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The name *Brodiaea* ×*tubergenii* has in recent years been applied to the asexually propagated progeny of a hybrid between *Brodiaea* (sensu lato) *laxa* (Benth.) Wats. and *B. peduncularis* (Lindl.) Wats. Apparently no formal description of the hybrid has been published and the name is automatically a *nomen nudum*. According to Mr. M. H. Hoog of C. G. van Tubergen, Ltd. Haarlem, Holland, the cross was made at their nursery and first described in their wholesale catalogue of bulbs in 1950, although the name could have been applied to the hybrid earlier (pers. com.). In the 1950 catalogue the hybrid was described as "*Brodiaea Tubergenii*, hybrid raised by us between *B. peduncularis* and *laxa* with large umbels of pale blue flowers, exterior slightly deeper blue." In a footnote they state "We believe that *B. Tubergenii* is the first hybrid *Brodiaea* ever offered. The parents are *B. peduncularis* and *laxa*: it is intermediate in colour and size of hedicels (sic); while *B. peduncularis* produces pedicels of 14 cm length (as cultivated pere (sic)), those of *B. laxa* are only 5 cm and of the new hybrid 8½ cm maximum length." Which species was used as the maternal parent is not known (pers. com.).

In November, 1947, we received from Professor E. B. Babcock of the University of California, Berkeley, a package containing four corms listed only as "F_1 generation from a species cross." The parental species were listed as *Brodiaea laxa* and *B. peduncularis*. In the spring of 1948, three of the plants bloomed and a note was made (RSABG prop. records), "flowers on each plant different." No seed was set and by 1950 the plants had disappeared.

In the fall of 1964, Mr. Hoog kindly supplied me with corms of their hybrid for cytological study. Root tip counts showed the plants to be 2n=28. Previous study (unpub.) of one of the parental species had disclosed that *Triteleia*[1] *laxa* has two base numbers (x=7, 8) with a polyploid series based on each number. Karyotypically the species is polymorphic. *Triteleia laxa* supplied by Mr. Hoog from their collection, and the one presumably used in the production of the hybrid, was found to be 2n=28 and thus a tetraploid based on x=7. *Triteleia peduncularis*, also from van Tubergen, was found to be 2n=28. Thus it would appear that the

[1]Following recent students of the group (Hoover, 1939; Niehaus, in press) I am recognizing *Triteleia* Dougl. ex Lindl. as a segregate genus from *Brodiaea* Smith.

base number for the species is x=7 since Burbanck (1941) reported the species as being 2n=14, 28. Characteristically the karyotype of *T. peduncularis* possesses one long metacentric chromosome per genome whereas *T. laxa* may or may not have a long metacentric (Lenz, unpub.). Since the hybrid shows two pairs of long metacentrics it might be theorized that the form of *T. laxa* used must have been one with long metacentrics. An examination of the root tips of *T. laxa* supplied by van Tubergen did indeed show two pairs of long metacentrics. *Triteleia tubergenii* may be described as an amphidiploid having arisen through hybridization of tetraploid forms of both *T. peduncularis* and *T. laxa*. If the genomes of the two species are distinct, at meiosis the two sets of *T. laxa* chromosomes would pair with each other and the two sets of chromosomes from *T. peduncularis* would

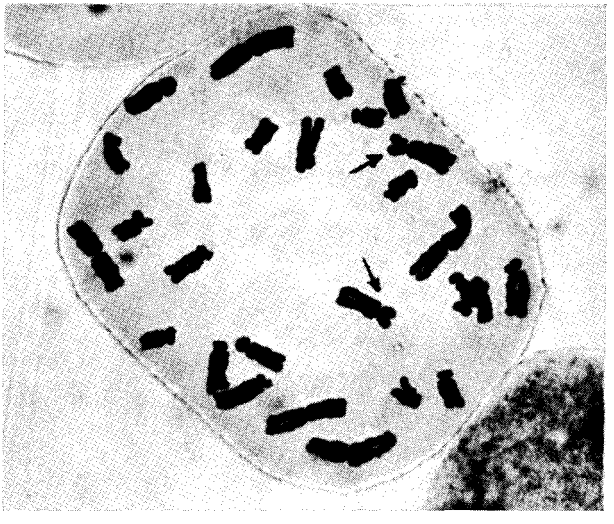

Fig. 1. Root-tip cell of *Triteleia tubergenii*. 2n=28. The two chromosomes indicated by arrows are marker chromosomes from *T. laxa*. Two chromosomes at the six o'clock position are partially superimposed.

pair to form 14 bivalents. Examination of meiotic material of the hybrid showed this to be the case. It appears that the *laxa* and *peduncularis* genomes are sufficiently distinct so that little or no crossing over takes place between them. The M_1 chromosome of *T. laxa* (indicated by arrows in Fig. 1) is characteristic of the species and in the hybrid two are found as would be expected if this hypothesis is correct. A full discussion of the evolution of the karyotype in *Triteleia* will be published later.

Plants of *T. tubergenii* grew well at the botanic garden and bloomed and set abundant seed by open pollination. Seed from the F_1 generation was

planted in 1965 and the resulting plants bloomed in the spring of 1969. The F_2 population was uniform throughout and similar in every way to plants of the F_1 generation. Pollen fertility of the F_1 and F_2 generations, as determined by stainability is shown in Table 1.

TABLE 1. *Pollen Fertility*

Triteleia tubergenii (*T. laxa* x *T. peduncularis*)	Pollen grains counted:	Pollen grains stained:	% 'fertile':
F_1	2002	1959	97.9%
F_2	2003	1954	97.7%

According to Hoover (1939) both *T. laxa* and *T. peduncularis* belong to section *Eutriteleia* which includes the species with stamens attached alternately at two levels. Other species are the widely distributed *T. grandiflora* Lindl., *T. clementina* Hoover, an endemic on San Clemente Island, and *T. crocea* (Wood) Greene which with its variety *modesta* (Hall) Hoover are restricted to a small area in southern Oregon and northern California. *Triteleia laxa,* as presently defined, is widely distributed from Curry County, Oregon south to Los Angeles County, California. *Triteleia peduncularis* occurs in the coastal ranges of California from Humboldt and Tehama counties south to Monterey County. While rather widely distributed it is in general not common (Hoover, 1939). It is not known whether populations of the two species ever grow intermixed. *Triteleia peduncularis* is unique in having a bright yellow ovary and this along with the white perianth and the very long pedicels separates it clearly from other species of the genus. The underground portions of *T. laxa* and *T. peduncularis* are also different; in *laxa* the corms are deeply seated and multiply slowly by simple division of the corm during its annual replacement. The corms of *T. peduncularis* are shallowly seated and multiply rapidly by the formation of numerous cormlets. *Triteleia tubergenii* tends to favor *peduncularis* in respect to corm depth and rate of multiplication. In most other respects the hybrid is intermediate between the two species.

Triteleia tubergenii sp. nov.

Perennial herbs from corms, corms to 1.5 cm in diam., shallowly seated, dividing freely; leaves to 1 cm wide; scapes 1–4 dm tall, smooth; pedicels to 7 cm long, ascending, somewhat bent at apex; perianth 2.5–3.5 cm long, broadly funnelform-campanulate, segments gradually spreading, lavender with darker midvein, throat pale; stamens attached at two levels; anthers 2–5 mm long; ovary pale green-pale lavender, stipe 2–3 times length of ovary at anthesis. Taxa of hybrid origin.

Herbae perennes de cormo, cormis ad 1.5 cm diam., non profunde positis, libre dividentibus; folia ad 1 cm lata; scapi 1–4 dm alti, glabri; pedicelli ad 7 cm longi, ascendentes, ad apicem flexi; perianthium 2.5–3.5 cm longum, late infundibuliforme-campanulatum, segmenta gradatim expansa, violacea,

costa atroviolacea, fauce pallida; stamina affixa in duo planis; antherae 2–5 mm longae; ovarium pallidum virescente-lacteum; stipes duplo vel triplo per tot longitudinen ovarii sub anthesi. Taxum originis hybridae.

Type.—Amphidiploid between *Triteleia laxa* Benth. and *T. peduncularis* Lindl. produced C. G. van Tubergen, Ltd., Haarlem, Holland. Plants grown at Rancho Santa Ana Botanic Garden. *Lee W. Lenz 24853*, June 13, 1969 (RSA).

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