Abstract: Let \( f \in K(z) \) be a rational function of degree \( d \geq 2 \) defined over a field \( K \) (usually \( Q \)), and let \( x_0 \in K \). The backward orbit of \( x_0 \), which is the union of the iterated preimages \( f^{-n}(x_0) \), has the natural structure of a \( d \)-ary rooted tree. Thus, the Galois groups of the fields generated by roots of the equations \( f^n(z) = x_0 \) are known as arboreal Galois groups. In 2013, Pink observed that when \( d = 2 \) and the two critical points \( c_1, c_2 \) of \( f \) collide, meaning that \( f^m(c_1) = f^m(c_2) \) for some \( m \geq 1 \), then the arboreal Galois groups are strictly smaller than the full automorphism group of the tree. We study these arboreal Galois groups when \( K \) is a number field and \( f \) is either a quadratic rational function (as in Pink’s setting over function fields) or a cubic polynomial with colliding critical points. We describe the maximum possible Galois groups in these cases, and we present sufficient conditions for these maximum groups to be attained.