The California Academy–Lingnan Dawn-Redwood Expedition

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After Dr. Chaney’s hurried trip to central China, an expedition was arranged jointly by the California Academy of Sciences and Lingnan University, Canton. It was led by Gressitt, an American with a great deal of field experience who was then working at Lingnan. His major goal was to collect zoological materials, but in the years from 1933 to 1936, he had also made extensive botanical collections in Hainan, Guandong, Fujian, and southern Jiangxi.

From mid-July to mid-August of 1948 Gressitt and the five Chinese students who accompanied him explored all the ravines, valleys, and hills in the vicinity of Modaoqi and Shuisapa, raising the count of known dawn redwoods from about 100 to 1,219. Gressitt was very much taken by the beauty of the trees, but they were not his primary interest; he hoped to find insects and other animals that might, like Metasequoia, be related to ancient North American species.

The dawn redwood was apparently unknown outside its range before its recent scientific discovery by Chinese plant collectors. Probably its range in recent historic times has not been much more extensive than at the present time. This is suggested by the fact that the wood is not considered valuable, and is not carried out of the mountains as is the wood of Cunninghamia, or “Chinese fir.” Nevertheless, the species has probably been suffering reduction of numbers over a long period. The fact that it requires a damp habitat and grows along streams makes its survival precarious with the increase of population and the rice fields spreading up into the higher valleys. Possibly the massacre 300 years ago of most of the people in eastern Szechuan by the Imperial forces for failure to pay taxes may have been an important factor in saving the tree from extinction in recent years. Another factor may be the apparent state of semicultivation under which the tree exists. The fact seems to be that a considerable percentage of the existing trees have been transplanted to their present situations. For example, many of the large trees are in straight rows up ravines, paralleling the small streams. Others are around the farmhouses. Many young and medium-sized trees are in straight rows along the edges of rice fields bordering streams.

The reason for transplanting volunteer seedlings from the shaded ravines to particular situations, often in rows, is apparently based on local superstition. The mountain people have the habit of predicting their crops on the basis of cone development on the trees. A heavy crop of cones on the upper portions of the trees is said to indicate a good rice harvest, and an abundance of cones on the lower branches signifies good results from the hill crops (corn, drugs, herbs, lacquer, etc.). Thus it may actually be that the dawn redwood has been preserved from final extinction more or less by chance. It is interesting to note that the water pine,
Gressitt's count of 1,219 Metasequoia trees did not include all the young trees and, he suspected, not quite all the large trees. This one, located in lower Shuisapa valley near Hsiao-ho, at 115 feet in height and 8 feet in diameter is the largest he found, although he encountered several of about 100 feet high and 5 feet in diameter (at 6 feet above the ground).

Glyptostrobus pensilis, of southernmost China, is also planted for geomantic purposes, generally along old paths in the delta country.

After observing the soft and flexible nature of the foliage and branches, it is easy to understand how the tree has come to be semi-sacred and used for divination purposes. Particularly when observed in a breeze, the tree has a feathery and somewhat fairy-like appearance, and this seems to suggest its uniqueness.

The principal purpose of our trip was to collect insects and other animals in the hope of finding some ancient faunal elements of possible North American affinity that might have survived with Metasequoia and the other ancient trees associated with it. . . . A number of the other genera of trees found in the same fossil deposits are still growing with the living dawn redwoods. What is still more striking is that the present dawn-redwood area is the only known place in the world where all of these particular trees, exclusive of Metasequoia, are now growing together. Thus we hoped to find some animals which might be descended from species that we find preserved in ancient fossil deposits, contemporaneous with the old deposits of Metasequoia that have been found in many places in Europe, North Asia, and North America. We even hoped to find some insects related to those in the present redwood association of California and Oregon. Since fossil birds are extremely few and the chance of wild animals having survived very slight, hope and emphasis were placed upon the insects. . . .

It is [Shuisapa] valley that contains the unusual assemblage of plants of ancient northern affinity, many of them being among the most familiar and conspicuous types of trees in Europe and North America. Among them are beeches, birches, poplars, willows, oaks, chestnut, maples, hornbeam, hop hornbeam, linden, sassafras, pine, and yew. If it were not for the rice paddies, farmhouses, and people, a European or American might believe himself near home. Forests of the extent found in this valley...
The middle portion of Shuisapa valley as Gressitt photographed it in 1948. “The valley extends northeast and southwest and curves eastward at its upper end. The lower end is more or less closed by an east-west range of hills, the stream passing through a break in them, and continuing beyond to the southeast for a few miles, partly underground. On each side of the valley extends a fairly sharp ridge, the east ridge reaching 5,500 feet and the west ridge 5,100 feet in altitude.”

are rarely seen in China except on the steeper slopes of high mountains, and in precipitous canyons or temple preserves. Immediately on entering the valley one cannot but sense its uniqueness, both from the standpoint of the unusual nature of the flora and from the extent of its preservation. Probably one reason for the slower rate at which the trees are being cut is that the nearest large commercial center is Wan Hsien, 120 miles walk to the north and in another province, whereas the stream in the valley flows in the opposite direction for a short distance underground just outside the valley, and then a very long distance, round about, with dangerous rapids and narrow gorges up which boats may not be towed, before meeting the Yangtze River between Chungking and Wan Hsien. Foresters who might dare to float rafts of logs downstream would have to dispose of their poles and ropes and walk back. Though trees are being cut locally at a seemingly alarming rate, they are used mostly for local purposes, particularly for houses, fuel, and coffins. . . .

We made our headquarters in one of the two large farmhouses on the east side of the stream at Shuisapa. Part of this house was occupied by a former mayor, with the present mayor living in the other house. Since Dr. Chaney’s visit four months earlier, the mayor’s wife and one child had died and the mayor was now sick. We therefore could not live in his house, and had to be somewhat careful until we had made friends with the people, as they tended to ascribe this bad luck as caused by the foreigners coming and cutting down a dawn redwood for specimens. However, the local people themselves cut the trees not infrequently. There is a prevalent local custom of cutting the branches off the *Metasequoia* and *Cunninghamia* trees periodically, often almost to the very top, at least for the trees close to their houses. Thus most of the trees outside the shady ravines are apt to have an
extremely slender appearance as new branches are growing out. Sometimes the trees are thus killed, as had recently happened to two large metasequoias next to our farmhouse. For those not killed the practice reduces the potential self-seeding of the trees... Our principal emphasis was on insects, particularly those in association with the *Metasequoia* and other interesting plants of the valley. The plants we collected principally for the purpose of identifying the host-plants of the insects, and the serial numbers of the plant specimens were assigned to the insects collected on them. To all the local people we met we advertised our miscellaneous needs, offering to buy all kinds of animals. The returns from this method of acquiring specimens were less fruitful than I had experienced in some other parts of China, perhaps because these people seemed to have less use for money... Gradually, as a result of making rather high payments for specimens brought in, we acquired a certain number of snakes, lizards, frogs, and birds, but almost no mammals. The people stated that the summer was not the season for hunting, and they adhered to their custom. One of the reasons given, in addition to the fact that the animals are harder to find in summer, was that the summer was the breeding season. This, of course, was a commendable viewpoint.

From questioning the inhabitants, we gathered that tigers, leopards, wildcats, bears, deer, mountain goats (serow or goral), muntjacs,
foxes, civets, wild pigs, rabbits, squirrels, and others occurred here. Someone told us there was a family of leopards with small young at a certain point in the valley, but that was all we heard of them.

In our daily collecting we generally divided into two groups, at least after lunch, as there were as many as nine of us collecting at one time. We attempted to collect along each ravine and ridge, to investigate all types of floral situations. Much of our collecting consisted of sweeping the vegetation, one species at a time, when possible, to collect the insects from each kind of plant. At other times we worked on dead branches, fences, logs, stones, streams, and rotting materials. When there were no trails up to the passes or peaks, we had rough going through very dense vegetation, or had to detour.

In south-central Shuisapa valley, members of the expedition and local boys hired to help with the collecting. In addition to butterfly nets, they carry a large cyanide jar, a plant press and other equipment, and lunch.

The largest of the three originally discovered Metasequoia trees, located at Modaoqi, Sichuan. Gressitt measured it at 90 feet in height and 5 feet in diameter. “My first view of the foliage reminded me vividly of the coast redwood, except for the softer and more fragile nature. These characteristics seem to set it off rather conspicuously from many other conifers. In fact, after the species has grown longer in cultivation, it may be judged one of the most beautiful of existing trees.”

Our collecting resulted in the bringing back of tens of thousands of insects in addition to the plants and miscellaneous animals. As to the scientific results, it will be some time before any conclusions can be drawn as to possible relationships of the insect fauna of the dawn-redwood flora with that of western North America. It may prove more closely related to that of southeastern North America, as is the case with most of the plant genera in common between eastern Asia and North America.