

## **THE RANFORD FORMATION** (from the booklet by John Read, 2015)

The Ranford Formation is the remains of an ancient geological structure in the East Kimberley Region of Western Australia and Western Northern Territory. By accident or design it follows the alignment of the Halls Creek Fault – a hundreds of kilometres long very old earth movement which is home also to the Argyle Diamond Mine and other significant mineral deposits.

Only small portions of the Ranford Formation remain as most of the feature has been removed by exposure and erosion over the multi-million years of its existence. That which can be found has been captured and preserved by earth folding, or by hard rock structures and glacial and sandstone deposits.

Pars remain in mostly rugged country covering several thousand square kilometres, extending from Northern portions of the Keep River National Park in the Northern Territory to Texas Downs east of Warmun (Turkey Creek) in Western Australia.

The Ranford Formation takes its name from a very perceptive surveyor Henry Samuel Ranford who accompanied John Forrest's exploration party in the 1870s. Henry became Acting Surveyor General of WA in 1897. He was the eldest son of Benjamin Bristow Ranford who established the first tannery in this state in about 1850. Ranford Hill lies close to the WA – NT border.

Most of what remains of the Formation consists of brownish layers of shale, slate and siltstone but there are also remnants of quite unique and special stone varieties, such as Zebra Stone, which occurs as a unit of the Johnny Cake Shale Member of the Formation.

So far, four distinct decorative stone types have been discovered and exploited. Persistent exploration may well yield others.

### **ZEBRA STONE – ZEBRA ROCK**

Zebra Stone was the first documented and is the most widely known of the family of decorative stones in the Ranford Formation. '

There is a good deal of speculation as to the origin and subsequent alteration of the material we now refer to as Zebra Stone. Early studies placed its age at over half a billion years.

In all likelihood sheets of fine silty material settled as seasonal layers at the bottom of a large quiet body of water. An impressive number of these layers accumulated, each with subtle or significant differences in composition and texture. Certain layers, separated by greater or lesser intervals of time, developed characteristic uniform rhythmically curved iron-rich bands across the bedding plane of the sediment. This could have followed the deposition of fine ferric dust from periodic volcanic activity.

In different places the same layers display patterns of evenly distributed rods parallel to the bedding plane. A huge variety of the exactly uniform patterns can be traced in the same layers over tens of kilometres. Lake Argyle covers much Zebra Stone. Five mining tenements cover some of the Zebra Stone deposits.