

The "furnas" of the Vila Velha State Park

What means furnas ?

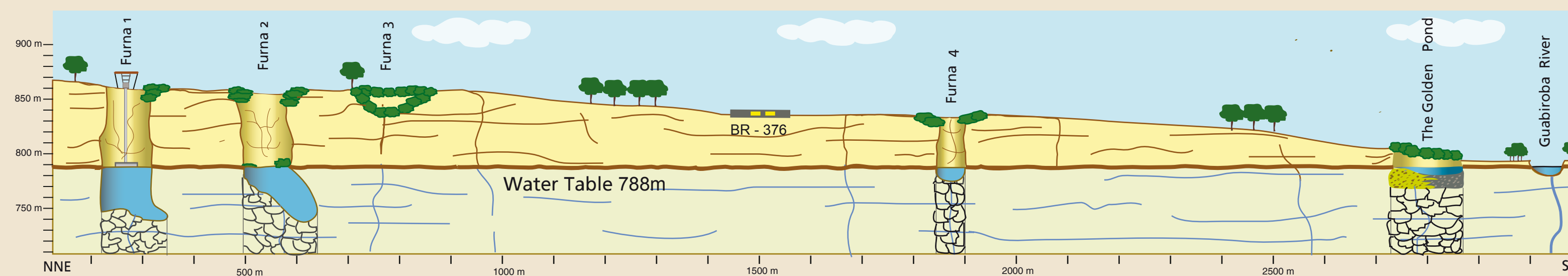


The term *furna* means cave, hole, or crater, and is used in other regions of Brazil to designate any landslide or cavity in the ground. In the Vila Velha State Park, they are natural depression features approximately cylindrical with deep vertical walls, formed by the collapse of a sandstone roof.

The furnas in Paraná State occur almost exclusively in the outcrop area of a geological unit known as the Furnas Formation. Almost fifty such features are found in the region known as the Campos Gerais. Most of them are shallow and poorly developed.

In the Vila Velha State Park, twelve depressions are identified as furnas, but only furnas 1, 2 and the one known as the Golden Pond have a infrastructure for tourism.

The furnas of Vila Velha



- Furna 1**
Altitude: 850 m - Diameter: 80 m
Total Depth: 111 m - Submerged depth: 53 m
In 1978-1981, the furna received a vertiginous elevator with a floating deck. The elevator is now inactive due to environmental and security concerns.
- Furna 2**
Altitude: 848 m - Minor axis diameter : 90 m - Major axis diameter: 150 m
Total depth: 110 m - Submerged depth: 56 m
This feature actually corresponds to two furnas connected by erosion of the wall between them.
- Furna 3**
Altitude: 842 m - Diameter: 100 m
Depth: 20 m
This is a dry furna probably still under development.
- Furna 4**
Altitude: 824 m - Diameter: 21 m
Total Depth: 43m - Submerged depth: 14m
This cavity constitutes a sink for waters of the Roça Stream, that enters it as a small waterfall.
- The Golden Pond**
Altitude: 812 m - Minor axis diameter: 160 m - Major axis diameter: 200 m
Submerged Depth: 5,4m
This is a sediment-filled furna on the floodplain of the Guabirola River. It forms a natural aquarium where fish species find refuge for breeding.
- Tarumã Pond**
The Tarumã Pond is a furna that is under sedimentation process on the floodplain of the Guabirola River, 1200 m from the Golden Pond.

Sandstones of the Furnas Formation

The Furnas sandstones correspond to light-colored sandy sedimentary rocks of coastal marine origin and Devonian age (\pm four hundred million years). Horizontal layers with marked bedding are present in these sandstones. The predominant mineral grains are composed of quartz and cemented by kaolinite. Kaolinite can undergo corrosion (dissolution), which disaggregates the rock and contributes to the development of furnas.

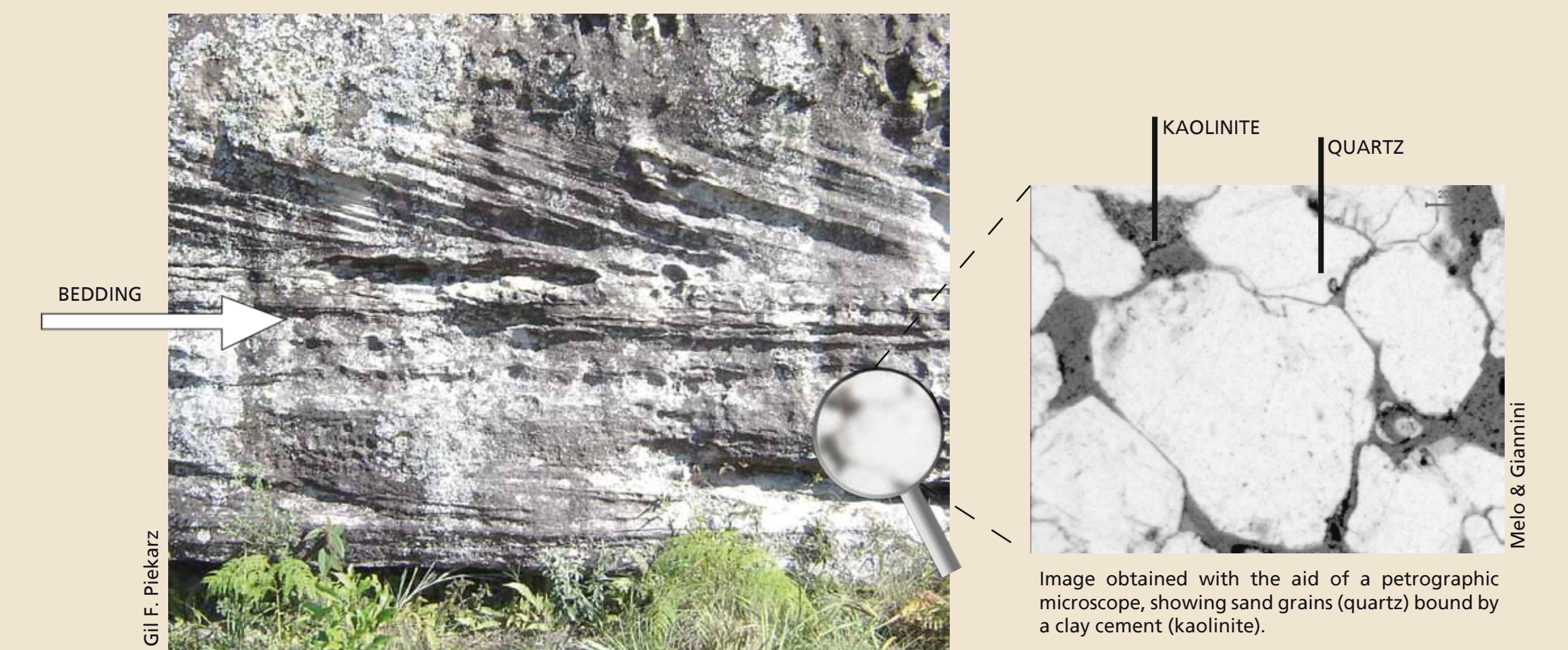
A combination of factors is responsible for the origin of the furnas: the nature of the sandstones of the formation, which includes soluble minerals, the presence of faults and fractures that facilitate the flow of water and erosion, and the presence, at great depths, of carbonate rocks with a tendency to form large caves.



Outcrops of Furnas Formation sandstones.

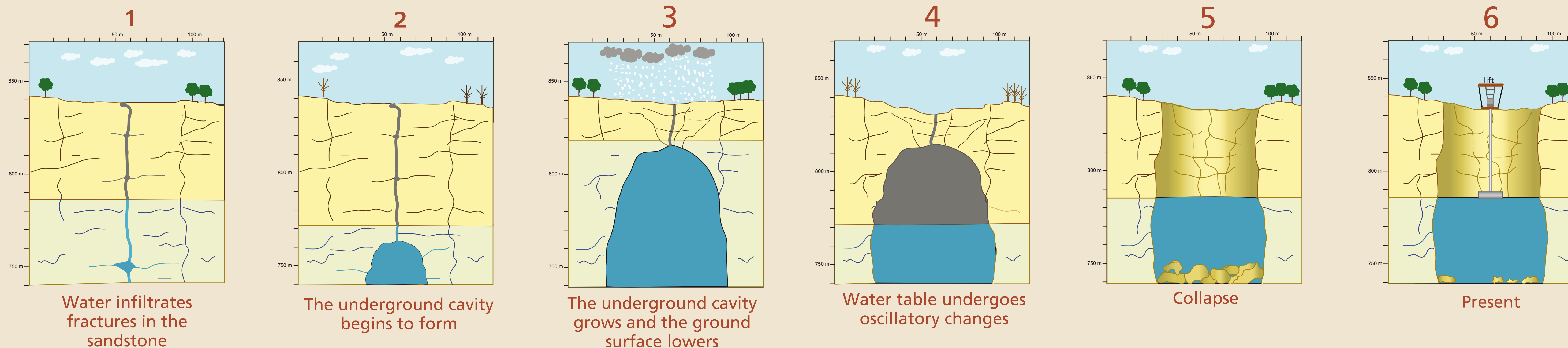


The Quebra-perna River cutting through sandstones at the Furnas Formation.



Sandstones of the Furnas Formation.

How did the furnas take shape?



Realization:

UEPG 40 anos 1969 - 2009

GOVERNO DO PARANÁ SECRETARIA DE ESTADO DA INDÚSTRIA, DO COMÉRCIO E ASSUNTOS DO MERCADO

MINEROPAR SERVIÇO GEOLÓGICO DO PARANÁ

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