1079-05-113 **Jun Fujisawa**, **Michael D. Plummer*** (michael.d.plummer@vanderbilt.edu) and **Akira Saito**. *Forbidden Subgraphs Generating a Finite Set.*

Given a set $\mathcal{F}$ of connected graphs, a graph G is said to be $\mathcal{F}$-*free* if G contains no member of $\mathcal{F}$ as an induced subgraph. The members of $\mathcal{F}$ are then referred to as forbidden subgraphs. Denote by $\mathcal{G}_k(\mathcal{F})$ the family of all k-connected $\mathcal{F}$-free graphs. The reader is surely familiar with theorems of the form stating that if $G \in \mathcal{G}_k(\mathcal{F})$ and $|V(G)|$ is sufficiently large, then G satisfies a given property P. But if $\mathcal{G}_k(\mathcal{F})$ itself is finite, such a theorem gives little information about the property P. With this in mind we study the sets $\mathcal{F}$ with finite $\mathcal{G}_k(\mathcal{F})$.

We prove that if $|\mathcal{F}| \leq 2$ and $\mathcal{G}_k(\mathcal{F})$ is finite, then either $K_{1,2} \in \mathcal{F}$ or else $\mathcal{F}$ consists of a complete graph and a star. For each of the values of k, $1 \leq k \leq 6$, we then characterize all pairs $\{K_\ell, K_{1,m}\}$ such that $\mathcal{G}_k(\{K_\ell, K_{1,m}\})$ is finite. We also give a complete characterization of $\mathcal{F}$ such that $|\mathcal{F}| \leq 3$ and $\mathcal{G}_2(\mathcal{F})$ is finite. (Received January 02, 2012)