Orbit projections as fibrations

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Abstract: We show that the orbit projection $\pi : M \to M/G$ of a proper smooth G–manifold is a Serre fibration if and only if all its points are regular. This statement has its analogon in the category of G–spaces and G–equivariant maps. More generally, we investigate when π is a quasifibration. In the equivariant category we get a full answer: π is a G–quasifibration if and only if all points of M are regular.