AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Inclusion of Schinopsis spp. in Appendix II.

B. PROPONENT

The Argentine Republic.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class: Dicotyledoneae

12. Order: Rutales

13. Family: Anacardiaceae

Género: Schinopsis

14. Species:
S. balansae
S. lorentzii (= S. quebracho colorado)
S. haenkeana (= S. lorentzii var. marginata)
S. heterophylla

15: Common Names:
English:
French:
Spanish: Quebracho colorado chaqueño, Quebracho santafesino (S. balansae); Quebracho colorado santiagueño, Quebracho colorado, Quebracho santiagueño (S. lorentzii); Horco-quebracho, Quebracho de la quebrada, Quebracho cordobés (S. haenkeana); Quebracho colorado mestizo (S. heterophylla)

16. Code Numbers: None.

2. Biological Data

21. Distribution: In Argentina, these species occur in the Chaco, Formosa, Santiago del Estero and part of Santa Fe, Salta, Tucumán, Catamarca and Córdoba Provinces.

One of the species, S. haenkeana, occurs in mountainous areas of northern Córdoba, Santiago del Estero, La Rioja, Catamarca, San Juan and skirts the limits of Chaqueño Park in Tucumán, Salta and Jujuy.

The range of the genus also covers western Paraguay, southeast Bolivia and southwest Brazil.

22. - 23. Population and Habitat: The Chaqueño Park is part of Gran Chaco, which covers an alluvial plain of about one million square kilometres. This plain goes up gradually by some 350 m from southeast to northwest. Of this area, 46% (500,000 km^2) belong to northern Argentina; 32% (350,000 km^2) to eastern Paraguay; 15% (160,000 km^2) to southeast Bolivia; and 7% (80,000 km^2) to southwestern Brazil.

The Argentine Chaco is the best known region of those which form the Gran Chaco and it has been described in many publications on phytogeography (Lorentz, 1876; Hauman, 1931; Frenguelli, 1941; Castellanos and Pérez Moreau, 1945; Hauman et al., 1947; Cabrera, 1953, 1976; Morello and Saravia Toledo, 1959; Rafonese and Castiglioni, 1970). More recently, Morello and Adámoli (1968, 1974) published two papers on the vegetation of the Argentine Chaco.

This region is situated on a fringe of the Palaeozoic on the margin of the Brazilian shield. The area sank during the Mesozoic and Cenozoic and more than 3000 m of marine and terrestrial sediments were deposited there. From the end of the Cenozoic era (Pleistocene), large quantities of Andean sediments were transported through the river systems to this region. These streams were progressively filled up with sediments and now only a network of dry rivers remains. Aeolian sediments added to the river deposits (Morello and Adámoli, 1967; Ragonese and Castiglioni, 1970; Spichiger and Ramella, 1989).

On the basis of a regional analysis of the spacial heterogeny, it is possible to distinguish two macro-units: the wet Chaco, in the eastern part, where exists a rich hydrologic network as well as many ravines and swamps, while the western part is arid with salt pans and dry streams in which water accumulates during the rainy periods; this is the dry Chaco. Between these two subregions there might be a transition zone.

The climate is characterized by very hot summers and mild, dry winters; the average annual maximum temperatures vary between 25 and 32.2°C, and the minimum between 10.4 and 16.9 °C, while the annual average is 16.8-23.2 °C. The absolute maxima can be very high (48.9 °C), while the absolute minima can be -8 °C in some areas. The rainfall is higher in the eastern part, with an annual average of 1200 mm, while in the western part the quantity is samller (500-700 mm per year). The rainfall and humidity decrease from east to west and, to a lesser extent, from north to south (Ragonese and Castiglioni, 1970).

The wet Chaco is characterized by a marked seasonal hydrology, a significant factor for the adaptation strategies of the native species (Bruniard, 1960); there is a marked rainy period from October to April, and a dry time from May to September.

The soils are mainly constituted of fine particles. The PH is alkaline, neutral or slightly acid. The frequent presence of salts is characteristic of such soils and may be explained partly by their accumulation in the capillary system due to the high evaporation which occurs under the semi-arid climatic conditions.

The most significant ecological feature of the Chaco is the presence of extensive and very intense activities, basically fires and floods, which generate a great bio-physical instability (Morello and Adámoli, 1973; FAO, 1975).

The phytogeographic region named Chaqueño Park is characterized by associations of woodlands and savannahs of xerophytic type, to which hygrophile forests of the river banks are added (gallery forests) (Morello and Adámoli, 1973; Morello and Hortt, 1987). Originally, these formations constituted a mosaic of xerophyte forests, gallery forests and savannahs generated by the fire or determined by the soil features (Adámoli et al., 1972).

In Argentina, the region is limited in the east by the Paraná and Paraguay Rivers. To the south, the latter also constitutes the eastern limit of the Paraguayan Chaco. The western limit is situated about 600 km westward, at the foot of the Andes, where the rainfall regime changes abruptly. Southwards, the limit is a transition; the Chaco forests disappear in the Pampa plain and southwards they change into the Monte type.

The highland forests, however, are the most typical forest type of the Chaco. The most characteristic feature of the extremely xeromorphic forest or "quebrachal" is the predominance of the various species of the genus Schinopsis. In the humid plains of the eastern part, S. balansae is dominant, while in the dry zones and plains of the western region, the dominant species is S. lorentzii. In the transition zone, i.e., in the ecotone where the ranges of both species overlap, grows S. heterophylla and finally, in the lower level of the Argentino-Bolivian mountain region, grows S. haenkeana. The most characteristic accompanying tree species are: Aspidosperma quebracho-blanco, Bulnesia saemientoi, various species of the genus Prosopis (P. kuntzii, P. alba and P. nigra), Gourliaea spinosa, Tabebuia nodosa; between the bushes, the spiny Acacias, which have a vast range, are numerous, while some bushes of the genera Capparis and Cocoloba may be considered as typical of the chaqueño forests. Palm trees (characterized by Copernicia alba) colonise the lowest and western zones of the land, while the most humid zones are meadows where predominate Elionorus spp., Spartina argentiniensis, Tessaria spp., Leptochloa chloridiformis, etc.

S. lorentzii is the most characteristic species of the xerophyte forests of the Chaqueño Park, extending from the Monte type to the Tucumano-Bolivian type.

In the land-locked forests, S. balansae dominates; it is the most important forest species of the Argentine flora (Ragonese and Castigliono, 1970).

3. Trade Data

Under this item, an analysis of the situation in Argentina is presented as, due to the complexity of the subject, it has been considered more appropriate that the other range states provide their own data. In addition, as previously indicated, about half of the whole quebracho forest occurs in the Argentine territory.

At the beginning of the century, from a census made in 1914, the total native forest occupied an area of about 106 million hectares (Cozzo, 1972). By 1956, from a similar evaluation, this area had been reduced to 60 million hectares (Cozzo, 1972)

At the beginning of the century, from a census made in 1914, the total native forest occupied an area of about 106 million hectares (Cozzo, 1972). By 1956, from a similar evaluation, this area had been reduced to 60 million hectares (Cozzo, 1972) and in 1984 the total was 36 million (IFONA, 1988). This means that in 80 years the country lost 65 % of its forest cover.

The quebracho harvest was intensive, systematic and almost permanent since the beginning of the century. In some zones it has been almost extirpated: in the Santiago del Estero Province for the production of tannin in 1962, in Santa Fe Province in 1963 and in Jujuy Province in 1966. At present, quebracho wood is supplied for that purpose in Chaco only (the province which controls the market) and in Formosa.

Although the average annual extraction for that purpose was reduced from 450 million tons in the 1960s to 200 million in 1986, the pressure on the forest mass was still intense. It must also be taken into consideration that S. balansae, for instance, is a species which reaches industrial maturity at the age of 120 years (Tortorelli, 1957), with a minimum turnover of 80 years in isolated forests, and that there is an increased use for other purposes.

This species is one of the most important autochthonous forest species, which was the pioneer in the Argentine forest exploitation. It can reach a height of 24 m and a diameter of more than 1 m.

The forest mass of the Chaqueño Park has been deeply degraded because of unwise exploitation, which has eliminated the species rich in tannin (quebracho), as well as the timber species. The interest and the capital have been harvested, the destruction being achieved by uncontrolled pasturing and continuous burning. There only remained unproductive bushes and soils with evident symptoms of erosion and the appearance of secondary species of no value (IFONA, 1988).

At the beginning of the century, a major foreign company (La Forestal Land, Timber and Railway Co. Ltd.), in view of the increasing demand for tannin and sleepers, almost eliminated this resource in imposing an exploitation regime which ignored the most basical forestry norms for natural regeneration of such forests. The exploitation was characterized by an extreme depredation, although its object was the acquisition of the wood, and it had the most serious ecological and social consequences for the country (Bialet Massé, 1904; Gori, 1974; Valentini, 1954, 1955, 1960; Marzoratti, 1960; Virasoro, 1971; Brailovsky and Foguelman, 1991). This meant for the Chaco "the decapitalisation of the natural value of the region" (Bruniard, 1979).

Taking the Santiago del Estero Province as an example, the building of the railway tracks implied the felling of the trees for sleepers. Between 1906 and 1915, the province produced 20,700,000 sleepers with which 1600 km of railway track were constructed (Alvarez, 1919).

At the present time, the forest exploitation is still characterized by "overselection", the trees being selected not only by species and by diametral classes, but also by shape and health. The valuable species remains therefore with populations of sick trees and trunks without timber. At the same time in the dry Chaco, the subsistence wood cutters undertake a clearly extractive exploitation of those trees, changing them into unproductive bushes. It is estimated that in the dry Chaco subregion, some 80,000 km^2 of forests are in this state due to such activity (Morello and Hortt, 1987).

In recent years, the extraction data produced by the various provinces were incomplete and, therefore, not comparable. It is therefore difficult to take such figures as a basis to estimate either the total forested area subject to exploitation, or the actual decrease of it. Some provinces declare one form of utilization of the species only and not the others. Another difficulty results from the lack of knowledge of the present state of the forests, as the felling diameter has been reduced to 15 cm in some zones; therefore, neither the age of the trees nor the rate of natural reforestation/regeneration are accurately known.

However, it must be taken into account that Schinopsis has a slow growth. This implies that whatever zone of good regeneration is taken, it cannot be considered as exploitable in the short term. From the ecological point of view, the loss of the "Monte Chaqueño" system, of which this species is typical, implies a habitat reduction for many species of wild fauna for such time that the losses might be irreversible, even in case of eventual regeneration.

When analyzing the exports, a difficulty for the evaluation of the figures stems from the fact that the Customs codes do not differentiate the various species. The coded categories relate to products (posts, poles, sleepers, etc.), not tree species. The only exception is the "quebracho" extracts. Therefore, the relevant figures from 1956 to the first quarter of 1991 are included in this proposal. These figures may be taken as a basis for estimating the international trade, taking into account that they constitute only an index, as it is not possible to quantify the trade in the concerned species regarding other products (posts, firewood/coal, poles). It would be desirable in the future to reverse this situation by negotiating with the Customs authorities.

4. Protection Status

41. Legal and Institutional Framework: In Argentina the Ley Nacional 13.273 de Defensa de la Riqueza Forestal directs the forestry activity of the whole country. One of the main aspects of this law is that it places in the public interest the defence of the forest, and therefore its use, although this is subject to exploitation norms on private lands.

Law 13.273 dates from 1948 and has been complemented by other national laws, decrees and resolutions. Provincial normative bodies also exist. However, this combination of laws is applied only partially.

(Other laws: 20.531 for the creation of IFONA; 21.695 promotes reforestation; 22.211 to increase the productivity of lands with low productivity; 22.428 on the protection of soils; 22.351 on the administration of the national parks.)

As Argentina is a federal country, the provinces have specialized bodies to prepare and implement forestry policies, but the provinces adhere to the national law 13.273 (regime of provincial adhesion).

It may be mentioned that within the Chaco region in Argentina there are protected wild areas established by law, which are placed under the jurisdiction of the Administración de Parques Nacionales or, in the case of the provincial reserves, under the provincial administration.

These areas are the following:

Parque Nacional Pilcomayo: 60,000 ha
Parque Nacional Chaco: 15,000 ha
Reserva Provincial Formosa (Formosa): 10,000 ha
Reserva Provincial Copo (Santiago del Estero): 114,250 ha
Reserva Provincial Cuña Boscosa La Loca (Santa Fe): 2,000 ha
Reserva Provincial Agua Dulce (Chaco): 10,000 ha
Reserva Provincial El Impenetrable (Chaco): Fuente esperanza: 28,400 ha
La Pirámide: 11,600 ha
Reserva Provincial Pampa del Indio (Chaco): 8,600 ha
Reserva Provincial Chancani (Córdoba): of limited area
Reserva Provincial Quebracho de la Legua (San Luis): 2,200 ha

It must be stated that in some of these parks and nature reserves, the protective measures which are implemented are fairly effective, while in other cases, protected areas have been established but are not implemented as they should be.

In most of the provincial reserves, for example, cattle are present, with the already mentioned consequences on the forest and its regeneration.

42. International: No protection.

43. Additional Protection Needs: The inclusion in CITES Appendix II is proposed to obtain reliable and specific information on the international trade in the various species and, from there, to initiate a national strategy of management of the biological system to which they are integrated (see Additional Remarks).

5. Information on Similar Species

Aspidosperma quebracho-blanco is a species which grows in the company of Schinopsis spp. in their range; however, it is not possible to confuse the two taxa, which belong to different genera and families, neither the live trees nor the products, because they are very distinctive. In addition, the exploitation and trade forms are also different.

6. Comments from Countries of Origin

Comments have been requested from the other range states: Paraguay, Bolivia and Brazil.

7. Additional Remarks

This proposal, although it is directed to one species (or a group of affiliated species) which is subject to exploitation due to its high commercial value, has special features. This is due to the fact that it intends to protect an ecological system which has suffered reduction and a marked degradation since the beginning of the century. As a consequence of the unwise exploitation undertaken between 1905 and 1954 (year during which started the step of definitively closing the industry), the period during which vast forest areas were practically devastated, the forest surface was notably reduced. The biological system so affected must be managed with much caution, as the exploitation generates significant losses and, in addition, other areas have been

deeply altered in their original composition because the tree felling was very selective. Therefore, the system has been considerably changed and it must be treated under very clear management principles, as it will not resist such great exploitation pressures as it suffered in the past.

Other rather serious problems must be added to the extraction of trees for commercial purposes: the deforestation for indiscriminate agriculture and the cattle industry, natural and man-made fires.

The intense cattle raising is probably the main factor causing environmental degradation in the region. The cattle raising which is practised in the dry forests of the western Chaco, by small producers who use the forest as forage, deserve special attention. The browsing destroys the sprouting of the valuable timber trees (Schinopsis) to the point that even the dry forests which were never exploited in forestry are now totally degraded (Morello and Hortt, 1987).

Those forests now show deep composition changes as well as changes in the structure of the various strata (Morello and Saravia Toledo, 1959a and b). The destructive action of the cattle due to over-browsing and intense trampling destroy the protection of the soil and expose it to mechanical actions of morphogenesis. The immediate consequences are water erosion, washing of the soil and linear erosion, as well as aeolian erosion.

The consequence of such destructive activity is the existence of more than 40,000 km^2 of totally degraded dry forests in the Argentine Chaco alone (Morello and Hortt, 1987).

Before suffering disturbances from human activities, the meadows and savannahs of the Chaco region were subject to two forms of recurrent disturbance: fires and floods. These phenomena occurred as acute pulses more or less regular in time and space, which maintained the meadows indefinitely in the successional pre-shrub stage.

Since the indiscriminate forest extraction started and the agricultural limit progressed, those natural cycles have drastically changed. The removal of the trees and the introduction of the cattle destroyed the equilibrium herb/wood. The extensive savannahs were replaced by communities characterized by trees and shrubs. The lack of herbaceous vegetation made the natural fires less frequent and, therefore, the balance moved towards the shrubs such as Prosopis ruscifolia, Acacia aroma and others.

From an analysis made by Bucher (1980), the progress of the agricultural limit led to unexpected events in the Chaco fauna. The explosion of the seed-eating birds such as the doves Zenaida auriculata and Columbus maculosa and the monk parrakeet Myopsitta monachus is linked with the effect of the pesticides on the carnivorous birds and the development of agriculture. In the case of Z. auriculata, the population is controlled by the lack of winter food, but in the zones where two crops (wheat and sorghum) are made each year, the species has food available all year long. It is an opportunist species, able to nest during the whole year if it has seeds available (Bucher and Orueta, 1977).

Other events of the same type are those linked with the increase in the populations of insects detrimental to the cattle and the human population, which results from over-pasturing, etc. (Bucher, 1980).

It must be taken into account also that the soils of the Chaco region are normally mainly composed of fine to semifine particles (silty-clay, silty, clayey). In addition, the east-west rainfall gradient is accompanied by increasingly unfavourable conditions for the soil constitution and an increased effect of the action of external agents (water and wind) (Morello and Hortt, 1987). In this type of environment, and in particular in the dry zone where the forest constitutes the main feature, the plant cover plays an especially significant role as a stabilizer of the natural system (Morello and Hortt, op. cit.).

It must also be taken into account that those forests are the habitat of a large variety of native wild animals species, notably various psittacines which, in turn, are subject to trade. However, it is impossible to believe that the control measures on trade will be able to protect the populations of these species when their habitat is being degraded or disappearing. Therefore, the sustainable use of the Schinopsis species implies first the preservation of the structural basis of a whole system and, in turn, the preservation of all plant and animal species which are part of it and of its biological diversity.

Although in recent times the international efforts for conservation have been mainly directed to the tropical forests, other ecosystems, such as that here described, deserve similar attention, not only because of the rate of destruction at which they are affected, but also because of their high specific diversity. In a recent work, Redford et al. (1990) discussed that point and mentioned the Chaco region as an example. Taking the large and medium mammals, they found a total of 53 species for the whole region, including some which do not occur in the tropical forests (Cabassous chacoensis, Aotus azarae) and others which are endemic to the region (Catagonus wagneri) (Redford et al., 1990). The same authors affirmed that biologists still do not know enough about the Chaco region of Argentina to determine whether sustainable development is possible in the region and, if it would be possible, what form it should take (Redford et al., op. cit.).

Starting with the computerization of the export data from the CITES documents, it is hoped that this will begin a trend to improve and unify the management plans, the controls within the various provinces and the studies with a view to a better understanding of the biological system, its functioning and future possibilities.

8. References

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