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A New Species of *Gymnosporia* (Celastraceae) from Southern Africa

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ABSTRACT. *Gymnosporia gariepensis* Jordaan (Celastraceae), here described as a new species, is known only from the Gariep Center, an arid region of high floristic endemism in the northwestern corner of the Northern Cape (South Africa) and adjacent parts of southern Namibia. An illustration and a distribution map are provided. Diagnostic characters include: the robust thorns that terminate the short, abbreviated lateral branches on older shoots, and the capsules that are reddish, smooth, and obconic-trigonous. The new species is related to *G. tenuispina* (Sonder) Szyszylowicz, a species with slender thorns with which it shares arils that are reduced to a fleshy rim at the base of the seeds.

Key words: Celastraceae, Celastroideae, Gariep Center of Endemism, *Gymnosporia*, southern Africa, taxonomy.

Gymnosporia (Wight & Arnott) Hooker f., an Old World woody genus of about 108 species and subspecies in subfamily Celastroideae of the Celastraceae, has recently been reinstated (Jordaan, 1995; Jordaan & Van Wyk, 1999; Archer & Jordaan, 2000). Celastroideae are characterized by dry dehiscent capsules and arillate seeds. Included in *Gymnosporia* are all the thorn-bearing members previously classified under *Maytenus* Molina s.l. (Marais, 1960; Robson, 1965, 1966, 1994).

During a study of *Gymnosporia*, a number of undescribed species have been discovered. The purpose of this paper is to describe one of the new species; it has a restricted geographical distribution centered in the Richtersveld, an arid mountainous region in the northwestern corner of the Northern Cape, South Africa, as well as in the adjacent southernmost part of Namibia.

The new species shows affinity with *Gymnosporia tenuispina* (Sonder) Szyszylowicz, a species with slender thorns of the summer-rainfall savanna region in northeastern South Africa with which it shares arils that are reduced to a fleshy rim at the base of the seeds. A similar reduced aril is also encountered among species of *Gymnosporia* in northeastern tropical Africa, a region considered, in addition to southern Africa, as one of the centers of diversity for the genus (Sebsebe, 1985). Floristic similarities between the arid parts of southern Africa and the Horn of Africa are well established and strongly support the proposed former existence of periodic biogeographical connections between these two regions (Van Wyk & Smith, 2001).

Gymnosporia gariepensis Jordaan, sp. nov. TYPE: South Africa. Northern Cape: Richtersveld Nat. Park, Die Toon, E of Tatasberg, 1 July 1995, *J. P. Rourke 2085* (holotype, NBG; isotypes, MO, PRE). Figure 1.

Gymnosporiae tenuispinae similis, sed omnino glabro; spinis semper ramos secundarios terminantibus; ramulis juvenibus rubrobrunneis; lamina coriacea, margine semper integra; floribus fructibusque in pedicellis longis pendulis, semper in brachyblastis in ramulis lateralibus secundariis; floribus majoribus, capsulis rubris, viride suffusis, differt.

Lax, few- to multistemmed shrubs, up to 2 m high, thorny, glabrous, dioecious; *branches* terete; young branchlets smooth, purplish red to red-brown, becoming gray with small, round slits in bark, each containing a sunken lenticel, flaking in uneven white pieces; *thorns* slender and axillary on young shoots, becoming robust and terminating the abbreviated lateral branches on older shoots, up to 15 mm long. *Leaves* fasciculate in axils of brachyblasts on abbreviated lateral branches, alternate on young branchlets, coriaceous, pale green, subsessile, glabrous; lamina oblong or obovate-oblong, 12–45 × 2–5 mm, apex rounded or subemarginate,

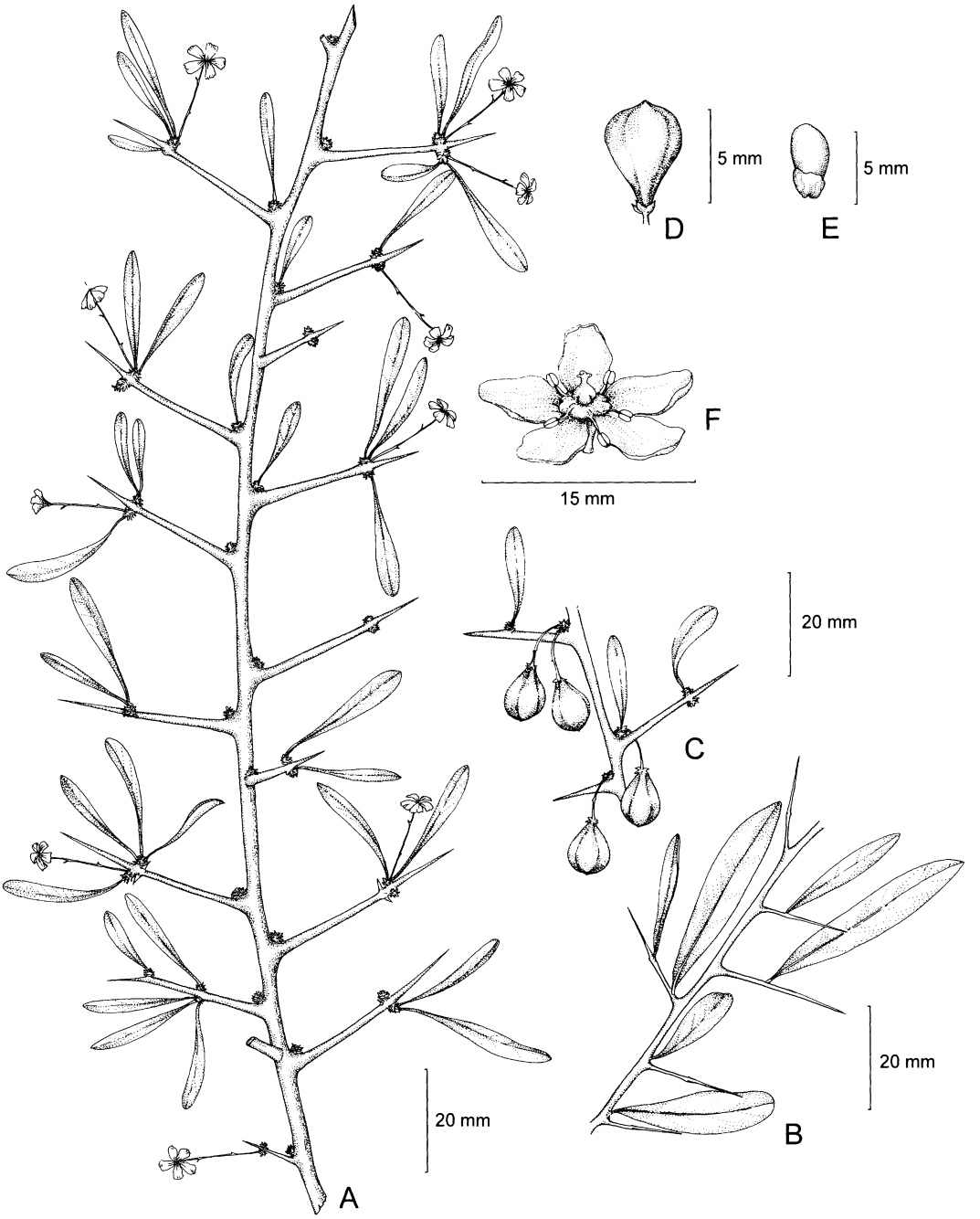

Figure 1. *Gymnosporia gariepensis* Jordaan. —A. Flowering branch. —B. Young branchlet. —C. Fruiting branch. —D. Capsule. —E. Seed with aril reduced to a rim at base. —F. Female flower. A and F drawn from the holotype, *Rourke 2085* (NBG); B from *Drijfhout 2969* (PRE); C, D, and E from *Jurgens 28856* (PRE).

base cuneate, margin entire, venation obscure (at least in dried material); petiole very short, ± 0.5 mm long; stipules very short, subulate, ± 0.5 mm long. *Inflorescence* cymose, axillary or on short abbreviated lateral branchlets; peduncle 1–5 mm long; pedicels 5–13 mm long. *Flowers* functionally unisexual, pentamerous, 7–10 mm diam.; *sepals* triangular-ovate, 1–2 mm long, apex acute, margin ciliolate; *petals* oblong, yellowish green, 2.5–4.0 mm long, margin subentire; *disc* flat, entire or shal-

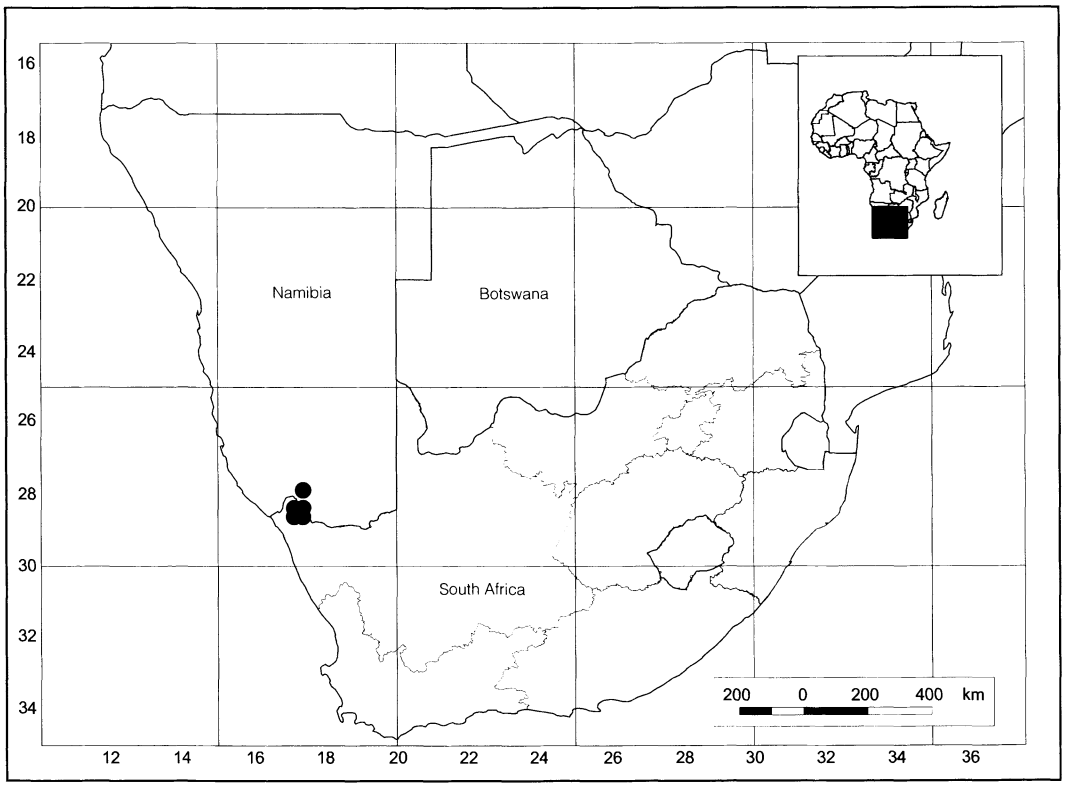

Figure 2. Known geographical distribution of *Gymnosporia gariepensis* (●).

lowly 5-lobed; *male flowers*: stamens shorter than petals; filaments ± 2 mm long, arising at lower outside edge of disc; pistillode small; style short, unbranched; *female flowers*: staminodes slightly shorter than stamens in male flowers; ovary 3-locular, subglobose; style very short, terete; stigma 3-branched. *Capsules* 3-valved, obconic-trigonous, smooth, chartaceous, pendulous, 9–12 mm long, upper part red, lower part green; *seeds* reddish brown, rugose, ± 5 mm long; aril yellow, reduced to a fleshy rim at base of seed.

This species is a laxly branched shrub with purplish red to red-brown stems, becoming gray with age. On older branches the robust thorns terminate short, abbreviated lateral branches. The leaves are coriaceous, long, and narrow, and the venation is obscure. Inflorescences and capsules are borne mainly on short abbreviated lateral branchlets and are rarely axillary. The inflorescences are few-flowered, or flowers are sometimes solitary. The capsules are pendulous, obconic-trigonous, red, and smooth, with the veins not visible. This new species is allied to *Gymnosporia tenuispina*, which has slender thorns, usually in the axils of the leaves or brachyblasts, and small, yellow, smooth, somewhat inflated and obconic-trigonous capsules. In *G. tenuispina*, the leaves are chartaceous, the venation is visible, and the margins are shallowly glandular denticulate to subentire, whereas in *G. gariepensis* the leaves are leathery, the venation is inconspicuous, and the margins are entire or with only a few remnants of teeth.

Distribution and habitat. Plants usually grow among large rocks in sparse, semidesert vegetation in the extremely arid northern Richtersveld and adjacent southernmost part of Namibia, where it is currently known from only a few populations (Fig. 2). The geographical distribution of *Gymnosporia gariepensis* and its closest ally is markedly disjunct. *Gymnosporia tenuispina* occurs in eastern Botswana, southern Zimbabwe, and in South Africa in the Limpopo Province, North-West, Gauteng, Mpumalanga, the northern Free State, and northern KwaZulu-Natal.

Etymology. The specific epithet refers to the Orange River, which cuts through the distribution area of the species—*Gariep* is the Khoekhoe name of the Orange River and means "Great River." Known as the Gariep Center of Endemism, this region along the lower reaches of the Orange River

is well known for its high levels of floristic endemism and forms part of the larger Succulent Karoo Region (Van Wyk & Smith, 2001). Within the range of the new species the mainly winter rainfall is usually less than 50 mm per annum, and extremely hot temperatures (> 40°C) are frequently experienced in summer (Hilton-Taylor, 1996; Van Wyk & Smith, 2001).

Conservation status. As most individuals of *Gymnosporia gariepensis* are known from the Richtersveld National Park, the species enjoys at least some protection. Unfortunately, domestic livestock is allowed inside the park and the resultant overgrazing by goats and sheep is causing serious damage to the vegetation.

Paratypes. NAMIBIA. Mara, *Craven 2644* (WIND); Knersberg, 4 km NW of Sambokrivier, 29 Apr. 1988, *Van Jaarsveld & Leitch 9736* (NBG, PRE). SOUTH AFRICA. **Northern Cape:** Gannakouriep, *Hardy 2602* (PRE); Richtersveld, Die Toon, E of Tatasberg, 17 Sep. 1989, *Jurgens 28856* (PRE), Feb. 1995, *G. & F. Williamson 5576* (NBG); Richtersveld, S slopes of Rosyntjieberge, 11 June 1980, *Drijfhout 2969* (NBG, PRE).

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