GOLD MINERALIZATION IN THE NOVO PLANETA REGION; A LIKELY REDUCED INTRUSION GOLD SYSTEM (IRGS) IN THE MIDDLE NORTH OF THE ALTA FLORESTA MINERAL PROVINCE, BRAZIL.

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ABSTRACT: The Alta Floresta Mineral Province (AFMP) is a WNW-ENE trending crustal segment of 500 Km long and 100Km wide in the northern portion of Mato Grosso State, Brazil; the Caiabis and Cachimbo grabens limit the province to the south and north, respectively. From the tectonic point of view, the AFMP spreads over the realm of both the Tapajós-Parima (2.03-1.88 Ga) and Rondônia-Juruena (1.82-1.55 Ga) provinces in southwest of the Amazon Craton. The studied area is located in the northwest portion of the AFMP in the Novo Planeta region, 30 Km north of the Apiacás town central north of Mato Grosso state. Disseminated, stockwork and vein gold mineralization are long recognized since 1970 as result of an intense gold rush. This work presents the results of the geologic mapping, drill logging, petrography, cross section interpretion and metal geochemistry data gathered in three small-open pits (Piauí, Morcego and Polaco) and in one underground working (Paulão), all developed by artisanal miners. Weakly to non-magnetic, coarse-grained, pyrite-disseminated sienogranitic to monzogranitic rocks host the ore and, belong to the Paranaíta Intrusive Suite (1825-1803 Ma; mineralized granitic pegmatites and aplites vein are a common feature. Propylitic, phyllic, carbonation, sulfidation and silicification are the main hydrothermal alteration styles recorded in all open pits. Gold mineralization is mostly disseminated in granites but also occurs associated to quartz-filling vugs, which, in two drill-holes, returned a gold mean-grade of 1.1 gr/t over a section from 65 to 81 m depth down-the-hole. Gold occurs as free particles but most of it seems to be associated with fractures filled pyrite. Statistic treatment of chemical data and its down-the-hole distribution shows a positive correlation of gold with Bi, Te and Ag; base metals like Cu, Pb and Zn are low to very low. The geology, hydrothermal alteration, mineralization style and metal geochemistry show a potential association with the reduced intrusion-related gold deposits (IRGD) and the best comparison being with the Timbarra gold deposit in New South Wales, Australia. These findings amplify the potential of the AFMP concerning to the presence of low-grade high-tonnage gold deposits which so far have not been described in the surrounding areas.

KEYWORDS: ALTA FLORESTA MINERAL PROVINCE (AFMP); DISSEMINATED GOLD MINERALIZATION; REDUCED INTRUSION RELATED GOLD DEPOSITS.