

A RARITY RETURNS TO ITS HOME

(The "Toromiro" of Easter Island)

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Vae victis! This sad dictum on a gloomy aspect of human inter-relations coined in the language of a militant barbarism might justly be called forth to serve in a description of the species from the vegetable and animal kingdoms which, devoid of the vitality of the robust or of adequate possibilities of escaping, have suffered the misfortune of crossing the path of man in his exploitation of the entire world.

Numerous are the species to which this taming of nature spelled complete extinction. Luckily, however, the last decades have also – and to an increasing degree – witnessed the exploiter take upon him the role of patron. Whole regions have been preserved, species on the verge of extinction have been transferred to sanctuaries, and in certain cases back again to their native soil; and furthermore, in the case of certain species it turned out that better possibilities of escaping existed than previously expected. In rather a curious way such a possibility has been offered the *Sophora toromiro*, (PHIL.), SKOTTSB., a small tree of a limited and peculiar range: Easter Island, where the tree was endemic and, furthermore, to all appearances the only native tree-species, used for all sorts of wood-work, from articles for everyday use to the famous wood carvings and statuettes.

Systematically the Toromiro belongs to the large-flowered group of Sophoras called *Edwardsia*, whose flowers are not papilionaceous, but rather tubular, the petals of the keel being widely separated and all the petals pointing forward, and whose leaves are usually more delicately pinnate. From a phytogeographical point of view this is a most interesting group, of typically australo-circumpolar distribution pattern. It is true that one of the species, *S. chrysophylla*, Seem., occurs on Hawaii, but this (endemic) species is also considered to form an antarcto-tertiary element. The ranges of the other species or subspecies of the group are: Lord Howe Isl. (1 sp.), New Zealand (3), Chatham Isl. (1), Raivavae (1), Rapa (1), Marquesas (1), Easter Isl. (1), Juan Fernandez (2), Chile (2), Gough Isl. (1) and Réunion (1).



Fig. 1. *Sophora toromiro* (PHIL), SKOTTSB., with pod.
Reprint from SKOTTSBERG'S "The Phanerogams of Easter Island".

The matter is no less interesting in the way that these widely separated, endemic species, although by no means identical, are so closely related that with the exception of the said *S. chrysophylla* and the Chilian *S. macrocarpa*, SMITH, some authors group them under one single species, *S. tetraptera*, J. S. MILL. As is often the case the distinction into species or subspecies is open to discussion here too. However, with Skottsberg it seems reasonable to place preponderance upon the mutual, by no means insignificant dissimilarities between them, and consequently refer at least the greater part of them, including the Toromiro, to the species level.

Regarding the *S. toromiro* we find that it differs from the species of New Zealand, Chile and Juan Fernandez in characters such as its

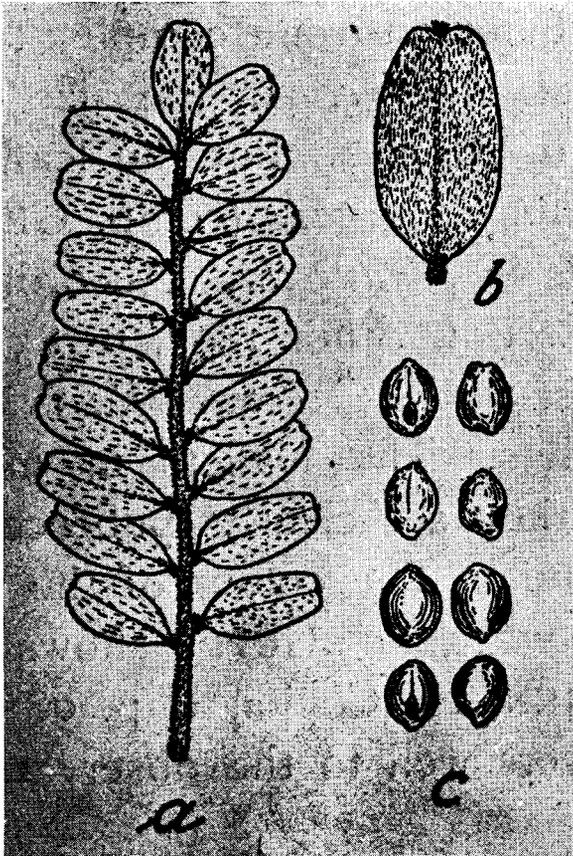


Fig. 2. Seeds, leaf and leaflet of *Sophora toromiro*.
From SKOTTSBERG'S "The Phanerogams of Easter Island".

considerably smaller, more globose and pale grayish-yellow seeds (castaneous and more oblong in the species mentioned), its whitish pubescence on leaves and petioles (brown to yellowish-brown on the other ones), and the number of pairs of leaflets which usually does not exceed 8-9, at any rate rarely up to 12. It is true that Skottsberg's description is based on a single specimen only, but at least the seed-characters given by him have been confirmed by others. Finally it should be mentioned that the nearest of kin, judging from most of the characters, *S. masafuerana*, (PHIL.), SKOTTSB., of Juan Fernandez, lacks one of the characteristic features of the group: The wings of the pod.

The unusual geographical distribution of closely related species,

as well as the characteristic winged pods have given rise to a rather agitated dispute between scholars. Some authors have expounded the wings to be a medium of dispersal by sea, maintaining that the pods do not open when hanging on the trees. To this SKOTTSBERG ("Derivation of Flora and Fauna . . .", p. 262, and elsewhere) acridly retorts, firstly, and based upon his own observations, that the pods do open on the trees to discharge their seeds therefrom; secondly, that these *Sophoras* are not litoral but inland plants, and, finally, that the pods of some of the forms have no wings at all. And against their general points of view he advances the above-mentioned theory that ". . . we must look upon Antarctica as a one-time centre of a polymorphous population, which radiated in various directions".

As mentioned above *S. toromiro* is but a small tree, of tortuous habit, and with rufous and sulcate bark. On the older branches the foliage is condensed towards the apices, giving a stunted appearance. The 4 to 5.5 cm. long, odd-pinnate leaves are papyraceous and densely pubescent beneath and on the rachis. The pods are long-pediceled, up to 10 cm. long, moniliform, interrupted, and carry 4 narrow, longitudinal wings. They hold small seeds, the size not exceeding 4×5 mm. It seems as if a description of the flowers never appeared, but judging from the flowers of the co-species they should be bright yellow and presumably smaller than the flowers of the *S. tetraptera* of New Zealand. According to PHILIPPI the wood is reddish-brown, striated pale and dark.

The original role of the Toromiro in the vegetative pattern of the island is a matter of conjecture. However, it appears that within historic times it did not form real woods. The few early European explorers, including ROGGEVEEN/BEHRENS (1722), DON FELIPE GONZALES (1770), COOK/FORSTER (1774) and LA PÉROUSE (1786) are cited unanimously to have emphasized the nakedness of the landscape: A grassland broken by some cultivated lots and a few distant groves. Synthetizing SKOTTSBERG advances the hypothesis that presumably the *S. toromiro* is the only native tree of Easter Island and that originally it occurred in a kind of savanna similar to that of the relatively dry, subalpine regions on Hawaii and East-Maui, where *S. chrysophylla* grows as scattered, stunted trees in the grassland.

It is evident that the wood-consumption of a population, large at times, must have been a serious strain on a vegetation of this type, and later on, in 1871, when sheep-breeding on a large scale was initiated the situation grew fatal. Certainly, as late as in 1886 THOMSON



Fig. 3. One of the 3 plants of Gothenburg Botanical Gardens. August 1964.

Photo by the author.

observed some groves in the hills, but the majority of these groves consisted of dead, decaying trees, and in 1917 when SKOTTSBERG spent a fortnight on the island he felt convinced that the Toromiro was on the verge of extinction. He himself was able to find only a single specimen, in the large crater, Rano Kao. He succeeded in germinating seeds from here in Gothenburg, but the resulting plants never flowered and finally they perished.

During the THOR HEYERDAHL expedition to Easter Island (1955–56) a few specimens were discovered, in Rano Kao again, but when Mr. SCHANZ, since early 1962 in charge of the agricultural experiment station of the island, became interested in the fate of this species and wanted to propagate it he found that also the last specimens dis-

covered by HEYERDAHL had succumbed and that at length the Toromiro had become extinct from its native habitat.

Mr. SCHANZ's investigations originated from the population's urgent desire for having among them again the "national tree" of the island, -- a desire that was the more acute as the wood of that same national tree felt considerably better suitable for wood carvings than did its substitute, "Miro de Tahiti" (*Melia azedarach?*) which has been in use for some years. When it became evident that the Toromiro had disappeared from the island it was urgently desired to recover it, if possible, from some botanical gardens in possession of fully grown specimens of the species.

Now applications were made to Consul C. O. F. GULDMAN, of Santiago, who in turn persuaded the author to commence rather a considerable search in the form of inquiries from the Desert Arboretum to a number of the main botanical gardens and arboretæ in Europe, North- and South America, Japan and the Australian region.

At first results were meagre. True enough, in a letter SKOTTSBERG stated that the botanical gardens of Gothenburg cherishes 3 young plants of Toromiro raised from seeds procured from Rano Kao by the HEYERDAHL expedition. However, considering the behaviour of the plants from SKOTTSBERG's own collection it may reasonably be feared that these 3 plants too will remain infertile. And apart from this information by SKOTTSBERG the search failed at first. The species seems to be exceedingly rare in culture, both in the open and under glass.

However, the search was continued, and finally our efforts were crowned with success, as Dr. GILPIN, Christchurch Botanic Gardens, in reply to an inquiry, sent a little bit of seeds of the Toromiro, harvested on a single tree in the possession of the Botanic Gardens. These seeds were forwarded to Consul GULDMAN and from him to Easter Island.

Furthermore Dr. GILPIN stated that during a visit to Easter Island, about 1942, the late Professor MACMILLAN BROWN collected some seeds from the Toromiro, from which he, back in New Zealand, raised a number of plants, one of which is the tree of the Christchurch Botanic Gardens, while the rest were planted on his private estate; and endeavours would now be made to find these trees. Besides some of the seeds from the specimen in the Christchurch Botanic Gardens were sown there and had yielded some plants.

Thus, for the time being, contact has been established to one safe source of seeds, and a source of seeds which should gradually be-

come more productive. In other words, from this point of view the *Toromiro* has been ensured a continued existence even if it should appear that fertile specimens do not exist elsewhere to-day. But in addition the species is about to regain a foothold in Easter Island, where plants from these first seeds will be given a protected existence. And more seeds are to follow, so that it should be a matter of only relatively short time before *Sophora toromiro* will have recovered not only a foothold but, after decades of bare survival, will also be well represented in its quaint and legendary home.

Literature

- GUILLAUMIN, M. A., A. CAMUS & TARDIEU-BLOT: Plantes vasculaires récoltées a l'île de Paques par la mission Franco-Belge. Bull. du Muséum National d'Histoire Naturelle. 2e Série. Tome VIII, 1936, pp. 552-556.
- HOOKEER, J. D.: Handbook of the New Zealand Flora, 1863.
- PHILIPPI, R. A.: Descripción de las plantas nuevas incorporadas ultimamente en el herbario chileno. Anal. de la Univ. de Chile, XLIII, 1873.
- Bemerkungen über die chilenischen Arten von *Edwardsia*. Bot. Zeitung. XXXI, 1873.
- REICHE, K.: Grundzüge der Pflanzenverbreitung in Chile. ENGLER u. DRUDE's Vegetation der Erde, 8. 1907.
- SKOTTSBERG, CARL: The flora of the Hawaiian Islands and the history of the Pacific Basin. 6th Pacific Science Congress, Vol. IV, 1939.
- The Natural History of Juan Fernandez and Easter Island, 1920-56. Ed. by CARL SKOTTSBERG:
- SKOTTSBERG, CARL: Notes on a Visit to Easter Island. Vol. I. pp. 2-20.
- Derivation of the Flora and Fauna of Juan Fernandez and Easter Island, *ibid.* pp. 193-438.
- The Phanerogams of Easter Island. Vol. II. pp. 61-84.
- The Phanerogams of the Juan Fernandez Islands. *Ibid.* pp. 95-240.
- The Vegetation of Easter Island. Vol. II. pp. 487-502.
- SKOTTSBERG, CARL: Remarks on the Flora of the high Hawaiian volcanoes. Medd. från Göteborg. Bot. Trädg. VI, 1930, pp. 47-65.
- Correspondence, March 1963.
- WRIGHT, CHARLES S. & CARLOS DÍAZ V.: Soils and Agricultural Development of Easter Island. F.A.O. 1962.

Resumé

Sophora toromiro (PHIL.)SKOTTSB., et lille træ fra den storblomstrede, finbladede undergruppe under *Sophora*, *Edwardsia*, hvis blomster nærmest er rørformede, idet bådens petaler er vidt adskilte, meldes omsider udryddet i sin snævert afgrænsede hjemstavn, Påskeøen, hvor træet i sin tid, skønt antageligt kun ret spredt forekommende i et savanne-

lignende landskab, var befolkningens efter alt at dømme eneste leverandør af ved til træfigurer og brugsgenstande.

Disse arter eller småarter, som sammen med *Toromiro*'en danner gruppe, står hinanden meget nær, men er dog ingenlunde identiske. Gruppen er plantegeografisk interessant ved sin austral-cirkumpolare udbredelse, hvor hver art er endemisk i sit område, der ofte består af isoleret liggende øer. De for de fleste af gruppens medlemmer karakteristiske fire vinger på bælgene har, støttet af fejltidninger, ført til formodning om, at artsgruppen er udbredt med havstrømmene, en teori, som SKOTTSBERG afviser, idet han i stedet betragter dem som isolerede rester af et tertiært, antarktisk artskompleks med forekomst over et meget stort område.

Kraftigt opfordret af Konsul C. O. F. GULDMAN, Santiago, søgte forf. ved henvendelse fra Ørkenarboretet til en række af de ledende botaniske haver og arboreter at skaffe frø, således at *Toromiro*'en på ny kunne vinde indpas i sin hjemstavn. Besvarelserne af disse henvendelser lader formode, at *Toromiro*'en må være overordentlig sjælden i kultur. Bortset fra 3 unge individer i Göteborg botaniska trädgård, som, at dømme efter forgængerens skæbne, næppe kan forventes at ville fructificere, fandtes intet spor, før dr. GILPIN, Christchurch Botanic Gardens, fremsendte lidt frø her til fra et enkelt træ i havens besiddelse. Disse frø er videresendt til Påskeøen via Konsul GULDMAN.

Noget af frøet blev imidlertid tilbageholdt i Christchurch og har givet planter dér. Samtidig leder man i Christchurch-området efter andre planter af den samme oprindelige indsamling, som den botaniske haves enlige eksemplar stammer fra. Der er med andre ord skabt kontakt til en frøkilde, hvis evner og måske kvalitet endda vil kunne bedres; og på længere sigt indebærer dette, at *Toromiro*'en ikke blot på ny er ved at vinde fodfæste men efterhånden skulle kunne opnå noget af sin gamle rolle i dens sære og sagnomspundne hjemstavn, Påskeøen.