Geological Society of Zimbabwe

Field Excursion Guide-

Shamva Area, Zimbabwe

Excursion Leader:
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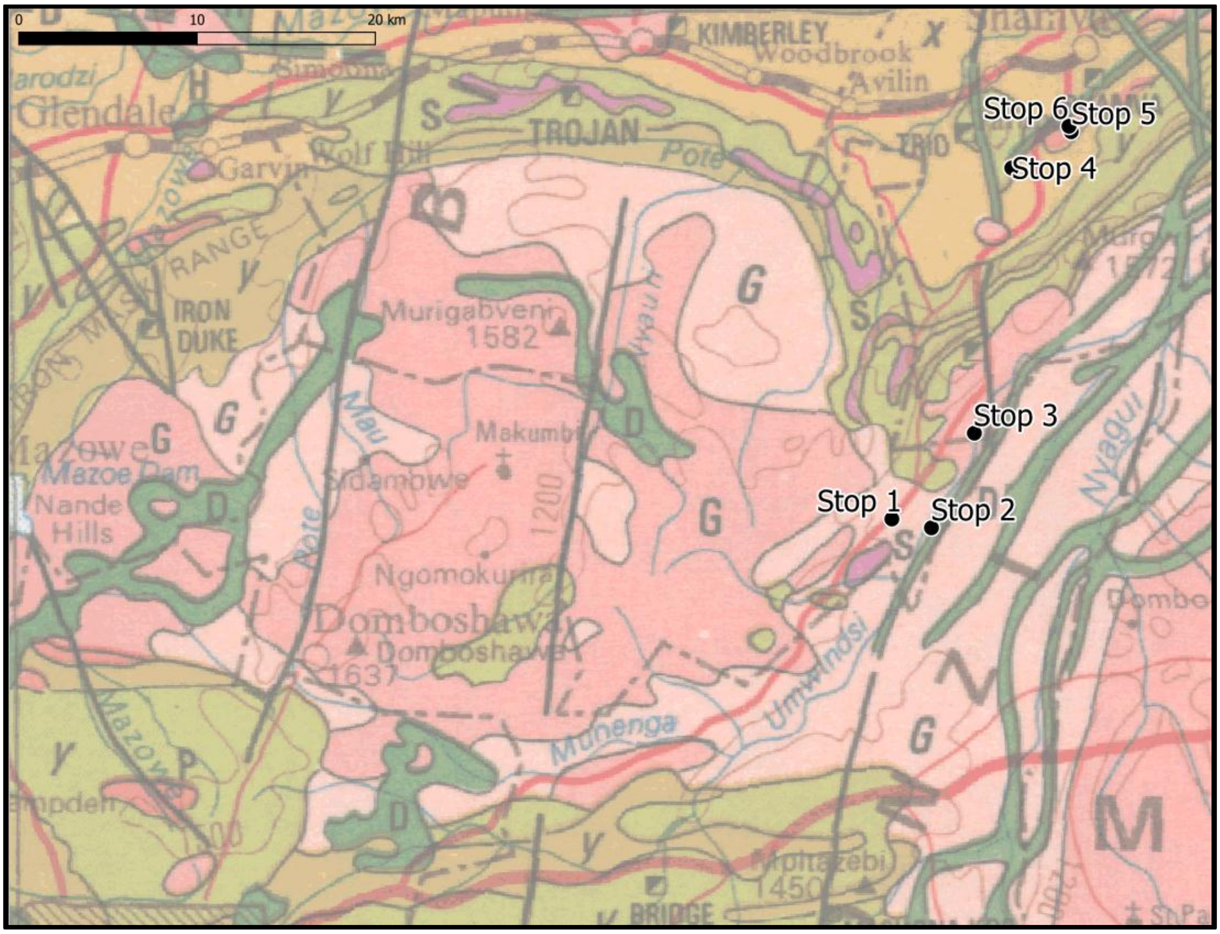

Stop	Outcrop lithology	Description	Coordinates (UTM Zone 36 Arc50)	
1	Porphyritic granite	Granite with mafic xenoliths and oriented feldspar phenocrysts	336810	8059590
2	Umwindsi Shear Zone	Intensely deformed felsic rock part of a major shear zone	339050	8059100
3	Granite	Massive granite and Lion's Head San rock art	341340	8064250
4	Walwyn Conglomerate	Unusual polymict Shamvaian boulder bed,	343540	8079280
5	Felsic volcanic/clastic rocks	Mixture of Shamvaian volcaniclastic rocks and sediments derived from them	345320	8078100
6	Felsic volcanics	Boulders and scree of felsic intrusive/extrusive porphyry	346940	8080760

The field trip is centred around the Shamvaian with two stops on granitic rocks and one on the Umwindsi Shear Zone.

In 1947 MacGregor officially subdivided the greenstone belt rocks into three units and selected as his type example the Shamva Grits Series of the Shamva Greenstone Belt. Subsequently Stidolph (1977) subdivided the Shamvaian Group into an upper unit of metasediments containing granitic detritus and a lower one of volcaniclastic sediments and pyroclastic rocks devoid of granitic material, although the contact between the two is gradational. These unconformably overlie the Bulawayan (Figure 1) with the main evidence for this being an angular relationship in the Bindura belt west of Glendale and the abundance of mafic volcanic clasts within the Shamvaian around Shamva.

Stop 1 Porphyritic Granite (336810 8059590)

The outcrop (Figure 2) is part of the Chinamora Porphyritic Granite which Baldock (1991) assigned to the Chinamora Igneous Complex. This was first described by Snowden (1976) who recognised some 45 different granitic types and Snowden and Bickle (1976) later grouped these into old gneisses, gneissic granites and late granites. The Chinamora Porphyritic Granite is part of the “late granites”.

The megacrysts are dominantly of microcline and occur in very variable quantities from dense to widely dispersed and in many localities, they are aligned. This alignment was attributed to two regional deformations by Snowden and Bickle (1976), partly because of their parallelism to similar megacrysts in sparse mafic xenoliths. However, the Granite is not foliated and Baldock suggested that upward diapiric movement could have caused the alignment.

Stop 2 Umwindsi Shear Zone (339050 8059100)

The Umwindsi Shear (Figures 2 and 3) is a major dislocation cutting through the Harare Greenstone Belt and separating the north-trending Passaford Limb from the north-easterly trending Arcturus Limb in the southern part of the Belt. It dies out to the southwest but continues over 90 km to the northeast and north. It is bounded by two zones of intense deformation which are up to 7 km apart and these are more widely spaced where it passes through the Greenstone Belt.

A small outcrop on the bank of the Umwindsi River displays mylonitic felsic rocks with isoclinal folding, which is part of the intensely deformed margin of the Shear. Baldock (1991) does not ascribe any sense of movement to this deformation zone but evidence for this may be present on this outcrop.

Stop 3 Lion's Head rock paintings and granite (341340 8064250)

The granite at this locality is not on any 1:100,000 Geological Survey map but is likely to be part of what Baldock termed Granite.

Stop 4 Walwyn Conglomerate (343540 8079280)

There are some excellent exposures (Figure 4) of an unusual course, polymict, clast-supported sedimentary deposit with well-rounded boulders of a number of different lithotypes including granitic and other felsic rocks, basaltic greenstone, chert and limestone. Boulders are up to a metre in diameter (Stidolph, 1977) but most range from 5 to 30 cm. This wedge-shaped outcrop is up to 300 m thick and extends for 2.3 km. Very good examples of pressure solution can also be seen. The origin of this deposit is up for debate.

Stop 5 Pyroclastics and sediments (345320 8078100)

Stidolph (1977) assigned these outcrops (Figure 4) to the lower unit of the Shamvaian Group which consists of volcaniclastic sediments and pyroclastic rocks devoid of granitic clasts. These rocks form an extensive belt stretching across much of the south-eastern limb of the Shamva Belt.

Mixtures of sedimentary and pyroclastic deposits can be seen over scattered outcrops at this locality, indicating reworking of fine pyroclastic material and agglomerates. Some unusual textures of debateable origin are present.

Stop 6 Porphyritic felsic intrusive/extrusive (346940 8080760)

Many of extrusive rocks within the Shamvaian (Figure 4) are porphyritic and have been interpreted as crystal tuffs with plagioclase phenocrysts, but on fresh surfaces these are difficult to see. The rocks range in composition from rhyolite to dacite and some may be intrusive.

Figure 1 Simplified geological plan Shamva Greenstone Belt

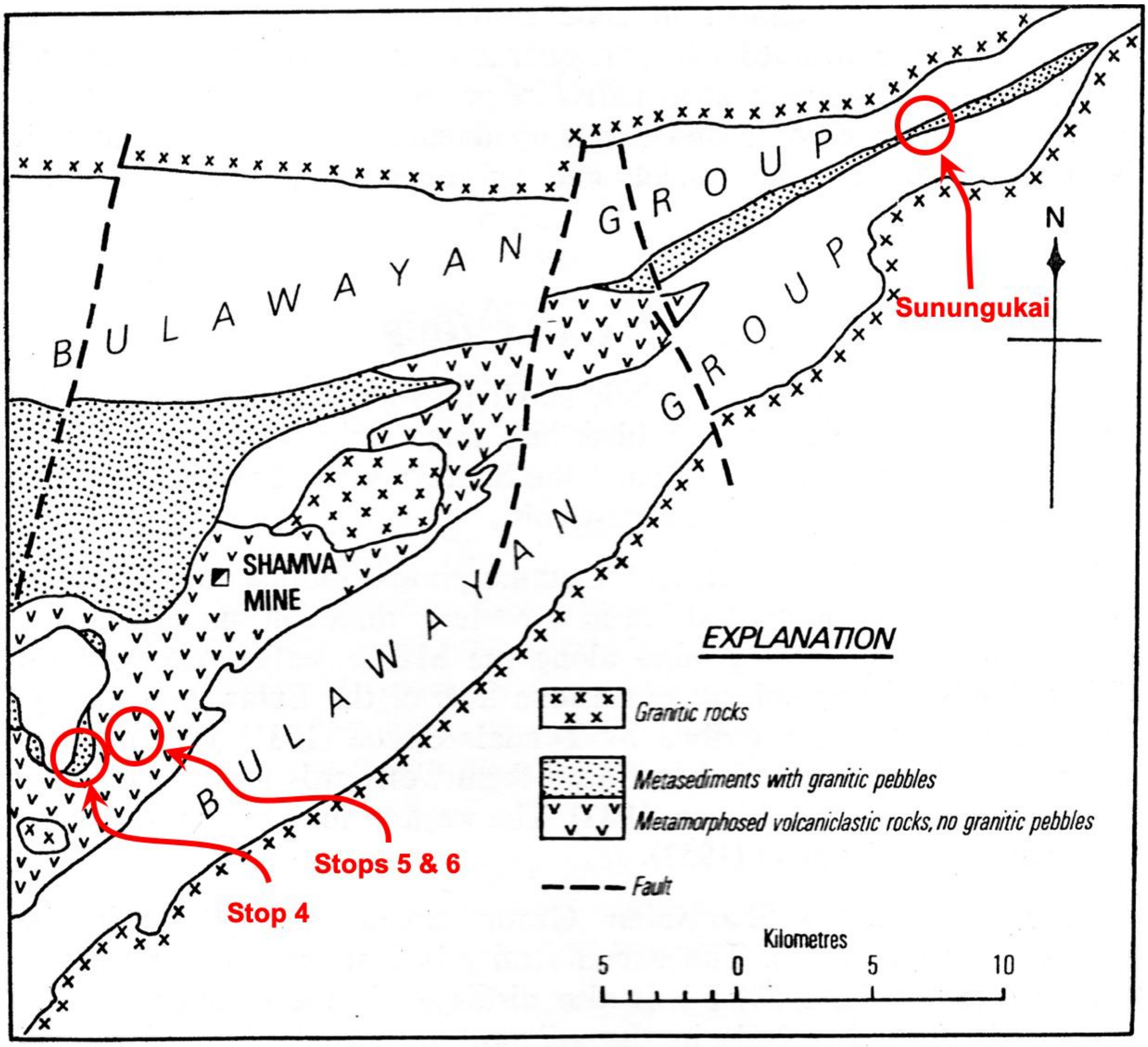

Figure 2

Stops 1 and 2 Porphyritic Granite and Umwindsi Shear

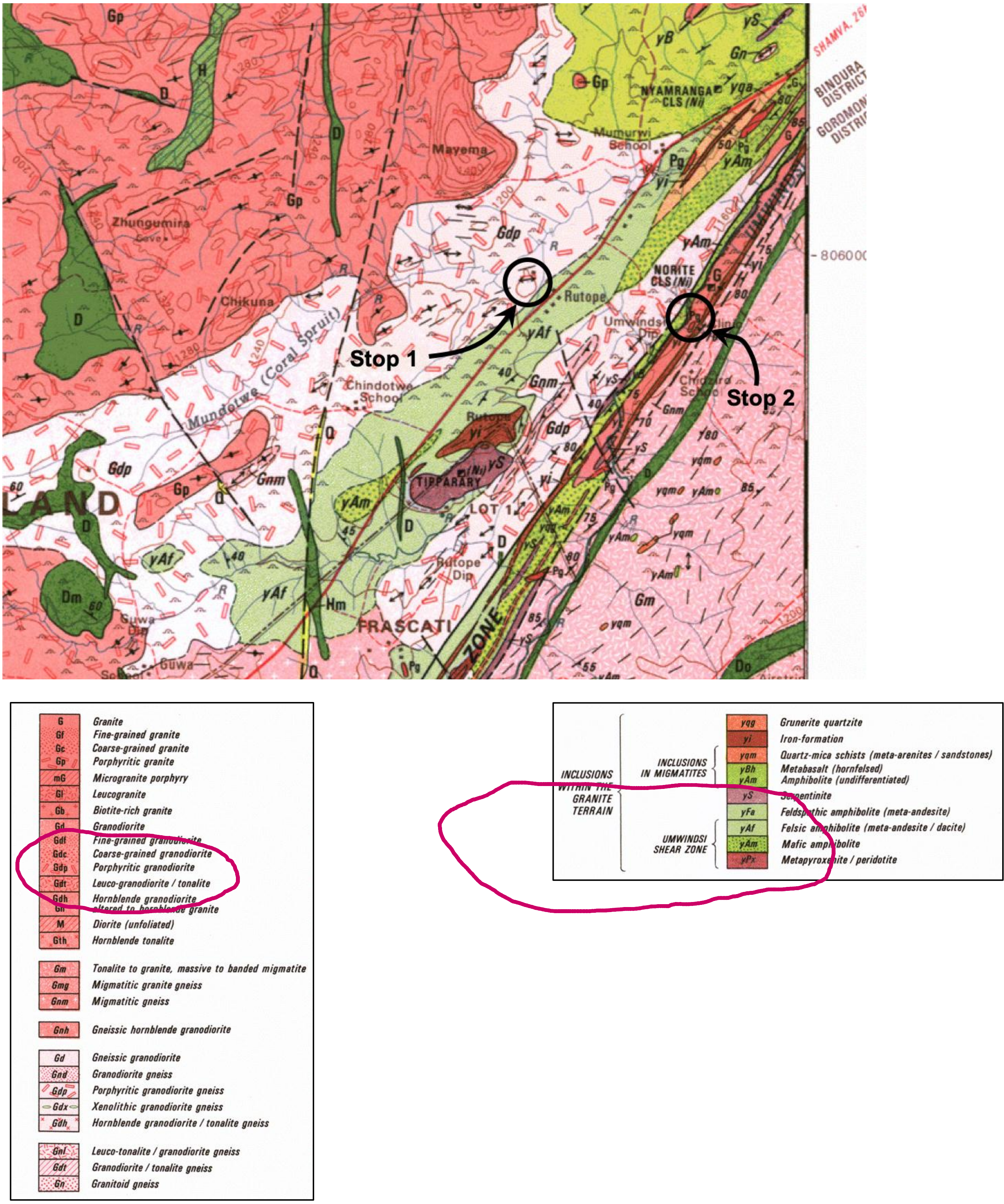

Figure 3

Stop 2 Umwindsi Shear

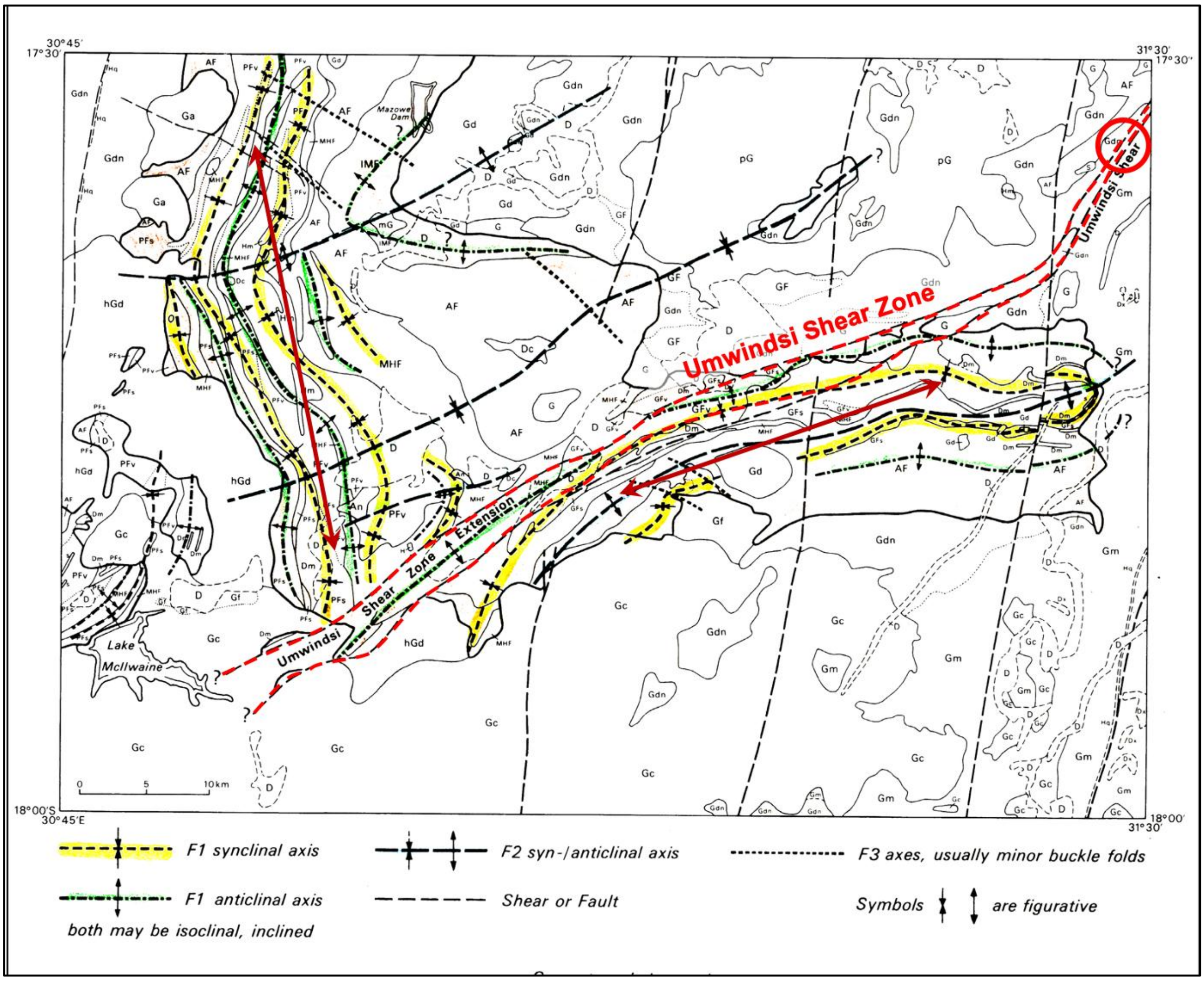

Figure 4

Stops 4 to 6 Walwyn Conglomerate, felsic volcanics/sediments and felsic porphyry