Given a rational map defined over a field, one can consider the Galois groups of the field extensions generated by adjoining the pre-images of an algebraic point under iterates of the map. The study of these Galois groups has seen a recent increase in interest due to its many applications to number theory and dynamics. The Chebotarev density theorem allows us to translate statements about the densities of certain significant sets in number theory and dynamics to statements about these Galois groups. In this talk we will discuss some cases in which the structure of these Galois groups are known as well as some of the applications of these results. (Received February 22, 2015)