A FURTHER NOTE ON SALVIA TETRODONTA

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ABSTRACT. An emended description is given of the previously inadequately known *Salvia tetrodonta*; the affinities of this very distinct Afghan species are discussed.

In 1954, Wilfred Thesiger in the course of travelling in some of the more remote regions of the Hazarajat in central Afghanistan collected a very curious *Salvia* which was subsequently described as *S. tetrodonta*. Since then, despite the collecting activities of numerous travellers and botanists, it eluded re-discovery till in 1970, Prof. Dieter Podlech, while based at Kabul University, made the several gatherings that are listed below. It is clearly not such a very rare species as previously thought although all the known localities are within about 100 km of each other and altitudinally it is restricted to between 2500 and 2900 m.

Field observations made by Podlech indicate that it generally grows on bare sterile stony slopes, sometimes, as is the case with his no. 18889, almost devoid of any other plant associates. Of his other collections, no. 18906 was growing in association with *Lappula microcarpa* (Ledeb.) Gürke, *Astragalus elisabethae* Sirj. & Rech. fil., *Taraxacum syriacum* Boiss. and *Trichodesma incanum* (Bge.) DC.; no. 19295 with *Cousinia pycnoloba* Boiss. and *C. pineticola* Rech. fil. & Gilli; no. 19367 with *Nepeta rugosa* Benth., *Taraxacum syriacum* and *Leptorhabdos parviflora* (Benth.) Benth.; no. 19380 with *Pyramidoptera cabulica* Boiss., *Saussurea chondrilloides* C. Winkl., *Scutellaria multicaulis* Boiss., *Matthiola chorassanica* Bge. ex Boiss., *Astragalus elisabethae* and *Cousinia unaiensis* Rech. fil. Several of the species listed above are more or less restricted to central Afghanistan, as for instance the very distinct monotypic endemic genus *Pyramidoptera* (Umbelliferae), and all are characteristic species of the dry inhospitable stony slopes that are common in the Hazarajat.

With the excellent material now available it is possible to give a fuller description than was possible with Thesiger's less than ideal original collection and also, with the aid of photographs taken by Podlech, to provide an accurate illustration.

Salvia tetrodonta Hedge in Notes R.B.G. Edinb. 23: 164 (1960). Fig. 1.

Tuft-forming, long-lived perennial with a very sturdy woody rootstock up to 3 cm thick or more. *Stems* numerous, erect-ascending, much branched, up to 70 cm, acutely 4-angular above and below or 6-angular above; base of stems with capitate glandular and eglandular hairs, above glabrous and glaucous. *Leaves* few, mostly confined to the median region of the stem; lamina simple, narrow elliptic-obovate, narrowed into petiole below, acute at apex, margin entire, up to 6·5 × 1·5 cm; lamina above almost glabrous or ± densely covered with capitate glandular and a few eglandular hairs, below with a few glandular and eglandular hairs; petiole up to 15 mm.

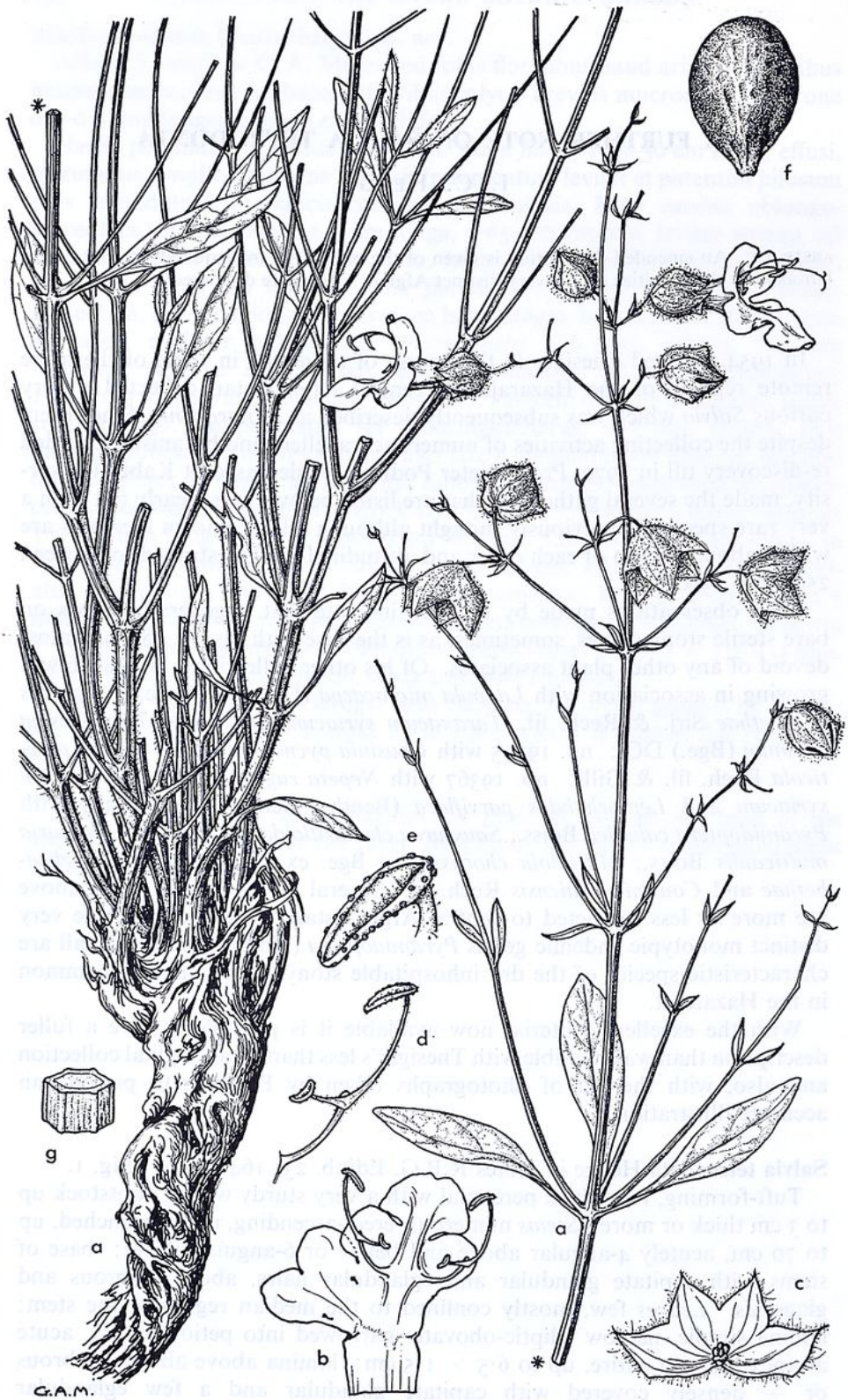

FIG. 1. *Salvia tetrodonta* Hedge: a, habit × $\frac{2}{3}$; b, dissected corolla × 1; c, dissected calyx × 1; d, stamen × 2; e, upper theca × 5; f, nutlet × 4; g, section of stem in region of inflorescence × $4\frac{2}{3}$.

Inflorescence relatively few-flowered, much branched; verticils 2-flowered on short slender lateral branches often borne in threes, bracteate. *Pedicels* up to 10 mm. *Calyx* very broad-campanulate, c. 10–12 mm long in flower, not or scarcely bilabiate, apically almost closed before anthesis with connivent teeth subsequently opening and remaining so in fruit; indumentum dense, of long capitate glandular and eglandular hairs; calyx lobes 4, ovate-triangular, 4–4·5 mm, shortly acuminate; fruiting calyces up to 18 mm, erect to subpendant. *Corolla* whitish-pink, darker on outside of corolla tube and on middle lip of labellum, up to 30 mm; hood somewhat reflexed with outwardly rolled margins, deeply bifid; lower lip much longer than upper with a large somewhat reflexed median lobe; tube broad, widening above, exserted, pilose-annulate within. *Staminal connectives* c. 13 mm; filaments c. 7 mm; anthers of upper thecae magenta-pink, verrucose; lower thecae well developed, fertile, free, not closing the corolla throat; staminodes present. *Nutlets* usually less than 4, large, ± obovate, c. 5 × 3 mm, very mucilaginous on wetting. *Fl.* 7–8.

AFGHANISTAN (central-south). Ghazni: Wulghan, on road from Malestan to Sanga Masha, 2680 m, 14 viii 1970, *Podlech* 19380 (M); La'lchak, 9 km ENE of Malestan, 2850 m, 14 viii 1970, *Podlech* 19367 (M); Kalkala, on road between Dasht-i-Nawar and Malestan 2730 m, 13 viii 1970, *Podlech* 19295 (M). Bamian: Nawa-i-Surkhjoy, at Dewalak, on road from Panjaw to Sharestan, 2530 m, 28 vii 1970, *Podlech* 18889 (M); Nawa-i-Waras, 1 km above the entrance into the Nawa-i-Surkhjoy, 2730 m, 28 vii 1970, *Podlech* 18906 (M).

Although *S. tetrodonta* is a most distinct and taxonomically isolated species, there is no doubt, as was originally suggested and now confirmed by the new material, that its allies are with those species from Soviet Central Asia that were placed by Pobedimova (1954) in subgenus *Salvia* sect. *Physosphace* sensu Pobed. and in subgenus *Macrosphace* Pobed. The former is characterised by *S. trautvetteri* Regel and contains eight species, six of which are fairly closely related to that species and one is the morphologically and geographically remote *S. aristata* Benth. from western Iran. The second group, subgenus *Macrosphace*, contains *S. schmalhausenii* Regel and four other closely allied species. Geographically, except for *S. aristata*, the species of the two groups are restricted to the mountainous Syr-Darya, Pamir-Alai and Tian Shan regions of Central Asia (Fig. 2).

In habit, *S. tetrodonta* has considerable similarity to the species of subgenus *Macrosphace*. They share a basically similar facies; have thick woody rootstocks and stems almost suffruticose below; bear few, simple leaves mostly in the middle regions of the stem; share a similar distribution of indumentum; and have few-flowered verticils and short slender lateral fertile branches. However, in most other morphological features they diverge conspicuously. In *S. tetrodonta*, the calyx shape is quite different, the teeth are four in number and after anthesis the calyx clearly enlarges (as opposed to the bilabiate, tubular campanulate calyces with five long subulate teeth and a small size increment after anthesis in subgenus *Macrosphace*). There are also differences in corolla form (but these may not be fundamental), staminal structure (the connectives are longer than the filaments in *S. tetrodonta* whereas the converse applies in subgenus *Macrosphace*) and branching (the

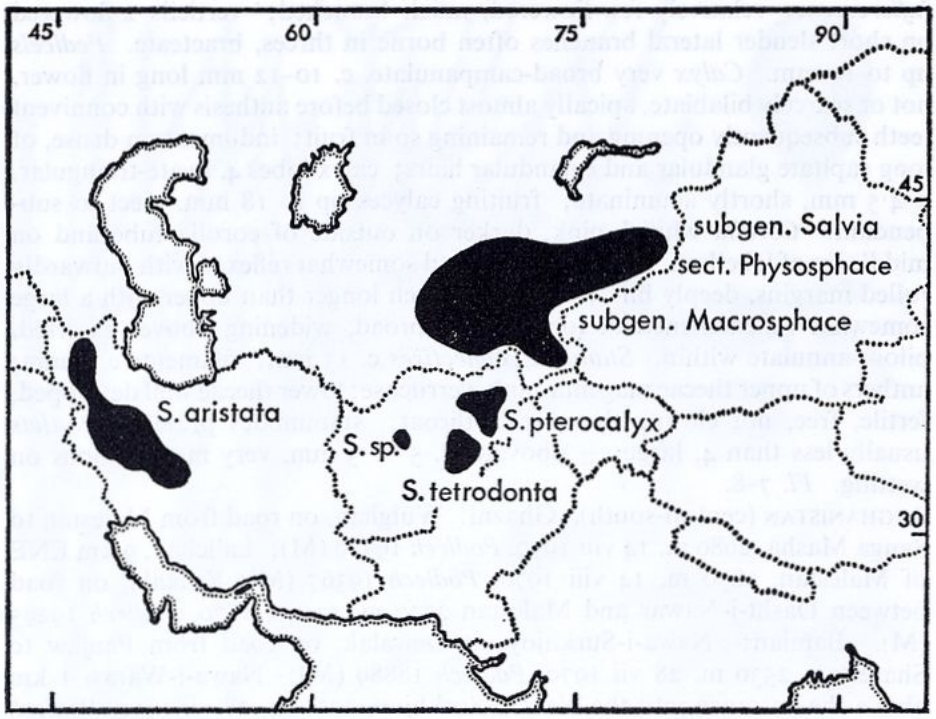

FIG. 2. Distribution of the species and infra-generic categories mentioned in this paper.

tendency to trifid branching in the Afghan plant is not apparent in the other species).

On the other hand, although in many ways clearly different from the species of subgenus *Salvia* sect. *Physosphace* (in which there are numerous, mostly basal, pinnately divided leaves and the whole plant has a more or less dense all-over indumentum), *S. tetrodonta* does share with them the characters of trifid branching (extremely unusual in the genus if not the Labiatae as a whole) and calyces which expand after anthesis.

Although it is now quite clear that the existing infra-generic hierarchies in *Salvia* are quite unsatisfactory, in at least this group of sages, it would be premature to make any formal changes at this stage. A broad-based approach to this problem for all the Old World species is a task I hope to tackle in the future and in the meantime I can only give it as an impression that the species of subgenus *Macrosphace*, subgenus *Salvia* sect. *Physosphace*, together with *S. tetrodonta* and the equally interesting *S. pterocalyx* Hedge (cf. Hedge, 1960, 1965) form an independent group whose members are very distinct and isolated species, relicts of an ancient flora.

That there are other species in this group still to be discovered was indicated when Professor K. H. Rechinger, in 1962, collected in the Afghan province of Ghorat the basal sterile parts of a *Salvia* which appears to be another most distinct species (Hedge, 1965); prov. Ghorat, Dolaini, Darreh Garmak, inter Qala Chahrak (Sharak) et Naourak, c. 34°N, 64° 45′E, c. 2540 m, *Rechinger* 18915 (W.) When adequate material is found, it will be extremely interesting to see how this species fits into the existing pattern of relationships.

Acknowledgments

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References

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