



## **Old-growth Patch Constraints in Forest Harvest Scheduling Models**

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### **ABSTRACT**

A major challenge in forest harvest scheduling is to balance economic gain with preservation of wildlife habitat. One way of addressing wildlife preservation is to require large contiguous patches of mature forest. These requirements are very difficult to impose in planning models due to their complex combinatorial structure.

In this paper we use integer programming to model connected patches. The formulation proposed here uses old growth variables and requires an exponential number of constraints. A cutting plane approach is used to solve the linear relaxation of the problem. Besides contiguous old growth patches, the model encompasses maximum harvesting area restrictions (ARM), as well as volume flow and ending age constraints.

We present computational results. The proposed approach is able to obtain near-optimal solutions and upper bounds of large test instances from the literature.