HURRICANES, BEARS,
and propagating

PERSEA PALUSTRIS

| Ellen J Colodney

KEY WORDS
seed propagation, stratification, swamp bay, swamp redbay, pocosin, Carolina bay, Lauraceae

NOMENCLATURE
USDA NRCS (2004)

Persea palustris by Linda Lee, University of South Carolina Herbarium. Bear scat with seeds by Jeffrey Stetz, US Geological Survey.

Fall of 2003 was a tough season for us in northeastern North Carolina. Hurricane Isabel ripped through our rural, heavily forested area, knocking down huge numbers of mature trees along with Coastal Plain Conservation Nursery's greenhouses.

After clearing enough of our driveway to get the truck out (an effort that took 5 people with chain saws and a 15-ton log skidder 2 d), I hit the road in search of seeds for our next year's crop. I quickly learned that it is very difficult to collect tree seeds after a hurricane. True, the tops of the trees are accessible because they are flat on the ground, but by the time these trees blew over any seeds that were approaching maturity had flown off to the next state. All that was left on the stripped branches were tightly bound immature seeds that would never get the chance to develop. By the time I reached our local navy bombing range (usually a great spot for seed collection) I was feeling pretty low. And then I spotted it!

To understand my excitement you need some background information. First, swamp bay (*Persea palustris* (Raf.) Sarg. [Lauraceae]) is a small evergreen tree with broad, fragrant leaves. It is one of the 3 important "bay" species—the others being sweetbay (*Magnolia virginiana* L. [Magnoliaceae]) and loblolly bay (*Gordonia lasianthus* (L.) Ellis [Theaceae])—that are critical to restoring pocosin and Carolina bay ecosystems. Second, the answer to the common question "Does a bear 'relieve itself' in the woods?" is "no." When selecting a toileting facility, bears living in the incredibly

dense, prickly vegetation of pocosin and Carolina bay ecosystems prefer dirt roads. Third, collecting *Persea palustris* seeds is usually a laborious process, consisting of struggling through this dense, prickly vegetation to locate a tree, then handpicking the widely scattered seeds. Fourth, each swamp bay seed consists of a firm, smooth ball roughly the size of a pea, surrounded by a thin skin. This skin appears to inhibit germination and must be removed completely. The usual method is to pop each seed out of its skin individually, using the thumb and forefinger. When repeated for thousands of seeds, this procedure gets very tiresome.

So you can imagine how thrilled I was when there, in the road ahead of me, was a large, steaming pile of very loose bear scat, completely full of swamp bay seeds, in perfect condition with skins cleanly removed! I raced down the dirt roads of the bombing range filling 5-gal pails with seed-filled poop. After giving the seeds a quick rinse and 2 mo of cold, moist, naked stratification in my refrigerator, we had our best crop of *Persea palustris* ever. It just goes to show you that every hurricane has a silver lining. Never before had I found large quantities of *Persea* seeds in bear scat. Apparently, the bears were hit hard by the loss of their favorite seeds and had been forced to subsist on swamp bay. I still don't know if this plant managed to retain its seeds through the hurricane, or if seeds somehow remained edible after days of lying on the ground.

CONTAINER CULTURE

In mid-April we plant our clean, stratified seeds 1.2 cm (0.5 in) deep in RootMaker® containers (RootMaker® Products Company LLC, Huntsville, Alabama). These containers hold 235 ml (14.5 in^3) of a moisture retentive, locally produced, proprietary composted medium (BC-5S; Bio-Comp Inc, 2116-B Bio-Comp Drive, Edenton, North Carolina 27932; 252.482.8528). We amend the medium with endomycorrhizal fungi (AgBio-Endos; AgBio Inc, 9915 Raleigh Street, Westminster, Colorado; 877.268.2020). We place containers outdoors on raised beds covered with 30% shade cloth that doubles as an insect barrier. The containers are fertigated with a constant liquid fertilizer ($20N:10P_2O_5:10K_2O$) as needed to maintain the medium at field capacity. Like loblolly bay (Colodney 2001), swamp bay grows well when given low concentrations of nitrogen (N). The irrigation solution is generally at 50 ppm N but may range from 25 to 125 ppm N depending on the plants' growth rate. We use 35% sulfuric acid to keep pH of irrigation water between 4.2 and 4.5. Germination tends to occur over a period of about a month and initial growth is slow. Seeds sown in April will yield single-stem plants about 20 cm (8 in) tall with a firm root plug by October.

REFERENCES

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