1077-05-2842 **Susan L Hollingsworth*** (shollingsworth@edgewood.edu), Edgewood College, Department of Mathematics, 1000 Edgewood College Drive, Madison, WI 53711. *Packing trees into complete bipartite graphs.*

In 1976, Gyárfás and Lehel conjectured that any finite list $T_2, T_3, \ldots, T_n$ of trees with 2 through n vertices can be packed into K_n, the complete graph on n vertices. This means that the edges of K_n can be partitioned into disjoint sets $E_2, \ldots, E_n$ in such a way that E_i is the set of edges of a tree isomorphic to T_i for $2 \leq i \leq n$. This conjecture is still unresolved.

We examine an analagous conjecture for packing trees into complete bipartite graphs: that is, if $T_{a,a}$ denotes a tree whose partite sets both have size a, which we call a *balanced* tree, we conjecture that any finite list $T_{1,1}, \ldots, T_{n,n}$ of such trees can be packed into $K_{n,n}$, the complete bipartite graph on $2n$ vertices.

We first show that so long as $k < \lfloor \sqrt{7/18 n} \rfloor$, any list of balanced trees $T_{1,1}, T_{2,2}, \ldots, T_{k,k}$ can be packed into $K_{n,n}$.

We go on to find restrictions on the degree sequences which guarantee that, if we specify the degree sequences for one of the partite sets, we can find a list of balanced trees $T_{1,1}, T_{2,2}, \ldots, T_{n,n}$ having the specified degree sequences so that these trees can be packed into $K_{n,n}$. (Received September 22, 2011)