A simple 2-matching in a graph is a subgraph all of whose nodes have degree 1 or 2. A simple 2-matching is called $k$-restricted if every connected component has $> k$ edges. These problems are related to the travelling salesman problem. We present a polynomial-time algorithm for finding maximum cardinality 1-restricted simple 2-matchings. We also consider the general weighted problem for 1-restricted simple 2-matchings for which we present a class of facets. For a special class of graphs, we show that these facets are sufficient to describe the polytope and can be used in a polynomial-time primal-dual algorithm. (Received September 17, 2010)