Let $K$ be a number field, let $f \in K(x)$ be a rational function of degree $d \geq 2$, and let $a \in K$. The roots of $f^n(z) - a$ are the $n$-th preimages of $a$ under $f$, and they have the natural structure of a $d$-ary rooted tree $T$. The resulting representation of the absolute Galois group of $K$ in the automorphism group of $T$ is called an arboreal Galois representation. In many cases, it is expected that its image has finite index in the full automorphism group, but in some cases, such as when $f$ is postcritically finite (PCF), the image has infinite index. In this talk, we present some new PCF examples where the arboreal Galois group can be computed completely. (Received September 17, 2017)