia - Rio de Contas and Jacobina - site of the mint. The area was little occupied. The São João (Santa Isabel) do Paraguaçu hamlet (presently Mucugê) is the oldest settlement, passage and stop, belonging to the Minas de Rio de Contas domain.

### WHY SERRANO?

The name Serrano refers to an area of "garimpo" (diamond washings) preferred by garimpeiros who came from Serro Frio (in Minas Gerais state). When they made comments or sent messages about this place, they said; "...towards the serranos..." This costume determined the name of the place since the beginning of the occupation by the "garimpeiros", in middle 1800's and was adopted by the local population.

This is the area you will see a little more ahead, its geologic and human histories being shown here. Our objective is to promote through the knowledge, more care with this area, a point of relevant geologic and cultural interest in this region. At the same time we suggest to the visitor from other places, a few precautions since the beauty of this region hides dangers that should be known to be avoided.

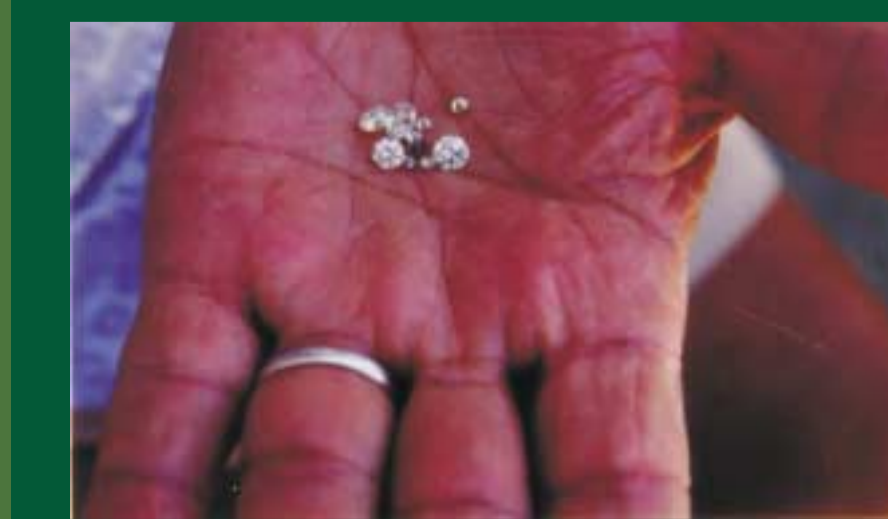


In 1844, José Pereira do Prado recognized by similarity with other regions, the diamond bearing terrains and, after some tentative, one of his helpers found two diamonds of the best quality. That gentleman lived in Bom Jesus do Rio de Contas (presently the town of Piaçá) and was knowledgeable of diamonds, because he washed them in the Chapada Velha; owing to business with cattle, he wandered in the lands along the Mucugê creek in the area of Rocha Medrado family's ranch.

Selling the diamonds in the Chapada Velha, another helper of José Pereira do Prado, Pedro Ferreira was accused of having achieved them by murder of a "capangueiro" (diamond buyer) and to avoid imprisonment revealed the place of the discovery.

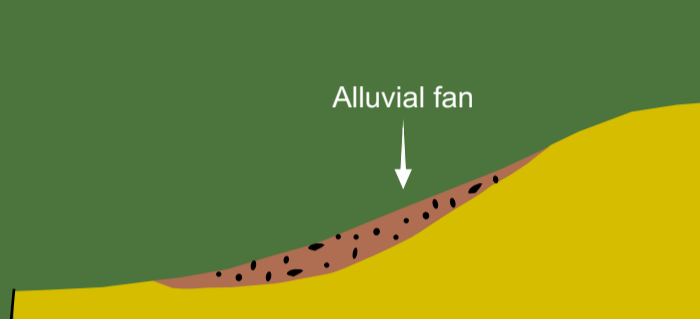
Within six months 25,000 people appeared in the region of Santa Isabel (São João) do Paraguaçu (ex-and presently Mucugê). This area, where only existed the hamlets of Mucugê and settlements inhabited mostly by "garimpeiros", slaves, and "land lords" are located today Lençóis, Andaraí and Palmeiras.

From everywhere came people, creeds, colors, and religions. From the colony came especially "garimpeiros" from Serro Frio and Itjuco, in Minas Gerais, fleeing from the control of the Portuguese crown; and sugar cane planters from the Reconquista de Todos os Santos Bay.

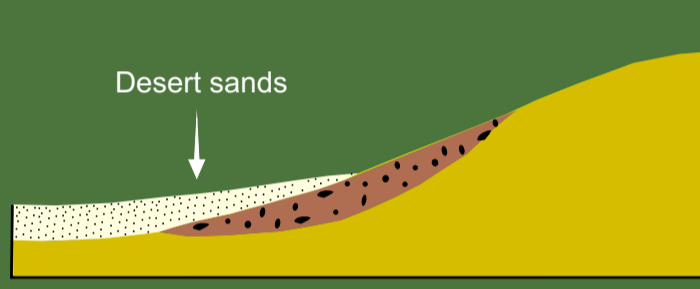


### Geologic Time

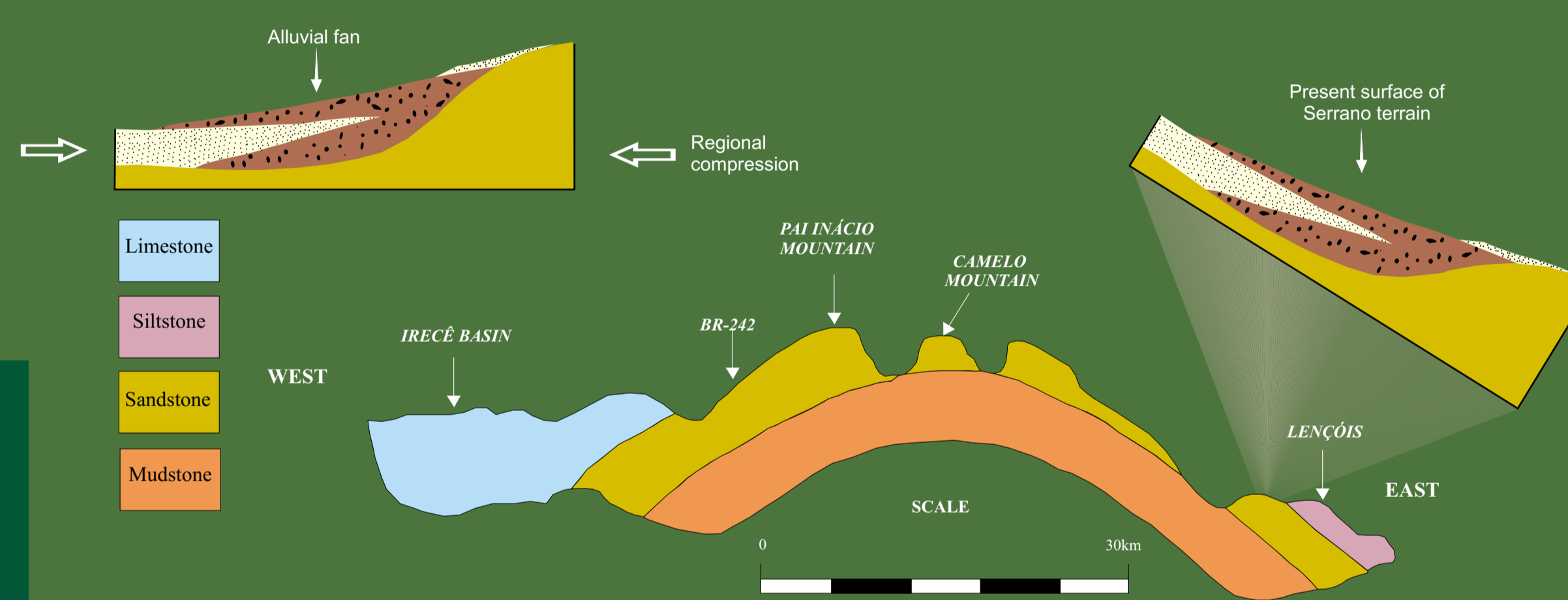
In the deep time, more than one thousand and six hundred million years ago, during the era named Precambrian, this region was a desert, very similar to the present Sahara desert. In one end of this desert, we had a shallow sea; in the other, there were mountains; in the middle of the desert, we had some temporary rivers and lakes as oasis. The area that presently forms the Serrano



This flow comprised water mud and sand, with larger fragments of rocks, pebbles to blocks and formed (when the water soaked the sand and the flow stopped or when the river disappeared within the desert sands) in the foot of the mountain, what the geologists call alluvial fan. The deposit so formed had all the sizes of grains, the larger ones connected by the smaller, as one can see in the floor of the Serrano area.



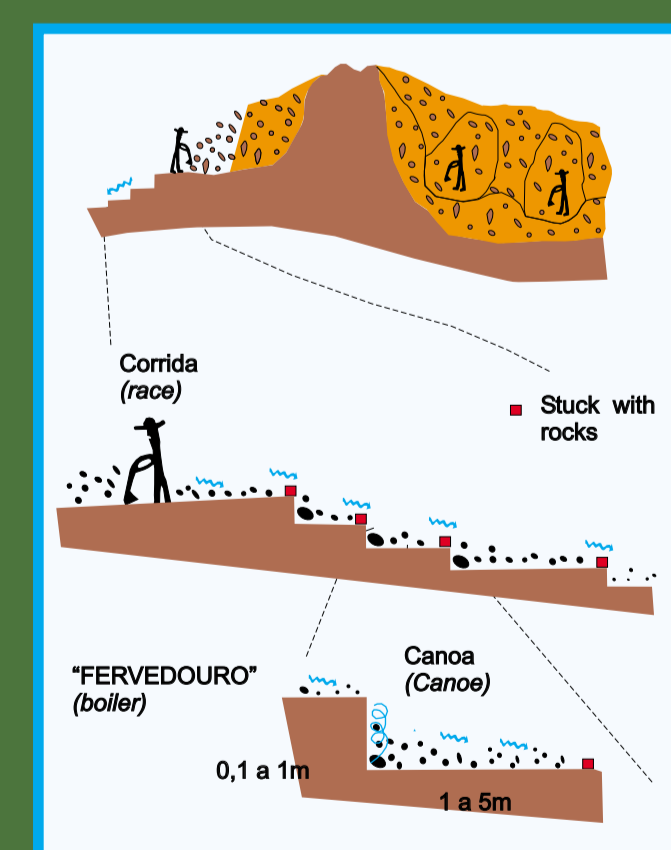
Some time later the desert was covered by other sedimentary systems and until about eight hundred million years tectonic forces uplifted the desert, building mountains where it existed before, changing the sedimentary deposits into rock and preserving the original sedimentary structures, so allowing the geologists to tell this story.



The mountains then were eroded, mostly by rivers, in a moister climate. This erosion formed the Serrano, dug the surface until exposing the rocks in the foot of the mountain, as a high area in a plateau. In the soil then formed has grown a dense forest.

So was the Serrano, a long slope with rapids, a high energy river with gravelly bottom, surrounded by dense vegetation, when the first man, thousands of years ago went by this region, and not much different is described in the beginning of the 1600s, when the first settlers, expelling the Indians, reached the Chapada Diamantina.

### Time of the Man - human geologic actions



Here the formation of the Serrano is fused with the history of the man.

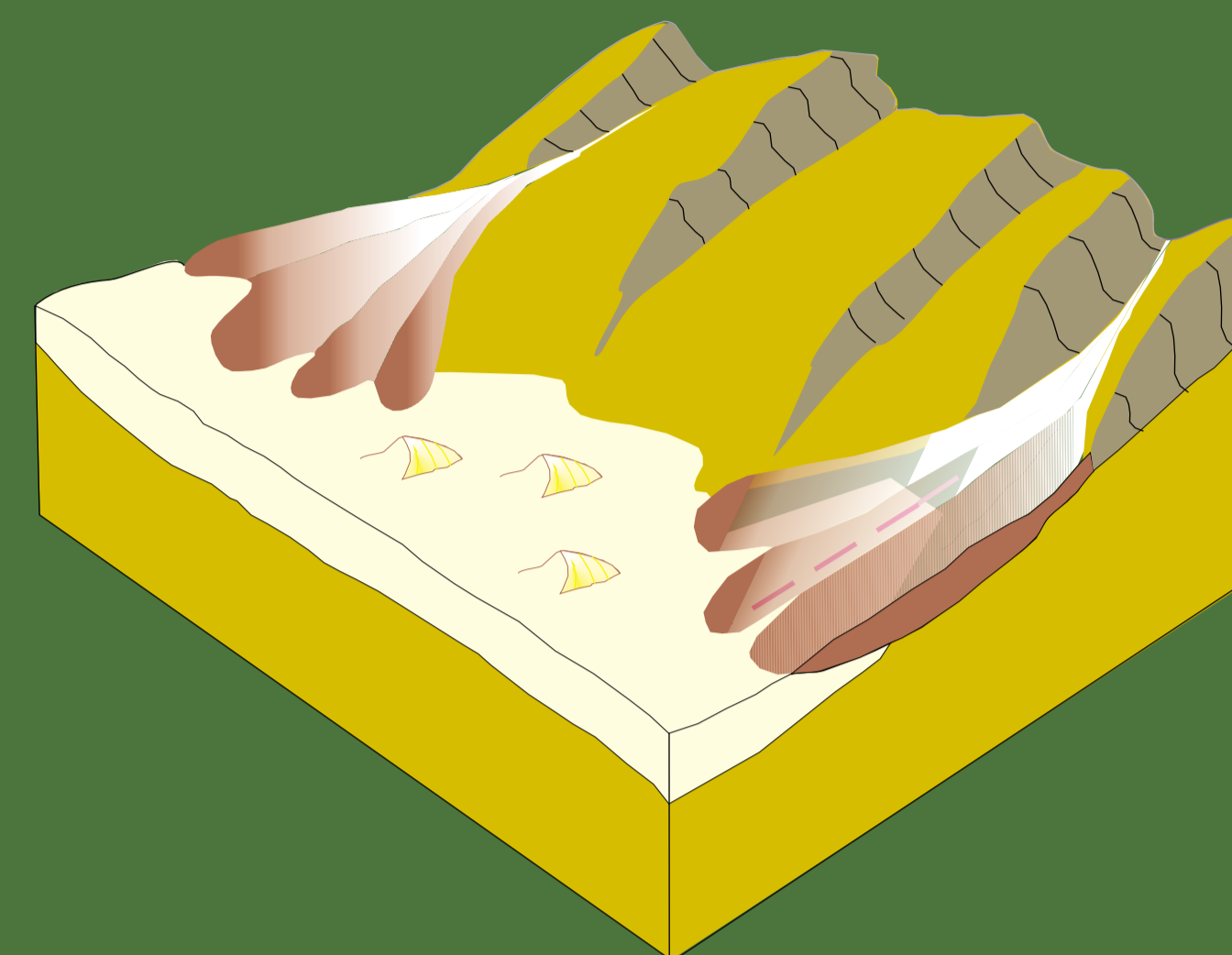
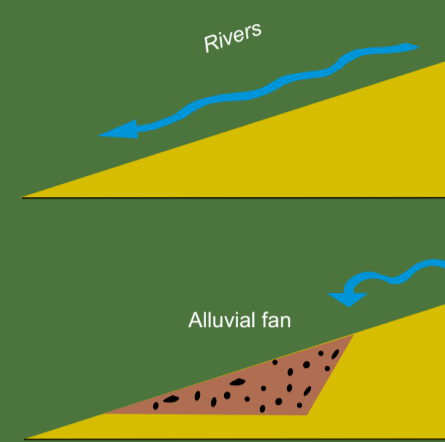
When the diamonds were discovered in this area, the search was intense around the Serrano. Tents that from afar appeared sheets were erected, or the bubbling river also appeared sheets, gave the name to the town. During this quest, all the gravel from the bottom of the rivers, from the sinks and from the pot holes today available was removed. Next, in the gravel of the soil on the river banks, were found many diamonds.

Where the garimpo worked in this area left the rock bare, as swept from its cover of soil or sediment. The vegetation seen today grown up again on the tailings of the garimpo.

The beauty of the Serrano rocks, a conglomerate formed by few types of rock is exposed to our eyes and the scars of the garimpo works seldom are seen; they are piled up rock fragments upon which is the present vegetation, the close by Hall of Sands, another interesting point to visit, an ancient garimpo area, whose sand among the blocks was removed, blocks of rock in piles or forming lines, among many others that only the old inhabitants can show you. The trail, between this panel and the Serrano, is an old trough that in those days brought water both for the town and the Ribeirão garimpos.

### ALLUVIAL FAN: WHAT IS, AND HOW IS IT FORMED?

Look the rocks that form the Serrano; they are composed by pebbles of several sizes, welded among them by a pink-reddish matrix. Some pebbles have rounded shapes, almost without sharp corners; others, are blocks with sharp projecting corners. This indicates that the former were transported rolling in the bottom of rivers; the latter ones rolled down because of the gravity force. All these rocks form what is called by the geologists of alluvial fan and by the geographers, piedmont colluvium.



### WHAT IS, AND HOW ARE FORMED POT HOLES AND POOLS ?

Pot holes are the structure that forms the marvelous bathing pools of the Serrano. A sand grain, owing to any cause, sinks to the rocky bottom of the river and cannot be removed. The water force makes it to rotate in the same place, and its action with the time is similar to a sand paper. A small depression is formed and it traps other grains, even larger, that enlarge and deepen the depression with their rotation. So is made the pan, the pot hole, the pool, each time wider and deeper.

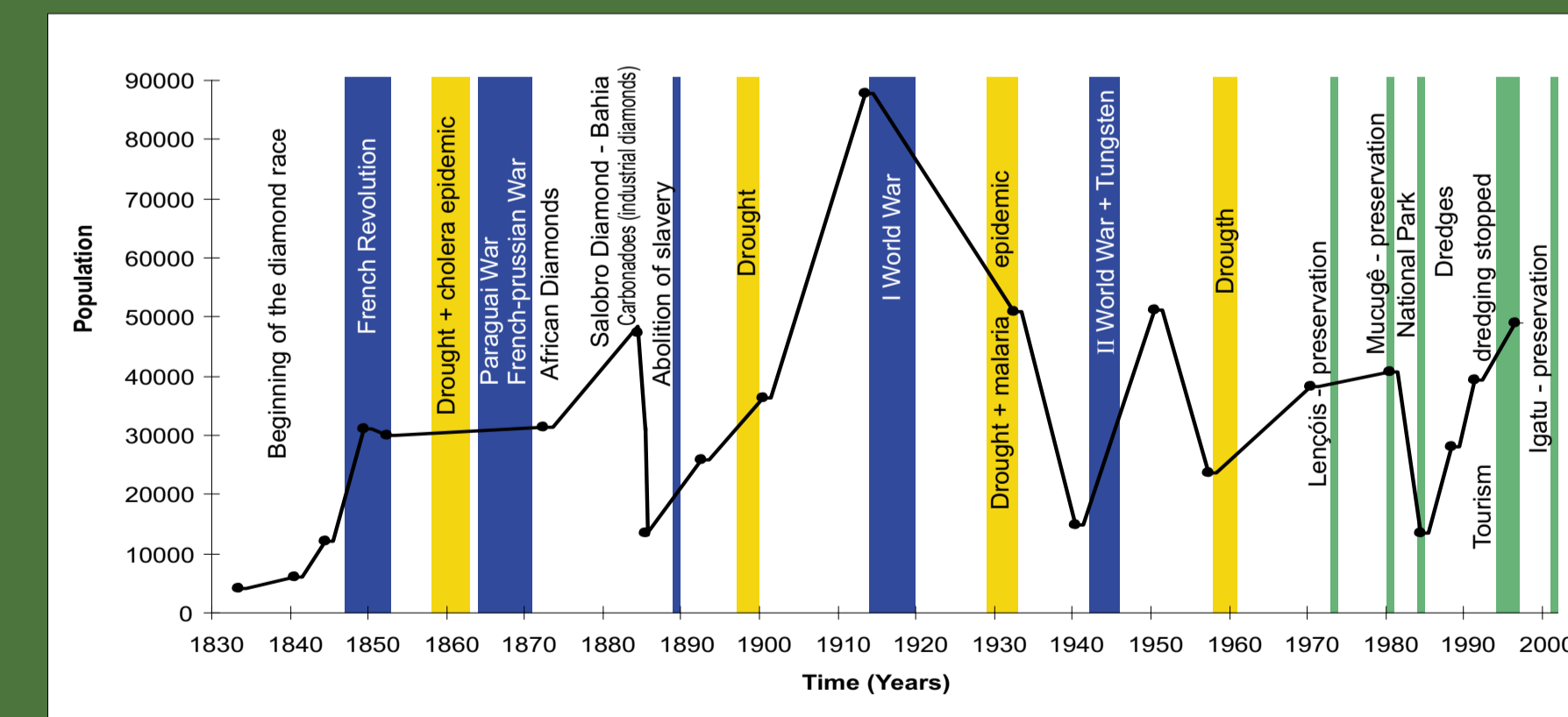


Here you take the best bath of Lençóis, the water is delicious, but be careful: some pools are interconnected and can suck a person. To use the pools, observe those used by the local people. If the river is much too full or much too dry, and you do not see much people bathing, avoid to enter; there are different risks in each case, all of them menacing your well being, your health, your life.

### THE DIAMOND CYCLES

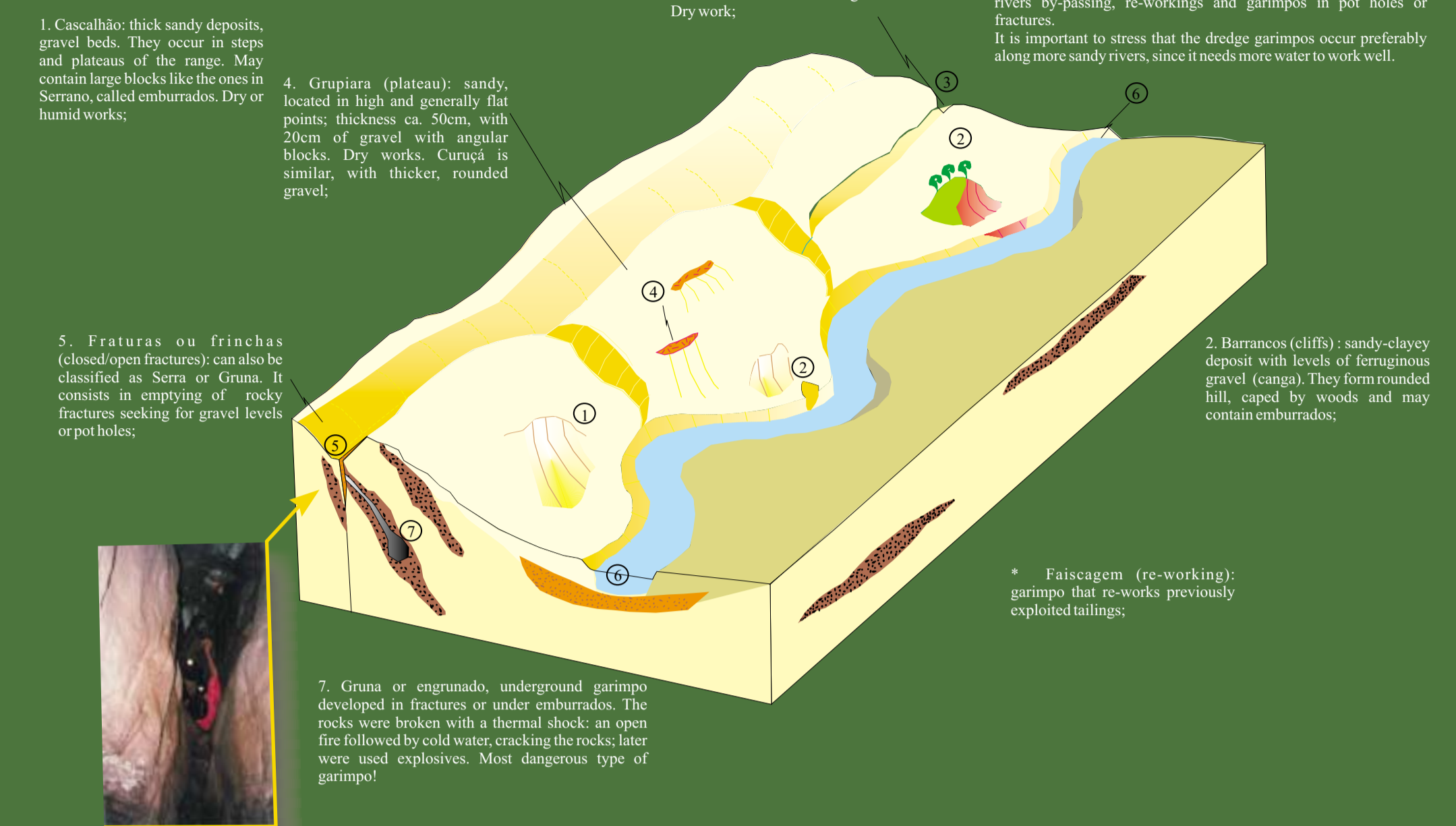
The Lavras Diamantinas produced diamonds and carbonados along about 90 years, between 1842/1845 and 1996. The regional population reflects the degree of the activities of garimpagem and the price of the carat of the diamond; the carat is divided into 100 points and the point into half points and "mosquitos". The population and the degree of activity in last instance are controlled by outside events, especially those that make the World Diamond Market fluctuate as the figure above shows. The control is European, and external events activated or paralyzed the garimpo. During the war between France and Germany, when the diamond buyers fought, the activity dropped down. The need of diamond drill bits for great building works such as the Panamá Channel, was responsible by the rise of the carbonados (Industrial diamonds), rise that had been maintained between the two World Wars, by the production of internal ignition motors. The discovery of the African diamonds and of the tungsten (used instead carbonados in drill bits) made the garimpos drop down, both in the XIX and XX centuries.

So, the environmental changes are promoted in pulses and their affects are slowed down by the



Key  
Historic Events  
Protection Events  
Drought/Epidemic  
Steps in Diamond Exploration

### GARIMPO TYPES IN LENÇÓIS



1. Cascalhão: thick sandy deposits, gravel beds, they occur in steps and plateaus of the range. May contain large blocks like the ones in Serro, called embarradas. Dry or humid works.  
2. Barranco (cliff): sandy-clayey deposit with levels of ferruginous gravel (camp). They form rounded hills, covered by woods and may contain embarradas.  
3. Heijo (swamp): high and damp area with little soil on the gravel. Dry work.  
4. Grapiara (plateau): sandy located in high and generally flat points, thickness ca. 20cm, with 20cm of gravel with angular blocks. Dry work, stands in similar, with thicker rounded gravel.  
5. Fancagem (to-working): garimpo that works previously exploited tailings.  
6. Rios comprise the garimpos in the beds or banks of the rivers with rivers by-passing, re-workings and garimpos in pot holes or fractures. It is important to stress that the dredge garimpos occur preferably along more sandy rivers, since it needs more water to work well.  
7. Grama or engrunado, underground garimpo developed in fractures or under embarradas. The rocks were broken with a thermal shock: an open fire followed by cold water, cracking the rocks; later were used explosives. Most dangerous type of garimpo!

The garimpos are divided into the traditional where the hand work predominate and mechanized. The traditional, also considers its location in the ranges or type of deposit to be exploited.

The first tentative of mechanization is from mid - XX Century, with electric engines in caves and river banks. In 1984/1986 the mechanized garimpo was re-introduced using dredges. Diesel oil suction pumps, both within and outside the National Park. This garimpo was discontinued by a joint action of the authorities related to mining and the environment in the year 1996.

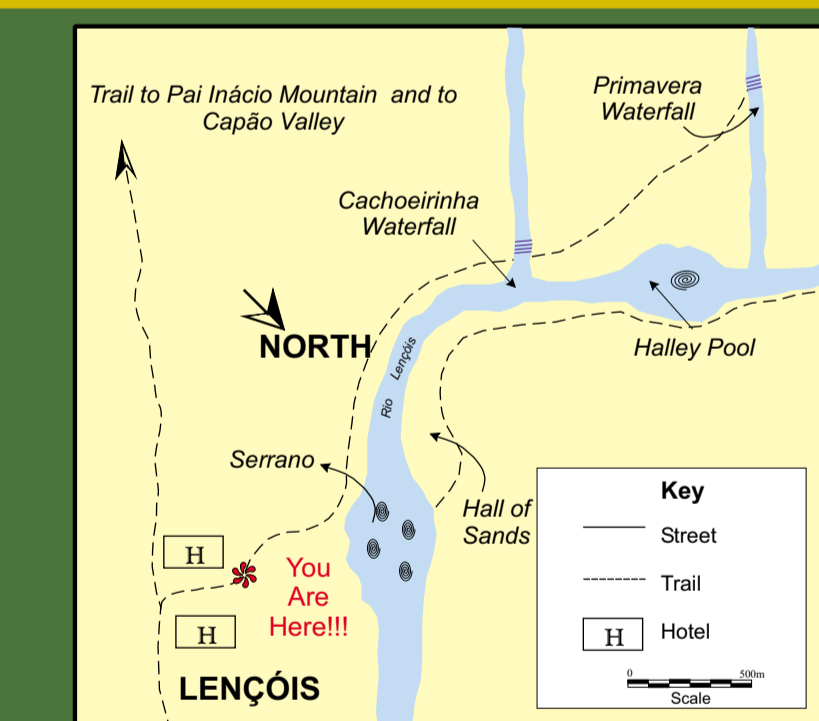
The manual garimpo, although at a slower pace, persists in the region even having been forbidden since 1996. The interaction of the National Park with this traditional community is one of the greatest challenges to be faced for the park consolidation. The dredge garimpos, forbidden in 1996 are illegal.

The Serrano should have been worked by several types of garimpos shown below, specially the garimpo in rivers and pot holes, as well the types cascalhão, grapiara and curuçá. (see figure below). The pot holes, full of sediments and sometimes closed by an iron crust, were emptied of those sediments, and today form the so much sought bathing pools.

The process of earth working divides the garimpos into dry and humid; the former dominates between 1842 and 1872; the humid garimpo dominated until 1950 with little mechanization and from that year on, with dredges. The marks of these processes are seen along the whole range in the banks and cliffs along the rivers and in their channels. None of them stop existing along the time, depending on the place and water conditions.

The relationships between the material and the topographic situation furnish another division of the types of garimpo deposits shown in the figure below. The traditional garimpos are divided into Barrancos (cliffs), Serras (ranges; almost all of them), Rios (rivers) and Grunas (caves); their names may change in other regions of the country. The record of barrancos are the erosion as bad lands; in serras, the clearest records are piles of blocks and the walls, similar to the records from rios. The caves open as grunas, only the garimpeiros are able to show.

### OTHER INTERESTING POINTS



## PROJETO CAMINHOS GEOLÓGICOS DA BAHIA



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PROJETO CAMINHOS GEOLÓGICOS DA BAHIA

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VERSÃO EM PORTUGUÊS DO LADO OPOSTO

