



A POET AND HIS WOODS

PROBLEM 1

BUONGIORNO & GILLES (2003), páginas 10-11

This first example of the application of linear programming is certainly artificial, too simple to correspond to a real forestry operation. Nevertheless, it will suffice to introduce the main concepts and definitions. Later on we will use this same example to discuss the graphical and simplex methods for solving linear programs. Anyway, the story is romantic.

PROBLEM DEFINITION

The protagonist is a congenial poet-forester who lives in the woods of Northern Wisconsin. Some success in his writing allowed him to buy, about 10 years ago, a cabin and 90 hectares (ha) of woods in good productive condition. The poet needs to walk the beautiful woods to keep his inspiration alive. But the muses do not always respond, and he finds that sales from the woods come in very handy to replenish a sometimes-empty wallet. In fact, times have been somewhat harder than usual lately. He has firmly decided to get the most he can out of his woods.

But the arts must go on. The poet does not want to spend more than half of his time in the woods; the rest is for prose and sonnets. Our poet has a curious mind. He has even read about linear programming: a method to allocate scarce resources to optimize certain objectives. He thinks that this is exactly what he needs to get the most out of his woods while pursuing his poetic vocation.

DATA

In order to develop his model, the poet has put together the following information: About 40 ha of the land he owns are covered with red pine plantations. The other 50 ha contain mixed northern hardwoods. Having kept a very good record of his time, he figures that since he bought these woods he has spent approximately 800 days managing the red pine and 1500 days on the hardwoods. The total revenue from his forest during the same period was \$36,000 from the red pine land and \$60,000 from the northern hardwoods.