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CONTRIBUTION TO THE LICHEN FLORA OF BRAZIL. XVI.

LICHENS FROM THE VICINITY OF RIO GRANDE CITY, RIO GRANDE DO SUL STATE.

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During the present year the authors gathered lichens in the vicinity of Rio Grande City in the SE of the Brazilian State of Rio Grande do Sul.

The collection sites visited by the authors were: the large piers built in the junction of the Rio Grande Channel and the Atlantic Ocean, the small town Sao Jose do Norte located in front of Rio Grande City and Casino City on the Atlantic coast.

The main objective of this field work was the study of the marine and maritime lichens in the region as part of the "PLAN DE CIENCIAS DEL MAR" (URU/82/009, PNUD/UNESCO).

The knowledge which exists of the lichen flora of this region from Rio Grande do Sul State is owing to the collections made by G. O. MALME during the Regnell Expeditions (MALME 1897:7, 1904:106).

Large and significative modifications in the local flora took place in this region among the MALME gatherings and those made by the authors. Very extensive urbanizations, many factories being built and a large harbor being installed along the Rio Grande Channel are traduced by the extinction of the native arboreal flora. In the collections sites visited by the authors the existing trees were exotic species: *Acacia, Eucalyptus* and *Pinus*.

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The very extensive piers which penetrate some kilometers in the Atlantic Ocean are formed by granitic boulders. His constructions was initiated at the beginning of the present century. Our objective to collect marine and maritime lichens on this substract was baffled by the total absence of lichen vegetation in the very large number of boulder examined. No explanation to this fact could be found by the authors. In the close proximity of the piers in a small rocky outcrop located 500 m from the seashore we were able to collect a reduced number of maritime species.

In addition to this small colection we gathered lichens in Sao Jose do Norte and in Casino with the aim to increase the knowledge of the local flora.

For the species which were already reported for this region this fact is pointed out in each case. The remaining taxa here listed can be considered as additions to the local flora.

Two identical series were made with the lichens gathered and deposited in the Herbarium of the Departamento de Botanica, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brasil and in the private herbarium of the senior author.

Buellia megapotamica MALME ap. STEIN.

RIO GRANDE: Piers in Barra do Rio Grande, on railway sleepers, 500 m from seashore, very scarce, RG/2.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus,* RG/12; on trunk of *Acacia longifolia,* dunes southward from the City, locally common, RG/20.

Several collections are recorded by MALME (1928 :38) from Rio Grande City and the environments.

Caloplaca granularis (MÜLL. ARG.) C. SAMBO.

RIO GRANDE: Piers in Barra do Rio Grande, on railway sleepers, 500 m from seashore, not common, RG/6.

Collema glaucophthalmum NYL.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/32.

Dirinaria applanata (FÉE) AWASTHI.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/27.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus,* RG/18.

Lynge (1924 :40) reported *Physcia* picta from Rio Grande and this collection was redetermined as *D. applanata* by AWASTHI (1975 :83).

Graphis pavoniana FÉE.

SAO JOSE DO NORTE: on trunk of *Acacia longifolia*, dunes southward from the City, locally common, RG/21.

Several collections are recorded by REDINGER (1935 :48) from Rio Grande City and the environments.

Heterodermia obscurata (NYL.) TREVIS.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/33.

Leptogium austroamericanum (MALME) DODGE.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/31.

Parmelina lindmanii (LYNGE) HALE.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/22.

Parmelina pilosa (STIZB.) HALE.

CASINO: Rio Grande Ave., on trunk of *Ficus*, RG/29.

Parmotrema austrosinense (ZAHLBR.) HALE.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/26.

Parmotrema tinctorum (NYL.) HALE.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus*, RG/16.

Phaeographis lobata (ESCHW.) MÜLL. ARG.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus*, RG/11, RG/14; trunk of *Acacia longifolia*, dunes soutward from the City, locally common, RG/19.

This species was recently incorporated to the State lichen flora (OSORIO & FLEIG 1982 :349). Shortly after, additional records in Rio Grande do Sul State were added (OSORIO, HOMRICH & FLEIG 1982 :481, OSORIO & FLEIG 1983 :139). The following unpublished records registered by the senior author can be listed: Municipalities of Triunfo and Porto Alegre growing on *Mimosa bimucronata*, Porto Alegre City, along Guaiba Ave. on *Melia*

azedarach and also Porto Alegre City, Morro do Sabiá, very common on shrubs on the banks of Guaiba River. Based in all the above mentioned records we can presume that at present this species is largely distributed in the whole State. We have already pointed out two another species: *Parmotrema tinctorum* and *Teloschistes exilis* (OSORIO, HOMRICH & FLEIG 1982 :481, OSORIO 1985 : in press) the first not collected by G. MALME and the second known through very few records in Rio Grande do Sul State.

This three species are able to grow in different tree species (native or exotic) in undisturbed places or in collection sites located in relatively polluted parts of Porto Alegre City. The absence or the poor representation in the large MALME collection is for the authors an inexplicable fact that calls our attention.

Physcia aipolia (HUMB.) FÜRNRHOR.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/28.

This species is not quoted in the large MALME collection from South America (LYNGE 1924). Several collections revised by R. MOBERG, Uppsala, enable us to state that this species is largely distributed in Brazil, especially in the tropical region: Matto Grosso and Parana States (OSORIO, unpublished records).

Pseudoparmelia carneopruinata (ZAHLBR.) HALE.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/23.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus*, RG/13.

Pseudoparmelia texana (TUCK.) HALE.

SAO JOSE DO NORTE: CORSAN park, on trunk of *Pinus*, RG/15.

Ramalina celastri (SPRENG.) KROG & SWINSC.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus*, RG/25.

RIO GRANDE: Piers in Barra do Rio Grande, on railway sleepers, 500 m from seashore, very scarce, RG/7; on rocks along the railway, 500 m from seashore, not common, aerohalin zone, RG/3.

The collections RG/3 and RG/7 belong to the morphotype caracterized by delicate and very narrow branches and which are often confused with *Ramalina linearis* (STEVENS 1983 :99). A recent collection from Rio Grande do Sul State published as *R. linearis* (OSORIO, AGUIAR & CITADINI 1980 :7) was redetermined by G. NELL STEVENS as *R. celastri.* The collection RG/25 belongs to the very common broad lobed morphotype. Already reported as *R. ecklonii* (MALME 1935 :8).

Ramalina complanata (SW.) ACH.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/24.

Ramalina peruviana ACH.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/36, RG/37.

Ramalina usnea (L.) R. HOWE.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/35. Already reported by MALME (1935 :3) for this region.

Teloschistes flavicans (SW.) NORM.

CASINO: Rio Grande Ave., on trunk of *Eucalyptus,* RG/34.

RIO GRANDE: Piers in Barra do Rio Grande, on rocks along the railway, 500 m from seashore, not common, aerohalin zone, RG/1.

SAO JOSE DO NORTE: CORSAN Park, on trunk of *Eucalyptus,* RG/17.

Already reported by MALME (1926 :49).

COMMENTS.

Only 3 out of 20 lichens here listed are considered to be maritime species: *Teloschistes flavicans, Ramalina celastri* and the corticolous *Buellia megapotamica.* The latter species exhibits a maritime distributional area which ranges from Rio Grande in Rio Grande do Sul State (MALME 1928 :38) to the limits of

the Departments of Canelones and Montevideo in Uruguay (OSORIO, unpublished records). From collection sites with a strong maritime influence it is the only lichen species growing on *Pinus* in close proximity to the sea. (OSORIO, SILVA & HAREAU 1984 :2).

The large amount of the species gathered by the authors are additions to the local flora. We consider that the very large regional modifications produced by the urbanization and the substitution of the native tree flora by plantations of exotic species might explain the differences existing between MALME'S and our own gatherings.

SUMMARY

Twenty lichens collected in the vicinity of Rio Grande City, Rio Grande do Sul State are listed. Six species were already reported for this region, the others are additions to the local flora.

Tentative explanations about the origin of changes in the local flora are given.

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