DEPARTMENT OF BIOLOGY
McMicken-College of Arts & Sciences

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: MARCH 1, 2005

The Department of Biology is pleased to offer the following research project for the summer of 2005. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and if possible, develop a timetable for the twelve-week research period.

The Creation of a New Invasive Weed: Ornamental Pear Trees in the Eastern United States

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Within the past decade, ornamental pear cultivars of *Pyrus calleryana* have begun spreading into many natural areas and are quickly becoming invasive weeds in the eastern United States. The most popular of these urban trees, the 'Bradford' cultivar, is still found in many residential yards, but is increasingly being replaced by other related cultivars, such as 'Cleveland Select' and 'Aristocrat'. The purpose of this investigation is to determine why these trees have recently begun to produce fruit and spread into natural areas. Our hypothesis is that the recent expansion of pear cultivars is due primarily to hybridization between the widespread ‘Bradford’ cultivar and other newer cultivars, leading to the incorporation of new self-incompatibility alleles and higher levels of genetic variation. This will be examined this summer through a series of experiments conducted in both the greenhouse and a molecular laboratory. The WISE student will be responsible for conducting hand-pollinations of flowers as well as assisting in a genetic study using microsatellite molecular markers. Information from this research project will be invaluable in understanding why these pear cultivars have recently become invasive, a first step in controlling them before they become ecological and agricultural threats.