

# Thymus sectio Serpyllum in the Southern French Alps (Alpes français du Sud)

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# Thymus sectio Serpyllum in the Southern French Alps (Alpes françaises du Sud)

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When participating in the XIVth International Phytogeographical Excursion between July 5 and July 20, 1966, I paid special attention to the fairly rich *Thymus* flora of the localities visited, collecting both herbarium specimens and seed samples. Although the germinative capacity of most of the seed samples was for some reason regrettably low, chromosome counts could be made during the growing seasons of 1967 and 1968 on altogether 14 samples, each of them also documented by a voucher specimen (deposited in H). Besides this, intensive herbarium studies have been performed, using material from several European Herbaria, especially from Paris (P), Montpellier (MPU), Barcelona (BC), Florence (FI), Lund (LD), and Helsinki (H). Since the picture now gained of the species and subspecies to be recognized within the area visited differs in several respects from the treatments of the group found in French standard Floras, the main results of the study are now presented.

Essentially, the French Floras (ROUY 1909, 1927; FOURNIER 1961) follow the treatment by BRIQUET (1895), in which the more or less herbaceous representatives of the genus are accorded subspecific or varietal status under a single collective species, *Thymus serpyllum* L., the number of subspecies recognized varying from five (BRIQUET) to twelve (FOURNIER). COSTE (1906) on the other hand, enumerated eight species instead of the collective *T. serpyllum*.

Apart from the mediterranean-colline *Thymus vulgaris*, of sect. *Thymus*, which is of no special interest in the present connection, the entire material now under consideration belongs to sect. *Serpyllum* Benth. (sensu JALAS and KALEVA 1969). Five different species seem to be present, viz. *T. pulegioides* L., *T. nervosus* Willk., *T. praecox* Opiz, *T. longicaulis* Presl, and *T. glabrescens* Willd.

## Thymus pulegioides L.

Specimens studied (including some indisputable field records):

*Isère*. Vercors, Villard-de-Lans, Bois Barby, grazed meadow, 1200 m, 5.7. (*Jalas* 717).—  
Chaîne de Belledonne, Chamrousse, grazed remains of *Rhodoreto-Vaccinietum*, 1600 m,  
20.7. (*Jalas* 806).

*Drôme*. Vercors, Les Drevets between Les Barraques-en-Vercors and La Chapelle, roadside,  
870 m, 5.7. (*Jalas* 719 and 720).—Vercors, north side of Col de Rousset, calciferous rock  
outcrops and meadows on shallow soil, 1250 m, 5.7. (*Jalas* 723).

*Hautes-Alpes*. Upper valley of River Guil, Petit-Belvédère du Viso, steep slopes in Larix  
forest, 1800 m (*Jalas* 796), and on serpentine cliff, 1850 m, 17.7. (*Jalas* 798).—Col de  
Vars, Refuge-Napoléon, roadside, ca. 1900 m, 16.7. (field note), ca. 2100 m, 16.7. (*Jalas*  
784a; Hautes-Alpes/Basses-Alpes).

*Basses-Alpes*. Col de Vars, Ravin du Crachet. Luxuriant grassland (typically on small rocks  
u.c. *Sedum anacampseros*, *Sempervivum arachnoideum*, etc.), ca. 2050 m, 16.7. (*Jalas* 781).—  
La Condamine, Le Belvédère, courtyard, 1700 m, 15.7. (field note).—Préalpes de Digne,  
Valley of River Bès, Clue de Verdaches, ca. 1000 m, 8.7. (*Jalas* 747).—Col du Labouret,  
lawn around the Demontzey monument, u.c. *Briza media*, *Trifolium repens*, *Medicago*  
*lupulina* var. *lupulina*, *Plantago media*, etc., 1200 m, 8.7. (field note).

*Alpes maritimes*. La Colmiane, pasture grassland, 1500 m, 14.7. (field note).—Saint-Martin-  
de-Vésubie, Valley of Boréon, roadside below the dam, 1400 m, 13.7. (field note).—Peira  
Cava, roadside in beech forest and yard of Restaurant "Les Cytises", 1370 m, 12.7. (field  
note).—Col de Turini, ca. 1700 m, 12.7. (*Jalas* 753).

No chromosome counts have been made on the present material. The diploid  
number  $2n = 28$ , however, has invariably been counted for *T. pulegioides* in  
samples taken from different parts of its range, including France, Switzerland  
and Italy (see BONNET 1967, JALAS and KALEVA 1969).

In spite of the ample morphological variation found within the species, no  
real grounds seem to exist for recognition of subspecies within it, except for  
the hairy-leaved subsp. *carniolicus* (Borb.) Ronn., which also occurs in the  
French Alps (ROUSSINE 1962, sub *T. froelichianus* Opiz), although not repre-  
sented in the material listed above. Thus, the subspecies *ovatus*, *chamaedrys*,  
and *effusus* commonly figuring in French Floras cannot be maintained in the  
light of more extensive material. On the other hand, the subsp. *alpestris* of the  
same authors is clearly, according to material seen, a mixture of at least two  
widely different elements, viz. (1) large-leaved and  $\pm$  "heterophyllous" variants  
of *T. pulegioides* not uncommon in the Alps, especially (?) towards the upper  
limit of the species, but hardly deserving formal status, at least not that of  
subspecies, and (2) vigorous specimens of the *T. praecox* group with allelo-  
trichous stems (hairy alternatingly along two opposite sides) (cf. LYKA 1927,  
p. 2321; ZOLLER 1964, p. 294). The first case in our material is represented by  
no. 796. It may be mentioned that the true *T. alpestris* Tausch is a fairly well-  
defined taxon endemic to the Carpathians (PAWLOWSKI 1966, 1967; see, how-  
ever, also 1968, pp. 73, 75).

*Thymus pulegioides* is typically a plant of mesic grasslands, as is seen in the

present material as well. Even the zonal pattern of distribution is well reflected by this material, the species being mainly confined to the montane and lower subalpine belts that correspond to its total temperate to hemiboreal European range (JALAS and KALEVA 1969, dot map; for terminology of vegetation zones, see AHTI *et al.* 1968).

### ***Thymus nervosus* Willk.**

*Thymus nervosus* J. Gay ex Willkomm, Suppl. Prodr. Fl. Hisp.: 144 (1893).—*T. Serpyllum* S.-E. [= sous-espèce] *T. nervosus* “Gay” Fournier, Quatre Fl. Fr.: 841 (1961).

*Thymus Serpillum*  $\gamma$  *confertus* Grenier & Godron, Fl. Fr. II: 658 (1853).—*T. confertus* Velenovsky, Beih. Bot. Centralbl. 19 B 2: 279 (1906).

Own material studied:

Vaucluse. Summit of Mont-Ventoux, ca. 1900 m, 7.7. (*Jalas* 737).

According to material from the Eastern Pyrenees as well as from Mont-Ventoux, the chromosome number of *Thymus nervosus* is  $2n = 28$  (BONNET 1966).

Having also studied ample material of the Pyrenean *T. nervosus* (especially in BC), I can share with ROUSSINE (1965) the view that the Pyrenean and Mont-Ventoux populations are conspecific, in spite of slight differences in such characters as the hairiness of calyx. The Mont-Ventoux plant also perhaps tends to have somewhat larger leaves, although this has not been checked with the aid of parallel cultivation experiments.

*Thymus nervosus* is a species of alpine to subalpine conditions. In the Pyrenean area it is known from altitudes between 2000 and 2700 m (ROUSSINE 1965, NÈGRE 1968), whereas on Mont-Ventoux it extends down to the upper parts of the montane zone. According to GONTARD (1958, p. 116), the lower limit there is 1600 m. However, J. Terré and G. Didier collected *T. nervosus* from “flanc sud du Mont-Ventoux, alt. 1500” (Soc. Franç. pour l’Echange des Pl. Vasc.—Exs. B. de Retz. Fasc. 4, 1950, n:o 1392; LD).

It may be added here that still lower, at 1400 m, from calcareous rock outcrops surrounded by pastureland in the Mont-Serein area (belonging to Mont-Ventoux, as well), an odd-looking plant was collected (*Jalas* 741a), with flowering shoots up to 8 cm and leaves ca.  $10 \times 2-2.5$  mm, which very likely represents the hybrid *T. nervosus*  $\times$  *pulegioides*. Its stems are almost totally goniotrichous (hairy along four parallel rows only) but otherwise it is similar to an analogous supposed hybrid described from Pyrenean material by SENNEN (1934, p. 26) as *T. \times nuriensis*. According to GONTARD (loc. cit.), *T. pulegioides* is present in the Mont-Serein area (as “*T. alpestris* [Tausch] Briq.”).

Besides in the C. and E. Pyrenean Range and on Mont-Ventoux, *T. nervosus* is said to be present on mountains of Vercors (Isère) and La Grave (Hautes-Alpes). I have not seen any material from these localities, nor does ROUSSINE (1965, pp. 133, 136) give any details about them.

In its climatic and habitat requirements *T. nervosus* is very similar to the Balkan *T. zygiformis* H. Br., which on morphological grounds as well appears to be one of its closest relatives. The chromosome number of *T. zygiformis* is not known. From the length of the stomatal guard cells, however, it, too, may be presumed to be diploid. This places *T. nervosus* in the interesting category of the ancient "schizoendemics" (FAVARGER and CONTANDRIOPOULOS 1961) of the Pyrenean Range and some mountains of the South of France, which includes, for example, *Veronica nummulariaefolia* Gouan and *Ramonda myconi* (L.) Rchb. recently discussed by CONTANDRIOPOULOS (1967) and FAVARGER and KÜPFER (1968, pp. 346–347).

***Thymus praecox* Opiz subsp. *polytrichus* (Borbás) Jalas, comb. nova**

*Thymus polytrichus* Kerner ex Borbás, Math. Term. Közl. 24: 105 (1890).—*T. Serpyllum* Subsp. *polytrichus* Briquet, Labiées des Alpes maritimes: 556 (1895), excl. var. *carniolicus*.—*T. Serpyllum* ssp. *praecox* var. *polytrichus* Zoller, Ergebn. Wiss. Unters. Schweiz. Nationalpark 9 (51), 294 (1964), nom. inval. (sine indic. exacta basion.).

*Thymus Trachselianus* Opiz, Naturalientausch 11: 461 (1826).—*T. praecox*  $\delta$  [var.] *Trachselianus* H. Braun, Österr. Bot. Zeitschr. 39, 188 (1889).—*T. Serpyllum* Subsp. *Serpyllum* var. *Trachselianus* Briquet, Labiées des Alpes maritimes: 555 (1895).—*T. Serpyllum* Ssp. *Serpyllum* var. *silvicola* subvar. *Trachselianus* Briquet ex Schinz & Thellung, Fl. Schweiz, 3. Aufl. II, 289 (1914).—*T. Serpyllum* ssp. *Trachselianus* Lyka in Hegi, Ill. Fl. Mitteleur. V (4), 2321 (1927).

*Thymus Trachselianus* b ["Form"] *T. alpigenus* Kerner ex H. Braun, Österr. Bot. Zeitschr. 41, 296, 474 ut var. (1891).—*T. alpigenus* Ronniger in Murr, Veröff. Mus. Ferdinandeum Innsbruck 11, 66 (1931).—*T. euserpyllum* "n.c." [nomen conservandum] ssp. *alpigenus* Hegnauer, Ber. Schweiz. Bot. Ges. 58, 421 (1948).

*Thymus Trachselianus* var. *vallicola* H. Braun ex Dalla Torre & Sarnthein, Fl. Tirol VI (3), 208 (1912).—*T. vallicola* Ronniger, Bestimmungstab. Thymus-Arten Deutschen Reiches (Heilpfl.-Schriftenreihe 18), 20 (1944).

*Hautes-Alpes*. Valley of River Romanche, Combe-de-Malaval west of La Grave, on screes u. c. *Odontites lutea*, *Nepeta nepetella*, etc., 1450 m, 19.7. (*Jalas* 804).—Valley of River Blétonnet, *Pinus uncinata* forest with *Vaccinium vitis-idaea*, *Arctostaphylos uva-ursi*, *Sesleria*, etc., 1900 m, 18.7. (*Jalas* 802).—Col du Mont-Genèvre northeast of Briançon, *Pinus* forest on triassic limestone, 1700 m, 18.7. (*Jalas* 800).—Upper valley of River Guil, Petit-Belvédère du Viso, serpentine cliff, 1850 m, 17.7. (*Jalas* 797); ca. 1800 m, 17.7. (*Jalas* 795).

*Alpes maritimes*. Sources of River Tinée, Col des Fourches, heavily grazed alpine *Festuca spadicea* grassland, 2270 m, 15.7. (*Jalas* 772).—Auron south of Saint-Etienne-de-Tinée, Las Donnass, *Festucetum Halleri*, 2300 m, 14.7. (*Jalas* 763).—Saint-Martin-de-Vésubie, Vallon de Salèses, ca. 1850 m, 13.7. (*Jalas* 758); ca. 1700 m, 13.7. (*Jalas* 757).—L'Authion, ca. 1900 m, 12.7. (*Jalas* 755 and 756); ca. 1800 m, 12.7. (*Jalas* 752).

This is a tetraploid taxon with  $2n = (50-)$  56, as counted in several strains originating around the present study area (JALAS and POHJO 1965, JALAS and KALEVA 1966, BONNET 1966, 1967).

It now seems clear that the Central and West European and Alpine tetraploids hitherto commonly recognized as five or more species (*T. alpigemus*, *T. drucei*, *T. humifusus*, *T. polytrichus*, *T. praecox*, *T. vallicola*), supposedly of two or three different groups of species (e.g. RONNIGER 1944, MACHULE 1960) should be treated as members of a single polymorphic species only (JALAS and POHJO 1965, JALAS and KALEVA 1966, and the earlier literature referred to in these papers). Morphological features characterizing this *Thymus praecox* Opiz, ampl. Jalas, include the presence of long creeping sterile shoots, and distinctly petioled spatulate to roundish leaves with prominent "pseudomarginate" venation.

According to the main tendencies of morphological and climatic differentiation met with in *T. praecox*, three subspecies may be provisionally recognized:

1. *Thymus praecox* subsp. *praecox*

Incl. *T. humifusus* Bernh.—*T. Serpyllum* ssp. *hesperites* Lyka.

Flowering stems hairy all round.—Mainly temperate lowlands of the European continent.

2. *Thymus praecox* subsp. *arcticus* (E. Durand) Jalas, comb. nova

Basionym: *Thymus Serpyllum* var. *arcticum* E. Durand in Kane, Arct. Explor. II, App. XVIII, 459 (1857).—*T. Serpyllum* ssp. *arcticus* Hylander, Uppsala Univ. Årsskr. 1945 (7), 276 (1945).—*T. Drucei* Ronn., ampl. Jalas, Hereditas 34, 418 (1948).

Flowering stems with two opposite faces glabrous or nearly so, bracts only slightly, if at all, larger than ordinary stem leaves.—Atlantic Europe and S. Greenland.

3. *Thymus praecox* subsp. *polytrichus* (Borbás) Jalas

For synonymy, see above.

Flowering stems with two opposite faces of at least lower flowering stem internodes glabrous or nearly so. Bracts and uppermost cauline leaves clearly larger than lower ones. Mostly taller plants with larger leaves and longer inflorescences than in subspp. 1 and 2.—Predominantly alpine to subalpine.

This three-subspecies system differs from the corresponding one tentatively outlined by PIGOTT (1954) in the important respect that *T. praecox* Opiz s. str., essentially a plant of the eastern or south-eastern parts of the Central European lowlands, has not been associated with the alpine group (subsp. 3.) but with the lowland *T. humifusus* Bernh. (*T. Serpyllum* ssp. *hesperites* Lyka). This arrangement seems to be justified especially on ecological grounds (see e.g. ZOLLER 1964, p. 294) but also by the fact that in areas where *T. praecox* s. str. and *T. humifusus* are sympatric there seems not to be the slightest possibility of drawing any meaningful morphological boundary between them (cf. MACHULE 1957, p. 83;

SCHMIDT 1969). Admittedly, further studies are needed to test whether a sub-specific limit can be maintained between "*T. humifusus*" of, for example, western France or Belgium (STAES 1961), on the one hand, and *T. praecox* subsp. *arcticus* (which is certainly present in W. France and in the Pyrenees) on the other. The seemingly successful attempt to separate from each other the "species" *T. alpigenus*, *T. humifusus* and *T. drucei* on the basis of material from Auvergne (CHASSAGNE 1957) does not prove very much, because a number of misidentifications were involved, according to material seen. Even the morphological boundary between subsp. *polytrichus* and subsp. *arcticus* is by no means pronounced, nor is it yet properly determined. Special reference will be made to this point in connexion with comparative studies on material from the Alps and the Pyrenees.

As to subsp. *polytrichus* of the French Alps, specimens characterized by strikingly large flowers seem to be not uncommon (nos. 802, 763, 758, and 756 in the list above). This variant matches *T. vallicola* (Dalla Torre & Sarnth.) Ronn., which, however, is said to have bracts of about the same size as the cauline leaves.

*Thymus praecox* subsp. *polytrichus* is mostly a plant of the alpine and sub-alpine vegetation belts, sometimes extending down to the upper montane levels. The lowest occurrences, both in the study area and along the southern borders of the Alps in general, are obviously subject to introgressive hybridization with two further tetraploid complexes. Some morphological features seemingly resulting from contacts between *T. praecox* and *T. longicaulis* aggregates are mentioned on p. 192. A number of morphological intermediates between *T. praecox* subsp. *polytrichus* and *T. glabrescens* subsp. *decipiens* are listed on p. 196. These include the lowest locality listed under subsp. *polytrichus*, no. 804, which consists of specimens with unusually narrow leaves.

### ***Thymus longicaulis* Presl, coll.**

*Drôme*. Vercors, Col de Rousset (south side), slopes with thermophilous *Abieti-Fagetum*, 1250 m, 5.7. (*Jalas* 724;  $2n = 54$ , and 724b), *Quercetum pubescentis* at 700 m, 5.7. (*Jalas* 726;  $2n = > 50$ ).—Alpes du Dauphiné, between Poyols and Jonchères (southwest of Luc-en-Diois), 800 m, 6.7. (*Jalas* 727;  $2n = > 50$ , and 728;  $2n = 54$ ).

*Vaucluse*. Montagne de Bluye, Brantes, ca. 550 m, 6.7. (*Jalas* 732).

*Basses-Alpes*. Préalpes de Digne, Valley of River Bès, on black liassic marl, 900 m, 8.7. (*Jalas* 744;  $2n = 54$ ), Clue de Barles, ca. 950 m, 8.7. (*Jalas* 745).—Gorges du Verdon, Point-Sublime, on calcareous rocks with *Querceto-Buxetum*, 780 m, 9.7. (*Jalas* 748;  $2n = > 50$ ).

*Var*. Montagne de Lachens, "pseudoalpine" meadows, 1715 m, 9.7. (*Jalas* 749;  $2n = 52-54$ ).

Although *Thymus longicaulis* is by no means entirely unknown in the literature dealing with the flora of France (see e.g. CHASSAGNE 1957, p. 329) the placing of the above specimens under this heading calls for some explanation of the taxonomic background, the more so because of the application even here of an unusually wide species concept.

*Thymus longicaulis* Presl, originally described on the basis of material from Sicily, is known to be a common species almost throughout the Apennine Peninsula as well as in the Balkans, except in the south. It is characterized by (1) presence of long creeping shoots which, however, often end in an inflorescence, (2) allelotrichous flowering stems which show (3) biennial development resulting in the first season in clusters of small leaves in the leaf axils along the creeping shoots, these clusters being mostly still visible in the second season as more-or-less imbricated groups of small leaves or scars basally on the flowering shoots; (4) campanulate calyx tube typically shorter than lips.

*Thymus moesiacus* Vel. is identical with *T. longicaulis* proper in all essential details except for the stems, which are holotrichous, not allelotrichous. This was in fact also admitted by RONNIGER (1924b, p. 388) in connexion with the description of *T. adriaticus*, which he later on (RONNIGER 1930, p. 355) included in *T. moesiacus*, as d) *microcalyx* (Deg. & Urum.) Ronn. Now, as there seems to be no clear-cut division even as regards stem hairiness, and as the two extremes, *T. longicaulis* s.str. and *T. moesiacus* s.str., besides being connected with each other by numerous intermediates, are for the greater part of their ranges sympatric, it remains to be demonstrated whether they can even be treated as two subspecies of *T. longicaulis*. The situation is thus much the same as in *T. praecox* coll., in that stem hairiness fails to be a useful discriminating character at species level.

Although there is great variation in leaf size and shape in *T. longicaulis* (incl. *T. moesiacus*), the relatively thin texture and weak camptodromous nervature are features common almost throughout the species, in the same manner as the characteristic situation that in this species the longest leaves of the repent sterile shoots are typically longer than those of the flowering stems. Specimens with a thicker and more rigid leaf texture and more conspicuous nervature are not infrequent in the Balkans and in Central and Southern Italy, notably within the range of what has been called *T. striatus* Vahl, aggr. (MOGGI 1955, p. 564–567). Prominent nerves are also fairly common in plants from S. Alpine localities, i.e. from the northern limit of distribution of the species. Sometimes also a tendency towards a pseudomarginate nervature and leaf shape typical of *T. praecox* coll. can be traced and in such cases even the specific identification may prove difficult. Especially in the Tyrol, robust plants with large leaves of thin texture occur which, even in other respects, seem to combine characters of *T. longicaulis* and *T. pulegioides*. They have, in fact, sometimes been called *T. × carstiensis* Ronn. (*T. longicaulis* × *pulegioides*), similar specimens obviously hiding, however, also under the name *T. pulegioides* ssp. *effusus* (Host) Ronn. and doubtless also under other denominations.

In specimens deviating as described above from what has been considered the true *T. longicaulis-moesiacus* pattern of discriminating characters, even the calyx size and shape, especially the ratio of tube length to total length, tend to be less typical, although this may not always be the case.

Although both diploid and tetraploid chromosome numbers have been

counted from specimens belonging to *T. longicaulis* coll., no clear correlation between ploidy level and external morphology can be demonstrated yet. Three Yugoslavian samples of fairly typical *T. longicaulis* s. str. were shown to have  $2n = 30$  by JALAS and KALEVA (1966). The following two Italian samples, however, are tetraploids with  $2n = > 50$  (not published before):

*Toscana*. Prov. di Firenze, Giogo di Scarperia, ca. 880 m. 29.7.1966 (*Jalas 812*).—Leaves somewhat carnose, those of the sterile shoots up to  $11 \times 3.5$  mm, stems not exactly allelotrichous, calyces fairly typical, 3.5–4 mm, tube about half the total length.

*Toscana*. Firenze, M. Ceceri, ca. 400 m. 2.6.1965 (*Bror Pettersson sine num.*).—Stems about equally hairy all round, stem leaves ca.  $9 \times 3$  mm, those of plants cultivated in the Botanical Garden of the University of Helsinki up to  $10 \times 5$  mm; calyces ca. 3.5 mm, calyx tube less than half the total length.

A tetraploid number ( $2n = 58$ ) was also counted for a Romanian sample identified as *T. illyricus* f. *nyaradyanus* (Lyka) Nyár. (JALAS and KALEVA 1966). *T. illyricus* Ronn. is the hairy-leaved counterpart of *T. longicaulis* Presl. The f. *nyaradyanus* differs from it in a manner suggesting *T. glabrescens* Willd., under which species this taxon was originally described by LYKA (1925, p. 80).

The French material listed above is very likely homogeneous in being tetraploid, with  $2n = 54$  (perhaps with slight deviations?).

The occurrences of *Thymus longicaulis* coll. in SE. and S. France form the westernmost extension of its total range. This marginal position is also reflected in the character combinations present in the French populations of the collective taxon. Thus, the list of specimens studied, which, so far as I can see, can be referred to *T. longicaulis* Presl s. str., comprises not more than a single sheet:

*Gard*. Le long de la RD 269, au sud et sous l'Observatoire du Mont-Aigoual, sur le granit. Altitude 1500 m, 7.7.1957 G. Didier (G. DIDIER, *Thymi praesertim Gallici Exsiccati* n° 317; sub.nom. *T. alpestris* Tausch var. *praelongus* [Briquet] Ronn) (P).

ROUSSINE (1960), in her study on the *Thymus* populations of the Mont-Aigoual area, Cévennes Mountains, described and depicted a tetraploid ( $2n = 56$ ; cf. BONNET 1960) plant with exactly allelotrichous stems and glabrous elliptico-lanceolate leaves 2 mm wide, which, according to her (1960, p. 103), was “très proche du *Thymus alpigenus* Kerner, laquelle existe en abondance au mont Aigoual”. As might be suspected from the facts given, it proved to belong to *T. longicaulis* rather than to *T. alpigenus*, although possibly with some slight signs of character contamination from the latter. Thus, the leaves, although remarkably thin in texture, show a venation somewhat tending to the pseudo-marginate pattern characteristic of *T. praecox* aggr., and even the shape of the calyx is not that of typical *T. longicaulis*. Specimens almost identical with the two sheets examined have been collected in the southernmost parts of the Alpes maritimes. In the following, only those cases are listed which in my opinion still fall within the limits of *T. longicaulis* s. lat.

*Gard*. Aigoual, Col de la Sereyrede, pente sud-ouest, pelouse dense, 1310 m, 22.6.1952 N. Roussine (MPU). — Entre Col du Minier et Le Vigan, 15 km avant Le Vigan, commencement de la forêt de *Castanea sativa*, 850 m, 22.6.1952 N. Roussine (MPU).

*Alpes maritimes*. Saint-Martin-de-Vésubie, vallone inferiore della Madonna de Finestra.  
1910 R. Pampanini (FI; s.n. *T. Serpyllum* ssp. *subcitratus* var. *pachyderma*).

Significatively, these specimens are from altitudes below that characteristic of *T. praecox* subsp. *polytrichus*, being rather confined to the Submediterranean zone.

In addition, two species are known from the Mediterranean and Submediterranean zones of southern France, from areas north of Montpellier, viz. *T. dolomiticus* Coste and *T. embergeri* Roussine, both of which are characterized by holotrichous flowering stems. Besides showing differences in indumentum characters (ROUSSINE 1952, 1960), these species differ in their chromosome numbers, *T. dolomiticus* being diploid ( $2n = 28$ ), whereas a tetraploid number ( $2n = 48$ ) has been counted for *T. embergeri* (SHIMOYA 1952, BONNET 1960). Having been able to examine original material of both species (in MPU), I am fully convinced of their close relationship to each other and of their taxonomic position as parts of *T. longicaulis* aggr.

Now, ROUSSINE (1960) studied a further taxon in the Mont-Aigoual area, a tetraploid ( $2n = 56$ ) with external morphology intermediate between the tetraploid *T. longicaulis* discussed above (“Espèce goniotriche de ‘Pas de l’Escalette’” of ROUSSINE) and *T. dolomiticus*. According to material seen, collected and identified by ROUSSINE herself (MPU), this taxon is without doubt identical with the tetraploid collected by me in several mainly Submediterranean localities of what is called the western “Préalpes externes” (OZENDA 1967) and listed on p. 191.

From the literature it became evident that this tetraploid taxon—together with *T. embergeri* Roussine—essentially covers what has been called *T. serpyllum* or *T. serpyllum* subsp. *angustifolius* of southern France. BRIQUET (1895, p. 554) seems to describe this plant under *T. Serpyllum* Subsp. *Serpyllum* var. *linearifolius* (non *T. angustifolius* var. *linearifolius* Wimm. & Grab.).

It must once again be especially emphasized that the true *T. serpyllum* L., em. Mill.—a plant of the temperate and boreal zones of vegetation—is totally absent from most of France, except in the northeasternmost parts of the country (e.g. STAES 1961, map on p. 469). In western France it is mainly *T. praecox* subsp. *praecox* (*T. humifusus*) that has been taken for *T. serpyllum* (ISSLER 1936, p. 222), whereas in the dry valleys of the French Alps *T. glabrescens* subsp. *decipiens* has frequently been misidentified in this way. The tetraploid *longicaulis* taxon now under consideration, the main cause of such confusion in the Languedoc and in the “Préalpes externes”, differs clearly from *T. serpyllum* not only in ploidy level, but also in the characteristic leaf size sequence along the creeping shoots and flowering stems (p. 192), the incomplete allelotrichy, and the upper calyx teeth, which are definitely longer than wide. In addition, the leaves are mostly larger, the longest leaves of sterile shoots frequently being as much as  $13 \times 3$ , and those of the flowering stems up to  $11 \times 2.5$  mm.

The calyx of this tetraploid is 3.5–4.5 mm long, of the common shape that

tells one nothing special, with the tube almost cylindrical, about half of the total calyx length or a little more. The calyx of *T. embergeri* does not differ from it in any essential feature. As regards other characters as well, efforts to distinguish between these two taxa will probably cause considerable difficulties and the matter is very much in need of further study.

It may be added here that ROUSSINE (1952, p. 86; see also GONTARD 1958, p. 116) gives Mont-Ventoux as one of the outermost localities of *T. embergeri*. A plant resembling this species was, in fact, collected by me in the Mont-Serein area, at about 1400 m, together with the supposed hybrid *T. nervosus* × *pulegioides* (see p. 188). Careful examination of the—not too representative—sheet in question (*Jalas 741b*) leaves its identity unsettled, although the pronounced pseudomarginate leaf venation seems to point towards a narrow-leaved variant of (or hybrid combination involving) *T. praecox* subsp. *praecox* rather than to *T. embergeri* or to any other member of the *T. longicaulis* aggregate.

Taken all in all, I have no doubts whatever about the existence in southern France of a tetraploid taxon of the *T. longicaulis* aggregate, morphologically as well as geographically independent enough for formal recognition. What is not yet clear to me is the correct taxonomic status and, accordingly, the correct nomenclatural treatment of this taxon. Thus, it seems best to wait for a more thorough understanding of the whole group of *T. longicaulis* aggr. before making any new taxonomic arrangements that would involve the creation of new names or nomenclatural combinations.

### ***Thymus glabrescens* Willd. subsp. *decipiens* (H. Br.) Domin**

*Thymus Löwyanus* Var. *oblongifolius* F. *decipiens* H. Braun in Heimerl, Fl. Brixen, 243 (1911).—*T. Serpyllum* ssp. *Th. decipiens* Lyka, Bot. Közl. 20, 146 (1924).—*T. oenipontanus* v. *decipiens* Ronniger in Murr, Veröff. Mus. Ferdinandeum Innsbruck 11, 67 (1931).—*T. glabrescens* IX. [subsp.] *decipiens* Domin, Preslia 13–15 (Pl. Čech. Enum.), 197 (1935).—*T. oenipontanus* subsp. *decipiens* Machule, Ber. Bayer. Bot. Ges. 35, 63 (1962), nom. inval. (sine indicatione exacta basion.).

*Thymus Oenipontanus* H. Braun in Borbás, Geogr. enum. pl. Comit. Castriferrei, 215 (1887), pro hybr., nomen solum.—*T. Oenipontanus* H. Braun in Borbás, Math. Term. Közl. 24, 84 (1890).—*T. Serpyllum* ssp. *oenipontanus* Zangheri, Webbia 7, 91 (1950).

*Thymus Serpyllum* Subsp. *lanuginosus* Briquet, Labiees Alp. Marit., 558 (1895), pro parte (quoad var. *lanuginosus* et var. *pannonicus*), non *T. serpyllum* β *lanuginosus* (Schkuhr sp.) Čelakovsky, Prodr. Fl. Böhm. (II), 350 (1873) nec *T. serpyllum* subsp. *lanuginosus* (Miller) Ronniger ex Machule, Ber. Bayer. Bot. Ges. 35, 66 (1962), nom. inval. (sine indicatione basion.) et ex Pawlowski, Fragm. Flor. Geobot. 12, 398 (1966), nom. inval. (sine indicatione exacta basion.), nomen maxime confusum.

*Thymus Serpyllum* Subsp. *lanuginosus* var. *pannonicus* Briquet, Labiees Alp. Marit., 560 (1895).—*T. Serpillum* Race *T. pannonicus* Rouy, Fl. Fr. XI, 351 (1909) (in clave dichot.; p. 354 ut Race *T. Allionii*!).

*T. pannonicus* auct. non Allioni, Syn. meth. stirp. Horti Reg. Taurinensis (Misc. Taur. 5), 58 (1774): Allioni, Fl. Pedem. 20 (1785); Arcangeli, Comp. Fl. Ital. 538 (1882), pro parte; Borbás, Math. Term. Közl. 24, 103 (1890); Ronniger, Allg. Bot. Zeitschr. 26–27, 14 (1925); Machule, Mitt. Thür. Bot. Ges. 1, 24 (1957), et al.

*Thymus Serpillum* Race *T. Allionii* Rouy, Fl. Fr. XI, 354 (1909), excl.  $\beta$  *dolomiticus*.—*T. Serpillum* Subsp. *Allionii* Rouy, Consp. Fl. Fr., 215 (1927).

Non (?) *T. Allionii* Kerner ex Déséglise, Bull. Soc. Etudes Sci. Angers 11–12, 191 (1882), pro syn. *T. pannonici*, nec non *T. froelichianus* ssp. *Allionii* Ronniger, Allg. Bot. Zeitschr. 26–27, 18 (1925); *T. Allionii* “Kerner” ex Machule, Mitt. Thür. Bot. Ges. 2, 183 et 185 (1960), nom. inval.; *T. Froelichianus* subsp. *caroliensis* var. *Allionii* “(Kern.) Ronn.” ex Machule, Ber. Bayer. Bot. Ges. 35, 60 (1962), nom. inval.

*Thymus lanuginosus* Var. *Ortmannianus* F. *decalvatus* H. Braun in Heimerl, Fl. Brixen, 242 (1911).—*T. pannonicus decalvatus* Machule, Mitt. Thür. Bot. Ges. 1, 25 (1957), sine stat.—*T. decalvatus* Machule, Mitt. Thür. Bot. Ges. 2, 188 (1960), pro hybr. et pro syn. *T. Briquetiani* Ronn.

*Thymus pannonicus* ssp. *bulsanensis* Ronniger, Allg. Bot. Zeitschr. 26–27, 16 (1925), nom. nov. pro *T. pannonici* sensu Borbás.—*T. bulsanensis* Machule, Mitt. Thür. Bot. Ges. 2, 187 (1960) et Ber. Bayer. Bot. Ges. 35, 69 (1962), pro hybr. (*T. oenipontanus*  $\times$  *rudis*); Pawlowski, Phytion (Austria) 13, 74 (1968), nom. inval. (sine basion.).

*Thymus briquetianus* Ronniger, Ann. Soc. Cult. Comit. Castrif. Mus. Comit. Castrif. 2, 243 (1927), nom. nov. pro var. *pannonici* Briquet.—*T. Froelichianus*  $\times$  *valderius* sec. Machule, Mitt. Thür. Bot. Ges. 1, 49 (1957).

#### Own material studied:

*Hautes-Alpes*. Col du Mont-Genèvre, *Onobrychideto-Pinetum*, 1400 m, 18.7. (*Jalas* 801;  $2n = 52$ ).—Valley of River Guil, Château-Queyras, steppe-forest vegetation with *Pinus silvestris*, 1350 m, 17.7. (*Jalas* 790;  $2n = > 50$ ), steppe-like vegetation, 1350 m (*Jalas* 792 and 792a).—Valley of Durance, Saint-Crépin, dry slopes with *Juniperus thurifera*, 950 m, 16.7. (*Jalas* 789;  $2n = > 50$ , and 788).—Side-road to Escreins southeast of Guillestre, *Astragalo-Pinetum*, 1650 m, 16.7. (*Jalas* 786 and 787).

#### Specimens with some characters of *T. praecox* subsp. *polytrichus*.

*Isère*. Valley of River Romanche, Bourg-d'Oisans opposite La Grave, on rock outcrops, u.c. *Artemisia camphorata*, etc., 740 m, 19.7. (*Jalas* 805).

*Basses-Alpes*. Tournaux south of Saint-Paul-sur-Ubaye, dry “Pinetum”, ca. 1250 m, 16.7. (*Jalas* 780;  $2n = 52$ ).—La Condamine, Le Belvédère, roadside, 1700 m, 15.7. (*Jalas* 779).

*Alpes maritimes*. Auron south of Saint-Etienne-de-Tinée, Mountain steppe “Xerobrometum”, ca. 1600 m, 14.7. (*Jalas* 769;  $2n = > 50$ , and 771;  $2n = 52$ ).

In addition, the following Italian specimen may be mentioned, as it has likewise proved to be polyploid:

Piemonte. Val de Cogne, ca. 5 km before Cogne on the Aosta–Cogne road. 3.8.1968 (*Annikki Saarisalo sine num.*;  $2n = > 50$ ).

The chromosome counts referred to above are the first reported for the taxon in question. As to ploidy level, the number ( $2n = 52$ ) found coincides with that reported earlier for *T. glabrescens* s.str. ( $2n = 56$ ) and its Caucasian relative, *T. tiffisiensis* ( $2n = 56$ ) (JALAS and KALEVA 1967, p. 77).

What is here called *T. glabrescens* subsp. *decipiens* is a characteristic plant of the dry inner valleys of the Hautes-Alpes. It can readily be identified by the absence of long creeping shoots, by the holotrichous flowering stems, and by its small elliptic leaves ( $4-8 \times 1.5-2.5$  mm) with a firm texture,  $\pm$  rounded base (and thus pronouncedly petioled) and prominent midrib. Calyx is campanulate, 3–4 mm long. In all the localities studied its populations comprised some specimens with hairy and others with glabrous leaves, seemingly without any further differential characteristics between the respective groups.

In spite of being moderately homogeneous in itself, and differing from *T. glabrescens* proper in several respects (leaf texture and venation, “homoeo-phyllous” leaf size sequence), the French plant in question is far from being an independent and well-defined taxon. It must be considered, on the contrary, the westernmost member of an extremely diverse and taxonomically difficult group of tetraploids extending from Caucasia and S. Russia westwards to the Pannonian countries and along the southern fringes of the Alps to the dry valleys of Piemonte and the French Alps. For this *T. glabrescens* aggr., as for the *T. praecox* aggr. discussed above, the application of a rather wide species concept seems the only sound solution.

Even at subspecific level only a few collective and tentative taxa can be recognized, since our present knowledge of the intraspecific variation of the *T. glabrescens* aggr. as a whole, as well as of the diploid progenitors involved, is still far from satisfactory. It seems obvious that the east-European-Siberian aggregate *T. pannonicus* Allioni 1774, non 1785 (incl. *T. marschallianus* Willd., *T. kosteleckyanus* Opiz, etc.) is one of the parental diploids. Other diploids probably involved in one or several allopolyploid combinations morphologically resulting in members of the *T. glabrescens* aggr. include at least *T. serpyllum* L. and *T. longicaulis* Presl, s. lat.

The name *T. glabrescens* subsp. *decipiens* (H. Br.) Domin is used here to point out the close relationship between the French plant in question and the Pannonian *T. glabrescens* subsp. *glabrescens* (incl. the hairy-leaved *T. austriacus* Bernh.!), rather than to stress the—in fact rather weak—racial independence of the former. What must be expressly pointed out, however, is that the correctness of the name used is still subject to much discussion and divergent opinions, as it essentially depends on the morphological circumscription of the taxon.

Of the epithets under consideration, *decipiens* has the considerable advantage of being, as far as I know, the only one that has already been combined at subspecific level with the species *T. glabrescens* Willd. Thus, no new combination is needed if the subspecies in question is given a circumscription ample enough

to include both our French plant and the true *T. Löwyanus* var. *oblongifolius* f. *decipiens* H.Br. of the Bressanone (Brixen) area northeast of Bolzano. This last-mentioned taxon again clearly belongs to what has been called *T. oenipontanus* H.Br. by RONNIGER (1931, p. 66) and MACHULE (1957, p. 25).

*T. oenipontanus* H.Br. is characterized by fairly large leaves and pungent yellowish calyx teeth. Its hairy-leaved counterpart has been identified as *T. rudis* Kerner ex HANDEL-MAZZETTI (1903, p. 417), but most probably erroneously, since the latter was described on the basis of material from Central Italy ("Etruria, in monte Giovi"), as far as I know definitely outside the geographical range of *T. glabrescens* aggr.

*Thymus Serpillum* subsp. *Allionii* Rouy 1927 is another subspecific combination perhaps affecting the nomenclature of the present taxon. It can be traced back to *T. Serpillum* Race *T. Allionii* of ROUY (1909), which is clearly a substitute name for *T. Serpillum* Race *T. pannonicus* Rouy (1909) still appearing in the key on p. 351 but having been reduced to a synonym in the text (p. 354). *T. Serpillum* Race *T. pannonicus* Rouy again is based on (comb.nova of) *T. Serpyllum* Subsp. *lanuginosus* var. *pannonicus* Briquet (1895), which quite evidently falls within the limits of subsp. *decipiens* of the present paper, and which, later on, was accorded specific rank as *T. Briquetianus* Ronniger (1927).

It must be mentioned here that, according to HEYWOOD (1958, p. 90), the "Races" of ROUY (1909), though valid in themselves, do not affect the nomenclature at subspecific level.

The nomenclatural position of *T. Serpillum* subsp. *Allionii* Rouy 1927, on the other hand, is seemingly complicated by the existence of *T. froelichianus* subsp. *Allionii* Ronniger 1925, created for a taxon specifically different from ours, although in both cases "*T. Allionii* Kerner" is cited as basionym. In fact, *T. Allionii* Kerner was never validly published. Now, it seems correct to treat the subsp. *Allionii* Rouy as nomenclaturally independent of subsp. *Allionii* Ronniger, type specimen of which RONNIGER (1925, p. 18) himself chose an original specimen of "*T. Allionii* Kerner" from "Martigny im Wallis" in herb. Kerner (WU), whereas subsp. *Allionii* Rouy must be typified by *T. Serpyllum* Subsp. *lanuginosus* var. *pannonicus* Briquet, as was shown above. Consequently, subsp. *Allionii* Rouy may become useful for the French taxon now in question if a narrower concept of subspecies is followed, which excludes the type of *T. glabrescens* subsp. *decipiens* (H.Br.) Domin.

RONNIGER, in the same paper (1925, p. 16), created another trinomial *T. pannonicus* ssp. *bulsanensis* Ronn., to cover what had been called *T. pannonicus* by BORBÁS (1890, p. 103). This is a plant with large leaves (ca. 15 × 4 mm sec. Ronniger) and exceptionally large calyces (5–6 mm sec. Borbás). Subsequently, it has been identified as *T. oenipontanus* × *pannonicus* (MACHULE 1957, p. 49) or *T. oenipontanus* × *rudis* (MACHULE 1962, p. 69). Even this is very likely to be included in the subspecies under discussion.

Undoubtedly, the oldest subspecific epithet eventually belonging to those to be considered in this context, *lanuginosus*, especially in the trinomial *T. Serpyll-*

*lum* Subsp. *lanuginosus* Briquet 1895, clearly results in a nomen ambiguum because of being a “long-persistent source of error”, even under *T. glabrescens* Willd. (see e.g. BORBÁS 1890, p. 102; WILLMOTT 1923; RONNIGER 1924a, p. 328; 1925, p. 16). Even if treated as representing a taxon independent of *T. lanuginosus* Mill. (which can hardly be extended to include the present *T. glabrescens* subsp. *decipiens*), BRIQUET’s trinomial is a later homonym of *T. serpyllum*  $\beta$  *lanuginosus* (Schkuhr) Čelak.

Intermediates matching those listed on p. 196 are treated as an independent species *T. Ortmannianus* “Opiz ex Borbás” by PAWLOWSKI (1968, p. 68). They also include *T. Serpyllum* Subsp. *lanuginosus* var. *vallesiacus* Briquet, which is certainly not identical with *T. camaresiensis* Coste, Bull. Soc. Bot. France 43, 508 (1896) as erroneously stated by ROUY (1909, p. 354); see RONNIGER 1925, p. 18.

*Thymus glabrescens* subsp. *decipiens* is a plant of submediterranean to temperate zones of vegetation, or colline to montane as expressed in traditional terms of vertical zonation. It is confined to dry continental “xerothermic” habitats, being a characteristic member of various kinds of steppe-like vegetation with or without a thin (mainly coniferous) forest. BRAUN-BLANQUET (1961) gives *T. serpyllum* var. *lanuginosus* (which quite evidently largely corresponds to our *T. glabrescens* subsp. *decipiens*) the rank of character species of his Stipeto-Poion carniolicae, whilst the glabrous plants of the same stands, often superior in abundance, are mentioned as plain *T. serpyllum* among “Be-gleiter” only. A large number of representative relevés illustrating the floristic composition of the vegetation in question are to be found in this monograph (op. cit., e.g. Tables 4, 7b, 8, 9, 11, 12, 21, 22, 24).

For obvious taxonomic reasons the total area of distribution of *T. glabrescens* subsp. *decipiens* can be given in broad outlines only. At present all records of the occurrence of this subspecies, especially outside its main range along the southern fringes of the Alps from southeastern France to the Tyrol, are in need of careful checking. It may be mentioned that PICHI-SERMOLLI (1948, p. 61) lists *T. decipiens* var. *transalpinus* Ronn. (based on determinations of RONNIGER) from as far south as the upper valley of the Tevere, in the Tuscan Apennines. The same taxon is also recorded by ZANGHERI (1959, p. 387: *T. Serpyllum* var. *oenipontanus* f. *transalpinus*). However, *T. transalpinus* Ronniger in CALLIER (1927, p. 24) is referred to the hybrid combination *T. oenipontanus*  $\times$  *praecox* by MACHULE (e.g. 1957, p. 86) and PAWLOWSKI (1968, p. 74).

## Summary

The material of *Thymus* collected during the XIVth IPE in the Southern French Alps represents five major taxa, which are best treated as different species.

*Thymus pulegioides* L. is a common plant of montane to subalpine mesic grasslands. The present material gives no reason for distinguishing subspecies within it. Some confusion regarding the “subsp. *alpestris* Tausch” of French Floras is pointed out.

*Thymus nervosus* Willk. was collected only at the top of Mont-Ventoux. Attention is

drawn to the character of the species as an obvious schizoendemic, its nearest relatives being in the mountains of the Balkan peninsula.

These two species, according to earlier information, are diploids with  $2n = 28$ . Morphologically, their delimitation causes no serious problems.

The remaining three species are tetraploids with  $2n = (50-)$  52–58, according to counts on the present material not published before, and literature records. They all have in common the multitude of infraspecific trends of racial differentiation which makes any taxonomic approach to the morphological variation extremely difficult. They also seem capable of almost unrestricted mutual hybridization and gene interchange, which in some cases has resulted in a certain blurring of morphological species boundaries, even when a wide species concept is applied, as is the case in this paper.

*Thymus praecox* Opiz is represented in the study area by the essentially alpine subsp. *polytrichus* (Borbás) Jalas, comb. nova (based on *T. polytrichus* Kerner ex Borbás 1890). In addition, the *T. praecox* race of Atlantic Europe and South-Greenland is recognized as subsp. *arcticus* (E. Durand) Jalas, comb. nova (based on *T. Serpyllum* var. *arcticum* E. Durand in Kane 1857). The variants with stems hairy all round and common in the Central European lowlands belong to the type subspecies, *praecox*. The reasons for using this three-subspecies system are given in brief.

A tetraploid ( $2n = 54$ ) taxon found in the Submediterranean areas of "Préalpes externes" and Languedoc, mostly identified as *T. serpyllum*, is here referred to *T. longicaulis* Presl, coll., for the present without a formal nomenclatural status. French representatives of this collective group also include, besides specimens hardly separable from *T. longicaulis* s.str., the diploid *T. dolomiticus* Coste and the tetraploid ( $2n = 48$ ) *T. embergeri* Roussine, which is hardly specifically distinct from the above tetraploid met with in the present material. The major trends of variation encountered within *T. longicaulis* are discussed, but without any nomenclatural rearrangements.

The tetraploid ( $2n = 52$ ) characteristic of the dry inner valleys of the French Alps, to which the epithets *lanuginosus* and *pannonicus* have usually been attributed, in various nomenclatural combinations, is here treated as *T. glabrescens* subsp. *decipiens* (H. Braun) Domin. Owing to inadequate knowledge of the racial pattern of the species in general, and to the extreme complexity of the pertinent synonymy, the reliability of this decision must still be checked.

## Zusammenfassung

Das während der XIV. IPE in den französischen Südalpen gesammelte *Thymus*-Material umfaßt fünf Taxa im Range deutlich verschiedener Arten.

*Thymus pulegioides* L. ist in montanen und subalpinen Wiesen häufig, wobei das vorhandene Material keinen Anlaß zur Unterscheidung von Unterarten gibt; die durch «ssp. *alpestris* Tausch» hervorgerufene Verwirrung wird betont.

*Thymus nervosus* Willk. fand sich nur auf dem Gipfel des Mont-Ventoux; die nächsten Verwandten dieses Schizoendemiten bewohnen die Gebirge der Balkanhalbinsel.

Diese beiden Arten sind nach älteren Angaben diploid ( $2n = 28$ ). Morphologisch verursacht ihre Abgrenzung keine Schwierigkeiten. Die drei restlichen Arten sind auf Grund noch unveröffentlichter Untersuchungen des vorliegenden Materials und Literaturangaben tetraploid ( $2n = (50-)$  52–58. Sie neigen durchwegs zu intraspezifischer Rassenbildung, welche jede taxonomische Wertung der morphologischen Differenzierung extrem schwierig macht; ebenso scheinen sie zu meist unbegrenzter wechselseitiger Bastardierung und zu Genaustausch befähigt zu sein, was selbst bei weiter Fassung – wie in der vorliegenden Arbeit – zu einem Verschwimmen der Grenzen führt.

*Thymus praecox* Opiz ist im Beobachtungsgebiet durch die alpine ssp. *polytrichus* (Borbás) Jalas, comb.nova, vertreten; im Anschluß wird die Rasse des atlantischen Europa und Süd-

grönlands als ssp. *arcticus* (E. Durand) Jalas, comb.nova, beschrieben, während die Varianten der zentraleuropäischen Tiefländer der typischen ssp. *praecox* angehören. Der Grund für diese Gliederung wird erläutert.

Ein tetraploides Taxon ( $2n = 54$ ) aus der submediterranen Stufe der randlichen Voralpen und dem Languedoc, meist als *T.serpyllum* bezeichnet, wird hier zu *T.longicaulis* Presl gestellt, zunächst ohne formal nomenklatorischen Status. Außer von *T.longicaulis* s.str. kaum abtrennbaren Formen gehören dieser polymorphen Gruppe auch der diploide *T.dolomiticus* Coste und der tetraploide ( $2n = 48$ ) *T.embergeri* Roussine, welcher sich kaum von der oben genannten tetraploiden Form unterscheidet, an. Die wichtigsten Variationsrichtungen werden diskutiert, jedoch ohne nomenklatorische Festlegung.

Der tetraploide Typ ( $2n = 52$ ) der trockenen Innentäler, meist als *lanuginosus* oder *pannonicus* bezeichnet, wird hier als *T.glabrescens* ssp. *decipiens* (H. Braun) Domin behandelt, wobei diese Einordnung angesichts ungenügender Kenntnis der Rassengliederung der Gesamtart und der Komplexität der Synonymie noch zu überprüfen ist.

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