

Radula jonesii Bouman, Dirkse & Yamada

Status: Endangered (EN C2ai)

Class: Hepaticae

Order: Jungermanniales

Family: Radulaceae

Description and Biology: A medium-sized dark- to olive-green leafy liverwort. It is forming thin, loosely attached mats; stems irregularly pinnately branched, branches 2-5 mm long; dorsal leaf lobes flat to slightly concave, narrowly ovate to ovate, with obtuse apex; ventral lobes flattened, appressed to the dorsal lobe, subquadrate, with a \pm acute apex, often somewhat apiculate; perianth cylindrical, only slightly flattened at the irregularly-lobed mouth. Gemmae not observed. Autoecious.

Distribution and Habitat: Restricted to the Canary Islands (Spain) and Madeira (Portugal) occurring exclusively in ravines and north slopes with old growth Laurel forest. On Madeira Island it is today (year 2008) known from nine localities (grid 1 X 1 Km), all located in the northern slope. All subpopulations are very small and fragile covering less than 100 square meters (using a grid net size of 1 X 1 meter). This corresponds to less than 1000 mature individuals (including the sole site in Tenerife). The altitudinal gradients range from 400-1000 m. For Canary Island, only one locality is known. Although the Canary Island record is from shaded, humid rocks, on Madeira the species occur only as an epiphyte on host trees like *L. novocanariensis*, *Ocotea foetens* and *C. arborea*. Other vascular plants in the surrounding area are *Vaccinium padifolium*, *Tolpis macrorrhiza*, *Heberdenia excelsa*, *Dryopteris maderensis* and *Picconia excelsa*. This liverwort species is on Madeira found in association with *Drepanolejeunea hamatifolia*, *Frullania microphylla*, *Frullania polysticta*, *Frullania teneriffae*, *Microlejeunea ulicina*, *Plagiochila exigua*, *Porella canariensis*, *Radula carringtonii*, *Isothecium prolixum*, and *Neckera intermedia*.

History and Outlook: Today, Madeira *Laurus* forest is under regional, national and international protection. It is considered a Place of the Natura 2000 Network and in 1999 was declared a World Natural Heritage of UNESCO. However, this species live in a fragile ecosystem which is strongly dependent of rainfall and mist. Nowadays, the main threats to this species include anthropogenic activities, especially those related with ecological tourism, which if not properly implemented. These may contribute to changes in the microhabitat conditions and the vitality of this sensitive liverwort. Examples of other activities relating to tourism, are footpath management, which should take place with due regard for this species. Also the increase of rubbish and water nitrification by the tourism action as well as destruction of habitats when opening new paths and the *Laurus* forest is a problem. Threats include also the destruction and opening-up of the native forests. Any management that disrupts the existing humidity and light regime in these forests, such as excessive tree-felling, may damage this species.

Presently the Water Framework Directive is under implementation, so a regulation concerning the water effluents and sewer is being accomplished, which tend to minimise the damages in the natural ecosystem and water quality. However we may consider that future climatic changes, which are predicted for this century, could be a serious threat to the habitat of this small and sensitive liverwort.

The future prospect of this species is that, despite there is no evidence for a continuing decline the population size is too small and not safe and therefore meets the criteria for VU D1.

References:

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Updated December 2008 by:

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