Abstract. Let $A$ be a ring with local units, $E$ a set of local units for $A$, $G$ an abelian group and $\alpha$ a partial action of $G$ by ideals of $A$ that contain local units. We show that $A \rtimes_\alpha G$ is simple if and only if $A$ is $G$-simple and the center of the corner $e\delta_0(A \rtimes_\alpha G)e\delta_0$ is a field for all $e \in E$. We apply the result to characterize simplicity of partial skew group rings in two cases, namely for partial skew group rings arising from partial actions by clopen subsets of a compact set and partial actions on the set level.