1046-05-533 **Jacob Fox*** (jacobfox@math.princeton.edu), Fine Hall, Washington Road, Princeton, NJ 08544, and **Po-Shen Loh** (ploh@math.princeton.edu) and **Benny Sudakov** (bsudakov@math.ucla.edu). *Large induced trees in K_r-free graphs.*

For a graph G, let $t(G)$ denote the maximum number of vertices in an induced subgraph of G that is a tree. We study the problem of bounding $t(G)$ for graphs which do not contain a complete graph K_r on r vertices. This problem was posed twenty years ago by Erdős, Saks, and Sós. Substantially improving earlier results of various researchers, we prove that every connected triangle-free graph on n vertices contains an induced tree of order $\sqrt{n}$. When $r \geq 4$, we also show that $t(G) \geq \frac{\log n}{4 \log r}$ for every connected K_r-free graph G of order n. Both of these bounds are tight up to small multiplicative constants, and the first one disproves a recent conjecture of Matoušek and Šámal. (Received September 06, 2008)