Mespilus canescens a Newly Discovered Species: Propagation by Grafting onto *Crataegus*©

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INTRODUCTION

Mespilus canescens (Sterns medlar) was discovered in 1990 in the 22-acre Konecny Grove Natural Area in Arkansas (Center for Plant Conservation, 2005). Phipps (1991) documented M. *canescens* to be an additional new species to the heretofore-single genus and species, *M. germanica,* a European plant.

Further work by Phipps et. al. (1991) demonstrated that isozyme analysis positively grouped the new plant as a *Mespilus* species. However, Dickinson et al. (2000) suggests that due to the close relationship of *M. canescens* to *Crataegus* there is seine DNA evidence to suggest that it might be of hybrid origin. Further evidence of the kinship to *Crataegus* is given credence by noting that both *M canescens* and a number of *Crataegus* have 20 stamens. Dickinson (2000) also mentions that *M canescens* is almost indistinguishable from many *Crataegus* species, although it does lack thorns. Further evidence supporting the kinship of *Crataegus* to *Mespilus* is offered by Griffiths (1994) who lists *X Crataemespilus gillioti L.* and *X Crataemespilus grandiflora;* two hybrids Crataegus *monagyna* X *Mespilus germanica* and *Crataegus Iaevigata* X *Mespilus gerinanica,* respectively. Since *M. canescens* does not seem to reproduce in the natural state researchers from the Missouri Botanic Gardens (Center for Plant Conservation, 2005) have tried and succeeded in rooting cuttings and attempted tissue culture as well. (Author's note: the fact that cuttings root

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tends to push this plant away from being a *Crataegus* since few if any *Crataegus* will root from cuttings.) Further propagation is needed to ensure the survival of the species because it is specifically limited in the wild to 25 individuals (Center for Plant Conservation, 2005).

Tubesing (1988) mentioned the grafting of *M. germanica* onto *Pyrus ussuriensis* as something that works but is limited due to delayed graft incompatibility. Del Tredici (1995) mentioned in a review article a passing reference to *M germanica* being propagated from root cuttings, but due to the unique situation of M *canescens* this approach did not seem practical or available. Grafting was chosen as a possible propagation technique based on the time of year that rootstocks of *Crataegus* are generally quite available and the kinship of *Mespilus* to *Crataegus* has been well established.

MATERIALS AND METHODS.

One sizeable plant of *M. canescens* is at the Mountain Crops Research Station of the North Carolina State University in Fletcher, North Carolina. Dr. Tom Ranney graciously supplied a small amount of scion wood for propagation experimentation at Lo[r]ax Farms. Scions were received in late February and in anticipation of their arrival several seedling *C. maximowiczii* were put into a warm greenhouse (10 ºC) and forced into active root growth.A typical side graft was used and tied with a rubber budding strip then sealed with Parafilm™ M (Modern Biology. Inc.). Only two grafts were made, and they were done on the same rootstock species. The completed grafts were tented with large, 4-L, Zip Loc bags. Bags were sealed so that moisture was retained around the grafts provided by a damp paper towel at the base of the bag and the grafts were placed in such a way as to avoid direct sunlight. Approximately 6 weeks after grafting and temperatures and light levels were on a steady increase, buds of the *M. canescens* started to break; at this juncture the sealed bag was slowly vented to allow in fresh air. Slowly over a period of 1 week the bag was vented further and further so that the soft new growth could acclimate to the normal greenhouse air conditions and humidity. Bottom heat by the end of the 6-week period had gradually been raised to 20

The *Mespilus* grafts were potted on and allowed to grow for another 2 months when the rubber grafting strips and Parafilm™ were removed and replaced with blue painters' masking tape. The tape was put on in such a way as to prevent accidental damage to the new graft union. There was a 100% success. After 2 years the grafted plants are still growing with no suckering from the *Crataegus* rootstock.

From this limited work it is suggested that C. *maximowiczii* works well as a rootstock for *M. canescens* and that bulking up of the few available plants could well be accomplished by this technique.

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