

Topic D – Collaborative undertakings between invasive species ecologists and managers.

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Title: Aerial mapping of female *Ailanthus altissima* trees in Ohio mixed oak forests

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Abstract: *Ailanthus altissima* (tree-of-heaven) is a highly invasive tree that is present in many forested landscapes in the eastern US. Managers often observe an expansion in *Ailanthus* populations following forest disturbances such as harvesting and prescribed burning. A single female *Ailanthus* tree can produce 350,000 seeds, which are commonly wind-disseminated distances exceeding 100 to 200 meters. A cooperative research project was initiated to study the distribution and abundance of *Ailanthus* within the highly dissected landscape of Tar Hollow State Forest in southeastern Ohio. We employed geo-referenced digital aerial sketch mapping technology in a low-flying helicopter to identify female trees (seed-producers) and patches (non-seeders) of *Ailanthus* in winter 2008, when persistent seeds are highly visible. The method appears to be an effective way to survey for seed-producing *Ailanthus* across a landscape. During a two hour flight, 99 seed-bearing females and 42 patches, ranging in size from 0.18 to 13.4 ha were identified within a 3885 ha (9600 acre) area. Seventy percent of the aerielly-identified females were ground-truthed using hand-held GPS units; 4.3% were either misidentified or not located. Starting in summer 2009, sampling of individual trees as well as a systematic grid will quantify *Ailanthus* abundance and demography in relation to management practices and landscape/stand attributes, to better understand and model the key factors related to the presence, abundance, and spread of *Ailanthus*. The direct effects of prescribed fire and herbicide treatments on *Ailanthus* demography and spread will also be studied.