Loiasis is a parasitic infection highly endemic in west and central Africa. Previously often considered as a benign infection studies have recently suggested that high microfilaria loads in L. loa patients may be associated with increased mortality. The true impact of loiasis on affected communities is unknown. Reports on clinical symptoms and changes in laboratory values due to loiasis infection are focused mostly on returning travelers and assessments in endemic populations have scarcely been performed. Laboratory alterations such as eosinophilia are thought to be present mostly in patients from non-endemic areas. This cross-sectional study was performed in rural Gabon to investigate the clinical symptoms and laboratory changes caused by loiasis in an endemic population. Inclusion criteria were local residency for at least two years and an age above two years. Participants were interrogated a questionnaire covering loiasis specific symptoms, exploratory questions and history of eye worm. Local vocabulary was employed if needed. At the same time L. loa microfilaria diagnostics were performed including thick blood smear preparation and concentration techniques. Additionally, differential blood count and hemoglobin measurements were performed. Peripheral blood withdrawals were done between 10am and 3pm. 1030 participants were recruited, of which 56% were female and were aged between 2 to 98 years. L. loa microfilariae were detectable in 27% of all participants. Microfilariae densities ranged from 1 to 76 250 Mf/mL. Overall a positive history of eye worm was reported in 56%, with 25% of participants reporting eye worm passage and 36% Calabar swelling within the last year. Also, an analysis of laboratory parameters in comparison to clinical data and infection status was performed. Loiasis infection should receive more attention by the scientific community and further studies are needed, as the disease causes substantial morbidity in endemic populations.