

## DESIGNING SPECIFIC CHLOROPLAST MARKERS FOR BLACK WALNUT FROM A SET OF UNIVERSAL PRIMERS

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**ABSTRACT.**—Chloroplasts are a valuable source of genetic information because their sequence is highly conserved, they undergo little or no recombination, and they are uniparentally inherited. Chloroplast polymorphisms are powerful genetic tools for identifying matrilineal family groups, studying gene flow from seed versus pollen movement, reconstructing phylogeographic colonization, and for elucidating reproductive patterns in natural stands. Here, we sequenced six samples representing the range of black walnut (*Juglans nigra* L.) using six previously published polymorphic chloroplast markers. These markers were from the *atpF* intron, 3' to *rps2*, ORF 77-ORF 82 intergenic, ORF 74b-*psbB* intergenic, and *rp12-rps19* intergenic regions in the chloroplast genome. Data from Weising and Gardner (1999) show short mononucleotide repeats of A, T, and G, both individually and in tandem depending on locus. Preliminary data suggest that in black walnut, polymorphisms in these regions are based on series of A and T repeats, and for some loci indicate considerable differences from all the species previously analyzed. New primers specific for black walnut will be designed based on these polymorphisms. These new primers will be used in a study of genetic diversity across the Central Hardwood region.

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### LITERATURE CITED

**Weising, K.; Gardner, R.C.** 1999. A set of conserved PCR primers for the analysis of simple sequence repeat polymorphisms in chloroplast genomes of dicotyledonous angiosperms. *Genome*. 42: 9-19.

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