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Mallows and Riordan introduced the inversion enumerator for labeled trees, and Gessel introduced the descent statistic for labeled trees. We extend ideas introduced by Chauve, Duchon, and Dulucq to find a recursion for the polynomials enumerating labeled trees by inversions and descents, and we investigate some relations involving the generating function of these polynomials. We also find the generating function of the polynomials, introduced by Chauve, Duchon, and Dulucq, which count inversions in trees whose root is smaller than all of its children. (Received October 01, 2000)