

FIELD AND COMMON GARDEN ECOLOGICAL AND MORPHOLOGICAL CHARACTER COMPARISONS FOR ORIENTAL BITTERSWEET (*CELASTRUS ORBICULATUS*) AND AMERICAN BITTERSWEET (*C. SCANDENS*). Stacey A. Leicht-Young, Noel B. Pavlovic, John A. Silander, Jr. and Ralph Grundel, Ecologists, U. S. Geological Survey, Porter, IN 46304, Professor, University of Connecticut, Storrs, CT 06269 and Ecologist, U. S. Geological Survey, Porter, IN 46304.

*Celastrus orbiculatus* is an invasive temperate liana introduced into the Northeastern United States in the 1860s. It can blanket the vegetation it grows on, causing damage to trees by weighing down the branches and by girdling the trunks. However, its native congener, *C. scandens*, is declining in the Northeast. In the Midwestern and Western United States, *C. scandens* is still abundant and can even grow adjacent to invasive *C. orbiculatus* in certain habitats such as the sand dune/forest ecotone. Despite some degree of overlap in habitat preferences, their growth rates are very different. Additionally, where both species occur, vegetative identification of the two species in the field can be highly ambiguous. We examined both species in a three year common garden study, and in natural settings, to differentiate them ecologically and morphologically. In the common garden study, *C. orbiculatus* had higher leaf number, relative growth rate, and aboveground biomass than *C. scandens*. Using morphological characteristics of both species growing naturally along a sand dune/forest ecotone, we built models for use in predicting which species was present given a suite of leaf and fruit traits. We confirmed that the two species can be discriminated effectively using fruit characters, notably fruit volume and seed number. Several leaf traits, such as length to width ratio and specific leaf area (SLA) can also discriminate between the species, but without the same predictive reliability of fruit traits. In addition, in mid-spring, the two species have different patterns of leaf-out. Land managers will be able to use this information to differentiate between the two species in the field and thereby control for the invasive *C. orbiculatus*, while preserving remaining populations of *C. scandens*.