

# Pelagodoxa in the Marquesas Islands

GEORGE W. GILLET

*University of California, Riverside*

As the plans developed for my 1970 botanical field work in the Marquesas Islands, Dr. Moore of the Bailey Hortorium and Dr. Yoneo Sagawa, Director of the Lyon Arboretum, University of Hawaii, urged me to obtain collections of the rare palm, *Pelagodoxa Henryana* Beccari. Their persuasion was welcome, for my interest in palms had brought an appreciation of the unique status of the monotypic *Pelagodoxa*.

On August 18, my Marquesan guide, Tunui Puhetini, and I started from sea level on the trail that ascends the ridge back of Taiohae, Nukuhiva. Our objective was the native stand of *Pelagodoxa* in upper Taipi Valley, about 10 miles from Taiohae. The principal incentive was a spirit collection of mature flowers for Dr. Moore's laboratory. An additional incentive was a collection of fruits for propagating this species at the Lyon Arboretum. As our ponies scrambled up the rocky, slippery trail, we headed into a steady rain, the unfailing element of the Marquesan weather that time of the year. We crossed the summit between Taiohae Valley and Taipi Valley at about 2100 feet, then descended on a precipitous trail with numerous, tight switchbacks. This was the trail that Tunui had insisted was impassable. Only adamant determination had dissuaded him from that verdict and had gotten this expedition underway. The trail obviously was dangerous, but was easily negotiable with normal precautions. We passed a fine specimen of cashew (*Anacardium occidentale* L.), one of the more attractive elements in the tangle of introduced, pernicious weeds that comprise most of the vegetation below 2500 feet on Nuku-

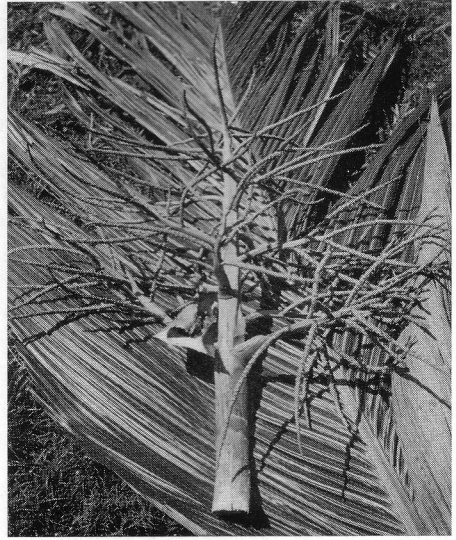
hiva. Only about one-fifth to one-tenth of the original native vegetation is left on the island, this concentrated above 2500 feet. The native biota has suffered vast destruction by the browsing and trampling of thousands of wild goats and cattle that were introduced over 100 years ago. At the current rate of destruction, it is my estimate that the remaining native vegetation will be annihilated within approximately 50 years.

Descending to a tributary of Taipi Valley (the locale of Herman Melville's "Typee"), we picked our way through thickets of *Hibiscus tiliaceus* L. We paused while Tunui cut a 10-foot sucker shoot of this species. Splitting one end, he pulled off a 10-foot strip of bark. He used this to make a crupper for my saddle that had slipped forward during the 1500-foot descent. We suddenly came upon the upper Taipi River and forded it without difficulty. At the head of Taipi Valley are lovely waterfalls plunging some 1000 feet from the Toovii Plateau. The valley floor is forested with stands of the Tahitian chestnut, *Inocarpus edulis* Forster. Tunui's dog scared up a family of pigs and finally chased them into a bamboo thicket. We took note of this destructive adversary of the native biota as we approached the only known stand of *Pelagodoxa*. Finally, Tunui led us off the trail and we tethered the ponies. We were about 500 yards from the main waterfall, in dense rain forest comprised of Tahitian chestnut, *Hau* (*Hibiscus tiliaceus*), and mule's foot fern (*Angiopteris marchionica* E. Brown). We walked a few hundred yards through the rain forest and suddenly came upon a fine specimen of *Pelago-*

*doxa*, about 25 feet tall. While our climber retrieved inflorescences and fruits, I made a count of all trees in the population. This job was tragically simple, for the population grows on a 1-acre habitat and consists of two mature trees about 25 feet tall and 27 smaller plants from 1 to 6 feet tall. The ground is stony, with a gentle slope to the Taipi River, about 50 yards away. The habitat is 135 feet above the sea. The rain forest overtops the largest *Pelagodoxa*.

Most heartening was the evidence that *Pelagodoxa* is reproducing very well, with the population slowly expanding. The feral pigs apparently have not yet discovered this food source. The mature fruits have a thick endosperm and are about 4½ inches in outside diameter. The much-branched inflorescences are interfoliar. The erect, naked trunks of the mature trees bear stiff, pinnate leaves on the terminal one-tenth of their length. The young leaves are entire, but are irregularly torn as they mature. In examining this habitat I noticed an old Marquesan house foundation, a platform of boulders, surrounded by *Pelagodoxa*. This immediately raised the question of whether or not the population was really indigenous, or possibly adventive, a remnant of early Marquesan agriculture. Could the ancient Marquesans have utilized the coconut-like fruit of *Pelagodoxa* as food? We made specimens of leaves and inflorescences. Working in the rain, there was no opportunity for taking pictures.

The mature fruits were divided between the French administrator in Taiohae and the Lyon Arboretum. Hopefully, successful propagation will be accomplished at both places to provide additional security for this rare and unusual genus.



2. An inflorescence with prophyll lying on a branch and the dissected tip of a leaf visible. All from the tree above.

An additional *Pelagodoxa* foray materialized when Tunui learned of a specimen growing in a private garden in Taipi Village near the mouth of the Taipi River. We hired a boat, useful for carrying back a large frond, and headed out on the open ocean for Challenger Bay and the Taipi River. The hazards of navigating a turbulent sea in a 16-foot boat were all too obvious as the outboard motor pushed us around the storm-battered headlands and the waves tossed us like a cork. In Taipi Village we readily found our specimen (Fig. 1). Our climber quickly ascended and brought down fronds and flowering inflorescences (Fig. 2). Several aborted fruits were picked up from the ground (Fig. 3). An inflorescence bract ("prophyll") was obtained, and proved to be bicarinate, satisfying one of the special requests of Dr. Moore. This time we had to pay for our





3. Young fruits and leaf of *Pelagodoxa*. The scale is in inches.

specimens. The charge was one gallon of red wine—cheap enough.

The above paragraphs give the status of *Pelagodoxa* in the Marquesas Islands. Several specimens are cultivated in Tahiti and in Hawaii, also (according to Dr. Moore) in Panama and Florida. I located six trees in gardens in Tahiti, and probably there are more. The production of mature fruits and at least one seedling by strongly isolated trees in Tahiti show that the monoecious *Pelagodoxa* is self-compatible.

In reporting on my botanical studies to the Governor of French Polynesia, I urged the fencing of the Taipi Valley population of *Pelagodoxa*. I also recommended that this area and the remnant of montane native vegetation on Nukuhiva be designated as natural area preserves. Finally, the removal of wild goats, cattle, and pigs was recommended to accomplish the preservation of the remarkable indigenous biota.

It seems appropriate to mention in this brief note the recent report of *Pelagodoxa* in the Solomon Islands (E. J. H. Corner, *Trans. Royal Soc. London, Ser. B* (800): 592–593, 1969). In May, 1970, I had a brief visit with Dr. John Peake, malacologist at the British Museum, who made this discovery of *Pelagodoxa* on the south coast of San Cristobal Island. This material was identified by Dr. Moore, to whom it was transmitted by Dr. Corner. Apparently a small population occurs at Makiri Harbor, San Cristobal. This raises the interesting question as to whether *Pelagodoxa* is native or introduced in the Solomon Islands. Corner (*op. cit.*) states that the Solomon Islanders are not familiar with *Pelagodoxa* and he gives no native name for it. This situation needs further study, but it suggests that *Pelagodoxa* has had a brief history in the Solomon Islands and may be of recent introduction there. On the other hand, the Marquesans have a name for *Pelagodoxa*. It is known to them as *Énu*. This name is familiar to older Marquesans in the Taiohae Valley and is widely familiar to the inhabitants of Taipi Valley. The Taipi Marquesans know the *Énu* well and know where it grows, suggesting that it has had a long history and perhaps a distant significance in their culture.

Appreciation is extended to the Hawaiian Botanical Gardens Foundation, sponsor of the *Pelagodoxa* collections in the Marquesas Islands and Tahiti, and to the National Science Foundation, sponsor of my botanical expedition to southern Polynesia.