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SCIENCE AND EDUCATION ADMINISTRATION

AGRICULTURAL RESEARCH  
NORTHEASTERN REGION  
BELTSVILLE AGRICULTURAL RESEARCH CENTER  
BELTSVILLE, MARYLAND 20705

August 7, 1980

SUBJECT: Dirca occidentalis A.Gray (Thymelaeaceae)

TO: POSI File

DESCRIPTION: Rather inconspicuous, slender-stemmed shrub, becoming diffusely branched 1/2 to 1 meters above the base, 2-4 meters high. Stems near the base 2-4 cm. in diameter, with fibrous bark and obscure growth rings (up to 14). Leaves alternate elliptic, obovate, 3-8 cm. long, cuneate at base, acuminate at apex. Flowers appearing before the leaves in late January or early February, in peduncled clusters, lemon-yellow, recurved. Fruit a drupe. ovoid - 8-10 mm. long or about the size and texture of a popcorn seed, sparse, ripening in late April to mid May, weight loss about 50% in drying.

DISTRIBUTION & ECOLOGY: Very restricted, within a 60 mile radius of San Francisco; in Sonoma, Marin, Contra Costa, Alameda & San Mateo Counties. Spotty in occurrence. Locally sparse or common but not over any widespread area. Seen only within the ecotone or transitional vegetation from the mixed evergreen forests to oak woodland or chaparral below 1500 feet in elevation.

Observed at City of Palo Alto Foothill Park and Crystal Springs in San Mateo. Both locations lie west of Highway 280 between San Jose and San Francisco.

An estimated 60 pounds of twigs-leaves is still available at the Palo Alto location. Within the park this is 1/4 mile from the junction of Wildhorse Valley and Steep Hollow Trail at 750 ft. in elevation; along both the valley and trail. A mixed evergreen forest possibly once filled much of the floor of Wildhorse Valley, which is now a wet prairie. Along Steep Hollow Trail, the forest appears undisturbed but limited to the bottom of the narrow ravine. Trees of Umbellularia, Aesculus, Lithocarpus and Sambucus abruptly give way to the chaparral type shrubs on steep slopes such as Prunus virginiana, P. ilicifolia, Heteromeles arbutifolia and Quercus sp. Maple, madrone and chamise might be expected here but were not seen. Dirca occidentalis is of extreme local occurrence in the transition zone.

At Crystal Springs, the ecotone was from a mixed evergreen forest to oak woodland. Near the ecotone, Quercus agrifolia was up to 3 ft. in diameter and 100 ft. tall and formed a dense woodland or even a forest. Large trees of California laurel (Umbellularia californica) up to 2 ft. in diameter were frequently seen. California buckeye averaged nearly 60 ft. high and was a common understory tree. Poison oak (Toxicodendron diversiloba) was a common understory shrub. A local thicket of Salix in a marsh like area was also part of the boundary between the oak woodland and forest but Dirca was never found in this.

COMMENTS: This species is very toxic when dry. It primarily affects the mucous membranes, making it difficult to breath. I have experienced similar effects with Gnidia latifolia.

A cumulative weight of 654 pounds of stems and twig-leaves has been procured from sampling on four occasions. Most of the material has come from Crystal Springs Reservoir. Both locations require permission for entrance and collecting. City park officials have been very helpful and cooperative.

Requests for additional amounts up to 200 pounds should be available at Crystal Springs Reservoir without much reconnaissance. Samples exceeding 500 pounds will require considerable reconnaissance. Vegetation maps and aerial survey may help pinpoint ecotone vegetation and ascertain assessibility by roads or trail for later ground work. This should be conducted in late January or early February when Dirca is in flower which is also at a time when other deciduous species have yet to develop leaves; thus, the yellow flowers will be conspicuous in the understory. In May, I had to approach within a distance of a few feet before I could make positive identification.

Only through field observation it was learned that Dirca occidentalis can be predictably found in the ecotone of the mixed evergreen forest-oak woodland or chaparral. Munz had reported Dirca in all vegetation types mentioned earlier and Abrams indicated only "moist wooded hillsides". To the surprise of our supplier and another amateur naturalist, I was able to locate additional sites of Dirca first by looking up at the trees and then in the understory after stopping at transitional zones. Restriction to an ecotone vegetation would explain the apparent rare occurrence of this shrub.

Our supplier has been conservation minded in sampling twigs-leaves of Dirca. Shrubs pruned to 4 feet above ground at Foothill Park six years ago have developed new side shoots. Similarly, in the Crystal Springs Reservoir area, disturbance at sites sampled several years ago can hardly be detected.

About 3 man-hours were devoted to picking individual fruit, yielding 281 grams fresh that dried to 149 (47% loss). In mid May 1980, fruits fell easily from shrubs and only an additional 150 grams could be salvaged from a 175 pound tw-1f sample. Fruit picking might be improved by placing a large sack over the shrub and then bending and shaking the bush so the seeds will fall into the sack. Still, not much more than 1-2 pounds per man per day might be obtained in this manner which would have to be timed around early May. Dirca occidentalis is not a prolific fruiter but it has been reported that fruits are produced in higher concentrations during drier years.

It was reported that several botanical gardens, namely Strawberry Canyon and Steinhardt, have had little success in cultivating this Dirca. Apparently it does not slip or transplant well.

The genus Dirca includes one other species, D. palustris L. This one is found in eastern U.S. and Canada from Quebec to Ontario & Main south to northern Florida, Louisiana and also in Oklahoma. In some forests in Wisconsin, D. palustris was noted as the second most common shrub, 355 per acre.

COMMON NAMES & USES: "Leatherwood"

FRACTIONATOR: First collection went to Kupchan and 3 subsequent collections have been sent to Farnsworth.

REFERENCES:

- Abrams, L. 1951. Illustrated Flora of the Pacific States. Stanford Univ. Press, Vol. 3, pp. 163 & 166.
- Jepson, W.L. 1925. A Manual of the Flowering Plants of California. Univ. of Calif., Berkeley, p. 663.
- Munz, P.A. 1959. A California Flora. Univ. of Calif., Berkeley, p. 987.
- USDA Memorandum. From R. Spjut to A. S. Barclay "Active Plants That Are Rare, Threatened, Endangered or Extinct". March 17, 1978. Dirca occidentalis was classified under category "(4)" "Very restricted in distribution".

\_\_\_\_\_ Literature Review of Dirca palustris L. January 11, 1977.



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