

Service recommends four or five snags of 18" DBH, 30 to 40 snags over 14" DBH, and 50 to 60 snags over 6" DBH. Recognizing this need and the scarcity of cavities remaining in our forests, no cavity or tree snag should ever be cut *unless* it is a safety hazard. If a live or dead tree must go because of safety reasons or because the negatives outweigh the benefits, and there is a limited number of natural tree snags on the golf course, supplement with a variety of artificial nest boxes. This effort can partially compensate for the loss of natural tree snags.

A golf course has tremendous potential to help compensate for the scarcity of cavities elsewhere. Golf course superintendents and course officials can take an active role in conservation by recognizing the value of tree snags and by preserving them. Trees of various types and sizes make for fine cavity nests. No tree should be considered too small or too insignificant. Suitable trees



Artificial nest boxes, including this wood duck box, can help compensate for the scarcity of natural tree snag cavities.

for cavity excavation should have rotten heartwood (interior wood) at the appropriate height for desired species. Those with rotten heartwood are easily excavated by the primary excavators, the woodpeckers. A live tree that has rotten heartwood is ideal, since the excavation is easy but the outer tough sapwood provides excellent defense from predators. The least desirable tree snags are those that have outer sapwood rot with healthy interior heartwood, resulting in a difficult excavation and shallow nests that are vulnerable to predators.

From a turf standpoint, the tree snag is the perfect tree; it *does not* have growing root systems that compete with the turf, it *does not* have a dense, shade-producing canopy, it *does not* have dense branching that reduces air circulation, *and* there is the added benefit that it provides habitat for and welcomes those insect-eating birds that can help with pest-control efforts!

Fire in the Hole

by **JAMES FRANCIS MOORE**
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THE FILE CABINETS of each Green Section office contain reports written to golf courses for the past 40 years. Even the earliest of these reports frequently contain recommendations urging the pruning or complete removal of trees that prevent the growth of healthy turf. But recommendations are the easy part. Unfortunately, convincing club officials to allow such work is often next to impossible.

Of all the clubs visited in the Mid-Continent Region over the past seven years, the most successful tree program I have witnessed has been instituted by Southern Hills Country Club, in Tulsa, Oklahoma, under the direction of the superintendent, Bob Randquist, CGCS. The key points to Bob's success in obtaining the support of the membership have included:

1. Preparing a comprehensive tree resource inventory which identified and

cataloged all the trees on the property. This included identifying trees that should be removed to ensure good species variety, overall tree health, and proper spacing for the benefit of the remaining specimens. In addition to providing direction for future tree work from an arboricultural viewpoint, the survey added a great deal of credibility to Bob's plans in the eyes of the membership.

2. Soliciting outside opinions concerning the need to accomplish tree work for the sake of the turf. Dr. Joe Duich and I independently emphasized that the greens and other turf areas would continue to suffer at Southern Hills until tree work was accomplished to provide vital light and air movement, and reduce root competition.

3. Acquiring the necessary equipment to prune and remove the appropriate trees. The most important of the equip-

ment was a "cherry picker" or bucket truck that allowed much of the work to be accomplished rapidly and safely.

The final step, and the subject of this "turf tip," was the construction of a tool to dispose of the tremendous amount of refuse resulting from the pruning of every tree on the golf course and the complete removal of over 80 trees over a two-year period. Contract hauling from the property easily would have been the most expensive aspect of this job. Open burning on a course located near the middle of Tulsa seemed out of the question — until Bob contacted the EPA Air Quality Board and obtained the plans for constructing a forced-air incinerator for burning brush.

The device itself was constructed by Bob's staff and consisted of a motor-driven fan, a long metal casing or tube, and a manifold for directing air into the hole. Since the EPA directed that the

device must be portable, a trailer was built for easy movement. Bob estimated the cost of the entire unit to be approximately \$2,500. Fortunately for Southern Hills, the motor (rated at approximately 15 horsepower) was salvaged from an old chipper, which further saved on the construction expense.

The unit has proven very effective. A two-ton truck is used to haul trash to the burn site. Approximately 25 to 30 truckloads can be disposed of per day; otherwise it would have to be hauled by contractor to a landfill. The device burns extremely clean, saves Southern Hills money, and helps to conserve landfill space. Equally important, it has played a key role in a successful tree care program that has resulted in the steady improvement of one of the country's best golf courses.



Constructing a forced-air incinerator for burning brush solved Southern Hills Country Club's problem of what to do with an overabundance of tree brush after an extensive tree improvement program was implemented.

The incinerator was constructed by the golf maintenance staff and consisted of a motor-driven fan, a long metal tube, and a manifold for directing heat into the hole. By salvaging a 15 hp motor from an old chipper, the entire unit cost about \$2,500 to construct.

