Observations of considerable numbers of Anopheles ziemanni Grunberg resting inside human dwellings in Ahero, western Kenya, raised the question of its status in malaria transmission. To address this question, samples of this species were tested for Plasmodium falciparum infection rates and blood-feeding pattern, and data were compared with those of known vectors in the area. Although no An. ziemanni mosquitoes were infected with P. falciparum sporozoites, the proportions of this mosquito species among all anophelines captured and its human blood index compared well with those of other vectors, suggesting a possible role in the transmission of malaria. Additional studies, including both indoor- and outdoor-resting mosquito populations as well as incorporating laboratory-based parasite susceptibility tests should clarify the situation.