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UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION

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

July 16, 1980

SUBJECT: Prospects for Future Re-collections of Crossosoma: B-609807; Also PR-36869 (SPJ-3307) and PR-53627 (SPJ-6148)

TO: POSI File

Crossosoma parviflorum is informally treated as a synonym of Crossosoma bigelovii, but C. parviflorum has been the name applied to the collections cited above. Not all collections of C. bigelovii have shown PS activity (need confirmation on this). The details on the procurement history have been outlined in an earlier memorandum (March 17, 1980).

The PR numbers and probably the B number above are based on material collected between Kingman and Oatman in Mohave County, Arizona. More precisely, this is from 3 to 4 miles west of Oatman at elevations from 3,000 to 4,000 feet (between Goldroad and Sitgrives Pass). Crossosoma was not seen beyond Sitgrive Pass (ca. 4 miles from Oatman).

After a number of re-collections, the only remaining material seems to be near 3 and 4/10 miles east of the Oatman Hotel at an altimeter reading on the road of 3,300 feet. Slopes above the highway (south) are fenced off and with no trespassing signs, but some material was collected here along the narrow draw. Looking southeast on the near pinnacles, Crossosoma is sparse and much smaller than normally seen, possibly because limestone is frequently local here. Looking southwest where the slopes are almost vertical to the highway for the first 50 to 100 feet above, pinnacles running east-west for several hundred meters probably contain 25 pounds of Crossosoma. Through a narrow draw and far above the highway, a glimpse of a private road running shortly parallel to the highway suggests accessibility to another estimated 75 pounds of Crossosoma. The private road converges with the highway about 1/4 to 1/2 mile above the 3,300 road altimeter reading. I have not collected or checked the pinnacles near the summit directly south. Unfortunately, the private road had a locked gate near the highway junction.

The extent to which Crossosoma might occur elsewhere in the Black Mountains is difficult to assess. C. bigelovii, in a broad sense, has a wide geographical distribution (Arizona, Sonora, Baja California Norte, California, and probably Nevada), but each of its many occurrences are very restricted geographically. An example of one limited occurrence was just described. In 1978, I searched north of the original site in the Black Mountains near Secret Pass Mine and Union Pass. Not one plant was seen. The rest of the Black Mountains, however, seem accessible only by foot.

Assuming that there might be some validity to the taxon C. parviflorum as described by Kearney and Peebles in their Flora of Arizona, then Quarter Master Canyon and The Grand Canyon could be considered future collection sites. Quarter Master Canyon lies within an Indian Reservation, and as I learned this year, one has to obtain permission at Peach Springs before entering. I arrived on a Saturday and did not wait around until Monday for the office to open. Before looking into the Grand Canyon, I think we should collect and screen C. bigelovii from other locations.

From my experiences in collecting large samples of Crossosoma (once in California and twice in Arizona), the plants are usually found on rock pavements or walls in narrow canyons or draws. Climbing around on ledges with loose rocks and having to carry a large bag requires careful foot work and a lot of patience and time. The average daily yield (dry weight) for samples obtained in 1972, 1973, and 1980, was 15 to 25 pounds (per man).

Future prospects for obtaining more large samples of Crossosoma with PS activity depends on whether we look at the problem from a narrow view (C. parviflorum) or a broad view (C. bigelovii). Also, we must consider that C. parviflorum could be recognized as a threatened species and that a study or revision of the genus Crossosoma could reveal a number of undescribed species or varieties. It is a strong possibility that we simply do not know who we are dealing with and may have to deal with the problem on a genus level.

It should be pointed out that obtaining another 100 pounds at the original collection site (if available) will not eliminate the entire population. There are many plants that are just not accessible because one cannot reach them on vertical walls without special gear and training in mountain-climbing. It is very difficult to pull the entire plant out of the rock, the burl-like base remains embedded in the crevices. Many stems broken off in 1972 and 1973 are still alive; leaves and fruits were seen on these, but new stem growth is hardly noticeable. Another observation was that plants never picked before were dying (not noticed in 1973) and auto pollution might be a factor.

It is my recommendation that we consider collecting small samples of C. bigelivii from many locations to determine those locations that are suitable for yielding large samples. This is necessary because the original site has little accessible material left and the taxonomy of the species or varieties in the genus may not be clearly defined.

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