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2. Material and methods

Plants for the present study have been sampled in 1969 - 1974, mostly by the authors. A number of other persons have also contributed to the collection which actually comprises 900 populations. The diploids were found in 224 populations out of which 208 (1637 plants) are dealt with in the present paper, (Tables 1-6). A relatively high percentage of the diploids doesn't exactly reflect the pattern of geographical distribution of the whole group of *Cardamine pratensis*; at the present phase of our investigations a special attention has been payed to the diploid taxa.

Plants for the investigations were chosen at random within their populations. As a representative sample, 8-15 plants were collected; subsequently they were transferred to the greenhouse and, later on, into the experimental field of the Geobotanical Institute.

The studied region was principally confined to the Alps; however, for comparative purposes, the neighbouring areas were as well included in our program. In general, the boundaries of the investigated area can be traced along the following lines: Landsberg (Bavaria) - Innsbruck - Bolzano - Lecco - Turin - Chambéry - Nantua - Besançon - Epinal - Colmar - Rottweil - Landsberg. Rather intensive collections were made within this area and one can assume that a general pattern of distribution of the diploid taxa has

been followed there.

As far as other parts of the Alps are concerned, some plants were sent to us from surroundings of Salzburg and from Oberösterreich; they represented higher polyploid levels and therefore are not included in the present paper. It should be noted, however, that LÖVKVIST (1956) has previously dealt with some diploid taxa from the region of Vienna and from Styria. The Swedish author has also studied an ample material of *C. pratensis* s.l. from various parts of its area of distribution.

Southwestern Alps are not represented in our collections. According to the bibliographic data, the *C. pratensis* complex is there either extremely scarce or totally absent.

Not only living plants, but also an ample herbarium material was studied in the course of the present work; numerous specimens were tested for the pollen quality. The following collections were obtained on loan;

Austria: Graz (GZU), Innsbruck (IB,IBF), Klagenfurt (KL), Linz (LI)

France: Grenoble (GR)

Germany: Munich (M)

Italy: Florence (FI), Genoa (GE), Padua (PAD), Pavia (PAV), Verona (VER)

Switzerland: Berne (BERN), Geneva (G), Lausanne (LAU), Lugano, Zurich (Z, ZT, RUEB)

Yugoslavia: Ljubljana (LJU)

As far as some herbarium collections from Vienna (W, WU) and those from Turin (T) are concerned, we refer to the data of LÖVKVIST (1956).

Figures in the description of the taxa are based upon a combination of data from measurements of the herbarium material collected in natural conditions and those of the cultivated plants. Maps and lists comprise as well the data obtained from the loan specimens.

The methods used in cytological investigations as well as technical details concerning the experimental crosses are given in the respective chapters.

3. Nomenclature problems and species delimitation

Six taxa have been distinguished among the diploids occurring within the studied area: *Cardamine granulosa*, *C. Matthioli*, *C. udicola*, *C. rivularis*, *C. pratensis* and *C. nemorosa*. *C. udicola*, very rare and particularly isolated in its geographical distribution, was but partly investigated in the