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HAUPTERGEBNISSE DER FLORISTISCHEN-GEOBOTANISCHEN UND SYSTEMATISCHEN FORSCHUNGEN IN UNGARN, 1961-1972 *

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Illés u. 25

MIT dem Jahre 1973 schliesst sich eine Epoche der ungarischen Floren- und Vegetationsforschung, und zwar mit der kritischen Synthese aller floristischen und pflanzensoziologischen Angaben seit den Anfängen am Ende des XVIII. Jahrhunderts (Zeitalter von KITAIBEL). Das ist das Werk von R. SOÓ: A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve, Synopsis systematico-geobotanica florae vegetationisque Hungariae I.-V. (1964-1973), es folgt noch ein Registerband. Bd. I. pp. 590 (1964) enthält den allgemeinen Teil systematische, nomenklatorische, ökologische, geobotanische Grundbegriffe, die Pflanzengeographie Ungarns, das ausführliche System der Pflanzengesellschaften (Neubearbeitung im V. Bd.), Bibliographie, ferner Bryophyta (von Á. Boros), Pteridophyta (Mitwirkung von G. VIDA), Gymnospermen. Bd. II. pp. 655 (1966), Magnoliales-Ligustrales, *Rubus* von Á. KISS, Bd. III. pp. 506 Anhang 51 (1968), Boraginales-Campanulales, im Anhang die zönosystematische (syntaxonomische) Übersicht der einheimischen Pteridophyta und Spermatophyta. Bd. IV. pp. 614, Asterales-Monochlamydeae. Bd. V. pp. 724, Monocotyledones, Nachträge. Bei jeder Art werden mitgeteilt: Synonymie, infraspezifischen Sippen (incl. die Formen), zytotaxonomische, blüten-und verbreitungsbiologische, arealgeographische, synökologische Angaben (mit TFN Formeln), ferner Verbreitung und soziologische Rolle in Ungarn (Aufzählung aller Assoziationen, in denen die Art auftritt), Feststellung des zönotaxonomischen Charakters. Dieses Werk ist wohl die ausführlichste mikro-

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* Vgl. SOÓ: The Chief results of floristic and systematic investigations in Hungary, 1945-1960. *Webbia* 18: 261-276.

taxonomisch-soziologische Flora der heutigen botanischen Literatur. Als Ergänzung dazu und als Bestimmungsbuch erschien Soó, R.-KÁRPÁTI, Z.: Magyar Flóra (Ungarische Flora), Budapest, 1958 pp. 646 mit fast 2000 Fig. Die auch für die mittel-und südosteuropäische Flora bedeutende systematisch-nomenklatorische Ergebnisse der Synopsis florae Hungariae wurden auch im *Feddes Repertorium* 1972 veröffentlicht.

Es erschienen zwischen 1960 und 1972 natürlich viele kleinere-grössere floristische Mitteilungen, die wichtigeren Angaben: neue Taxa (Arten, Unterarten und Bastarde) und die für die Flora Ungarns bedeutendere Neufunde sowie taxonomische-nomenklatorische Verbesserungen sind in der zusammengestellten Liste zu lesen.

Von Lokalfloren ist die von Südwest-Transdanubien (KÁROLYI-PÓCS) noch nicht abgeschlossen. Es ist zu bedauern, dass die geobotanische (floristisch-soziologische) Monographie der Orchideen der pannonischen und karpatischen Flora (OLGA BORSOS, z. T. SOÓ) unvollendet blieb. Grössere monographische Studien wurden über die Gattungen oder Sammelarten mehrere veröffentlicht, so z. B. *Paronychia* (BORHIDI, er hat auch die endemische Kleinart *Vincetoxicum pannonicum* entdeckt), *Lotus corniculatus* agg. (BORSOS), *Quercus* (MÁTYÁS), *Lilium martagon, Cornus mas, Crocus* Arten usw. (PRISZTER), *Ophrys, Ranunculus auricomus* agg., *Rhinanthus,* ungarische *Thymus* (SOÓ, *Orchis*-Studie 1974), *Melittis, Erophila* (SOÓ und BORSOS), *Cerasus mahaleb, Arum maculatum* und *italicum* (TERPÓ), vgl. noch die Serie über einige kritische Formenkreise der ungarischen und karpatischen Flora (15 Teile: Soó und Mitarbeiter). Die nomenklatorische Studienreihe (Species et combinationes novae, 10 Teile: Soó, behandelt auch näher einige Gattungen, wie *Biscutella, Odontites* usw.). Endemische Kleinart der *Pulsatilla pratensis* agg. ist *P. zimmermannii* Soó, lokaler Endemit ist *Thlaspi schudichii* Soó et Kárp., vgl. noch die Liste.

Verhältnissmässig wenig biosystematische (zytotaxonomisch-zytogenetische) Arbeiten sind während dieser Zeit erschienen, hervorzuheben sind diejenigen über verschiedene Farngattungen (VIDA) und die etwas zu viel differenzierende *Koeleria*-Monographie (UJHELYI), weitere Publikationen über *Dianthus plumarius* agg. (BAKSAY), *Festuca ovina* agg. (HORÁNSZKY, SOÓ).

Sehr reich ist dagegen die pflanzensoziologisch-synökologische Produktion, wir zitieren in der Literatur nur die zusammenfassenden Werke über die Pflanzengesellschaften Ungarns (SOÓ, 1960-63,

1968-70) und über einzelne grössere Gruppen (z. B. CSAPODY, MAJER, UBRIZSY usw.), ferner die als selbständige Werke erschienenen Vegetationsmonographien ungarischer Landschaften (wie die von FEKETE, HORÁNSZKY, HORVÁT, JAKUCS usw) die — wie auch die kleineren soziologischen Publikationen — auch viele wertvolle floristische Data mitteilen.

Alle die besprochenen Florenwerke folgen dem System von Soó (1953), das zuerst 1967 (*Acta Bot. Hung.* **13**), dann im V. Bande der Synopsis desselben zeitmässig umgearbeitet wurde.

Nova taxa (species, subspecies, hybrida) in flora Hungariae (1960-1972) [1]

Diphasium tristachyum (Pursh) Rothm. (*D. issleri* auct. hung.)
Polypodium interjectum Shivas
P. × *mantoniae* Rothm.
Aspleniophyllitis × *kümmerlei* Vida 1960 (*A. kümmerlei* Soó 1964)
Asplenium melanocaulon Willd. resp. *A. trichomanes* subsp. *bivalens* D. E. Meyer (syn.:*A. trichomanoides* H. P. Fuchs non Woynar, *A. linnaei* Soó (1963)
A. × *aprutianum* Lovis, Melzer, Reichstein
A. × *baumgartneri* Dörfl.
A. × *heufleri* Reichhardt.
**Ceterach javorkaeanum* (Vida 1963 sub *Asplenio)* Soó 1963 = *C. officinarum* subsp. *bivalens* D. E. Mayer
Woodsia alpina (Bolton) S. F. Gray
Polystichum × *bicknallii* (Christ) Hahne
P. × *illyricum* (Borb.) Hahne
Dryopteris assimilis S. Walker
D. × *deweveri* (Jansen) Jansen et Wachter
(Fast alle für Ungarn neue Farne wurden von G. VIDA festgestellt).
**Pulsatilla zimmermannii* Soó 1966 resp. *P. pratensis* subsp. *zimm.* Soó 1965
Ranunculus parviflorus L.
**R. auricomus* agg. Kleinarten: *R. schilleri, R. transtibiscensis, R. rapaicsianus, R. olgae, R. pseudoincisifolius, R. reichenbachii, R. trautmannii, R. estherae, R. kitaibelii, R. pannonicus, R. subpannonicus, R. acriformis, R. auricomiformis, R. bere-*

[1] Neu beschriebene Taxa mit *.

gensis, R. pseudobinatus, R. borbasianus, R. matrensis, R. marmarosensis, R. heuffelii, R. javorkae, R. karpatianus, R. bernatskyanus, R. staubii, R. buekkensis, R. mathei, R. bekesensis, R. claudiopolitanus, R. slovacus, R. budensis, R. pseudosilvicola, R. gayeri, R. hungaricus, R. carpaticola, R. cassubiciformis, R. subcarpaticus, R. balatonensis, R. schurianus, R. moeszii, R. budaianus Soó 1964, *R. pilisensis, R. hortobagyianus* Soó 1965, *R. sooi* Borsos in Soó 1964, z. T. aus den Karpaten, vgl. *Acta Bot. Hung.* **10-11** [1].

Adonis transsylvanica Simonovich (*A. volgensis* auct. hung.)

Rubus scissus Watson

R. affinis W. et N.

R. senticosus Koehler

R. albiflorus Boulay et Lucand

R. vallispersus Sudre

R. rosaceus W. et N.

Ausserdem sind viele Unterarten und Bastarde für die Flora Ungarns neu (Kiss in Soó, 1966). Viele Neukombinationen als subsp. der Arten *R. chloocladus* Watson, *R. teretiusculus* Kaltenb., *R. morifolius* Müll., *R. thelybatos* Focke, *R. amoenus* Koehler, etc. von Soó 1966.

Potentilla impolita Wahlbg. subsp. *pseudocalabra* (Th. Wolf) Borhidi et Isépy 1965

[weitere unterarten subsp. *magyarica* (Borb. 1889) Soó 1963 und *dissecta* (Wallr.) Soó 1963]

P. collina Wibel

P. thyrsiflora Zimm. mit subsp. *pliodonta* (Th. Wolf) Borhidi et Isépy 1966, subsp. *loczyana* (Borb. 1900) Soó et Borhidi 1965

P. wiemanniana Günth. et Schumm.

**P.* × *sooi* Borhidi et Isépy 1965 (*leucopolitana* × *recta* subsp. *obscura*)

[weitere Neukombinationen *P. argentea* subsp. *macrotoma* (Borb. 1896) Soó 1971, *P. recta* subsp. *tuberosa* (Gy. Wolff ex Siegfr. 1892), *auriflora* (Borb. 1884), *leucotricha* (Borb. 1884) Soó 1971, *P. patula* subsp. *tenella* (Tratt.) Soó 1972].

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[1] Weitere neu benannte Kleinarten in den Ostkarpaten und im Banat.: *R. simonkaianus, R. subflabellatus* Schur, *R. flabelloides* A. Nyár., *R. binatiformis* (A. Nyár.) Soó 1964 — *R. silvicola* Haas 1954 non (W. et Gr.) Gáyer 1918: *R. haasii* Soó 1964.

**Alchemilla hungarica* Soó 1963 (*A. plicata* auct. hung.)

Rosa spinosissima L. subsp. *pimpinellifolia* (L.) Soó 1963 comb. n.

R. gallica L. subsp. *leiostyla* (Gelmi) Soó 1963 comb. n.

R. villosa L. var. *sancti-andreae* (Degen et Trautm. in Jáv. 1924 resp. in Kárpáti 1958 p. sp.) Soó 1970

R. dumalis Bechst. *(afzeliana)* subsp. *subcanina* (Christ) Soó 1971

R. caesia Sm. *(coriifolia)* subsp. *subcollina* (Christ) Soó 1971, in den Alpen noch subsp. *rhaetica* (Gremli) Soó 1972

R. Bastarde (neue Namen): *R.* × *schwertschlageri* Soó 1966 *(canina* × *rubiginosa), R* × *reichenbachiana* Soó 1965 (*dumalis* × *gallica, waitziana* Rchb. non Tratt.), *R.* × *dingleri* (Schulze) Soó 1965 *(dumalis* × *rubiginosa).*

Sedum maximum (L.) Hoffm. subsp. *ruprechtii* (Jalas 1954) Soó 1963

**S. neglectum* Ten. subsp. *sopianae* Priszter 1963.

Sempervivum marmoreum Griseb. subsp. *blandum* (Schott 1853) Soó 1963 (*S. schlehani* auct. hung. p. p.)

Ribes uva-crispa L. subsp. *hunyadense* (Simk. 1909) Soó 1963. Die Angabe aus Ungarn ist wohl falsch.

Chamaecytisus albus (Hacq.) Rothm. subsp. *leucanthus* (W. et K.) Soó 1966 im Banat, fehlt im rumänischen Florenwerk (Fl. RPR), subsp. *obscurus* (Rochel 1828) Soó 1972 in Rumänien und W-Jugoslawien, subsp. *frivaldszkyanus* (Degen 1893) Soó 1972 in Bulgarien.

Ch.-Bastarde: *austriacus*×*ratisbonensis* [*Ch.*×*millenii* (Borb. 1897) Soó 1970], *austriacus* × *supinus* [*Ch.* × *virescens* (Kovács 1846) Soó 1970], *hirsutus* × *ratisbonensis* [*Ch.* × *cetius* (Beck 1892) Soó 1970]

Medicago nigra (L.) Krock (*hispida* Gärtn.) neulich wieder adventiv

Trifolium dubium Sibth. subsp. *microphyllum* (Ser. in DC) Soó 1965

T. fragiferum L. subsp. *bonnanii* (Presl) Soják

T. arvense L. subsp. *gracile* (Thuill.) Rothm.

Lotus corniculatus L. subsp. *major* (Scop.) Gams als var. *colocensis* (Menyhárt 1877) Borsos 1966, adventiv, subsp. *procumbens* (Poir.) Briq. zweifelhaft (adv.?)

Vicia dalmatica Kern. (elegans auct.) Budaer-Gebirge, ob adv.?

Oenothera rubicaulis Klebahn, *Oe. depressa* Greene (*Oe. hungarica* Borb.), *Oe. sylvicola* Bartlett und mehrere Bastarde (vgl. Rostanski 1966)

Acer pseudo-platanus L. subsp. *subobtusum* (DC.) Soó 1966

Impatiens balfourii Hook. f. eingebürgert

Vitis rupestris Scheele und *V. vulpina* L. *(riparia)* eingebürgert

Cornus sanguinea L. subsp. *hungarica* (Kárp. 1949) Soó 1964, Übergang zu *C. australis* C. A. Mey.

Heracleum sphondylium subsp. *trachycarpum* (Soják) Holub, subsp. *flavescens* (Willd.) Soó 1963 (*sibiricum* auct.)

Oxalis corniculata L. subsp. *adscendens* Moris [als *Xanthoxalis dillenii* (Jacq.) Holub].

**Euphorbia lucida* × *palustris* (*E.* × *sooi* Simon 1950), *E. pannonica* × *seguieriana* subsp. *minor* (*E.* × *budensis* Simon 1950), aus dem Bericht in *Webbia* 1963 ausgeblieben.

**Vincetoxicum pannonicum* (Borhidi 1966 sub *Cynancho*) Holub 1970 Neu entdecke endemische Art: Pilis-Budaer Geb., Villányer-Geb.

Myosotis palustris (L.) Nath. subsp. *radicans* (Opiz) R. Schuster

**Teucrium montanum* L. subsp. *subvillosum* Soó (1943) 1964 (*T. pannonicum* et *villosum* auct. hung.)

Melittis carpatica Klokov 1957 emend. Soó 1972, Ball p. subsp. [*M. melissophyllum* (excl. Budaer-Geb.) et *M. grandiflora* auct. hung.]

Lamium galeobdolon. Beide subsp.: *galeobdolon* und *montanum* (Pers.) Hay.

Salvia × *betonicifolia* Etling

Origanum vulgare L. subsp. *prismaticum* Gaud. ob spontan?

**Thymus* × *sooi* Lyka 1966 *(degenianus* × *glabrescens)*

**Solanum dulcamara* L. var. *pusztarum* Soó 1966

Verbascum lychnitis L. subsp. *kanitzianum* (Simk. et Walz 1878) Soó 1966

**V.* × *vajdae* Boros 1947 *(densiflorum* × *speciosum)*, fehlt in *Webbia* 1963

Kickxia × *confinis* (Lacroix 1859) Soó 1967

Linaria biebersteinii Bess. subsp. *strictissima* (Schur 1866) Soó 1970 (*L. kocianovichii* Asch. 1875, *L. ruthenica* Blonski 1895, weitere Synonymen in Soó: Syn. 3: 176, kein Bastard, aber auch nicht mit *L. biebersteinii* identisch)

Veronica hederifolia L. subsp. *lucorum* (Klett et Richt.) Hartl 1968 (*V. sublobata* M. Fischer 1967)

V. × *sooiana* Borsos 1967 *(longifolia* × *spicata)*, nm. *budensis* Borsos 1967

Euphrasia stricta D. Wolff subsp. *pseudosuecica* (Erdner 1911) Soó 1970 (*E. suecica* auct. Europ. mediae)

Rhinanthus angustifolius Gmel. 1806 emend. Soó (*Rh. major, glaber, serotinus, grandiflorus* auct. europ.)

Orobanche nana Noë (Villányer-Geb.)

Plantago media L. subsp. *stepposa* (Kuprinova 1936) Soó 1967 (var. *urvilleana* auct.)

P. major L. subsp. *winteri* (Wirtg.) W. Ludwig

Corydalis solida (L.) Clairv. subsp. *vajdae* Soó 1964 Übergang zu subsp. *slivenensis* (Velen.) Hay

Biscutella laevigata L. subsp. *austriaca* (Jord.) Machat.-L., var. *angustifolia* Machat.-L., *var. *budensis* Soó 1964, subsp. *kerneri* Machat.-L., *subsp. *hungarica* Soó, vgl. Soó *Acta Bot. Hung.* **10.** (1964)

Thlaspi schudichii (Soó 1940 p. var. *Th. jankae*) Soó et Kárp. 1968 Endemische Kleinart (Zempléner-Geb.), mit *Th. kovátsii* Heuff. verwandt.

Alyssum montanum L. subsp. *brymii* (Dostál) Soó 1951

Erophila verna (L.) Chev. subsp. *obconica* (De Bary) Vollm, var. *claviformis* (Jord.) Schulz, subsp. *microcarpa* (Wibiral) Oberd., *var. *hungarica* et *vertesensis* Borsos et Soó, *E. spathulata* Láng var. *muricola* (Jord.) Soó cf. Soó-Borsos *Acta Bot. Hung.* **14.**

Cardamine pratensis L. subsp. *paludosa* (Knaf) Celak.

Cardaminopsis arenosa (L.) Hay. subsp. *petrogena* (Kern.) Soó 1970, *subsp. *balatonica* Baksay 1970, subsp. *borbásii* (Zapal.) Pawl., die zwei letzteren neu

Hesperis sylvestris Cr. subsp. *velenowskyi* (Fritsch) Borza und *H. matronalis* L. subsp. *obtusa* (Mönch) Soó 1940. Angeblich in SW-Transdanubien. Neue Namen: *H. matronalis* subsp. *schurii* Soó 1972 (*H. oblongifolia* Schur non Fourn.), subsp. *spontanea* Soó 1972 (*H. sibirica* auct.)

Ambrosia coronopifolia Torr. et A. Gray (*psilostachya* auct.) adv.

Xanthium saccharatum Wallr. (*italicum* auct. p. p.) eingebürgert

Leucanthemum praecox Horvatic (*Chrysanthemum leucanthemum* auct. p. maj. p.) p. p. *L. vulgare* mit var. *silvestre* (Pers.) Soó 1971

L. margaritae (Gáyer 1925) Soó 1972 (*montanum, lanceolatum* auct. hung.)

Tanacetum corymbosum (L.) Schultz subsp. *subcorymbosum* (Schur) Pawl. [subsp. *clusii* (Fischer) Soó] Bükk-Geb.

Artemisia alba Turra subsp. *canescens* (DC.) Priszter et Soó 1966

**A.* × *gayeriana* Kárp. 1946 *(absinthium* × *pontica)*, fehlt in *Webbia* 1963

Senecio nemorensis L. subsp. *intercedens* (Beck) Soó 1967 (*fuchsii-nemorensis, S. decipiens* Nyár.)

Carduus nutans L. subsp. *macrolepis* (Peterm.) Kazmi (*C. nutans* auct.), vielleicht noch subsp. *leiophyllus* (Petrovic) Stoj. et Stef. (*C. thoermeri* Weinm.)

C. collinus W. et K. subsp. *glabrescens* (Sag.) Kazmi

**Cirsium* × *soproniense* Kárp. 1949 *(canum*×*erisithales*×*oleraceum)*, fehlt in *Webbia* 1963

**Centaurea* × *csapodyana* Kárp. 1949 *(salonitana* × *sadleriana)* fehlt in *Webbia* 1963

C. × *dostaliana* Soó 1970 *(scabiosa* × *sadleriana)*

**C.*× *soproniensis* Kárp. 1929 *(vochinensis* × *stenolepis)* fehlt in *Webbia* 1963

Leontodon hispidus L. subsp. *pseudoincanus* (Hay.) Soó 1964 (*incanus* auct. hung. p. p.)

**Taraxacum* Kleinarten, wie *T. austriacum* Soest, *T. silesiacum* Dahlst., *T. pannonicum* Sonck et Soest, *T. pyrrhantes* Sonck et Soest, unweit von der Westgrenze *T. pseudobalticum* Soest, *T. limosum* Soest, *T. vindobonense* Soest etc. Die Kleinarten der Gattung sind in Ungarn noch kaum bekannt.

Hieracium kossuthianum Soó 1947 (*H. danubiale* Borb. non Poll) Endemit des Ungar. Mittelgebirges, fehlt in *Webbia* 1963

H. degenianum (Zahn 1927 p. subsp.) Soó 1972. Zwischenart *H. kossuthianum-H. wiesbaurianum*

Silene ehrhartiana Soó 1951 (*parviflora* Ehrh.) richtig *S. borysthenica* (Gruner) Walters cf. *Webbia* 1963: 267

Dianthus plumarius L. subsp. *praecox* (Kit.) Dom. [*D. lumnitzeri* subsp. *pseudopraecox* (Novák) Soó] Nördl. Ungar. Mittelg., subsp. *lumnitzeri* (Wiesb.) Dom. und subsp. *regis-stephani* (Rapcs.) Baksay 1970 mit var. *sooi* (Jáv.) Soó Westl. Ungar. Mittelgeb.

D. arenarius L. subsp. *borussicus* Vierh. (*D. serotinus* auct. hung. p. p. auf kalkarmen Sand) — *D. serotinus* W. et K. dagegen auf kalkreichem Sand des ungarischen Tieflandes (Baksay)

*D. × *winterlianus* Priszter 1967 *(collinus × deltoides)*

Cerastium brachypetalum Desp. subsp. *tenoreanum* (Ser.) Soó 1951 zerstreut

C. fontanum Baumg. subsp. *lucorum* (Schur 1877) Soó 1969 (*nemorale* Uechtr. et auct.)

**Paronychia cephalotes* (M. B.) Bess. var. *sooi* et var. *simonkaiana* Borhidi 1966 cf. *Acta Bot. Hung.* 12.

Salicornia prostrata Pall. (*S. europaea, ramosissima* auct. hung.) mit *subsp. *simonkaiana* Soó (1960 p. sp.) 1969

Limonium gmelinii (Willd.) Ktze subsp. *hungaricum* (Klokov 1957) Soó 1963 (*Statice gmelinii* auct. hung.).

Humulus scandens (Loureiro) Merril *(japonicus)* eingebürgert

Quercus dalechampii Ten. (*Q. petraea* subsp. *aurea* (Wierzb.) Soó 1969) — auch in Burgenland und Steiermark — und *Q. polycarpa* Schur (Soó 1943 p. subsp.) — auch in Burgenland — sind verbreitet

Q. robur L. Mátyás (1970) unterscheidet 5 Unterarten, die kaum als solche betrachtet werden kann: subsp. *slavonica* (Gáyer), subsp. *cuneifolia* (Vukot.), subsp. *asterotricha* (Borb. et Csató), subsp. *pilosa* (Schur) Mátyás

**Q.* × *benkoei (dalechampii × petraea)* Mátyás 1970. *Q.*× *sooi (polycarpa × petraea)* Mátyás 1970, letztere ist nm. von *Q.* × *polycarpoides* Georg. et Ciobanu 1966

**Salix* × *polgari* Soó 1951 *(elaeagnos × rosmarinifolia),* fehlt in *Webbia* 1963

S. × *beckii* Soó 1969 (*viminalis × rosmarinifolia, S. angustifolia* Beck non Fr.)

Allium ursinum L. subsp. *ucrainicum* Oxner, verbreitet

A. paniculatum L. subsp. *marginatum* (Janka 1884) Soó 1972 (*paniculatum* auct.)

A. rotundum L. subsp. *waldsteinii* (Don 1826) Soó 1972 *(rotundum auct.).*

**Muscari botryoides* (L.) Mill. subsp. *hungaricum* Priszter 1972 (Villányer-Geb.)

Ruscus aculeatus L. subsp. *angustifolius* (Boiss. 1884) Borhidi et Pristzer 1967 (*R. ponticus* Woronow) Transdanubien

Crocus tommasinianus Herbert [*C. csapodyae* (Horwát et Jáv. 1951) Kárpáti 1960], Transdanubien, Kom. Tolna.

Juncus bufonius L. subsp. *nastanthus* (Krecz. et Gontsch. 1935) Soó 1971.

J. articulatus L. subsp. *nigritellus* (D. Don) Lemke

Epipactis atrorubens (Hoffm.) Schult. subsp. *borbasii* Soó (1927) 1968 Ökotyp der Sandsteppen.

E. helleborine Cr. subsp. *viridis* Soó 1969 (*viridiflora* auct. mult. europ. et hung. non *E. viridiflora* H. Müller = *E. muelleri* Godfery)

Orchis tridentata L. subsp. *commutata* (Tod.) RICHTER Übergangsformen.

**Dactylorhiza fuchsii* (Druce) Soó 1960 subsp. *sooiana* Borsos (1959) 1960 (*Orchis maculata* auct. hung. p. maj. p. excl. Köszeg)

D. fuchsii × *incarnata* [*D. kerneriorum* (Soó 1926) Soó 1960]

Eleocharis palustris (L.) R. et Sch. subsp. *austriaca* (Hay.) Podp.

Cladium mariscus (L.) Pohl subsp. *martii* (R. et Schult. 1817) Soó 1971

Carex cuprina (Sándor ex Heuff. 1862) Nendtv. 1863 (*C. vulpina* subsp. *nemorosa* auct., *C. otrubae* Podp. 1922)

C. spicata Huds. subsp. *lumnitzeri* (Rouy) Soó 1968 [*C. contigua* subsp. *nemorosa* (Lumnitzer 1872 non Schrank 1779) Jáv.]

C. hartmannii Cajander (*C. buxbaumii* auct. carpat.) Bakonyalja

Bromus diandrus Roth subsp. *maximus* (Desf.) Soó 1971 (*B. rigidus* auct.) S-Transdanubien

**B.* × *penzesii* Soó 1951 *(ommutatus* × *mollis)* fehlt in *Webbia* 1963

Festuca × *wagneri* Deg., Thaisz et Flatt 1905 emend. Soó 1963 (*F. javorkae* Májovsky 1963) pannonische subendemische hybridogene Art *(vaginata* × *rupicola)*

F. dalmatica (Hack.) Richt *var. *pannonica* Simon (Villányer Geb.)

Poa subcoerulea Sm. Bükk-Geb., sonst Verbreitung noch festzustellen

P. supina Schrad. (Soproner-Geb.).

Koeleria mollis Mann ex Opiz (Bakonyalja)

K. majoriflora Borb. nebst *var. *arenicola* (Borb.) Ujhelyi, var. *karolyii* und var. *mecsekensis* Ujhelyi 1961

Agrostis stricta J. F. Gmel. subsp. *syreitschikowii* (Smirnow) Soó

Stipa sabulosa (Paczoski) Sljussarenko. Sandsteppen.

S. crassiculmis Smirnow subsp. *euroanatolica* Martinovsky (Zentrales Mittelgebirge)

Hierochloë repens (Host) P. B. (*H. odorata* auct. hung., subsp. *pannonica* Chrtek et Jirásek)

Cenchrus pauciflorus Benth. (*C. tribuloides* auct. hung.)

Arum alpinum Schott et Kotschy (*A. maculatum* auct. hung. p. maj. p., *A. orientale* auct.), dagegen *A. italicum* auct. hung. ist das echte *A. maculatum*

**A.* × *sooi* Terpó 1972 *(alpinum × maculatum)*

Ausserdem mehrere ephemere Adventivpflanzen.

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FLORISTIC REPORT FOR IRELAND

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INTRODUCTION

THE number of active floristic botanists in Ireland remains small, and the addition to our knowledge of its flora during the past decade is correspondingly limited. This period has, however, seen the discovery of a number of native taxa hitherto unrecorded for the country, and some other findings of general interest.

I have not thought it necessary to list in this article the numerous books and articles which deal with the British Isles as a whole, or are primarily concerned with Britain but make incidental reference to Ireland. Details of these will be found in the floristic report on Britain.

FLORAS

The only Flora dealing specifically and exclusively with Ireland remains that of WEBB, of which fourth (1963) and fifth (1967) editions have now appeared. No further regional floras have been published, but a considerable number are in preparation; those regions in which work is most advanced include Co. Fermanagh, Co. Armagh, Co. Meath, Co. Carlow and Connemara and the Burren (i. e. West Galway and North Clare). Details are given by PERRING (1971).

BIOSYSTEMATIC STUDIES, ETC.

The only detailed biosystematic study of an Irish genus to appear since 1962 is that of BOBEAR (1969) on *Euphrasia*. She concludes that although variation is continuous in nearly all the characters examined, a combination of these characters permits the discrimination of fairly distinct species.

Chromosome counts of a few Irish species have been published by CURRAN (1968).

McCLINTOCK (1969) has studied the distribution, ecology and variation of *Erica erigena* in Ireland.

TAXONOMIC RE-ASSESSMENTS, DELETIONS, ETC.

A number of recent papers have thrown new light on the taxonomic status of Irish plants; in some cases this involves deletions from the Irish list. These results may be summarized as follows:

Circaea alpina L. — All Irish plants so named are *C. intermedia* Ehrh.; *C. alpina* does not grow in Ireland (RAVEN, 1963).

Rorippa islandica (Oeder) Borbas — According to JONSELL (1968) most of the Irish (as of the British) plants so named are really *R. palustris* (L.) Besser. He allows only one Irish station (Renvyle, Co. Galway) for *R. islandica* sensu stricto (the diploid), but it has recently been discovered also in Co. Clare (SCANNELL, 1973).

Rumex hibernicus Rech. fil. — LOUSLEY (1967) has cast doubt on the specific status of this plant, as many of its supposedly distinctive features are said to disappear when it is cultivated in garden soil.

Sisyrinchium bermudiana L. — Morphological and cytological examination of Irish plants by INGRAM (1967) has shown that they fall within the range of variation of the North American species, and that their separation as *S. hibernicum* by Löve & Löve is not justified. Since the plant commonly found in Britain and on the continent as an alien is taxonomically distinct, she concludes that *S. bermudiana* is native to W. Ireland.

Tuberaria guttata (L.) Fourr. — PROCTOR (1962) has shown that the Irish populations represent an ecotype characteristic of conditions of extreme Atlantic exposure; similar plants are found in N. W. France. Var. *breweri* is not worth taxonomic recognition.

ECOLOGY AND PHYTOSOCIOLOGY

A few ecological and phytosociological surveys which are primarily of local interest and relevant to floristic studies may be mentioned. The most important is that of IVIMEY-COOK & PROCTOR (1966), who give a very full analysis of the communities of the

Burren district, using a modified version of the Zürich-Montpellier system. Their tables contain a number of new records for the district. O'SULLIVAN (1968*a*, 1968*b*, 1968) has published a series of phytosociological studies of Irish grasslands. MOORE (1964) has redefined the principal categories of Irish bogs and indicated their characteristic species. CLARK (1968) has studied the *Ulex gallii* heaths of eastern Ireland, and WHITE (1968) has drawn attention to some undescribed moorland communities in W. Mayo.

REGIONAL STUDIES AND LISTS

WEBB (1962) has published a «catalogue raisonné» of the more interesting species of the Burren, a karstic region of western Ireland of major floristic importance, with notes on distribution and ecology.

Other regional studies, which in most cases include extensions of the known range of Irish species, include those of FERGUSON (1968) on Co. Waterford and of HARRON (1970, 1971) on the north-eastern counties; also of PERRING (1966), HALLIDAY et al. (1967), WEBB & GLANVILLE (1962) and WEBB & HODGSON (1968) on different parts of the counties of Galway and Mayo.

DISTRIBUTION MAPS

The general distribution of plants in Ireland is given in the *Atlas of the British Flora* by PERRING & WALTERS (1962) and its *Critical Supplement* (PERRING, 1968). It should be realized, however, that the maps for Ireland are, in most cases, less complete than those for Britain, and that in particular the lack of confirmation of pre-1930 Irish records, at least for rare species or for those whose habitat is difficult of access, has very little significance.

REDISCOVERIES AND EXTENSIONS OF RANGE

Erica ciliaris L. — This species, which had been lost for more than a century, was rediscovered in very small quantity in W. Galway by WEBB (1966). Further notes on it are given by McCLINTOCK (1968).

Hypericum canadense L. — This has recently been found in S. W. Ireland, some 200 km distant from its previously known station (BUTCHER, 1968); while WEBB (1969) has drawn attention

to a specimen collected in 1906, from a locality within its present range in Co. Mayo. MEIKLE (1970) and LOUSLEY (1971) have suggested that it must be regarded as an alien which is being spread by human agency, but HALLIDAY & WEBB (1973) re-assert its claim to native status.

Other extensions of range reported are of *Carex appropinquata* Schum. (BOOTH & SCANNELL, 1970), *Avena fatua* L. (CURRAN, 1965), *Lycopodiella inundata* (L.) Holub (PARKER, 1967), *Senecio squalidus* L. (BOYD, 1965) and *Polypodium australe* Fée (ROBERTS & SYNNOTT, 1972). The last-named is shown to be widespread in Ireland, though commonest in the south.

HISTORY OF THE FLORA

A study of the biology of *Pinguicula grandiflora* Lam. by HESLOP-HARRISON (1962) shows a disharmony between its climatic adaptation and its geographical range in Ireland; this is perhaps relevant to its controversial post-glacial history. Other publications relevant to the Pleistocene history of Irish vegetation are those of WATTS (1964, 1967), which extended our knowledge of interglacial vegetation, MITCHELL (1965), which describes a remarkably complete post-glacial profile, and MITCHELL and WATTS (1970), which deals with the history of the Ericaceae throughout the Pleistocene period. PERRING (1962) has reconsidered the historical problems posed by those species whose Irish distribution is separated from the rest of their range by striking discontinuities. FARRINGTON (1965) has studied the last glaciation of the Burren district; his findings are relevant to the interpretation of its past and present soil-cover. MOORE (1967) has attempted a phytosociological interpretation of some post-glacial pollen-diagrams.

APPENDIX A

New species described from Ireland

Salix hibernica Rech. fil. — *Salix phylicifolia* L. has been recorded for six localities in N. & N. W. Ireland, but in only two of these has it been seen in recent years, and the authenticity of some of the records is open to doubt. RECHINGER (1963), when revising the genus for *Flora Europaea,* decided that the specimens

from the Ben Bulben range, Co. Sligo, could not be accommodated in *S. phylicifolia,* and described them as a new species. STELFOX (1965) confirms their status, and shows that the same plant grows near Kinlough, Co. Leitrin, a short distance eastwards of the other station. There is now no clear evidence that *S. phylicifolia* or *S. nigricans* occur in Ireland, except as introductions.

APPENDIX B

Species, subspecies and hybrids new to Ireland

Asplenium septentrionale (L.) Hoffm.— A small colony, growing on basic volcanic rock, was discovered in W. Galway in 1965 (BANNISTER & MCALLISTER, 1966). The locality is on the shoulder of Errisbeg, a hill which has been climbed by countless botanists, and the discovery adds yet another rare species to a district already rich in them. There is one earlier record for Ireland, but it refers to an almost certain introduction. The species is very local in Britain.

Carex flava L. — Discovered in small quantity in 1968 in a fen near Galway (PERRING, 1970). As in England, it is accompagnied by an abundance of *C. lepidocarpa* Tausch, and intermediate plants are as common as typical *C. flava.* In its typical form *C. flava* is recorded from only one locality in Britain.

Dactylis glomerata subsp. *hispanica* Domin. — Discovered in W. Cork in 1963 (SCANNELL, 1964).

Eriophorum gracile Roth. — This species was found in 1966 by ROSE (1967) in abundance in the bog surrounding Cregduff Lough, near Roundstone, Co. Galway. It has since been shown (SCANNELL, SYNNOTT & WEBB, 1968) that it is abundant in five localities in W. Galway, and one in Co. Westmeath. The failure of earlier botanists to notice this far from critical species is very remarkable, as Cregduff Lough is the best-known locality for *Najas flexilis* and is repeatedly visited for this reason. The plant is very local in Britain.

Juncus compressus Jacq. — This species, which is widespread in England, but amost confined to the eastern half of the country, was discovered in rather small quantity by SYNNOTT (1968) in seasonally flooded pasture in N. E. Meath, and also by a footpath not far away. In the latter station it is probably introduced; in

the former its status is doubtful, but it has some claim to be considered native.

Minuartia recurva (All.) Schinz & Thell. — Discovered in 1964 at an altitude of 600 m. in a rather remote region of the Cork-Kerry border by MOORE (1966). It grows in fair abundance on bare siliceous rocks. The nearest recorded station is in the Pyrenees.

Potamogeton × *variifolius* Thore. — DANDY & TAYLOR (1967) record the presence of this hybrid in W. Mayo, where it was first collected in 1957. They ascribe to it the parentage *P. berchtoldii* × *natans*.

Rumex tenuifolius (Wallr.) Löve — This rather critical segregate from *R. acetosella* has been found on sand-dunes in Co. Wexford by SCANNELL (1962). It is not uncommon in Britain, but almost entirely in the eastern half.

Sparganium erectum subspp. *erectum* and *oocarpum* (Celak.) Cook. — Both subspecies, hitherto unrecorded for Ireland, have recently been found in Co. Meath (SYNNOTT, 1969, 1970).

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REPORT ON THE PROGRESS OF FLORISTIC RESEARCH IN ITALY SINCE 1961 *

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CONTENTS

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INTRODUCTION

FLORISTIC research in Italy in the years between 1961 and 1971 marks a clear improvement in comparison with the period following the end of the Second World War for which a report was given at the Second Flora Europaea Symposium in Genoa in 1961. Several factors contributed to stimulate the floristic research in Italy, the main one being undoubtedly the foundation of the «Gruppo di lavoro per la Floristica» within the «Società Botanica Italiana».

The Working Group for Floristics was founded in November 1968, with the aim of facilitating the exchange of information through meetings and excursions, of coordinating floristic investigations and of collaborating in the preparation of some reports which serve as foundations for the study of Italian flora. The Group has been particularly active and has produced two provisional lists: *Bibliografia Floristica Italiana* (MOGGI, 1969*a*) which gives bibliographical references of national and local floras of Italy, published up to 1969; the census of Italian herbaria (MOGGI, 1969*b*) which provides names and addresses of the Italian herbaria, as well as those which belong to private persons; both these lists will be published as soon as they are completed. The Group has taken into consideration the advisability of preparing an Italian flora, but nothing has yet been decided. Also a list of the plants which are in need of protection has been prepared.

In the field of the protection of Nature, I wish to mention the activity of the «Gruppo di lavoro per la Conservazione della Natura» of the Italian Botanical Society which has prepared a census of the biotopes in Italy being worthy of conservation for their

importance from the point of view of the vegetation (PEDROTTI, 1971). Though prepared with a different aim, the book has a floristic interest too.

Since the publication of the last report (PICHI SERMOLLI, 1963*b*) many works on the flora and vegetation of different parts of Italy, and many papers on new records of particular plants for various regions have been published. Numerous species have been studied from the point of view of their distribution in Italy and some new species and infraspecific entities have been described. Particular attention has been devoted to the phytosociologic investigations and vegetation maps of some districts have been issued. Several of these studies deal with little-known areas of the Italian peninsula and islands. Cytological and cytotaxonomical activity has been remarkable, again thanks to the foundation of the «Gruppo di lavoro per la Cito-tassonomia ed Embriologia vegetale della Società Botanica Italiana». Unfortunately little attention has been paid to taxonomy and nomenclature of Italian plants.

A modern Flora of Italy is still lacking. Pignatti and collaborators have undertaken the preparation of a concise flora of Italy, but nothing has been published yet, although some families have been completely worked out. The project for the preparation of a large Flora to be carried out in the Florence herbarium has been unsuccessful for the time being. In the meantime, facsimile editions of FIORI's *Nuova Flora Analitica d'Italia* (1923-29) and *Iconographia Florae Italicae* (1921) were published in 1969 and 1970. In spite of its innumerable faults, Fiori's book still remains the best work on the flora of Italy, and the publication of the facsimile edition is important, the original edition being completely out of print.

Most of the papers which deal with the Italian flora or have a close connection with floristics were prepared in the botanical institutes of Italian Universities. Among these, the first to be mentioned is the Botanical Institute of Florence where the most important herbarium is kept and where the «Fondazione Filippo Parlatore per lo studio della flora e della vegetazione italiana» (List of publications was given in 1972) founded by A. CHIARUGI in 1958 has its seat. The Florence Institute still remains the leading centre for floristic research in Italy. However, important works have been published by the staff of the botanical institutes of Turin, Pavia, Trieste, Genoa, Pisa, Rome, Sassari and Cagliari.

NEW JOURNALS

The majority of papers of floristic interest have been published in *Webbia, Nuovo Giornale Botanico Italiano,* superseded by *Giornale Botanico Italiano* since 1967, *Archivio Botanico,* superseded by *Archivio Botanico e Biogeografico Italiano* since 1956, *Annali di Botanica* (Roma), *Atti dell'Istituto Botanico e Laboratorio Crittogamico dell'Università di Pavia,* and *Allionia.* Many cytotaxonomic papers have been published in *Caryologia.*

In 1962 the name of the *Nuovo Giornale Botanico Italiano* edited by the «Società Botanica Italiana» was replaced by the original name *Giornale Botanico Italiano,* given in 1844 to this periodical by its founders, among whom was the first editor, F. PARLATORE. The numbering of the volumes remained the same as the previous series. However, in 1967, one hundred volumes having been published with the two titles since 1844, the numbering was also changed, and thus the volume of the *Giornale Botanico Italiano* published in 1966 bears the number 73, while that of 1967 has the number 101. The periodical underwent another change in 1969 when the short notes, which were incorporated in it under the name of *Bullettino della Società Botanica Italiana,* became an independent series with the name of *Informatore Botanico Italiano.* Many floristic notes have been published in this periodical, which appears quarterly.

The proceedings of the first fifteen congresses of the «Società Italiana di Biogeografia» had been published in the *Archivio Botanico* between 1957 and 1969, but from 1970 the proceedings of the congresses are published as an independent annual series, with the title of *Lavori della Società Italiana di Biogeografia.* The first volume was published in November 1971. It represents the proceedings of the XVI Congress of the Society and is devoted to the study of the fauna and flora of the Apuane Alps (Tuscany).

The publication of a series of monographs on the flora and vegetation of Italy was undertaken in 1959 under the editorship of V. Giacomini of the Botanical Institute of Rome University. This series is issued occasionally, with the title *Flora et Vegetatio Italica.* Five accounts have been published up to today.

Other new periodicals have been founded since 1961. The Botanical Institute of Cagliari University, directed by M. CHIAPPINI, has undertaken the publication of *Morisia,* named after the first explorer of the flora of Sardinia, G. Moris. It is published at irregular

intervals; the first volume appeared in 1969, the second in 1970. Another new periodical also published in Sardinia is the *Bollettino della Società Sarda di Scienze Naturali* which is issued semestrally. At present it is edited by G. FIORI of the University of Sassari. Some papers on the flora and vegetation of Sardinia are contained in the nine volumes published since 1967 when the periodical was founded. Finally, we must mention the *Notiziario della Società Italiana di Fitosociologia,* where several papers closely related to floristics have been published. The first number was issued in 1964. The «Società Italiana di Fitosociologia» has its seat in the Botanical Institute of Rome University.

Very recently, in 1972, the «Societé de la Flore Valdôtaine» has resumed the publication of its *Bulletin,* after an interruption of 31 years. The issue bears the number 25.

FLORAS AND PLANT LISTS

Two kinds of works are included here: Floras, in which descriptions or at least keys to the identification of plants are given, and plant lists of large areas, whether annotated or not. Contributions towards the knowledge of the flora as well as lists of species given in works devoted to the study of the flora and vegetation, even if provided with taxonomical remarks, are recorded in the chapter on floristics and plant geography.

National floras — No new national flora has been published. However, as already mentioned, a facsimile edition of FIORI's *Nuova Flora Analitica d'Italia* and the relevant *Iconographia Florae Italicae* were published in 1969 and 1970 respectively. Also a new revised and amended edition of BARONI's *Guida botanica d'Italia* was issued in 1969.

We must mention also, although it deals with the flora of various countries, the translation into Italian by BALLETTO, of POLUNIN & HUXLEY's *Flowers of the Mediterranean* under the title *Guida della flora mediterranea* (1968) and that by FERRERO, of HUXLEY's *Mountain Flowers in Colour,* bearing the title *Fiori della montagna* (1969). Furthermore, the most important plants of the Mediterranean zone and of the mountains in Italy have been described and illustrated in FENAROLI's *Flora Mediterranea* (1962 & 1964) and in the second edition of the *Flora e vegetazione delle Alpi e degli*

altri monti d'Italia (1971) respectively. They are mainly books intended for the general public, but they are rich in interesting data.

Finally, FENAROLI has prepared a book, *Gli alberi d'Italia* (1967*a*) where keys to identification, descriptions and illustrations of the most important trees of Italy are given. Information on the habitat, distribution and utilization of each species is also provided.

Regional and local floras and plant lists — A new edition of DALLA FIOR's *La nostra flora* dealing with the pteridophytes and spermatophytes of the Region Trentino-Alto Adige appeared in 1963. An annotated list of the species of the middle and high parts of the Apennines of Romagna with statements of the life-forms, habitats and phytogeographical elements, is given in ZANGHERI's work on the *Flora e vegetazione del medio ed alto Appennino Romagnolo* (1966*b*). ZODDA in 1954 published *La Flora Teramana;* Supplements IV, V, and VI were issued in 1961, 1962 and 1964. An abridged edition, *Compendio della Flora Teramana* by the same author was published in 1967. An annotated check list of the flora of the promontory of Gargano under the title of *Flora Garganicae Prodromus* has been carried out by FENAROLI (1966 & 1970). Data on the life form, chorology, habitat and collection data for each species, as well as occasional taxonomic remarks, are given there. The *Prodromo della Flora della Sila* (Calabria) by SARFATTI, the first part of which had been published in 1959, was completed in 1965. A practical handbook of the flora of Sardinia *(Flora pratica Sarda illustrata)* written mainly for agriculturalists, has been published by COSSU (1968). The most frequently cultivated plants in the island are included and vernacular names are given.

Medicinal floras — I think it noteworthy to mention also some papers which deal with pharmaceutical plants. In 1970, GASTALDO undertook the publication of a *Compendio della flora officinale italiana* (1970-1972) of which eight parts have been issued. It contains keys to identification of families, genera, species and subspecies, descriptions of families and genera, and references to descriptions and illustrations of species in other books. Data on the habitat, distribution and pharmaceutical utilization are also given for each species.

I wish to mention also some papers on the plants chiefly utilized in popular medicine in the Valle d'Aosta (BINEL, 1972) in the Valle di Susa (LOMAGNO & LOMAGNO-CARAMIELLO, 1970), in the province of Pavia (SCARDAVI, 1963), in the high valley of Vara River in Liguria (BANDINI, 1961), in the Marche (PEDROTTI, 1962), in the province of Siena (FERRI, 1961*a*, 1962*b*), in the mountains of Majella in Abruzzo (TAMMARO, 1968), in the districts of Falconara and S. Lucido in Calabria (BARONE, 1963), in the territory of Caltagirone in the province of Catania (BARBAGALLO & FURNARI, 1967), in the territory of Caltanissetta (BARBAGALLO & FURNARI, 1970*b*), in the island of Pantelleria (CATANZARO, 1968*b*) and in Sardinia (DESOLE, 1962*c*).

BIBLIOGRAPHICAL SUMMARIES

Volume XI of the *Bullettino Bibliografico della Botanica Italiana* for the years 1952-1954 was published by the «Società Botanica Italiana» in 1965, but unfortunately nothing more has appeared since then.

A bibliography of floristic studies in Piemonte has been prepared by MONTACCHINI (1970). It consists of 886 bibliographical references of works published from 1753 up to today. A bibliography for the alpine flora of the Valle d'Aosta has been published by VANOSSI (1963). Furthermore, the botanical bibliography for Latium by Lusina has been continued after his death by Anzalone (LUSINA & ANZALONE, 1966).

As already mentioned, the Working Group for Floristics of the Italian Botanical Society has distributed among its members a provisional mimeographed list (MOGGI, 1969*a*) of Italian Floras which gives bibliographical references of national, regional and local Floras of Italy published up to 1969. It is intended that it be published when completed.

HERBARIA

The Working Group for Floristics of the Italian Botanical Society has prepared a provisional census of the Italian herbaria (MOGGI, 1969*b*) which, although incomplete, is very useful for floristic and taxonomic studies. A catalogue of all Italian herbaria

with data on the most important collections is in preparation by the above mentioned Group.

Information on some Italian herbaria and collections is given by MARTINOLI (1963), by MOGGI & RICCERI (1963), by FABBRI (1964), by DE LEO (1965), by FORNACIARI (1965*c*, 1969*a*) and by BIANCHINI (1968).

TAXONOMIC CONTRIBUTIONS

The list of new species, infraspecific taxa, hybrids and changes in rank is given as Appendix A, prepared by G. MOGGI. I limit myself to mentioning here the taxonomic works in which only plants of the Italian flora are taken into consideration, as well as taxonomic revisions in general, provided, of course, that they deal with plants from Italy.

Papers on the taxonomy of the Italian species of a given genus or part of it are not too numerous. They include taxonomic revisions of the annual species of *Adonis* (STEINBERG, 1971), of the species of *Soldanella* (CRISTOFOLINI & PIGNATTI, 1962*a*, 1962*b*), of the *Luzula spicata* complex (CHRTEK & KRÍSA, 1964), and of the species of the section *Pennatae* of *Stipa* (MARTINOVSKY, 1965). They consist also of a study on the morphological variability of *Populus tremula* in Italy (GRAMUGLIO, 1964), an account of the distinctive characteristics of some species of *Echinochloa* (PIROLA, 1965*d*; EVOLI & PIROLA, 1971), and the lists of the Italian species, with keys to their identification, of the genera *Muscari* (GARBARI, 1970*a*) and *Leopoldia* (GARBARI & TORNADORE, 1970*a*). Although in its early stages, the taxonomic study on the deciduous species of *Quercus* of Italy by MOGGI (1972) and MOGGI & PAOLI (1972*a*, 1972*b*) must be mentioned.

Some studies deal with the taxonomy of genera and species from particular areas of Italy. They include an account on some new taxa of *Hieracium* from the Maritime Alps (VIGNOLO LUTATI, 1964), a contribution to the taxonomy of the species of *Festuca* occurring in Valtellina (PIROLA, 1964*b*), some notes on *Polygonum* and *Tiniaria (= Bilderdykia)* from north-eastern Italy (LORENZONI & ZILIOTTO, 1966), one investigation on the taxonomy (CRISTOFOLINI, 1972) and another on chemo-taxonomy (CRISTOFOLINI & CHIAPPELLA, 1970) of some species of *Salicornia* from the Venetian coasts, a paper on the species of *Centaurea* from Mt. Terminillo in Latium (CHIAPPINI.

1963*c*), researches on *Amaranthus* as represented in Latium (CACCIATO, 1964, 1966), a study of *Hieracium* from the territory of Teramo (ZODDA, 1962*b*), a concise revision of the genus *Limonium* of the coasts of northern Sardinia (DOLCHER & PIGNATTI, 1971*b*), a short note on *Anchusa* from Sardinia (VALSECCHI, 1969*b*) and a taxonomic revision of the species of *Armeria* from Corsica and Sardinia (ARRIGONI, 1970).

Some papers are merely devoted to the study of particular species, some of which are endemic. Among them we record an investigation on the pine known as the «Pino nero di Villetta Barrea» from Abruzzo (GELLINI, 1968); six contributions to the knowledge of the forms of *Quercus suber* in Sardinia (VALSECCHI, 1963*b*, 1964*a*, 1966*a*, 1966*b*, 1967*a*, 1967*b*); a note on *Papaver alpinum* as represented in Gran Sasso in Abruzzo (ZODDA, 1961*a*); some observations on *Cytisus proteus* from the eastern Piemonte (TERRETAZ & BECHERER, 1962; TERRETAZ, 1966); an account on *Saxifraga arachnoidea*, endemic to eastern Insubria (ARIETTI & FENAROLI, 1972); a study on *Gentiana froelichii*, endemic to the eastern Alps (FENAROLI, 1972); some taxonomic remarks on *Senecio persoonii* (BARBERO, 1967); a revision of the infraspecific taxa of *Achillea barrelieri* from central and southern Italy (BAZZICHELLI, 1967*a*); a work on *Artemisia caerulescens* var. *cretacea* (FERRI, 1964); a taxonomic note on *Centaurea filiformis* and *C. ferulacea*, two endemics to Sardinia (ARRIGONI, 1972*a*); some observations on some varieties of *Centaurea dissecta* (ANZALONE, 1961*c*); an account on the forms of *Xanthium italicum* near Rome (ANZALONE, 1963*a*); a study on *Allium parciflorum*, endemic to Corsica and Sardinia (VALSECCHI, 1968*a*); a paper on *Leucojum aestivum* var. *pulchellum* from Sardinia (CHIAPPINI, 1964*b*); another on *Luzula calabra*, endemic to the Sila highland in Calabria (MIGLIACCIO, 1965); an investigation on *Carex macrostachys*, endemic to the Apuane Alps (FENAROLI, 1964*a*); and a paper on the taxonomic value of *Arum italicum* forma *nigro-maculatum* (SORTINO, 1970*a*).

Some of the above-mentioned studies provide ecological, distributional and cytological information and thus are mentioned in the following chapters again.

Works published in Italy of a more general European interest, deal with the following genera and species: *Quercus coccifera* (CORTI, 1967) and *Q. trojana* (BIANCO, 1961*b*); *Amaranthus* (LORENZONI & ZILIOTTO, 1967); genera of the *Cruciferae* trib. *Hesperideae* (MOGGI, 1965); *Sanguisorba dodecandra* (PIROLA, 1964*c*); *Vicia serinica* and

V. argentea (CAPUTO, 1968*b*, 1968*c*); *Euphorbia spinosa, E. bivonae, E. melitensis, E. acanthothamnos* (CESCA, 1969), the group of *E. saxatilis, E. triflora, E. kerneri* (POLDINI, 1969*a*), *E. triflora* from the chemo-taxonomic point of view (CRISTOFOLINI, 1971); *Thymus capitatus* (SIBILIO, 1962); *Datura stramonium* (CICATERRI, 1961); *Campanula* sect. *Heterophylla* (PODLECH, 1962); *Erigeron* (JOVET, 1964); *Smilax* (FERRI, 1966*c*); *Muscari* (GARBARI & GREUTER, 1970); *Leopoldia, Muscarimia, Muscari* (GARBARI, 1968*a*); *Brimeura* (GARBARI, 1970*b*); group of *Festuca spectabilis* (LORENZONI, 1966*b*); *F. laxa* and *F. dimorpha* (POLDINI, 1970*a*), group of *F. pratensis* and *F. arundinacea* (LORENZONI, 1966*c*); *Puccinellia* and *Glyceria* (LORENZONI, 1967*a*); *Trisetum* (CHRTEK & JIRÁSEK, 1963); and *Stipa parviflora* (CHRTEK & MARTINOVSKY, 1969).

I think I must mention here, rather than elsewhere, DOLKER & PIGNATTI's study on the evolution of *Limonium* in the Mediterranean (1971*a*).

CYTOLOGY AND CYTOTAXONOMY

Numerous papers on chromosome number and structure have been published in Italy since 1961. Great stimulation has been brought to cytological and cytotaxonomic investigations by the formation in 1968 of the «Gruppo di lavoro per la Citotassonomia ed Embriologia vegetale» within the Italian Botanical Society. Among its various activities, the Group has undertaken the publication of a series of short notes on the *Numeri cromosomici per la Flora Italiana*. 97 notes, each concerning one species or subspecies, have been published since 1970 in the *Informatore Botanico Italiano*. Many of them are illustrated by drawings and photographs.

In 1960 CHIARUGI published the list of chromosome numbers of Pteridophytes. The first and second supplements have been published by FABBRI in 1963 and 1965 respectively.

A list of the species investigated from the point of view of cytology and cytotaxonomy would be too long, and thus I limit myself to quoting the genera to which they belong, arranged in alphabetical order, within the main subdivisions of the Cormobionta.

Lycophytina: Lycopodium (KURIACHEN, 1965).

Filicophytina: Asplenium (VIDA, 1970); *Matteuccia* (FABBRI & MENICANTI, 1971).

Angiospermophytina: Achillea (BAZZICHELLI, 1967*a*; DEL CALDO, 1971; MARCHI, 1971*a*); *Allium* (BERGER, MC MAHON & WIKUS, 1962; MURIN, 1962; BATTAGLIA, 1963; CELA RENZONI, 1965; RICCI, 1966*c*; CELA RENZONI & GARBARI, 1970*b*; GARBARI & TORNADORE, 1970*b*; MOSSA & SCRUGLI, 1970; CAPINERI, 1971; CELA RENZONI & GARBARI, 1971; MARCHI, 1971*a*; TORNADORE, GARBARI & CELA RENZONI, 1972); *Alyssoides* (POGLIANI, 1971); *Anchusa* (VALSECCHI, 1969*b*); *Anemone* MARCHI, 1963, 1971*a*); *Anthemis* (CAPINERI, 1966, 1969, 1971; PEDROTTI & CORTINI PEDROTTI, 1971; CAPINERI, 1972); *Anthyllis* (POGLIANI, 1971); *Antirrhinum* (POGLIANI, 1965); *Aquilegia* (DAMBOLDT, 1966); *Arisarum* (FABBRI, 1966*c*; GARBARI, 1967*c*, 1967*d*; FABBRI, 1968; GARBARI & MONTI, 1969; FABBRI & MORASSI BONZI, 1972); *Aristolochia* (FABBRI & FAGIOLI, 1971); *Armeria* (ARRIGONI, 1970); *Artemisia* (BERTOLANI MARCHETTI, 1962*b*; MARTINOLI & OGLIOTTI, 1971; POSOCCO, 1969; FAGIOLI & FABBRI, 1971; PEDROTTI & CORTINI PEDROTTI, 1971); *Arum* (MARCHI, 1971*b*); *Arundo* (PIZZOLONGO, 1962); *Asarum* (FAGIOLI & FABBRI, 1971); *Astragalus* (PELLEGRINI, 1964; POGLIANI, 1971); *Avena* (GARBARI, 1964; MARTINOLI, 1969*b*); *Bellevalia* (GARBARI, 1968*c*); *Bellium* (POGLIANI, 1968, 1970); *Biarum* (DEL CALDO, 1971); *Brassica* (CORSI, 1963); *Brimeura* (GARBARI, 1968*c*, 1970*b*); *Buphthalmum* (GARBARI, 1971); *Bupleurum* (FABBRI, 1970); *Callianthemum* (DAMBOLDT, 1966); *Caltha* (KOOTIN-SANWU & WOODELL, 1970); *Campanula* (PODLECH, 1962); *Carum* (GARBARI, 1971); *Centaurea* (CHIAPPINI, 1963*c*; LAUSI, 1966; ARRIGONI, 1972*a*; ARRIGONI & MORI, 1972); *Chrysanthemum* (CORSI, 1962; CHIAPPINI, 1969*b*); *Cirsium* (CELA RENZONI, 1964; GARBARI, 1971); *Cistus* (FAGIOLI & FABBRI, 1971); *Coronilla* (ARRIGONI & MORI, 1972); *Crepis* (MARCHI, 1971*a*); *Cucumis* (MACCHIA & PACUCCI, 1961); *Cynodon* (GUPTA & SRIVASTAVA, 1970); *Dianthus* (ARRIGONI & MORI, 1972); *Digitalis* (PEDROTTI & CORTINI PEDROTTI, 1971); *Diotis* (DEL CALDO, 1971); *Euphorbia* (CESCA, 1961, 1964, 1967*a*, 1967*b*, 1968, 1969; FÜRST, 1969; CESCA & MUZZI, 1972); *Festuca* (MALIK & THOMAS, 1967); *Fritillaria* (HONSELL, 1962; D'ARIENZO & MEZZETTI BOMBACIONI, 1967); *Genista* (GRAMUGLIO & ROSSO, 1968); *Gennaria* (DOLCHER & DOLCHER, 1962); *Globularia* (CORSI & GARBARI, 1971; GARBARI, 1971); *Helianthemum* (ARRIGONI & MORI, 1972); *Helichrysum* (D'AMATO, 1971); *Hieracium* (SCANNERINI, 1966, 1971); *Hyacinthus* (GARBARI, 1968*c*); *Hyoseris* (CELA RENZONI & GARBARI, 1972); *Inula* (D'AMATO, 1971); *Iris* (LAUSI, 1964; RICCI, 1966*d*); *Lagarosiphon* (FERRO, 1965); *Lagurus* (MAUGINI, 1970);

Lathyrus (MAUGINI & MOSKOVA, 1971); *Leontodon* (GARBARI, 1971); *Leopoldia* (GARBARI, 1968*a*, 1969); *Leucanthemum* (BAZZICHELLI, 1967*b*; MARCHI, 1969, 1971*a*); *Leucojum* (CHIAPPINI & SCRUGLI, 1970; GARBARI & TORNADORE, 1970*b*, 1971); *Limonium* (DOLCHER & PIGNATTI, 1968); *Linaria* (ONNIS & FLORIS, 1967; PEDROTTI & CORTINI PEDROTTI, 1971; VIANO, 1971); *Listera* (GARBARI, 1972*a*, 1972*b*); *Lolium* (MALIK & THOMAS, 1966); *Lonicera* (POGLIANI, 1971); *Luzula* (VIRZO & MIGLIACCIO, 1967); *Lysimachia* (FAGIOLI & FABBRI, 1971); *Matthiola* (CELA RENZONI, 1970*a*; SAYA, 1971); *Medicago* (MARIANI, 1963); *Muscari* (GARBARI, 1967*e*, 1968*a*, 1968*b*, 1968*c*, 1969, 1970*a*); *Muscarimia* (GARBARI, 1968*a*); *Narcissus* (MAUGINI, 1963, 1964; GARBARI & TORNADORE, 1970*b*); *Nigella* (GILOT-DELHALLE, 1970); *Nothoscordum* (PIZZOLONGO, 1963*a*); *Onobrychis* (PEDROTTI & CORTINI PEDROTTI, 1971); *Ornithogalum* (CHIAPPINI, 1963*d*, 1969*c*; GARBARI & TORNADORE, 1970*b*, 1970*c*, 1971; MARCHI, 1971*b*); *Papaver* (FEINBRUN, 1964); *Periploca* (FRANCINI CORTI & PESCI, 1971; PESCI, 1971); *Phlomis* (GRAMUGLIO & ARENA, 1967); *Phyteuma* (DAMBOLDT, 1966); *Pinguicula* (HONSELL, 1961*b*); *Primula* (HONSELL, 1961*a*); *Ranunculus* (MARCHI, 1969; GARBARI & TORNADORE, 1970*b*; MARCHI, 1971*a*, 1971*b*; SCRUGLI & MOSSA, 1972); *Rhamnus* (DOLCHER, 1963); *Romulea* (RICCI, 1961); *Salicornia* (LAUSI, 1969); *Santolina* (MARCHI, 1969; GARBARI, 1971); *Satureja* (CENCI, 1968); *Saxifraga* (DAMBOLDT, 1966, 1968*b*; DAMBOLDT & PODLECH, 1963); *Scabiosa* (DAMBOLDT, 1966); *Scilla* (BATTAGLIA, 1964*a*, 1964*b*, 1964*c*, 1965*b*; BATTAGLIA, CESCA & MAGGINI, 1969); *Senecio* (ZICKLER, 1965; MARCHI, 1971*b*); *Silene* (DAMBOLDT, 1966; PEDROTTI & CORTINI PEDROTTI, 1971); *Simethis* (LOCATELLI-LANZARA, MARCHI & MOSKOVA, 1971); *Sisymbrium* (KHOSHOO, 1965*a*, 1965*b*, 1966); *Smilax* (MARCHI, 1971*b*); *Sonchus* (MARCHI, 1971*b*); *Spartium* (MAUGINI & MOSKOVA, 1971); *Sternbergia* (PIZZOLONGO, 1964*a*); *Taraxacum* (FÜRNKRANZ, 1964); *Tetragonolobus* (MAUGINI & MOSKOVA, 1971); *Thymus* (SIBILIO, 1962); *Trifolium* (PRITCHARD, 1968; POGLIANI, 1971); *Tuberaria* (ARRIGONI & MORI, 1972); *Tulipa* (GARBARI & TORNADORE, 1970*b*); *Urginea* (BATTAGLIA, 1964*d*, 1965*a*; BATTAGLIA & GUANTI, 1966, 1969); *Vicia* (CAPUTO, 1968*a*, 1968*b*, 1968*c*, 1969); *Viola* (SCHMIDT, 1961); *Xanthium* (FAGIOLI & FABBRI, 1971).

FLORISTICS AND PLANTGEOGRAPHY

I have already quoted above national, regional and local Floras and plant lists. I mention below the works which merely represent contributions to the knowledge of the flora of particular areas, either in the form of additions or amendments, lists of plants gathered during collecting trips, or lists of species quoted in works devoted to the study of the flora and the vegetation. Lists of species are also given in some works which are intended to study primarily the plant communities and ecology of a given area but, although interesting from the floristic point of view, they are quoted in the chapter on ecology and phytosociology. Some papers can be easily included in one or another of these chapters, but others are difficult to classify and thus I advise the reader to consult both chapters.

I have though it convenient to treat first the papers which deal with floristics and later on those which are chiefly of phytogeographical interest.

Floristics

Many papers published in Italy since 1961 are of strictly floristic interest, but they have been prepared with different aims, so I have thought it advisable to subdivide them into four headings.

Studies on the flora and vegetation — Several works have been dedicated to the study of the flora and vegetation in different parts of Italy. Most of them usually consist of a first part in which a list of the plants collected in the area is given, and a second part dealing with the vegetation in its ecological and phytosociological aspects. Sometimes phytogeographical considerations are added, and I think that this kind of work must be treated independently from those which are purely floristic, in order to facilitate by consultation those who are only interested in the vegetation. The various areas which have been studied in these papers are subdivided according to the different Italian Regions. They are the following.

Piemonte: Mount Jafferau in Cottian Alps (MONTACCHINI, 1965*b*, 1966*b*, 1967) — Liguria: Maritime Alps (MOZENICH, 1965); Finalese (ORSINO, 1970); Group of Mt. Beigua (MARTINI & ORSINO,

1969*a*); Promontorio di Portofino (OLIVA, 1967) — Lombardia: Southern slope of Bernina (PIROLA, 1959); Province of Sondrio (PIROLA, 1971) — Lombardia and Trentino-Alto Adige: Stelvio National Park (PEDROTTI, 1969*b*) — Trentino-Alto Adige: Valle di Fassa (BRILLI-CATTARINI, 1967*b*); Vicinity of Bolzano (KIEM, 1972) — Friuli-Venezia Giulia: NE. Friuli (LORENZONI, 1967*c*); Mt. Ciampon in Prealpi Giulie (FORNACIARI, 1963*a*); Colli di Osoppo (FORNACIARI, 1961*a*); Lagoon and shores of Grado (FORNACIARI, 1968*b*) — Emilia-Romagna: Mesola near Ferrara (STAMPI, 1966); Appennino Romagnolo (ZANGHERI, 1966*b*); Province of Forlì (ZANGHERI, 1961*a*) — Marche: in general (BRILLI-CATTARINI, 1969) — Toscana: Foresta demaniale di Collina, north of Pistoia (SUSMEL, 1964); Vicinity of Viareggio (MONTELUCCI, 1964*a*); Promontorio di Piombino (BATONI DA ROIT, 1971) — Umbria: Valsorda (BRUNO & COVARELLI, 1968); Mt. Subasio (MENGHINI, 1972*a*); Premartane hills (MENGHINI, 1972*b*); Bassa valle del Tevere (MENGHINI & BENUCCI, 1972) — Lazio: Ponziane Islands (ANZALONE, 1971) — Abruzzo: High zones of Abruzzo National Park (BAZZICHELLI & FURNARI, 1970) — Campania: Marina di Ascea, south of Salerno (PIZZOLONGO, 1961*a*); Isles of Li Galli (CAPUTO, 1962); Islands of Procida and Vivara (CAPUTO, 1965*a*) — Puglia: Bosco di Carestia (CALÌ, 1969); Salento (LORENZONI, 1968*a*); Costa Neretina between Taranto and Gallipoli (MONTELUCCI & PARENZAN, 1967); Pianosa of Tremiti Is. (CRISTOFOLINI, LAUSI, TARABOCCHIA & PIGNATTI, 1968) — Calabria: Coast between Lao and Abatemarco rivers (ZODDA, 1960) — Sicilia: Golfo di Castellammare (SORTINO & GIACCONE, 1970; DI MARTINO & SORTINO, 1970*a*); Isola delle Femmine near Palermo (DI MARTINO & TRAPANI, 1964); Palma di Montechiaro near Agrigento (SORTINO, 1968); Island of Stromboli (FERRO & FURNARI, 1968*a*); Island of Vulcano (FERRO & FURNARI, 1970); Favignana and Levanzo of Egadi Is. (DI MARTINO & TRAPANI, 1967, 1968); Island of Pantelleria (DI MARTINO, 1963) — Sardegna: Capo Caccia, west of Alghero (VALSECCHI, 1966*e*); Mt. Rasu. west of Nuoro (VALSECCHI & CORRIAS, 1967); Stagno di Simbirizzi near Quartu S. Elena (ONNIS, 1964); Foresta di Piximanna near Pula (ARRIGONI, 1964).

Floristic contributions — A second group of papers consists of some contributions to the knowledge of the flora of various regions of Italy, and of some notes which give the results of collecting excursions in little-known areas. As in the first group, papers are

arranged according to the Italian Regions, preceded by the citation of some papers which deal with larger territories.

Italy: Italian orchids (ZANGHERI, 1961*b*); Eastern Alps (KUNZ & REICHSTEIN, 1959); The Apennines (KUNZ & REICHSTEIN, 1966) — Piemonte: Flora in general (MONDINO, 1967); Val Sessera (FENAROLI, 1962*b*, 1962*c*); Val di Susa (MONTACHINI, 1966*c*, 1968*b*, 1968*c*); Valleys near Pinerolo (COSTABELLO, 1964*a*); Valle Grana in Cottian Alps (MONDINO, 1961*a*, 1966*c*); Pteridophytes of Maritime Alps (POIRION, BONO & BARBERO, 1967); Val Gesso in the Maritime Alps (BONO, 1965*a*, 1965*f*, 1969*a*); Langhe (ARIELLO & ABBA, 1969); Grotta del Caudano near Mondovì (FILIPELLO, 1965); Province of Cuneo (COSTABELLO, 1964*b*, 1965*a*); «Po Morto» near Lombriasco (SACCO, 1962); Langhe (VIGNOLO-LUTATI, 1960); Province of Vercelli (POMINI, 1967) — Valle d'Aosta: Flora in general (DE GIOVANNI, 1969); Valle di Cogne (PEYRONEL & DAL VESCO, 1972) — Piemonte and Liguria: Maritime and Ligurian Alps (POIRION & BARBERO, 1968; BARBERO, 1968) — Liguria: Ligurian orchids (MOGLIA, 1965); Western Riviera (COSTABELLO, 1965*b*); Palmaria and Tino Is. (FERRARINI, 1972) — Piemonte and Lombardia: Rice-fields (PIROLA, 1964*d*) — Lombardia: Insubria (ARIETTI, 1962*b*; BECHERER, 1966*a*, 1966*b*, 1966*c*, 1968*a*, 1968*b*, 1972); Valtellina (DUBI & BECHERER, 1968); Prealpi Bresciano-Orobiche (ARIETTI, 1960); Province of Pavia (PIROLA, 1964*a*) — Trentino-Alto Adige: Val di Sole (PEDROTTI, 1963*a*, 1963*d*) — Veneto: *Quercus* in the valley of Belluno (CALDART, 1966*a*); Lake of Fimon near Vicenza (LORENZONI & CHIESURA LORENZONI, 1965); Lake Garda district (BENL & KIEM, 1963); Region of Verona (BIANCHINI, 1970 & 1971); Province of Padua (MUNEGHINA, 1962); Colli Euganei (ANTONETTI, 1963; FAMIGLIETTI, 1967) — Friuli-Venezia Giulia: Friuli (FORNACIARI, 1961*c*, 1963*b*, 1965*b*); Alpi and Prealpi Friulane (FORNACIARI, 1963*d*); Colle di Udine (FORNACIARI, 1963*c*); Alpi Carniche (COHRS, 1963); Conca di Sauris (PIGNATTI & POLDINI, 1969) and Valli del Natisone (FORNACIARI, 1972); Prealpi Giulie (CERNIC, POLDINI & WRABER, 1966) and Valle del Torre (FORNACIARI, 1971*b*); Alpi Giulie (COHRS, 1963); Province of Trieste (CACCIATO, 1967; POLDINI, 1965*b*, 1965*c*, 1966*b*, 1972); Lagoon of Grado (SIMONETTI, 1972) — Emilia-Romagna: Mt. Nero in Val Taro (MINERBI, 1970); The Bolognese Apennines (CORBETTA, 1967*b*); Zone of Piandelagotti (MOGGI & RICCERI, 1963); Province of Bologna (CORBETTA, 1967*a*); Romagna (ZANGHERI, 1964*a*, 1966 & 1970); Torriana in the valley of Marecchia (CHIOSI, 1964); Senio Valley (ZANGHERI,

1964*c*); Pineta di Cervia (ZANGHERI, 1969); Pineta di Ravenna (ZANGHERI, 1965*b*) — Marche: Flora in general (BRILLI-CATTARINI, 1961, 1968*a*, 1970, 1971); Mt. Conero (BRILLI-CATTARINI, 1967*a*) — Toscana: Shores of Versilia and near Pisa (MONTELUCCI, 1962*e*); Abetina di Varramista near Pisa (CORTINI PEDROTTI, 1967); Island of Giannutri (GRAMUGLIO, 1967*c*); Island of Montecristo (FABBRI, 1964, 1966*b*); History of *Arisarum proboscideum* (FABBRI, 1969) — Umbria: Martani Mts. (MENGHINI & BONI, 1972) — Lazio: Flora in general (MONTELUCCI, 1961, 1964*c*; CACCIATO, 1961*a*; LUSINA & ANZALONE, 1963; ANZALONE, 1962*d*, 1967); Civita di Bagnoregio (MENGHINI, 1972*c*); Vicinity of Rome (CACCIATO, 1962); Colli Albani (SENNI, 1966); Gaeta (ANZALONE, 1961*b*) — Campania: Flora in general PIZZOLONGO, 1964*b*); Pompei (ANZALONE, 1961*b*); Monti Tifatini in the Province of Caserta (MONTELUCCI, 1964*e*) — Abruzzo: Flora in general (ANZALONE, 1961*a*; ZODDA, 1962*d*; MONTELUCCI, 1970*c*); Province of Teramo (ZODDA, 1965*a*); Gole di Popoli in the Province of Pescara (TAMMARO, 1971*b*) — Puglia: Boschetto «Colucci» near Tuturano in the Province of Brindisi (BIANCO, 1962) — Basilicata and Calabria: Mt. Pollino (COCOZZA, 1963) — Calabria: Province of Catanzaro (PADULA, 1970) — Sicilia: Flora in general (PIGNATTI-WIKUS, 1963; FENAROLI, 1963); Alien plants (BARBAGALLO & FURNARI, 1970*a*); Epiphytic flora of Palermo (DI MARTINO & PERRONE, 1962); Madonie (DI MARTINO, 1970*b*); Plain of Catania (TOMASELLI, 1961*a*); Zone of Caltanisetta (BARBAGALLO & FURNARI, 1970*b*); Ibleo territory in south eastern Sicily (BRULLO & FURNARI, 1970*a*); Shores of Licata (SORTINO & DI MARTINO, 1972); Territory of Butera in southern Sicily (FERRO, 1972*a*); Isola Grande (DI MARTINO & PERRONE, 1970) and Isola di S. Pantaleo (DI MARTINO & PERRONE, 1972) of the Stagnone Is. near Marsala; Pantelleria (DI MARTINO, 1962*b*, CATANZARO, 1965, 1967*a*, 1968*a*) — Sardegna: Flora in general (VALSECCHI, 1965*a*, 1968*b*, 1969*a*; ARRIGONI, 1972*b*; ATZEI, 1972); Capo Caccia, west of Alghero (VALSECCHI, 1964*b*); Scoglio di Molarotto, east of Olbia (LORENZONI, 1970); Oaks from Sardinia (VALSECCHI, 1967*c*).

New records of native plants — In Appendix B list of new records of native taxa is given. However, only plants which are recorded as new to Italy, or to Northern, Central and Southern Italy, Sicily and Sardinia are listed there. I think it superfluous to mention here the plants quoted in Appendix B, but I think it useful to list new records of native plants which have a regional

or local interest. I wish to point out that in many cases interesting information on ecology, phytosociology and geographical distribution can be found in these papers. The new records are quoted below, subdivided according to the various Regions of Italy.

Piemonte: *Isoëtes malinverniana* (CORBETTA, 1965*a*) — *Osmunda regalis* (TADINI, 1963) — *Juniperus phoenicea* (BONO, 1968*a*); *Pinus cembra* (BONO, 1968*d*) — *Carex heleonastes* (BONO, 1965*b*); *Cistus salvifolius* (MONDINO, 1964*a*); *Cypripedium calceolus* (MONTACCHINI, 1966*a*); *Euonymus verrucosus* (FENAROLI, 1962*b*, 1962*c*); *Gentiana asclepiadea* (TADINI, 1963); *Hieracium* sp. pl. (VIGNOLO-LUTATI, 1964); *Hieracium humile* var. *hirsutum* (BONO, 1965*d*); *Linaria origanifolia* (COSTABELLO, 1967*a*); *Pseudostellaria europaea* (FENAROLI, 1962*b*, 1962*c*); *Salvia sylvestris* (BONO, 1965*c*); *Scopolia carniolica* (FENAROLI, 1961*d*, 1962*b*, 1962*c*); *Tofieldia palustris* (BONO, 1965*e*) — Valle d'Aosta: *Aethionema thomasianum* (DAL VESCO, 1968); *Astragalus centroalpinus* (PEYRONEL, 1967, PEYRONEL & DAL VESCO, 1972) — Liguria: *Crepis bursifolia* (COSTABELLO, 1967*b*); *Quercus suber* (CUCCHI, 1963) — Lombardia: *Isoëtes malinverniana* (CORBETTA, 1968*a*, 1968*b*) — *Moehringia markgrafii* (ARIETTI & CRESCINI, 1966) — Trentino-Alto Adige: *Trientalis europaea* (PEDROTTI, 1972*b*) — Veneto: *Ophioglossum vulgatum* (CHIESURA LORENZONI, 1968); *Phyllitis sagittata* (PIROLA, 1962) — *Phyteuma comosum* (MARCELLO, 1962); *Spiraea lancifolia* (MARCELLO, 1962) — Friuli-Venezia Giulia: *Ophioglossum vulgatum* (CHIESURA LORENZONI, 1968); *Phyllitis sagittata* (LORENZONI & PAIERO, 1967) — *Carex alba* (LAUSI, 1962); *Cytisanthus holopetalus* (POLDINI, 1964*c*); *Lomatogonium carinthiacum* (FORNACIARI & CECCONELLI, 1971); *Quercus ilex* (POLDINI, 1966*a*, 1966*c*) — Marche: *Carex* sp. pl. (BRILLI-CATTARINI, 1966); *Muscari tenuiflorum* (BRILLI-CATTARINI, 1964); *Myosotis pusilla* (RINALDI, 1964*b*); *Romulea rollii* (ZODDA, 1967*a*); *Sambucus nigra* var. *laciniata* (CANTONI, 1963) — Toscana: *Woodsia alpina* (FERRARINI, 1964*b*) — *Althenia filiformis* (ONNIS, 1967*b*); *Arisarum proboscideum* (FABBRI, 1966*a*); *Dorycnium pentaphyllum* and *Epipogium aphyllum* (MELINOSSI, 1964); *Euphorbia hyberna* ssp. *insularis* (BAZZICHELLI, 1967); *Linaria alpina* (FERRARINI, 1969); *Loranthus europaeus* (MONTELUCCI, 1964*d*); *Salix herbacea* (FERRARINI, 1969) — Lazio: *Carduus acicularis* (MONTELUCCI, 1967*b*); *Carex nitida* and *C. pallescens* (MONTELUCCI, 1967*e*); *Carpesium cernuum* (ANZALONE, 1967); *Coronilla juncea* (ANZALONE, 1962*d*); *Medicago turbinata* var. *olivaeformis* (MONTELUCCI, 1964*b*); *Vicia pisiformis* (ANZALONE, 1962*d*) — Cam-

pania: *Coris monspeliensis* (AGOSTINI, 1962*b*) — Abruzzo: *Glycyrrhiza glabra* (TAMMARO, 1971*a*); *Romulea rollii* (ZODDA, 1967*a*) — Puglia: *Althenia filiformis* (ONNIS, 1969*a*); *Pimpinella saxifraga* var. *rotundifolia* (BIANCO, 1968*a*); *Salvia candidissima* (BIANCO, 1969*b*); *Satureja juliana* (MARTINOLI, 1969*a*); *Saxifraga pseudogranulata* (BIANCO, 1968*b*) — Calabria: *Polygonum equisetiforme* var. *elegans* (CATANZARO, 1971) — Sicilia: *Brassica insularis* (CATANZARO, 1966); *Calendula officinalis* (PERRONE, 1964); *Centaurea acaulis* (DI MARTINO, 1970*c*); *Coris monspeliensis* (FURNARI, 1962*b*); *Euphorbia serrata* (DI MARTINO, 1970*d*); *Fagus sylvatica* (GRAMUGLIO, 1968); *Phlomis herba-venti* (POLI, 1969*b*); *Prunella vulgaris* var. *surrecta* form. *glabrescens* (SORTINO, 1965); *Trifolium brutium* (CATANZARO, 1967*b*) — Sardegna: *Cystopteris dickieana* (PROFUMO, 1965; ARRIGONI, 1969*c*) — *Taxus baccata* (DESOLE, 1965*b*) — *Achillea ageratum* (CHIAPPINI, 1963*b*); *Armeria pungens* (ARRIGONI, 1972*b*); *Biarum bovei* (COSSU, 1967); *Coris monspeliensis* (ARRIGONI, 1972*b*); *Cynanchum acutum* (PICCI, 1967*b*); *Echinophora spinosa* var. *angustifolia* (CHIAPPINI, 1968*c*); *Morisia monanthos* (MARTINOLI, 1961; COSSU, 1967); *Quercus coccifera* (ARRIGONI, 1972*b*); *Viola arborescens* (ARRIGONI, 1972*b*).

New records of alien plants — Appendix C gives a list of new records of aliens. Only those plants which have been found established as new aliens in Italy, Sardinia and Sicily since 1961 are quoted there. No mention is made of the occurrence in other regions of some aliens already recorded for a given area in Italy. I find it interesting to follow the spread of these plants in our country, and I list here the papers in which information about them is given.

Amaranthus sp. pl. (CACCIATO, 1964, 1969), *A. gracilis* (CACCIATO, 1962), *A. muricatus* (SORTINO, 1970*b*); *Ambrosia coronopifolia* (ZODDA, 1961*b*; ANZALONE, 1967); *Ammannia auriculata* (FENAROLI, 1932*a*); *Artemisia annua* (MONDINO, 1965, BIANCHI, 1967), *A. verlotorum* (CHIAPPINI, 1964*d*); *Asclepias syriaca* (CORBETTA, 1963*a*); *Aster squamatus* (MACCHIA, 1963; CATANZARO, 1964; VALSECCHI, 1965*b*; AMICO, 1964*b*; ZODDA, 1967*b*); *Bidens frondosa* (CHIOSI, 1968*a*), *B. pilosa* var. *minor* (LUCIANI, 1967); *Boerhaavia repens* ssp. *viscosa* (DE LEO, 1967); *Buddleja davidii* (CHARRIER, 1964*b*; MONTELUCCI, 1965*c*; FORNACIARI, 1968*a*); *Cenchrus pauciflorus* (GRILLI, 1963; CORBETTA, 1963*b*, 1965*b*; CACCIATO, 1965); *Cotula coronopifolia* (MARCHIONI, 1967); *Datura innoxia* (ANZALONE, 1962*d*);

Eleusine indica (RINALDI, 1963, CHIOSI, 1968*a*); *Erodium glaucophyllum* (CHIESA, 1969); *Euphorbia geniculata* (TRAPANI, 1968); *Galinsoga* (CACCIATO, 1961*b*), *G. parviflora* (CHIOSI, 1968*a*), *G. parviflora* var. *parceglandulosa* (RINALDI, 1967*a*); *Guizotia abyssinica* (ANZALONE, 1964*b*); *Heliotropium curassavicum* (CATANZARO, 1962; DI MARTINO, 1962*a*); *Heteranthera reniformis* (PIROLA, 1968*b*); *Lepidium virginicum* (FERRO, 1968); *Mimulus moschatus* (DAL VESCO, 1961); *Paspalum dilatatum* (CACCIATO, 1962; CHIOSI, 1965), *P. distichum* ssp. *paspalodes* (CHIAPPINI, 1962*c*; RINALDI, 1962; MUNEGHINA, 1965; RINALDI, 1967*a*; 1967*b*; CHIAPPINI, 1968*d*); *Pennisetum ruppellii* (TRAPANI, 1965); *Polanisia dodecandra* var. *trachysperma* (CHIOSI, 1968*a*, 1968*b*; TORNADORE & GARBARI, 1971); *Salpichroa origanifolia* (ANZALONE, 1967; RINALDI, 1967*a*); *Solanum elaeagnifolium* var. *leprosum* (DI MARTINO, 1968); *Stipa trichotoma* (MOGGI, 1971).

Plantgeography

Many studies concerning this branch of geobotany have been carried out in Italy since 1961. Most of them have been devoted to a study of the geographical distribution of certain species in Italy. Phytogeographical affinities between different territories have been the subject of the remaining works, mainly with the intent of investigating the origin of the Italian flora.

Phytogeographical affinities between different territories — Among the papers dealing with this subject may be mentioned the work by GIACOMINI (1968*a*), POIRION & BARBERO (1968) and BONO (1969*c*) on the problems concerning the connections of the flora and vegetation of the different parts of the Alps; PAWLOWSKI (1969, 1970) on the comparison between the endemism of Alps, Carpathians and Balkan mountains; PIGNATTI (1969*c*) on the phytogeographical characteristics of the Apennines; BONO, BARBERO & FERRARINI (1971), ORSINO (1971) and PICHI SERMOLLI (1971) on the affinities of the flora of the Apuane Alps with other countries; FUKAREK (1969) on the chorological relations between the Apennines and the Balkan mountains; FRANCINI CORTI (1967) on the phytogeographical connections of the flora of Puglia with other regions; and PIGNATTI (1963) on the affinity between Italian and Iberian floras shown by the distribution of the species of *Limonium*.

I wish to mention also MEUSEL's work (1962) on the phytogeographical connections between the Mediterranean region and Central Europe.

Studies on the geographical distribution of certain species — Great attention has been paid to the study of the geographical distribution of some Italian species on the basis of field investigations and of the revision of herbarium specimens. Many of the papers which give the result of these studies also contain interesting information on ecology or phytosociology. When the latter are consistently treated, the relevant papers are quoted also in the chapter on ecology.

The following species have been studied from the point of view of their distribution. They are arranged in alphabetical order within the main subdivisions of the plant kingdom.

Native plants

Lycophytina: Isoëtes malinverniana (CORBETTA, 1968).

Filicophytina: Asplenium adulterinum (NARDI, 1972), *A. petrarchae* (ARRIGONI & RICCERI, 1969; ORSINO, 1970), *A. seelosii* BECHERER, 1962); *Cheilanthes persica* (ZANGHERI, 1964*b*); *Cystopteris dickieana* (DAMBOLDT, 1963; PROFUMO, 1965; ARRIGONI, 1969*c*); *Dryopteris dilatata* (AGOSTINI, 1965*a*); *Notholaena marantae* (PICHI SERMOLLI & CHIARINO MASPES, 1963; BERTOLANI-MARCHETTI, 1968*a*); *Ophioglossum vulgatum* (CHIAPPINI, 1968*b*); *Osmunda regalis* (BIZZARRI, 1963); *Phyllitis sagittata* (PIROLA, 1962; LORENZONI & PAIERO, 1967).

Coniferophytina: Juniperus sabina (CALDART, 1966*b*); *Pinus cembra* (HOFMAN, 1970; BONO & BARBERO, 1972), *P. halepensis* (ARRIGONI, 1967*c*), *P. mugo* (MONTACCHINI & CARAMIELLO, 1969*a*), *P. pinaster* (DESOLE, 1964*b*; AGOSTINI, 1968), *P. pinea* (ARRIGONI, 1967*c*; CORTI, 1969; FRANCINI CORTI, 1969), *P. sylvestris* (BAY, 1961), *P. uncinata* (MONTACCHINI & CARAMIELLO, 1969*a*); *Taxus baccata* (DESOLE, 1966).

Chlamidospermophytina: Ephedra distachya (DESOLE, 1965*a*), *E. nebrodensis* (DESOLE, 1962*a*, 1964*a*; ORSOMANDO, 1969; DESOLE, 1972).

Angiospermophytina: Achillea barrelieri ssp. *barrelieri* form. *schouwii* (BAZZICHELLI, 1967*a*); *Adonis,* annual species from Italy

(STEINBERG, 1971); *Ajuga iva* (ORSINO, 1970); *Alnus viridis* (RICHARD, 1967); *Althenia filiformis* (ONNIS, 1967*a*, 1969*b*); *Ampelodesmos tenax* (FENAROLI, 1961*b*, 1961*c*); *Anagyris foetida* (ORSINO, 1970); *Anthyllis barba-jovis* (ORSINO, 1970); *Aphyllanthes monspeliensis* (ORSINO, 1970); *Arisarum proboscideum* (FABBRI, BONZI & TARDELLI, 1971); *Armeria*, species from Sardinia and Corsica (ARRIGONI, 1970); *Artemisia arborescens* (ORSINO, 1970), *A. lanata* (BERTOLANI-MARCHETTI, 1962*b*); *Arum italicum* form. *nigro-maculatum* (SORTINO, 1970*a*); *Barbarea rupicola* (CHIAPPINI, 1964*c*; SILECCHIA & CHIAPPINI, 1969); *Bellium crassifolium* (ARRIGONI, 1969*a*); *Brimeura* (GARBARI, 1970*b*); *Bromus erectus* (POLDINI, 1967*b*); *Bulbocodium vernum* (MONTACCHINI, 1965*a*); *Calendula officinalis* var. *maritima* (PERRONE, 1964); *Campanula excisa* (BECHERER, 1966*d*), *C. isophylla* (ORSINO, 1970), *C. raineri* (ARIETTI & FENAROLI, 1963), *C. sabatia* (ORSINO, 1970), *C. versicolor* (BIANCO & SARFATTI, 1962); *Carum multiflorum* (BIANCO & SARFATTI, 1962); *Centaurea acaulis* (DI MARTINO, 1970*c*), *C. conifera* (ORSINO, 1970), *C. ferulacea* (ARRIGONI, 1972*b*), *C. filiformis* (ARRIGONI, 1972*b*), *C. tauromenitana* (GRAMUGLIO, 1967*a*); *Ceratocephalus falcatus* (TAMMARO, 1969); *Chrysanthemum flosculosum* (CHIAPPINI, 1965, 1969*a*); *Convolvulus sabatius* (ORSINO, 1970); *Coris monspeliensis* (AGOSTINI, 1962*b*; FURNARI, 1962*b*; ORSINO, 1970); *Crocus reticulatus* (LORENZONI, 1967*b*); *Cytisanthus holopetalus* (POLDINI, 1964*c*); *Cytisus proteus* (TERRETAZ & BECHERER, 1962); *Drosera* sp. pl. (PIOVANO, 1967); *Erica arborea* (BECHERER, 1965), *E. cinerea* (SERRA, 1966); *Euonymus*, species from Marche (RINALDI, 1964*a*); *Euphorbia acanthothamnos* (CESCA, 1969), *E. bivonae* (CESCA, 1969), *E. dendroides* (ORSINO, 1970), *E. hyberna* (FERRARINI, 1970*d*), ssp. *insularis* (ORSINO, 1972), *E. melitensis* (CESCA, 1969), *E. serrata* (DI MARTINO, 1970*d*), *E. spinosa* (CESCA, 1969); *Evax rotundata* (CORRIAS, 1968); *Festuca calva* (POLDINI, 1970*b*); *Fraxinus ornus* (BONO, 1967); *Fumana* sp. pl. (ORSINO, 1970); *Genista aetnensis* (ARRIGONI & VANNELLI, 1967), *G. ephedroides* (PIZZOLLONGO, 1961*b*), *G. morisii* (FENAROLI, 1964*b*); *Gentiana froelichii* (FENAROLI, 1972), *G. lutea* ssp. *symphyandra* (POLDINI, 1970*b*); *Globularia alypum* (RITTORE BITOSSI, 1966); *Helianthemum* sp. pl. (ORSINO, 1970), *H. caput-felix* (ARRIGONI, 1971); *Helichrysum italicum* var. *ericoideum* (FERRO, 1972*b*), *H. saxatile* (CHIAPPINI, 1970); *Holcus setiglumis* (RICCERI, 1970); *Hypericum elodes* (FERRARNI, 1970*d*); *Ilex aquifolium* (DESOLE, 1966); *Iris pseudopumila* (MACCHIA, 1970), *I. xiphium* (RICCI, 1966*d*); *Lactuca*

longidentata (ARRIGONI, 1969*b*); *Laurus nobilis* (AMICO, 1964*a*); *Lavatera maritima* (ORSINO, 1970); *Leontodon incanus* var. *finalensis* (ORSINO, 1970); *Leucanthemum ceratophylloides* (BAZZICHELLI, 1967*b*), ssp. *tenuifolium* (BAZZICHELLI, 1967*b*); *Leucojum aestivum* var. *pulchellum* (CHIAPPINI, 1964*b*); *Limonium* sp. pl. (PIGNATTI, 1963), *L. pubescens* (ORSINO, 1970); *Linaria alpina* (FERRARINI, 1969), *L. mulleri* (ARRIGONI, 1965); *Linnaea borealis* (PEDROTTI, 1963*b*); *Linum austriacum* (ORSINO, 1970); *Lonicera xylosteum* (ANZALONE, 1962*c*, 1964*a*), *L. nigra* (ANZALONE, 1962*c*); *Lunaria rediviva* (PIOVANO, 1963); *Melica bauhini* (ORSINO, 1970); *Moehringia markgrafii* (ARIETTI & CRESCINI, 1966); *Ostrya carpinifolia* (BONO, 1967; GRUBER, 1969); *Papaver apulum* (LANDOLT, 1967); *Periploca graeca* (MACCHIA, 1968); *Poterium spinosum* (MARTINOLI, 1970); *Quercus petraea* (ANZALONE, 1962*b*), *Q. suber* (CHIAPPINI, 1968*a*); *Salvia pratensis* form. *rubicunda* (PIOVANO, 1964); *Saxifraga arachnoidea* (ARIETTI & FENAROLI, 1972); *Scilla obtusifolia* (DESOLE, 1963; PICCI, 1964); *Scorpiurus vermiculata* (DI MARTINO, 1970*a*); *Scrophularia lucida* (BIANCO & SARFATTI, 1962); *Senecio persoonii* (BARBERO, 1967); *Silene campanula* (BARBERO, 1967); *Sisymbrium irio* complex (KHOSHOO, 1966); *Soldanella*, species from Italy (CRISTOFOLINI, G. & PIGNATTI, 1962*b*); *Spartina juncea* (VALSECCHI, 1966*d*); *Stipa eriocaulis* (ORSINO, 1970), *S. trichotoma* (MOGGI, 1971); *Taraxacum apenninum* (FÜRNKRANZ, 1964); *Telekia speciosissima* (FENAROLI, 1965); *Thymus capitatus* (SIBILIO, 1961); *Trientalis europaea* (PEDROTTI, 1972*b*); *Vicia argentea* (CAPUTO, 1969), *V. sirinica* (CAPUTO, 1968*b*, 1969); *Viola comollia* (PIROLA, 1965*b*).

Alien plants

Artemisia verlotorum (CHIAPPINI, 1964*d*); *Lepidium virginicum* (FERRO, 1968).

Maps of geographical distribution — The geographical distribution of some genera and species is given also in works which cannot be considered as distributional studies in the narrow sense, such as those on vegetation, ecology, phytosociology, etc. Likewise, distribution maps are given in papers devoted to ecological studies of particular species. In order to avoid these maps being overlooked, I list below in alphabetical order all the species for which maps of distribution have been published, even if only the local distribution is given.

Native plants

Lycophytina: Huperzia selago (PICHI SERMOLLI, 1971); *Selaginella denticulata* (PICHI SERMOLLI, 1971); *Isoëtes malinverniana* (CORBETTA, 1968*b*).

Sphenophytina: Equisetum arvense (PICHI SERMOLLI, 1971), *E. debile* (PICHI SERMOLLI, 1971), *E. ramosissimum* (PICHI SERMOLLI, 1971).

Filicophytina: Anogramma leptophylla (PICHI SERMOLLI, 1971); *Asplenium adulterinum* (NARDI, 1972), *A. fissum* (PICHI SERMOLLI, 1971), *A. lepidum* (LAUSI, 1968), *A. petrarchae* (ARRIGONI & RICCERI, 1969), *A. seelosii* (FORNACIARI, 1963*d*), *A. trichomanes* (NARDI, 1972), *A. viride* (NARDI, 1972); *Blechnum spicant* (PICHI SERMOLLI, 1971); *Ceterach aureum* (PICHI SERMOLLI, 1971), *C. cordatum* (PICHI SERMOLLI, 1971), *C. javorkeanum* (FENAROLI, 1967*b*), *C. officinarum* FENAROLI, 1967*b*; PICHI SERMOLLI, 1971), *C. phillipsianum* (PICHI SERMOLLI, 1971); *Ceterachopsis* (PICHI SERMOLLI, 1971); *Cheilanthes persica* (ZANGHERI, 1964*b*); *Cystopteris dickieana* (PROFUMO, 1965; ARRIGONI, 1969*c*); *Dryopteris dilatata* (AGOSTINI, 1965*a*); *Hymenophyllum tunbrigense* (PICHI SERMOLLI, 1971); *Notholaena marantae* (PICHI SERMOLLI & CHIARINO MASPES, 1963; PICHI SERMOLLI, 1971); *Ophioglossum lusitanicum* (CHIAPPINI, 1968*b*), *O. vulgatum* (CHIAPPINI, 1968*b*); *Oreopteris limbosperma* (PICHI SERMOLLI, 1971), *O. quelpaertensis* (PICHI SERMOLLI, 1971); *Osmunda regalis* (BIZZARRI, 1963; PICHI SERMOLLI, 1971); *Phyllitis hybrida* (FENAROLI, 1967*b*), *P. sagittata* (PIROLA, 1962*a*; FENAROLI, 1967*b*); *Polystichum fuscopaleaceum* (PICHI SERMOLLI, 1971), *P. setiferum* (PICHI SERMOLLI, 1971); *Thelypteris confluens* (PICHI SERMOLLI, 1971), *T. palustris* (PICHI SERMOLLI, 1971).

Coniferophytina: Abies alba (BARBERO & BONO, 1970; FENAROLI, 1970), *A. nebrodensis* (FENAROLI, 1970); *Juniperus phoenicea* (OZENDA, 1966), *J. sabina* (CALDART, 1966*b*; OZENDA, 1966), *J. thurifera* (OZENDA, 1966); *Larix decidua* (OZENDA, 1966; FENAROLI, 1970); *Picea abies* (OZENDA, 1966; FENAROLI, 1970); *Pinus* (FRANCINI CORTI, 1969), *P. cembra* (PEDROTTI, 1963*b*; FENAROLI, 1970; BONO & BARBERO, 1972), *P. halepensis* (AGOSTINI, 1967*a*; ARRIGONI, 1967*c*; AGOSTINI & SANFILIPPO, 1970; FENAROLI, 1970), *P. heldreichii* (COCOZZA, 1961; FUKAREK, 1969), *P. laricio* (GELLINI, 1968; FENAROLI, 1970), *P. leucodermis* (COCOZZA, 1961; FENAROLI, 1970), *P. montana* (FENAROLI, 1970), *P. mugo* (MONTACCHINI & CARAMIELLO, 1969*a*), *P. nigra*

(GELLINI, 1968), *P. nigricans* (GELLINI, 1968), ssp. *austriaca* (POLDINI, 1969*b*; FENAROLI, 1970), *P. pallasiana* (GELLINI, 1968), *P. pinaster* (DESOLE, 1964*b*; AGOSTINI, 1968; FENAROLI, 1970; DESOLE, 1971; FERRARINI, 1972), *P. pinea* (ARRIGONI, 1967*c*; CORTI, 1969; FRANCINI CORTI, 1969; FENAROLI, 1970), *P. sylvestris* (CHIAPPINI, 1967; FENAROLI, 1970), *P. uncinata* (MONTACCHINI & CARAMIELLO, 1969*a*); *Taxus baccata* (DESOLE, 1966; CHIAPPINI, 1967; FENAROLI, 1970; DESOLE, 1971).

Chlamidospermophytina: Ephedra distachya (DESOLE, 1965*a*, 1971), *E. nebrodensis* (DESOLE, 1962*a*, 1964*a*; ORSOMANDO, 1969; DESOLE, 1971, 1972).

Angiospermophytina: Acer campestre (FENAROLI, 1970), *A. lobelii* (PIGNATTI, 1969*c*), *A. obtusatum* (FUKAREK, 1969), *A. opalus* (OZENDA, 1966), *A. pseudoplatanus* (FENAROLI, 1970); *Achillea ageratum* (CHIAPPINI, 1963*b*), *A. barrelieri* ssp. *barrelieri* form. *schouwii* (BAZZICHELLI, 1967*a*); *Adonis aestivalis* ssp. *aestivalis*, ssp. *provincialis* (STEINBERG, 1971), *A. annua* ssp. *annua*, ssp. *cupaniana* (STEINBERG, 1971), *A. flammea* ssp. *cortiana*, ssp. *flammea* (STEINBERG, 1971), *A. microcarpa* (STEINBERG, 1971); *Alchemilla pentaphyllea* (PAWLOWSKI, 1970); *Alisma lanceolatum* (PIROLA, 1964*d*), *A. plantago-aquatica* (PIROLA, 1964*d*); *Alnus cordata* (FENAROLI, 1970), *A. viridis* (RICHARD, 1967; FENAROLI, 1970); *Althea officinalis* (DESOLE, 1971); *Althenia filiformis* (ONNIS, 1967*a*); *Alyssum petraeum* (FORNACIARI, 1963*d*), *A. tavolarae* (DESOLE, 1971); *Ammi visnaga* (DESOLE, 1971); *Ampelodesmos tenax* (FENAROLI, 1961*c*, 1970); *Anagallis crassifolia* (DESOLE, 1971), *A. monellii* (DESOLE, 1971), *A. tenella* (DESOLE, 1971); *Andropogon contortus* (HOFER, 1967), *A. gryllus* (HOFER, 1967); *Androsace chaixii* (OZENDA, 1966); *Anemone apennina* (PIGNATTI, 1969*c*); *Anthemis barrelieri* (PIGNATTI, 1969*c*); *Antirrhinum latifolium* (FERRARINI, 1972); *Aphanes* (MEUSEL, 1962); *Aquilegia bertolonii* (FERRARINI, 1967; ORSINO, 1971); *Arbutus unedo* (FENAROLI, 1970); *Arenaria huteri* (POLDINI, 1971); *Argyrolobium zanonii* (MONTACCHINI & CARAMIELLO, 1969*b*; FERRARINI, 1972); *Arisarum proboscideum* (FABBRI, 1966*a*; ZANGHERI, 1966*b*, 1970; FABBRI, BONZI & TARDELLI, 1971); *Aristolochia pallida* (MONTACCHINI & CARAMIELLO, 1969*b*); *Armeria leucocephala* (ARRIGONI, 1970), *A. maritima* form. *seticeps* (ORSINO, 1971), *A. morisii* (ARRIGONI, 1970; DESOLE, 1971), *A. multiceps* (ARRIGONI, 1970), *A. pungens* (ARRIGONI, 1970; DESOLE, 1971), *A. sardoa* (ARRIGONI, 1970; DESOLE, 1971), *A. soleirolii* (VALSECCHI & CORRIAS, 1967; ARRIGONI, 1970),

A. sulcitana (ARRIGONI, 1970); *Artemisia alba* (POSOCCO, 1966), ssp. *lobelii* (FUKAREK, 1969), *A. arborescens* (FUKAREK, 1969), *A. glacialis* (FERRARINI, 1967, 1971), *A. laxa* (FERRARINI, 1967, 1971), *A. nitida* (FERRARINI, 1967, 1971); *Arum italicum* var. *nigromaculatum* (SORTINO, 1970*a*), *A. nigrum* var. *apulum* (FRANCINI, CORTI, 1967); *Arundo plinii* (CORBETTA, 1967*b*); *Asphodeline lutea* (PIGNATTI, 1969*c*); *Astragalus aquilanus* (ANZALONE, 1970*b*), *A. sirinicus* (PIGNATTI, 1969*c*), *A. verrucosus* (DESOLE, 1971); *Astrantia minor* var. *pauciflora* (FERRARINI, 1967); *Athamanta cortiana* (FERRARINI, 1971), *A. densa* (FERRARINI, 1971); *Atropa belladonna* (DESOLE, 1971); *Avena versicolor* var. *praetutiana* (FERRARINI, 1967); *Ballota frutescens* (OZENDA, 1966; PAWLOWSKI, 1970), *B. spinosa* (BARBERO, 1968); *Barbarea rupicola* (CHIAPPINI, 1964*c*; SILECCHIA & CHIAPPINI, 1969); *Bellevalia dubia* (ZANGHERI, 1966*b*, 1970), *B. webbiana* (ZANGHERI, 1966*b*, 1970); *Bellium crassifolium* (ARRIGONI, 1969*a*; DESOLE, 1971); *Berardia lanuginosa* (PAWLOWSKI, 1970); *B. subacaulis* (OZENDA, 1966); *Berberis aetnensis* (FUKAREK, 1969); *Betula pendula* (FENAROLI, 1970); *Bidens pilosa* var. *minor* (LUCIANI, 1967); *Brassica cheiranthus* (ZANGHERI, 1966*b*), *B. insularis* (CORSI, 1963; DESOLE, 1971), *B. monensis* (ZANGHERI, 1970), *B. richeri* (OZENDA, 1966); *Brimeura* (GARBARI, 1970*b*); *Bulbocodium vernum* (MONTACCHINI, 1965*a*); *Buphtalmum inuloides* (DESOLE, 1971), *B. salicifolium* var. *flexile* (FERRARINI, 1967); *Bupleurum fruticosum* (ARRIGONI, 1965), *B. petraeum* (PAWLOWSKI, 1970), *B. spinosum* (FRANCINI CORTI, 1967); *Buxus balearica* (CHIAPPINI, 1967; DESOLE, 1971), *B. sempervirens* (OZENDA, 1966; CHIAPPINI, 1967); *Calamintha grandiflora* (OZENDA, 1966); *Campanula caespitosa* (PAWLOWSKI, 1970), *C. elatines* (GIACOMINI, 1968*a*), *C. medium* (FERRARINI, 1972), *C. raineri* (ARIETTI & FENAROLI, 1963), *C. trichocalycina* (DAMBOLDT, 1968*a*), *C. versicolor* (BIANCO & SARFATTI, 1962; FRANCINI CORTI, 1966, 1967), *C. zoysii* (FONACIARI, 1963*d*; PAWLOWSKI, 1970); *Cardamine graeca* (ZANGHERI, 1966*b*, 1970), *C. trifolia* (ZANGHERI, 1966*b*, 1970); *Carex baldensis* (PAWLOWSKI, 1970), *C. buxbaumii* (PEDROTTI, 1972*a*), *C. hartmanii* (PEDROTTI, 1972*a*), *C. macrolepis* (FERRARINI, 1966*a*, 1967, 1971); *Carlina* (MEUSEL, 1962); *Carpinus betulus* (MEUSEL, 1962; OZENDA, 1966; FENAROLI, 1970); *C. orientalis* (MEUSEL, 1962; FENAROLI, 1970); *Carum multiflorum* (BIANCO & SARFATTI, 1962); *Castanea sativa* (FENAROLI, 1970); *Celtis tournefortii* (FUKAREK, 1969); *Centaurea acaulis* (DI MARTINO, 1970*c*), *C. alba* (CHIAPPINI, 1963*c*), *C. cineraria* var. *aeolica*,

var. *busambarensis,* var. *circae,* var. *friderici,* var. *gymnocarpa,* var. *jabukensis,* var. *leucadea,* var. *sicula,* var. *sirenium,* var. *todari,* var. *typica,* var. *umbrosa,* var. *veneris* (FERRARINI, 1972), *C. cyanus* (CHIAPPINI, 1963*c*), *C. dissecta* var. *virescens* (CHIAPPINI, 1963*c*), *C. filiformis* (DESOLE, 1971), *C. haynaldii* ssp. *julica* (POLDINI, 1967*c*), *C. horrida* (DESOLE, 1971), *C. jacea* (CHIAPPINI, 1963*c*), *C. montana* (CHIAPPINI, 1963*c*), *C. pratensis* (CHIAPPINI, 1963*c*), *C. scabiosa* (CHIAPPINI, 1963*c*), *C. tauromenitana* (GRAMUGLIO, 1967*a*); *Cephalaria leucantha* (FERRARINI, 1972); *Ceratocephalus falcatus* (TAMMARO, 1969); *Ceratonia siliqua* (FENAROLI, 1970; DESOLE, 1971); *Chamaecytisus hirsutus* (FENAROLI, 1961*d*), ssp. *proteus* (FENAROLI, 1961*d*); *Chamaerops humilis* (FENAROLI, 1970; DESOLE, 1971); *Cheiranthus* (MOGGI, 1965), *C. cheiri* (LUCIANI, GAILLOCHET, TOMASELLI & MATHON, 1962); *Chelidonium majus* (LUCIANI, GAILLOCHET, TOMASELLI & MATHON, 1962); *Chrysanthemum ceratophylloides* (FERRARINI, 1967; ORSINO, 1971), *C. discoideum* (BARBERO, 1968), *C. flosculosum* (CHIAPPINI, 1965; BARBERO, 1968; CHIAPPINI, 1969*a*; DESOLE, 1971); *Cichorium intybus* (LUCIANI, MATHON & GAILLOCHET, 1965); *Cirsium microcephalum* (DESOLE, 1971); *Cistus salvifolius* (CORBETTA, 1967*b*; HOFER, 1967; MONTACCHINI & CARAMIELLO, 1969*b*); *Convolvulus cneorum* (FUKAREK, 1969), *C. holosericeus* (FUKAREK, 1969); *Coris monspeliensis* (AGOSTINI, 1962*b*; FURNARI, 1962*b*); *Coronilla cretica* (FERRARINI, 1972), *C. juncea* (FRANCINI CORTI, 1967); *Corylus avellana* (FENAROLI, 1970); *Crithmum maritimum* (LUCIANI, MATHON & GAILLOCHET, 1965); *Cruciferae* trib. *Hesperideae* (MOGGI, 1965); *Cynosurus cristatus* (MEUSEL, 1962), *C. echinatus* (MEUSEL, 1962), *C. elegans* (MEUSEL, 1962), *C. polybracteatus* (MEUSEL, 1962); *Cytisanthus holopetalus* (POLDINI, 1964*c*); *Cytisus ardoinii* (BARBERO, 1968), *C. emerifolius* (PAWLOWSKI, 1970), *C. spinescens* (FUKAREK, 1969); *Daphne oleifolia* (FRANCINI CORTI, 1967); *Delphinium dubium* (PAWLOWSKI, 1970); *Dianthus rupicola* (FRANCINI CORTI, 1967); *Digitalis purpurea* (DESOLE, 1971); *Dorycnium pentaphyllum* (FERRARINI, 1972); *Erica arborea* (HOFER, 1967), *E. cinerea* (SERRA, 1966); *Euphorbia barrelieri* (POLDINI, 1969*a*), *E. bivonae* (CESCA, 1969), *E. gibelliana* (FERRARINI, 1970*d*, 1971), *E. hyberna* ssp. *canuti,* ssp. *hyberna,* ssp. *insularis* (FERRARINI, 1970*d*, 1971), *E. kerneri* (POLDINI, 1969*b*, 1971), *E. serrata* (DI MARTINO, 1970*d*), *E. spinosa* (CESCA, 1969; HOFMANN, 1969*b*), *E. triflora* ssp. *kerneri* (POLDINI, 1969*a*; CRISTOFOLINI G., 1971), ssp. *triflora* (CTISTOFOLINI G., 1971); *Evax rotundata* (DESOLE, 1971); *Fagus sylvatica* (MON-

TACCHINI, 1968*c*; FENAROLI, 1970; FERRARINI & PADULA, 1970); *Festuca norica* (PAWLOWSKI, 1970), *F. spadicea* (OZENDA, 1966); *Fraxinus ornus* (FENAROLI, 1970); *Galium pyrenaicum* var. *olympicum* (FERRARINI, 1966*a*, 1967, 1971); *Genista aetnensis* (ARRIGONI & VANNELLI, 1967; DESOLE, 1971), *G. anglica* (GRAMUGLIO & ROSSO, 1968), *G. cinerea* (OZENDA, 1966), *G. ephedroides* (PIZZOLONGO, 1961*b*), *G. januensis* (FERRARINI, 1972), *G. morisii* (FENAROLI, 1964*b*), *G. sericea* (FUKAREK, 1969), *G. sylvestris* (FUKAREK, 1969); *Gentiana froelichii* (FORNACIARI, 1963*d*; PAWLOWSKI, 1970; FENAROLI, 1972), *G. lutea* (DESOLE, 1971), *G. lutea* ssp. *symphyandra* (POLDINI, 1970*b*), *G. sturmiana* (FORNACIARI, 1963*d*); *Geranium argenteum* (FERRARINI, 1967); *Geum heterocarpum* FÜRNKRANZ, 1964); *Glechoma hederacea* var. *sardoa* (DESOLE, 1971); *Globularia alypum* (RITTORE BITOSSI, 1966; FUKAREK, 1969), *G. arabica* (RITTORE BITOSSI, 1966), *G. bellidifolia* (FUKAREK, 1969); *Glycyrrhiza glabra* (MONTELUCCI, 1970*c*); *Haynaldia villosa* (CORBETTA, 1967 *b*); *Helianthemum caput-felis* (ARRIGONI, 1971), *H. lunulatum* (OZENDA, 1966; BARBERO, 1967, 1968; PAWLOWSKI, 1970), *H. morisianum* (DESOLE, 1971); *Helichrysum saxatile* (DESOLE, 1971); *Helictotrichon versicolor* ssp. *praetutianum* (CELA RENZONI, 1968*c*); *Heracleum minimum* (OZENDA, 1966; PAWLOWSKI, 1970); *Hesperis* (MOGGI, 1965); *Holcus setiglumis* (RICCERI, 1970); *Homogyne alpina* (ORSINO, 1971); *Hydrocotyle vulgaris* (PEDROTTI & PETTOROSSI, 1968); *Hypericum aegyptiacum* (ARRIGONI, 1965), *H. elodes* (FERRARINI, 1970*d*, 1971); *Iberis aurosica* (BARBERO, 1968), *I. candolleana* (OZENDA, 1966), *I. integerrima* (DESOLE, 1971), *I. nana* (BARBERO, 1968), *I. pruitii* (BARBERO, 1968); *Ilex aquifolium* (DESOLE, 1966, 1971); *Iris xiphium* (RICCI, 1966*d*); *Juglans* (MEUSEL, 1962); *Lactuca longidentata* (ARRIGONI, 1969*b*; DESOLE, 1971); *Lathyrus montanus* (MEUSEL, 1962); *Laurus nobilis* (CHIAPPINI, 1967; FENAROLI, 1970; DESOLE, 1971); *Lavatera pallescens* (DESOLE, 1971); *Leontodon cichoraceus* (ZANGHERI, 1966*b*, 1970), *L. incanus* var. *anomalus* (ORSINO, 1971); *Leucojum aestivum* var. *pulchellum* (CHIAPPINI, 1964*b*), *L. hiemale* (OZENDA, 1966; PAWLOWSKI, 1970); *Limonium* (DOLCHER & PIGNATTI, 1971*b*), *L. acutifolium* (PIGNATTI, 1963), *L. albidum* (PIGNATTI, 1963), *L. calcarae* (PIGNATTI, 1963), *L. cancellatum* (PIGNATTI, 1963), *L. caspium* (PIGNATTI, 1963), *L. cosyrense* (PIGNATTI, 1963), ssp. *cordatum*, ssp. *cosyrense*, ssp. *multiforme*, ssp. *pontium* (PIGNATTI, 1963), *L. densiflorum* ssp. *densiflorum* (PIGNATTI, 1963), *L. duriusculum* (PIGNATTI, 1963), ssp. *confusum*, ssp. *provinciale* (PIGNATTI, 1963), *L. hermaeum* (DESOLE,

1971), *L. inarimense* (PIGNATTI, 1963), *L. japygicum* (PIGNATTI, 1963), *L. johannis* (PIGNATTI, 1963), *L. laetum* (PIGNATTI, 1963; DESOLE, 1971), *L. minutiflorum* (PIGNATTI, 1963), *L. panormitanum* (PIGNATTI, 1963), *L. parvifolium* (PIGNATTI, 1963), *L. pubescens* (PIGNATTI, 1963), *L. remotispiculum* (PIGNATTI, 1963), *L. sibthorpianum* (PIGNATTI, 1963), *L. tenoreanum* (PIGNATTI, 1963), *L. tenuiculum* var. *gorgonae* (PIGNATTI, 1963), ssp. *hermaeum,* ssp. *tenuiculum* (PIGNATTI, 1963), *L. tommasinii* (PIGNATTI, 1963), *L. virgatum* ssp. *divaricatum,* ssp. *sardoum,* ssp. *virgatum* (PIGNATTI, 1963), *L. vulgare* ssp. *serotinum* (PIGNATTI, 1963); *Linaria mulleri* (ARRIGONI, 1965); *Linnaea borealis* (PEDROTTI, 1963*b*; FORNACIARI, 1965*a*); *Linum muelleri* (DESOLE, 1971), *L. strictum* (MONTACCHINI & CARAMIELLO, 1969*b*); *Lithospermum fruticosum* (FERRARINI, 1967, 1971), *L. petraeum* (FERRARINI, 1967, 1971), *L. rosmarinifolium* (FERRARINI, 1967; FUKAREK, 1969; FERRARINI, 1971), *L. suffruticosum* (FERRARINI, 1967, 1971); *Lolium perenne* (LUCIANI, MATHON & GAILLOCHET, 1965); *Luzula bulgarica* (PIGNATTI, 1969*c*), *L. pindica* (PIGNATTI, 1969*c*), *L. spicata* (CHRTEK & KRÍSA, 1964; PIGNATTI, 1969*c*); *Lygeum spartum* (GENTILE & DI BENEDETTO, 1962); *Majanthemum bifolium* (ORSINO, 1971); *Malcolmia* (MOGGI, 1965); *Maresia* (MOGGI, 1965); *Matthiola* (MOGGI, 1965); *Medicago pironae* (FORNACIARI, 1963*d*; POLDINI, 1971); *Micromeria croatica* (BARBERO, 1968), *M. piperella* (BARBERO, 1968); *Minuartia cherlerioides* ssp. *cherlerioides* (PAWLOWSKI, 1970), ssp. *rionii* (PAWLOWSKI, 1970), *M. grineensis* (PAWLOWSKI, 1970); *Moehringia bavarica* (BARBERO, 1968), *M. dasyphylla* (BARBERO, 1968), *M. lebruni* (BARBERO, 1968), *M. markgrafii* (ARIETTI & CRESCINI, 1966), *M. papulosa* (BARBERO, 1968), *M. tommasini* (BARBERO, 1968); *Moltkea suffruticosa* (FUKAREK, 1969), *M. petraea* (FUKAREK, 1969); *Morisia monanthos* (MARTINOLI, 1961; DESOLE, 1971); *Myrtus communis* (FENAROLI, 1970); *Nananthea perpusilla* (DESOLE, 1971); *Nepeta foliosa* (DESOLE, 1971); *Nerium oleander* (FENAROLI, 1970; DESOLE, 1971); *Olea europaea* (MONTACCHINI & CARAMIELLO, 1969*b*; FENAROLI, 1970), *O. latifolia* (DESOLE, 1971); *Ononis cenisia* (OZENDA, 1966); *Ophris morisii* (DESOLE, 1971); *Orchis papilionacea* (MONTACCHINI & CARAMIELLO, 1969*b*); *Orobanche denudata* (DESOLE, 1971); *Ostrya carpinifolia* (OZENDA, 1966; BONO, 1967; GRUBER, 1969; FENAROLI, 1970); *Osyris alba* (CORBETTA, 1967*b*); *Peplis portula* (PIROLA, 1964*d*); *Periploca graeca* (FRANCINI CORTI, 1966, 1967); *Phagnalon morisianum* (DESOLE, 1971), *P. sordidum* (FERRARINI, 1972); *Phlomis fru-*

ticosa (FRANCINI CORTI, 1966, 1967); *Phillyrea media* (CORBETTA, 1967*b*); *Phyteuma balbisii* (BARBERO, 1968; PAWLOWSKI, 1970), *P. comosum* (PAWLOWSKI, 1970), *P. limonifolium* (FRANCINI CORTI, 1966, 1967), *P. scorzonerifolium* (ORSINO, 1971), *P. trichocalycinum* (FERRARINI & PADULA, 1970); *Pistacia lentiscus* (FENAROLI, 1970); *Podanthum limonifolium* (PIGNATTI, 1969*c*); *Polygala carniolica* (FORNACIARI, 1963*d*), *P. chamaebuxus* (ZANGHERI, 1966*b*, 1970); *Populus tremula* (GRAMUGLIO, 1964); *Potentilla nitida* (BARBERO, 1968), *P. saxifraga* (BARBERO, 1968; PAWLOWSKI, 1970), *P. valderia* (OZENDA, 1966; BARBERO, 1968; PAWLOWSKI, 1970); *Poterium spinosum* (MARTINOLI, 1970); *Primula allionei* (BARBERO, 1968), *P. integrifolia* (BARBERO, 1968), *P. tyrolensis* (FORNACIARI, 1963*d*; BARBERO, 1968), *P. wulfeniana* (FORNACIARI, 1963*d*); *Prunella vulgaris* form. *glabrescens* (SORTINO, 1965); *Prunus prostrata* (DESOLE, 1971); *Ptilotrichum cyclocarpum* (BARBERO, 1967, 1968), *P. halimifolium* (BARBERO, 1967, 1968); *Quercus aegilops* (FRANCINI CORTI, 1966, 1967), ssp. *macrolepis* and other subspecies (SCARAMUZZI, 1960), *Q. calliprinos* FENAROLI 1970), *Q. cerris* (FENAROLI, 1970), *Q. coccifera* (MOGGI, 1965; CORTI, 1967; DESOLE, 1971), *Q. conferta* (FUKAREK, 1969), *Q. frainetto* (FENAROLI, 1970), *Q. ilex* (POLDINI, 1966*a*; CORBETTA, 1967*b*; FENAROLI, 1970; POLDINI, 1971), *Q. macedonica* (FUKAREK, 1969), *Q. macrolepis* (FENAROLI, 1970), *Q. pedunculata* (FENAROLI, 1970), *Q. petraea* (FENAROLI, 1970), *Q. pubescens* (FENAROLI, 1970), *Q. robur* (FENAROLI, 1970), *Q. sessiliflora* (FENAROLI, 1970), *Q. suber* (FENAROLI, 1970), *Q. trojana* (BIANCO, 1961*a*; FRANCINI CORTI, 1966, 1967; FENAROLI, 1970); *Ranunculus brutius* (FERRARINI & PADULA, 1970), *R. ficaria* (LUCIANI, GAILLOCHET, TOMASELLI & MATHON, 1962); *Rhamnus alaternus* (CORBETTA, 1967*b*), *R. glaucophylla* (FERRARINI, 1971), *R. persicaefolia* (DESOLE, 1971), *R. sibtorpiana* (FERRARINI, 1971); *Rhizobotrya alpina* (PAWLOWSKI, 1970); *Rhodothamnus chamaecistus* (PAWLOWSKI, 1970), *R. sessilifolius* (PAWLOWSKI, 1970); *Ribes morisianum* (DESOLE, 1971), *R. multiflorum* (ARRIGONI, 1968*b*), ssp. *multiflorum*, ssp. *sandalioticum* (ARRIGONI, 1968*b*), *R. sardoum* (DESOLE, 1971); *Romulea rollii* (FRANCINI CORTI, 1967); *Rosmarinus officinalis* (FENAROLI, 1970); *Rubia peregrina* (CORBETTA, 1967*b*); *Ruta divaricata* (FUKAREK, 1969); *Sagina pilifera* (VALSECCHI & CORRIAS, 1967); *Salix herbacea* (FERRARINI, 1969); *Salvia sclarea* var. *sardoa* (DESOLE, 1971), *S. triloba* (FRANCINI CORTI, 1966, 1967); *Sanguisorba dodecandra* (PIROLA, 1964*c*; PAWLOWSKI, 1970); *Satureja cordata* (DESOLE, 1971), *S. cuneifolia* (FRANCINI CORTI, 1967);

Saxifraga aphylla (PAWLOWSKI, 1970), *S. arachnoidea* (PAWLOWSKI, 1970; ARIETTI & FENAROLI, 1972), *S. aspera* ssp. *micrantha* (PIGNATTI, 1969*c*), *S. autumnalis* var. *atrorubens* (FERRARINI, 1967), *S. berica* (LAUSI, 1968), *S. biflora* (PAWLOWSKI, 1970), *S. callosa* ssp. *australis* (PIGNATTI, 1969*c*), ssp. *callosa,* ssp. *catalaunica* (FERRARINI, 1971), ssp. *lingulata* (PIGNATTI, 1969*c*), *S. cochlearis* (BARBERO, 1968), *S. crustata* (BARBERO, 1968), *S. etrusca* (PIGNATTI, 1969*c*), *S. exarata* (DAMBOLDT, 1968*b*), *S. facchinii* (PAWLOWSKI, 1970), *S. florulenta* (PAWLOWSKI, 1970), *S. lingulata* ssp. *callosa* (BARBERO, 1968), *S. macropetala* (PAWLOWSKI, 1970), *S. moschata* (DAMBOLDT, 1968*b*), *S. muscoides* (PAWLOWSKI, 1970), *S. oppositifolia* var. *latina* (FERRARINI, 1967), *S. presolanensis* (PAWLOWSKI, 1970), *S. tenella* (FORNACIARI, 1963*d*; PAWLOWSKI, 1970), *S. valdensis* (BARBERO, 1968); *Scilla obtusifolia* (DESOLE, 1963, 1971); *Scopolia carniolica* (FENAROLI, 1961*d*, 1962*b*); *Scorpiurus vermiculata* (DI MARTINO, 1970*a*); *Scrophularia lucida* (BIANCO & SARFATTI, 1962); *Senecio carniolicus* (BARBERO, 1967, 1968), *S. incanus* (BARBERO, 1968), *S. persoonii* (BARBERO, 1967, 1968), *S. uniflorus* (BARBERO, 1967, 1968); *Sesamoides pygmea* (VALSECCHI & CORRIAS, 1967); *Sesleria ovata* (PAWLOWSKI, 1970), *S. sphaerocephala* (PAWLOWSKI, 1970); *Silene auriculata* (FERRARINI, 1971), *S. campanula* (BARBERO, 1967, 1968), *S. cordifolia* (BARBERO, 1968), *S. lanuginosa* (FERRARINI, 1971); *Sisymbrium dentatum* (ZANGHERI, 1966*b*), *S. irio* complex (KHOSHOO, 1966), *S. strictissimum* (ZANGHERI, 1966*b,* 1970), *S. zanonii* (ZANGHERI, 1966*b,* 1970); *Smilax inermis* (DESOLE, 1971); *Soldanella alpina* var. *alpina,* var. *occidentalis* (CRISTOFOLINI, G. & PIGNATTI, 1962*b*), *S. minima* ssp. *minima,* ssp. *samnitica* (CRISTOFOLINI, G. & PIGNATTI, 1962*b*), *S. montana* ssp. *hungarica* (CRISTOFOLINI, G. & PIGNATTI, 1962*b*), *S. pusilla* (CRISTOFOLINI, G. & PIGNATTI, 1962*b*), var. *carestiae* (CRISTOFOLINI, G. & PIGNATTI, 1962*b*); *Spartina juncea* (VALSECCHI, 1966*d*); *Spartium junceum* (CORBETTA, 1967*b*); *Spiraea decumbens* (POLDINI, 1969*b*); *Staehelina dubia* (FERRARINI, 1972); *Staphylea pinnata* (PAIERO, 1969); *Taraxacum apenninum* (FÜRNKRANZ, 1964), *T.* sect. *Microcephala* (FÜRNKRANZ, 1964); *Telekia speciosissima* (FENAROLI, 1965); *Teucrium flavum* (CORBETTA, 1967*b*), *T. fruticans* (FUKAREK, 1969), *T. polium* (CORBETTA, 1967*b*); *Thymus capitatus* (SIBILIO, 1961); *Tilia cordata* (FENAROLI, 1970); *Tozzia alpina* (ZANGHERI, 1966*b,* 1970); *Trientalis europaea* (PEDROTTI, 1972*b*); *Trifolium alpestre* (MEUSEL, 1962), *T. brutium* (CATANZARO, 1967*b*); *Trinia dalechampii* (FERRARINI, 1966*a,* 1967,

1971); *Trisetum gracile* (DESOLE, 1971); *Trochiscanthes nodiflora* (ORSIND, 1971); *Ulmus campestris* (FENAROLI, 1970); *Umbilicus rupestris* (MONTACHINI & CARAMIELLO, 1969*b*); *Vaccinium myrtillus* (PIGNATTI, 1969*c*), *V. vitis-idaea* (ZANGHERI, 1966*b*, 1970; ORSINO, 1971); *Valeriana tuberosa* (ZANGHERI, 1966*b*, 1970); *Veronica brevistyla* (VALSECCHI & CORRIAS, 1967); *Vicia serinica* (CAPUTO, 1968*b*, 1968*c*); *Viola bertolinii* (BARBERO, 1968), *V. biflora* (ORSINO, 1971), *V. cenisia* (BARBERO, 1968), *V. comollia* (BARBERO, 1968), *V. corsica* (VALSECCHI & CORRIAS, 1967), *V. majellensis* (BARBERO, 1968), *V. valderia* (BARBERO, 1968); *Wulfenia carinthiaca* (FORNACIARI, 1963*d*).

Alien plants

Ammannia verticillata (PIROLA, 1964*d*); *Artemisia annua* (BIANCHINI, 1967), *A. verlotorum* (CHIAPPINI, 1964*d*); *Aster squamatus* (CATANZARO, 1964; VALSECCHI, 1965*b*); *Cenchrus pauciflorus* (GRILLI, 1963); *Heliotropium curassavicum* (CATANZARO, 1962; DI MARTINO, 1962*a*); *Lindernia dubia* (PIROLA, 1964*d*), *L. pixidaria* (PIROLA, 1964*d*); *Opuntia vulgaris* (FORNACIARI, 1967*a*); *Panicum dichotomiflorum* (FENAROLI, 1964*c*); *Paspalum dilatatum* (CHIOSI, 1965), *P. distichum* var. *paspalodes* (CHIAPPINI, 1968*d*); *Pennisetum ruppellii* (TRAPANI, 1965); *Polanisia dodecandra* ssp. *dodecandra* var. *trachysperma* (TORNADORE & GARBARI, 1971); *Solanum elaeagnifolium* var. *leprosum* (DI MARTINO, 1968); *Stipa trichotoma* (MOGGI, 1971).

ECOLOGY, PHYTOSOCIOLOGY, VEGETATION MAPS

The works listed in this chapter are fundamentally studies of the plant ecology and communities of particular zones, the phytosociological chracteristics of some plant formations, and the ecology of particular species; vegetation maps with relevant explicative notes are also included here.

Studies of general interest — Before mentioning the papers strictly concerning our country, I wish to refer to some works of general interest which have appeared in Italy since 1961. NEGRI's (1914) paper on the fundamental ecological units in plant geography was translated into English in 1970. PIROLA has published an intro-

duction to phytosociology (1970) in which some data on Italian vegetation are given. The concept of potential vegetation has been discussed in a paper by TOMASELLI (1966). The correlation between vegetation maps and soil maps has been taken into consideration in a paper by WRABER (1969). A comparative study of Raunkiaer's and Braun-Blanquet's methods for the survey of plant communities has been carried out by CATTANI (1966) and MONTELUCCI (1971*b*) in three different formations of Latium. SCHMID's (1949) work on the fundamentals of the natural distribution of the Mediterranean vegetation was translated into Italian in 1963. The measurement of the Mediterranean bioclimate has been the subject of a paper by GIACOBBE (1964). The limits of the vegetation in active volcanoes have been investigated by POLI (1969*a*, 1970*a*).

Some works have been devoted to the study of the affinities of the vegetation of some parts of Italy with that of other countries. The connections between the vegetation of Southern Italy and Sicily with that of the Balkans and some Afro-Asiatic countries have been pointed out by TOMASELLI (1972). Some comparative observations between the vegetation of the volcanoes Etna and Fujiama have been published by POLI (1964). RITTER-STUDNICKA (1969) has shown the affinities between serpentinophytes from Tuscany and from Bosnia. Finally BARBERO, BONIN & QUEZEL (1971) have studied the «pelouses écorchées» of the Mediterranean mountains, while BARBERO & LOISEL (1972) have investigated the Mediterranean and Mountain-Mediterranean «pelouses à Brome» with the aim of classifying them from the phytosociological point of view.

Studies on the vegetation — Numerous papers have been published on different aspects of the vegetation of various parts of Italy. They differ from the works on flora and vegetation quoted above in that they do not contain a complete list of the plants growing on the pertinent territories. However, they are of equal interest to our report since numerous plants are mentioned as members of the described plant communities. I list also some papers which were prepared as guides to the excursions of the Italian Botanical Society or other Institutions. Although prepared with different aims, they provide useful data on the vegetation.

The works on flora and vegetation quoted previously are not listed again below, so both lists must be consulted in order to

have a complete view of the papers dealing with the vegetation of Italy published since 1961.

I do not mention below those papers with vegetation maps, since they are assembled together in a separate paragraph. However, the explanatory text which accompanies the map is a good source of information on the vegetation of the relevant territories. Consequently the next paragraph is, in the event, a continuation of the present one.

Dry valleys of the Alps (BRAUN-BLANQUET, 1961) — Northern Apennines (OBERDORFER & HOFMANN, 1967); Central Appennines (FURNARI, 1970); «Pélouses écorchées» of the Apennines (BONIN, 1969) — Mediterranean and coastal zones (MARCHESONI, 1963) — Sugar-beet fields in Central Italy (COVARELLI, 1968) — Piemonte: Types of vegetation of Piedmont (TOSCO, 1968); Mediterranean plants in Piedmont (MONTACCHINI & CARAMIELLO, 1969*b*); Valsesia (BERTOLANI MARCHETTI, 1968*b*); Val Sessera (FENAROLI, 1961*a*, 1962*b*, 1962*c*); Val di Susa, Forte di Exilles (MONTACCHINI, FILIPELLO & ARIELLO, 1965) and Salbertrand (MONDINO, 1969); ruderal plant communities in Turin (TOSCO, 1961); Colline di Torino (MONDINO & GIORDANO, 1962); Alta Val Pellice (GIORDANO, MONDINO, PALENZONA, ROTA & SALANDIN, 1970); Valle Grana (MONDINO, 1964 & 1965); Val Gesso (BONO, 1965*f*, 1966*a*); Valle Pesio (BONO, 1961 & 1962) — Valle d'Aosta: Vegetation in general (PEYRONEL, 1964); Monte Rosa (PEYRONEL, 1972); Val di Rhèmes (PEYRONEL, 1969) — Piemonte and Liguria: Phytosociological units for the maps of the Piedmontese Alps (OZENDA, 1971); Phytogeographical sectors and their types of vegetation in the Maritime and Ligurian Alps (BARBERO & BONO, 1968); Plant communities in the Maritime and Ligurian Alps (POIRION & BARBERO, 1967, 1968; BARBERO, BONO & OZENDA, 1970); Deciduous woods (BARBERO, GRUBER & LOISEL, 1971) and «Pelouses écorchées» (BARBERO, 1969*b*) of the Maritime and Ligurian Alps; Maritimes Alps (BONO, 1969*d*); Communities of the siliceous rocky and stony places of the Mercantour-Argentera and the Ligurian Alps (BARBERO & BONO, 1967); Communities of the calcareous rocky and stony places of the Ligurian Alps (BARBERO, 1969*a*); Phytosociological units in eastern France and north-western Italy (BARBERO & LOISEL, 1969); The Ligurian Apennines and affinities with the Apuane Alps in Tuscany (BARBERO & BONO, 1971) — Liguria: Outlines of the vegetation of the Region (ORSINO, 1969); Vegetation of the coastal strip (MARTINI & ORSINO, 1969*b*); Plant

communities between Monaco and Genoa (DE BOLOS, 1970*a*, 1970*b*); Selva d'Orba (MORENO, 1971); Valle dell'Entella (CRISTOFOLINI, 1965); Lakes of Mt. Aiona (CAGNOLARO, 1971) — Piemonte and Lombardia: Rice-fields (PIROLA, 1964*d*); Alta Pianura Padana (TOMASELLI, 1968) — Lombardia: Communities along the rivers Ticino, Adda and Po (GENTILE, 1971); Sasso Rosso of Bernina (CREDARO & PIROLA, 1962); Province of Sondrio (GIACOMINI, 1960); Communities of the herb hummocks in cryonival fields of Livigno valley (PIROLA, 1963); Conca di Bormio (GIACOMINI & PIROLA, 1965); Prealpi Bresciane (ARIETTI, 1962*a*); Val Sabbia (ARIETTI, 1963); Val Cavallina (FENAROLI, 1962*d*); Group of Mt. Resegone (FENAROLI, 1969*b*); Rock communities in Insubria (HOFER, 1967); Pond in Baggio near Milan (PIAZZOLI PERRONI, 1967); Sabbioni Lomellini, west of Pavia (CORBETTA, 1968*c*); Fontanili Lomellini (CORBETTA, 1969); Meandri del Ticino (PIROLA, 1968*a*); Bosco Fontana near Mantova (AGOSTINI, 1965*c*); Pavese Apennines (PIROLA, GENTILE & BALDUZZI, 1967; PIGNATTI, 1967) — Lombardia and Trentino-Alto Adige: Parco Nazionale dello Stelvio (PIROLA, 1968*c*; PEDROTTI, 1969*b*; PEDROTTI, ORSOMANDO & CORTINI-PEDROTTI, 1970); Mediterranean-thermophilous communities of Garda Lake (ARIETTI, 1965) — Trentino-Alto Adige: Herbaceous plant communities of calcareous soils in Trentino (PEDROTTI, 1970*b*); Western Dolomites (PEDROTTI, 1963*f*); Lake of Carezza (ARRIGHETTI, 1972); Western Trentino (MARCHESONI, 1962); Peat-bog of Fiavè (MARCUZZI, LORENZONI & DAL DOSS, 1971); Peat-bog of Le Viotte in Mt. Bondone (PEDROTTI, 1967*d*); Alta Anaunia (RIZZI LONGO, 1972); Meadows of the Val di Sole (PEDROTTI, 1963*a*); Val Martello (FRANCALANCIA, 1969); Val Venosta (PEDROTTI, 1966*a*) — Veneto: Province of Belluno (CALDART, 1966*c*); Val Belluna (CALDART, 1963); Illiric plants in the forest communities of Cansiglio (HOFMANN, 1967*b*); Mt. Baldo (BONI & FERRARI, 1972); Prealpi Vicentine (CURTI, 1968); Basin of the lake of Fimon (CHIESURA & LORENZONI, 1965); Mt. Cesen in the Prealpi Trevigiane (ZANOTTO, 1961); Laguna Veneta (PIGNATTI, 1966; CAPPELLETTI, 1966); Colli Euganei (LORENZONI, 1968*c*) — Veneto and Emilia-Romagna: Territory of Po River (CORBETTA, 1972) — Friuli-Venezia Giulia: Vegetation of the Region (POLDINI, 1971); Bassa Pianura Friulana (PAIERO, 1965; LORENZONI & PAIERO, 1965*b*); Risorgive friulane (FORNACIARI, 1969*b*); Lagoons of Friuli-Venezia Giulia (FORNACIARI, 1971*a*); Colline moreniche in Friuli (FORNACIARI, 1970*b*); Mount Glemina (FORNACIARI, 1970*a*); Cavernicolous stations in the eastern

Prealpi Friulane (LORENZONI & PAIERO, 1965*a*); Carnic Alps (PIGNATTI, 1962); Carnic Alps — Sauris (PIGNATTI & PIGNATTI, 1968); Gulf of Trieste (LAUSI & POLDINI, 1962; POLDINI, 1964*a*); Karstic zone (MEZZENA & POLDINI, 1966); Mouth of karstic caves (LAUSI, 1965*a*); Dolines and southern slope of Mt. Cocusso (LAUSI & POLDINI, 1972*b*), Val Rosandra (LAUSI & POLDINI, 1972*c*), and Aurisina-Cave (LAUSI & POLDINI, 1972*a*) near Trieste; Wood formations in the peninsula of Istria (BAUMGARTNER, 1964) — Lombardia and Emilia-Romagna: Appennino Pavese Piacentino (PIGNATTI & PIGNATTI, 1972) — Emilia-Romagna: Gessi Bolognesi (CORBETTA, 1964); Bosco della Mesola (AGOSTINI, 1965*b*; LONGHI, 1968); Cassa di colmata of Lamone river (CORBETTA, 1967*c*); «Valli» of the coastal plains of Ferrara and Ravenna (CORBETTA, 1968*d*); Coasts of Emilia and Romagna (MONTANARI, 1969; ZANGHERI, 1970); Woods of S. Vitale and Classe near Ravenna (PADULA, 1968); Romagna (ZANGHERI, 1966 & 1970); Val Senio (ZANGHERI, 1964*c*); Forest of Campina (ZANGHERI, 1968); A lake in Mt. Fumaiolo (RAFFAELLI, 1971) — Emilia-Romagna and Toscana: Mt. Cimone in the Appennino tosco-emiliano (BERTOLANI MARCHETTI, 1962*c*); Appennino tosco-romagnolo (ZANGHERI, 1965*a*) — Marche: Mt. Conero near Ancona (BRILLI-CATTARINI, 1968*b*); Rheophilous communities of Potenza river (PEDROTTI, DELL'UOMO & CORTINI PEDROTTI, 1970); Piani di Montelago near Camerino (PEDROTTI, 1967*a*) — Marche and Toscana: Sasso di Simone and Simoncello near Pennabilli (PISA & UBALDI, 1971) — Toscana: The Apennines of Lunigiana (FERRARINI, 1962); The Apuane Alps in general (FERRARINI, 1970*a*); The high zones of the Apuane Alps (FERRARINI, 1966 & 1967); Passo del Vestito, Passo degli Uncini and Mt. Altissimo (FERRARINI, 1970*b*), and Foce di Pianza and Mt. Sagro (FERRARINI, 1970*c*) in the Apuane Alps; Pratofiorito (MELINOSSI, 1966); Woods and beaches of Viareggio (MONTELUCCI, 1970*a*); Lake of Massaciuccoli (MONTELUCCI, 1970*b*); Selva Pisana (CORTI, 1970*a*); San Rossore (CORTI, 1970*b*); Coastal vegetation of S. Rossore and Migliarino (DE PHILIPPIS, 1970); Padule di Fucecchio (LORENZONI & CHIESURA LORENZONI, 1968); Poggio di Firenze (MONTELUCCI, 1971*a*); Hills near Siena (FERRI, 1965); Val d'Orcia hills (ANTONI, 1965); Submediterranean forest vegetation in Maremma (E. PIGNATTI, 1967); Vicinity of Tirli (SANESI, 1965) and Monti dell'Uccellina (PIGNATTI & SANESI, 1966) in the province of Grosseto — Marche and Umbria: Appennino Umbro-Marchigiano (PEDROTTI, 1969*a*; PEDROTTI

& SANESI, 1969), and karstic plains of it (PEDROTTI, 1965) — Umbria: Lake Trasimeno (GRANETTI, 1965); Swamp of Colfiorito (PEDROTTI & PETTOROSSI, 1968) — Lazio: Travertines of Bassano in Teverina (MONTELUCCI, 1969, 1970*d*); Mt. Terminillo (GIACOMINI, 1968*b*; VISONÀ, 1968); Montetosto near Cerveteri (MONTELUCCI, 1962*a*); Epiphytes of Rome and Latium (BONAVENTURA & CACCIATO, 1961); Monti Albani (MONTELUCCI, 1965*a*); Monti Ernici (MONTELUCCI, 1967*c*); Monti Leprini and Ausoni (MONTELUCCI, 1967*a*); Circeo (PADULA, 1967, 1969); Coastal vegetation of Latium (ANZALONE, 1963*b*); Arcipelago Ponziano (CAPUTO & ANZALONE, 1967) — Campania: Group Taburno-Camposauro of the Apennines (CAPUTO, 1968*d*) — Lazio and Abruzzo: Zone from Tivoli to L'Aquila (MONTELUCCI, 1962*b*) — Abruzzo: Pasture communities in Abruzzo (RICCI & RIVERA, 1962); Appennino Abruzzese (BRUNO & FURNARI, 1966); Gran Sasso and Parco Nazionale d'Abruzzo (BAZZICHELLI & FURNARI, 1962); Gran Sasso (GIACOMINI & FURNARI, 1962), and the pasture communities of the high zones of it (FURNARI, 1962*a*); Mt. Portella of Gran Sasso (BRUNO, FURNARI & SIBILIO, 1965); Mt. Sirente (TAMMARO & VERI, 1971); Maiella (MIGLIACCIO, 1970) — Puglia: Vegetation in general (FRANCINI CORTI, 1966); Lakes of Lesina and Varano (CORBETTA, 1970*b*); Gargano (FENAROLI, 1966; AGOSTINI, 1967*b*; FENAROLI, 1969*a*); Vicinity of Manfredonia (CORBETTA, 1972); Rock communities of Monte S. Nicola (BIANCO & SARFATTI, 1962); «Spunnellate» of Castiglione (CURTI & LORENZONI, 1966*b*); Southern Murge and Salento (SARFATTI, 1967); Territory of Maruggio (AMICO, 1963); Meadow in Salento (MONTELUCCI, 1967*f*); Coasts of the Ionian Sea (LORENZONI, 1967*f*); Isola Grande near Porto Cesareo (CURTI & LORENZONI, 1968) — Basilicata: Forest communities and vegetation belts of the Group of Volturino in the Appennino Lucano centrale (FAMIGLIETTI & SCHMID, 1968); Territory of Matera (MESSERI, 1967) — Calabria: Anthropic mountain vegetation (GIACOMINI & GENTILE, 1962); Eastern coasts (BARBAGALLO & FURNARI, 1970*c*); Sila Piccola and Serre (FERRARINI & PADULA, 1970); Serra S. Bruno (VOLPINI, 1962); Fern communities in the Armo valley near Reggio Calabria (AGOSTINI, 1962*a*) — Calabria and Sicilia: Affinities in the vegetation (GENTILE, 1961); soil features of some stations (DI BENEDETTO, 1961) — Sicilia: Plant ecology in Sicily (LUCIANI, GAILLOCHET, TOMASELLI & MATHON, 1962; LUCIANI, MATHON & GAILLOCHET, 1965); Mt. Pellegrino near Palermo (DI MARTINO & SORTINO, 1970*b*); Pineta di Linguaglossa (DI BENEDETTO, POLI & TOMASELLI,

1963); Etna (POLI, 1964, 1965*a*, 1965*b*, 1967, 1970*b*; FURNARI & RONSISVALLE, 1972); Plain of Catania (TOMASELLI, 1961*a*, 1962); Mouth of S. Leonardo river (FURNARI & RONSISVALLE, 1971); Piani and Colli Iblei (ALBO, 1961, 1964); Coastal sloughs of south-eastern Sicily (BRULLO & FURNARI, 1971); Pasture communities in the territory of Ragusa (GENTILE, 1964*a*); Vicinity of Gela (RONSISVALLE, 1971); Eolie Is. (FERRO & FURNARI, 1969); Island of Stromboli (FERRO & FURNARI, 1968*b*); Island of Ustica (RONSISVALLE, 1970) — Sardegna: Outlines of the vegetation of Sardinia (DESOLE, 1967*a*); Phytoclimatology of Sardinia (ARRIGONI, 1968*a*); Pasture communities of Sardinia (COSSU, 1961); The vegetable landscape of northern Sardinia (GIACOMINI, 1967); Gallura (DESOLE, 1962*b*); Piana dei «Grandi Sassi» near Aggius (PIETRACAPRINA & VALSECCHI, 1967); Beach of La Ciaccia, east of Castelsardo (DESOLE, 1967*c*); Coasts from Abbacurrente to Maritza (CHIAPPINI, 1962*a*); Stagno di Platamona (CHIAPPINI, 1963*a*); Stagno di Genano near Porto Torres (CHIAPPINI, 1962*d*); Coast of Piscina Ruja-Cala della Barca in the Promontory of Capocaccia (DESOLE, 1967*b*); Stagno di Calich near Alghero (VALSECCHI, 1964*c*); Pasture community near the Foresta di Burgos (VALSECCHI, 1969*c*); Badde Salighes near Bonorva (DESOLE, 1967*d*); Mountains of Oliena (MARTINOLI, 1967); Funtana Bona near Orgosolo (ARRIGONI, 1967*a*); Gennargentu (ARRIGONI, 1966); Zones from Funtana Bona to Cagliari (ARRIGONI, 1967*b*); Stagno di S'Ena Arrubia in the Gulf of Oristano (VALSECCHI, 1972).

Vegetation maps — Geobotanical activity has been centred also on the preparation of vegetation maps of some areas of our country. The maps which have been drawn up since 1961 are not numerous, but interest in these kinds of studies has been greatly increasing in recent years. I think that the appointment in Italy, as already made in other countries, of a service for the survey of vegetation maps would be greatly advisable. Some maps of the western Alps which interest both the Italian and the French territories are in preparation in the «Laboratoire de Biologie végétale» of Grenoble University (France) which has become the most important centre for the study of vegetation of the western Alps. Its director, P. OZENDA, has recently published a progress report (1971) on the maps in preparation for the Maritime and Ligurian Alps, in which he also gives a provisional list of the main types of vegetation

intended for mapping, subdivided according to the relevant altitudinal belts.

The maps listed below are accompanied by a text in which the characteristics of the types of vegetation on the maps are described. Accordingly, the text and the map are together a synthetic survey of the vegetation. The maps refer to territories of various extent and have been prepared with different purposes, so that the list is rather heterogeneous.

Two maps of the vegetation of Italy (incl. Sicily and Sardinia) at the scale of 1:1,000,000 have been published. The map prepared by TOMASELLI (1970) shows the potential vegetation; the other, by FENAROLI (1970), represents the real vegetation of Italy.

OZENDA (1966) has published a paper dealing with the vegetation of the south-western Alps. A map (scale of 1:400,000) is added to the text, in which he gives a synthesis of the vegetation of this part of the Alps with a description of the main phytosociological units of the various altitudinal belts.

Dealing first with Northern Italy, I mention the map of vegetation and cultivations (scale 1:25,000) of the Alta Val Pellice, west of Turin (GIORDANO, MONDINO, PALENZONA, ROTA & SALANDIN, 1970). Vegetation maps of three other valleys of Piemonte have been published: one of the Valle Grana (MONDINO, 1968), another of the Valle Pesio (BONO, 1961-1962) and a third one of the Valle Gesso (BONO, 1969*b*) in the Maritime Alps. Furthermore, a map of the district of Vievola (Vieve) in the Maritime and Ligurian Alps (Piemonte and Liguria) has been compiled by BARBERO and BONIN (1969). All these maps have been published at the scale of 1:50,000. In Liguria, MARTINI and ORSINO (1969*b*) have prepared a vegetation map (scale 1:100,000) of all the coastal strip from sea level up to about 200 metres of altitude. Maps of the promontories of Capo Noli and Portofino are in preparation in the Botanical Institute of Genoa University. A map of the high valley of S. Giacomo, south of Spluga Pass (Prov. Sondrio in Lombardy) has been prepared by GIACOMINI, PIROLA and WIKUS (1962, 1964). The map (scale 1:12,500) is chiefly devoted to the representation of pasture areas. PIROLA (1965*a*) has drawn up a map (scale 1:2,000) of the vegetation of another area of the same Province near Livigno. It shows the connection between the phreatic table and the growth of the meadows scythed periodically. Both maps were intended to serve in the study of land utilization for agriculture. A map of the landscape

of the Parco Nazionale dello Stelvio at scale of 1:100,000 has been prepared by PEDROTTI, ORSOMANDO & FRANCALANCIA (PEDROTTI, 1969*b*). Nine sheets of the map of the forest vegetation of Trentino (scale 1:50,000) have been published in the last five years (DE STANCHINA, FERRARI & al., 1968-1972). A map of Romagna (scale 1:200,000) has been drawn up by ZANGHERI (1966 & 1970).

In Central Italy we record various maps. One shows the vegetation of the Marche (scale 1:200,000) and has been drawn up by a group of botanists of Camerino University (PEDROTTI, ORSOMANDO & al., 1970). PEDROTTI (1967*c*) has compiled a phytosociological map (scale 1:3,000) of the plains of Montelago, west of Camerino (Marche). PEDROTTI and PETTOROSSI (1969) have mapped the vegetation of the small swamp of Colfiorito in Umbria. BRUNO & COVARELLI (1968) have prepared a map of the pasture communities of the Val Sorda in the Appennino Umbro (scale 1:10,000). VISONÀ (1968) has compiled a vegetation map of the immediate surroundings of the International Biological Programme research station of Mt. Terminillo (Lazio) at the scale 1:10,000. BRUNO and BAZZICHELLI (1966) have published a schematic map (scale 1:100,000) of the vegetation of Abruzzo National Park. Finally, BRUNO, FURNARI and GIACOMINI (1965) have drawn up a detailed map of the vegetation of the south-eastern slope of Mt. Portella of Gran Sasso (Abruzzo) at the scale of 1:3,300.

Only one map deals with Southern Italy. It show the vegetation of the Group of Volturino in the Appennino Lucano Centrale (FAMIGLIETTI & SCHMID, 1968) at a scale of 1:50,000.

A map of the natural potential vegetation of Sicily (scale 1:500,000) has been prepared by GENTILE (1968). It is the first example of an interpretation of the potential vegetation of Italy. The phytosociological units shown in the map are alliances, but various associations of them are described in the text. The techniques adopted for the realization of this map have been described by BALDUZZI (1969). Two maps of local interest must be also mentioned. POLI (1965*a*, 1965*b*) has published a map of the distribution of the altimontane communities of Mt. Etna (scale 1:25,000). PIROLA (1965*c*) has sketched a map of the vegetation of the Island of Capo Passero (approx. scale 1:1,800) of south-eastern Sicily.

The main vegetation types of Sardinia are shown in the map (scale 1:1,000,000) published by CHIAPPINI (1971).

Synecology and Phytosociology — Some papers have been devoted to the description of the synecological and phytosociological characteristics of particular communities. Although prepared with different aims, they provide useful information for a study of the flora and for the evaluation of the phytogeographical significance of many species. I have assembled here both the papers carried out following the phytosociological theories and the papers in which communities are studied according to a synecological conception of the plant formations. All works are arranged according to the types of plant communities.

Communities with *Abies alba* in the Maritime and Ligurian Alps (BARBERO & BONO, 1970); Fir-wood of Fonte Vetica in Abruzzo (MORANDINI & GUIDI, 1970); Mixed woods of *Abies alba* and *Picea abies* of Paularo in the Province of Udine (SCREM, 1967); *Abieti--Fagetum* of Sasso Fratino in the Appennino Tosco-Romagnolo (HOFMANN, 1965); *Aceri-Fagetum* in the Julian and Dinaric Alps (ZUPANCIC, 1969); Alluvial communities with *Alnus incana* of the Bardonecchia river in Piedmont (MONDINO, 1964*b*); Communities with *Ampelodesmos tenax* near Tivoli and Sezze in Latium (PIGNATTI, PEDROTTI & LORENZONI, 1962); *Arrhenatheretum* of Chialminis in the Western Julian Prealps (POLDINI, 1966*d*) and of the Appennino Umbro-Marchigiano (PEDROTTI, 1963*e*); Associations with *Artemisia alba* in the Monti Pisani (POSOCCO, 1966); «Pelouses écorchées» *(Astragaletalia sempervirentis)* of the Maritime and Ligurian Alps (BARBERO, 1969*b*); Communities with *Astragalus sirinicus* ssp. *sirinicus* in the Group of Sirino in the Appennino Lucano (CAPUTO, 1970); *Astragalo-Stipetum pennatae* in north-eastern Friuli (LORENZONI, 1964*a*); *Bromo-Seslerietum interruptae* in the Adriatic coastal zones (TRINAJSTIC, 1969); Mediterranean and Montane-Mediterranean communities («pelouses») with *Bromus* (BARBERO & LOISEL, 1972); Communities with *Buxus sempervirens* in the Valle Grana in the Cottian Alps (MONDINO, 1961*b*); Heath with *Calluna* in the Apuane Alps (BAZZICHELLI, 1964); *Caricetalia curvulae* in the Maritime and Ligurian Alps (BARBERO, 1970*a*); Communities with *Carex curvula* in Val d'Ala in the Graian Alps (MONDINO, 1966*b*) and with *Carex humilis* in Valle di Susa in Piemonte (MONTACCHINI & ARIELLO, 1968) and with *Carex firma* and *C. mucronata* in the Ligurian Alps (BARBERO & CHARPIN, 1970); *Carpinetum orientalis* (LAUSI & POLDINI, 1968*b*); Chestnut woods *(Castanea sativa)* of Insubria (HOFFMAN, 1967*a*), of the Apuane Alps (FERRARINI, 1964*a*), and

Collalto Sabino near Rieti (MONTELUCCI, 1967*d*); Stations with *Ceterach officinarum* in the Valli del Natisone in Friuli (LORENZONI, 1961); *Chrysopogonetum grylli* of the plains of Friuli (LORENZONI, 1966*a*, 1967*d*); *Cymbalaria-Parietarietea* in Italy (OBERDORFER, 1969); *Daphnetum petraeae* on the calcareous soils of Trentino (PEDROTTI, 1970*b*); *Drypio-Festucetum* in Val Rosandra near Trieste (POLDINI, 1967*a*); *Elyno-Seslerietea* in the Apennines and Dinaric Alps (LAKUSIC, 1969); *Eragrostidion* in the cultivation of *Citrus* in Sicily (POLI, 1966); *Euphorbietum spinosae-ligusticae* in the serpentine soils of Liguria (HOFMANN, 1969*b*); Beech woods *(Fagus sylvatica)* in the Maritime and Ligurian Alps (BARBERO, 1970*b*), in the Prealpi Bergamasche (TOMASELLI, 1961*c*), Venetian Alps (PIGNATTI, 1964), in Bosco del Cansiglio in Veneto (KRAL, 1969), in the Northern Apennines (HOFMANN, 1969*a*), in Romagna (ZANGHERI, 1966*a*), in the Apuane Alps (HOFMANN, 1971), in Lazio (ANZALONE, 1961*d*, 1961*e*), in the vicinity of the International Biological Programme research station in Mt. Terminillo (CANTIANI & VISONÀ, 1968), in Southern Italy (GENTILE, 1969*a*), in the promontory of Gargano (HOFMANN, 1962, 1969*c*), in Mt. Pollino in Calabria (BONIN, 1967), in the Calabrian Apennines (AGOSTINI, 1963; GENTILE, 1964*c*, 1964*d*), and in Sicily (HOFMANN, 1960*a*); *Festucetalia spadiceae* in the Maritime and Ligurian Alps (BARBERO, 1970*a*); *Festucetum spectabilis* in the calcareous soils of Trentino (PEDROTTI, 1970*b*); *Festuco--Seslerietea* in the Apennines and northern Balkan mountains (BARBERO & BONIN, 1970); Communities with *Juniperus sabina* in the Alps (CAPPELLETTI E. M., 1964, 1965); *Laserpitio-Festucetum alpestris* in the calcarous soils of Trentino (PEDROTTI, 1970*b*); Communities with *Lygeum spartum* in southern Calabria and eastern Sicily (GENTILE & DI BENEDETTO, 1962), and in eastern Sicily (GENTILE, 1962); *Malachietum aquatici* in the province of Vercelli (PIROLA, 1967); *Nardetalia strictae* in the Maritime and Ligurian Alps (BARBERO, 1970*a*); *Orneo-Quercetum ilicis cotinetosum* in the territory of Trieste (LAUSI & POLDINI, 1966*a*); *Picea abies* communities of northeastern Italy (S. PIGNATTI, 1970), of the Parco Nazionale dello Stelvio (PEDROTTI, 1970*c*), of the vicinity of Bolzano-Mendola (RIZZI, 1970) and of the Carezza lake in the Dolomites (LAUSI, PIGNATTI & POLDINI, 1970); Woods of *Pinus cembra* in the alpine valleys of Novara (TIRABOSCHI, 1964); Woods of *Pinus halepensis* in the valle del Serra in the province of Terni (PEDROTTI, 1967*b*), in the promontory of Gargano (AGOSTINI, 1964, 1969), in the terri-

tory of Taranto (AGOSTINI, 1967*a*), and at Porto Pino in south--western Sardinia (AGOSTINI & SANFILIPPO, 1970); Woods of *Pinus laricio* of Linguaglossa in Sicily (DI BENEDETTO, POLI & TOMASELLI, 1963, 1964); Communities with *Pinus mugo* in the Maritime and Ligurian Alps (BONO, BARBERO & POIRION, 1967; MONTACCHINI, 1968*a*); Shrub vegetation with *Pinus pumilio* of Mt. Majella in Abruzzo (MIGLIACCIO, 1966); Woods of *Pinus nigra* in the Carnic Alps (POLDINI, 1967*d*, 1969*b*), and in the Northern Apennines (CUCCHI, 1965); Woods of *Pinus pinaster* near Deiva in Liguria (HOFMANN, 1960*b*), and in the Apuane Alps (FERRARINI, 1964*a*); Communities with *Pinus sylvestris* in the alluvial plains of the Bardonecchia river in Piedmont (MONDINO, 1964*b*), and in the hills of Emilia (GRADI, 1962; MINERBI, 1968); Formations with *Pinus uncinata* in Piemonte (MONTACCHINI, 1968*a*), and in alpine valleys of Novara (TIRABOSCHI, 1964); Climax woods *(Querco-carpinetum)* in the plains of Friuli (LAUSI, 1967); Communities with *Quercus calliprinos* in Puglia (CHIESURA LORENZONI, CURTI & LORENZONI, 1971), and the macchia of the territory of Ragusa in Sicily (GENTILE, 1964*b*); Woods of *Quercus cerris* in the promontory of Gargano (HOFMANN, 1969*c*); Relict station of *Quercus ilex* in Valle di Susa in Piemonte (MONDINO, 1966*a*); *Quercetum ilicis* in southern Tuscany (PIGNATTI & PIGNATTI, 1968); Association with *Quercus ilex* (*Querco-Teucrietum siculi* of *Quercion ilicis*) in the Southern Apennines and Sicily (GENTILE, 1969); Woods with *Quercus ilex* and *Quercus suber* in the territory of Santo Pietro in Sicily (FURNARI, 1965); Communities with *Quercus macedonica (= Q. trojana)* in Puglia (CHIESURA LORENZONI, CORTI & LORENZONI, 1971); Fragments of woods of *Quercus pubescens* at Vivara in the Flegree Is. (CAPUTO, 1965*b*); Relict woods of *Quercus robur* and *Fraxinus angustifolia* along the Sinello river in Abruzzo (PEDROTTI, 1970*a*); Communities with *Quercus suber* in the province of Genoa (CUCCHI, 1967), and La Spezia (CUCCHI, 1970); Communities with *Primula palinuri* in Capo Palinuro and Scoglio di Fiuzzi in Southern Italy (PIZZOLONGO, 1963*b*); Brughiere subalpine with *Rhododendron ferrugineum* in the southern side of the Eastern Alps (E. PIGNATTI, 1970); *Rosmarino-Ericion* in the territory of Santo Pietro in Sicily (FURNARI, 1965); A community with *Scabiosa crenata* on the mountains of Basento river in Lucania (CORBETTA, 1970*a*); Association with *Scabiosa cretica* at Taormina in Sicily (PIROLA, 1961); Communities with *Senecio balbisianus* and *Peucedanum ostruthium* in the Massiccio Cristallo dell'Argentera in Pied-

mont (BONO, 1968*b*); *Seslerio-Ostryetum* (LAUSI & POLDINI, 1966*b*); Garigues with *Sideritis sicula* in the promontory of Gargano (LAUSI & PIGNATTI, 1969); Stations with *Staphylea pinnata* in Friuli (PAIERO, 1969); *Stipeto-Poion xerophilae* and *Diplachnion* near Trento (PEDROTTI, 1963*c*); *Vaccinio-Piceetea* in the Parco Nazionale dello Stelvio (PEDROTTI, 1966*b*); Communities with *Vaccinium uliginosum* of the Tuscan-Emilian Appennines (SARFATTI & PEDROTTI, 1967).

Besides the papers quoted above I think it worthwhile to mention some in which the communities of a particular habitat and their environmental conditions are taken into consideration.

Halophytic communities and their habitats have been the subject of several papers among which are the series by CAPPELLETTI PAGANELLI (1966, 1968*a*, 1968*b*, 1969) on the ecology of the Laguna of Venice, PIGNATTI's work (1966) on the vegetation of the Laguna Veneta, and the study by BRULLO & FURNARI (1970*b*) on the psammophilous vegetation near the Capo Isola delle Correnti in Sicily.

Other papers have been devoted to the study of the Italian weeds of cultivated areas and of weed communities. LORENZONI has published a series (1962, 1963, 1965, 1967*e*, 1968*b*) on the weeds of the Indian-corn fields in Northern, Central and Southern Italy. Other papers deal with the weeds of other kinds of cultivation, such as those of rice-fields (PIROLA, 1964*d*; STAMPI, 1967), sugar-beet fields (COVARELLI, 1968), and the lands cultivated with Spanish Sainfoin *(Hedysarum coronarium)* (MAUGERI, 1972). Finally, PIGNATTI (1961) has dealt with weed associations in general, while TOMASELLI (1962) has investigated the weed communities of the plain of Catania, and LORENZONI (1964*b*) those of the province of Vicenza.

The attention of Italian ecologists has been devoted also to pasture communities; they have also been studied from the agricultural point of view. We may quote the papers dealing with the pasture vegetation of the high valley of San Giacomo, south of the Spluga Pass (GIACOMINI, PIROLA & WIKUS, 1962, 1964), Val di Sole in Trentino (PEDROTTI, 1963*a*), Comelico superiore in Cadore (ALGHISI, FERRARI, LUCHETTI, SUSMEL & ZANGHERI, 1964), the experimental field of Chialminis in the Western Julian Prealps (POLDINI, 1966*d*), Valsorda in the Appennino Umbro (BRUNO & COVARELLI, 1968), Abruzzo (RICCI & RIVERA, 1962), the high zones of the Gran Sasso d'Italia (FURNARI, 1962*a*), territory of Ragusa in Sicily (GENTILE, 1964*a*), Sardinia (COSSU, 1961) and Foresta di Burgos in Central Sardinia (VALSECCHI, 1969*c*).

Autecology — The ecology of single species has also been the subject of some accounts issued since 1961. As explained above, both ecology and distribution are taken into consideration in some papers; they have already been mentioned in the chapter on Floristics and Plant Geography. However, they are listed here again together with those unquoted papers which are to be classified as mainly or exclusively ecological. The list is arranged in alphabetical order according to the names of the species.

Lycophytina: Isoëtes malinverniana (CORBETTA, 1968*b*).

Filicophytina: Asplenium adulterinum (NARDI, 1972), *A. lepidum* (LAUSI, 1968); *Notholaena marantae* (PICHI SERMOLLI & CHIARINO MASPES, 1963); *Osmunda regalis* (BIZZARRI, 1963; TADINI, 1963); *Woodsia alpina* (FERRARINI, 1964*b*).

Coniferophytina: Abies alba (MESSERI & SALVI, 1964; MAGINI, 1967; SCREM, 1967; DI TOMMASO, 1968; GIACOBBE, 1969); *A. nebrodensis* (GRAMUGLIO, 1967*b*; MORANDINI, 1968); *Juniperus sabina* (CAPPELLETTI, 1964, 1965); *Picea abies* (PIUSSI, 1965; SCREM, 1967; CAPPELLI & SALA, 1970); *Pinus cembra* (BERTOLANI-MARCHETTI, 1962*a*; HOFMANN, 1970; LYABEL, 1972), *P. halepensis* (GIORDANO, 1962; ARRIGONI, 1967*c*), *P. heldreichii* var. *leucodermis* (COCOZZA, 1961), *P. mugo* (CORONA, 1962), *P. pinaster* (AGOSTINI, 1961; DESOLE, 1964*b*; CAPPELLI, 1968), *P. pinea* (ARRIGONI, 1967*c*; GIORDANO, 1968; CORTI, 1969; FRANCINI CORTI, 1969), *P. strobus* (MONDINO, 1965); *Taxus baccata* (DESOLE, 1966; DE DOMINICIS, 1970).

Chlamidospermophytina: Ephedra distachya (DESOLE, 1965*a*), *E. nebrodensis* (DESOLE, 1972).

Angiospermophytina: Alnus viridis (RICHARD, 1968, 1969); *Althenia filiformis* (ONNIS, 1967*a*); *Ampelodesmos tenax* (FENAROLI, 1961*b*); *Anemone trifolia* (HOFMANN, 1968); *Artemisia camphorata* (BONO, 1966*b*); *Astragalus alopecuroides* (PEYRONEL, 1965), *A. centralpinus* (PEYRONEL & DAL VESCO, 1972); *Atropa belladonna* (BONOMO & DI MARTINO, 1965); *Barbarea rupicola* (CHIAPPINI, 1964*c*; SILECCHIA & CHIAPPINI, 1969); *Bellium crassifolium* (ARRIGONI, 1969*a*); *Brimeura* (GARBARI, 1970*b*); *Calendula officinalis* (PERRONE, 1964); *Carex alba* (LAUSI, 1962); *Castanea sativa* (VERGNANO GAMBI, GABBRIELLI, LOTTI & POLIDORI, 1971); *Ceratocephalus falcatus* (TAMMARO, 1969); *Chrysanthemum flosculosum* (CHIAPPINI, 1965); *Corylus avellana* (FORNACIARI, 1961*b*); *Crocus reticulatus* (LORENZONI, 1967*b*); *Erica cinerea* (SERRA, 1966); *Euphorbia dendroides* (BRILLI-CATTA-

RINI, 1965), *E. hyberna* (FERRARINI, 1970*d*), ssp. *insularis* (BAZZICHELLI, 1967*c*; ORSINO, 1972); *Fagus sylvatica* (ANZALONE, 1961*d*, 1961*e*; PAGANELLI & CAPPELLETTI PAGANELLI, 1969, 1970, 1971; CAPPELLETTI PAGANELLI, PAGANELLI & COLLIVA, 1972; COLOMBO MARIANI, 1972); *Festuca calva* (POLDINI, 1970*b*); *Genista aetnensis* (ARRIGONI & VANNELLI, 1967); *Gentiana asclepiadea* (TADINI, 1963), *G. lutea* ssp. *symphyandra* (POLDINI, 1970*b*); *Globularia alypum* (RITTORE BITOSSI, 1966); *Helianthemum lunulatum* (BARBERO, 1967); *Helichrysum italicum* var. *ericoideum* (FERRO, 1972*b*), *H. saxatile* (CHIAPPINI, 1970); *Hypericum aegyptiacum* (ARRIGONI, 1965); *Ilex aquifolium* (DESOLE, 1966; DI MARTINO, 1971); *Lactuca longidentata* (ARRIGONI, 1969*b*); *Linaria mulleri* (ARRIGONI, 1965); *Linnea borealis* (PEDROTTI, 1963*b*; FORNACIARI, 1965*a*); *Lonicera nigra* (ANZALONE, 1962*c*), *L. xylosteum* (ANZALONE, 1962*c*); *Loranthus europaeus* (MONTELUCCI, 1964*d*); *Lunaria rediviva* (PIOVANO, 1963); *Luzula calabra* (MIGLIACCIO, 1965); *Milium multiflorum* (RONSISVALLE, 1968*b*); *Morisia monanthos* (MARTINOLI, 1961; PICCI, 1967*a*); *Opuntia vulgaris* (FORNACIARI, 1967*a*); *Panicum dichotomiflorum* (LORENZONI, 1964*c*); *Phyteuma comosum* (MARCELLO, 1962); *Polemonium coeruleum* (FORNACIARI, 1971); *Potentilla pensilvanica* (PEYRONEL, 1963); *Poterium spinosum* (MARTINOLI, 1970); *Primula palinuri* (PIZZOLONGO, 1963*b*); *Quercus aegilops* (SCARAMUZZI, 1960), *Q. pubescens* (KOCH, 1962), *Q. suber* (CUCCHI, 1963), *Q. trojana* (BIANCO, 1961*a*); *Saussurea discolor* (FERRARINI, 1966b); *Saxifraga arachnoidea* (LINSKENS, 1964), *S. berica* (LAUSI, 1968), *S. incrustata* (POLDINI, 1965*a*); *Scilla obtusifolia* (DESOLE, 1963; PICCI, 1964); *Senecio aetnensis* (RONSISVALLE, 1968*a*), *S. chrysanthemifolius* (RONSISVALLE, 1968*a*), *S. incisus* (RONSISVALLE, 1968*a*), *S. persoonii* (BARBERO, 1967); *Solanum pyrethrifolium*, alien plant (CELA RENZONI, 1968*a*, 1968*b*); *Spartina juncea* (VALSECCHI, 1963*a*, 1966*d*); *Spiraea lancifolis* (MARCELLO, 1962); *Staphylea pinnata* (PAIERO, 1969); *Teucrium chamaedrys* (POLDINI, 1964*b*); *Thymus capitatus* (SIBILIO, 1961); *Trifolium repens* var. *biasolettii* (RONSISVALLE & LUCIANI, 1969), *T. thalii* (RIVERA, 1962); *Trinia dalechampii* (FERRARINI, 1966*a*); *Vaccinium myrtillus* (VERGNANO GAMBI, GABBRIELLI, LOTTI & POLIDORI, 1971), *V. uliginosum* (VERGNANO GAMBI, GABBRIELLI, LOTTI & POLIDORI, 1971); *Vicia serinica* (CAPUTO, 1968*b*); *Viola comollia* (PIROLA, 1965*b*).

ORIGIN AND GENESIS OF THE FLORA

Studies on the origin and genesis of the Italian flora published after 1961 are not numerous, and only concern certain regions. They were mainly prepared on the occasion of congresses organized in recent years in different parts of our country by the Italian Botanical Society, the Italian Society of Biogeography, the Section for the Eastern and Dinaric Alps of the «Internationale Vereinigung für Vegetationskunde», and others. These accounts are not sufficiently interrelated, but are rich in valuable data. Interesting observations on the genesis of the Italian flora are also scattered in papers mentioned in the previous chapters, particularly in that which deals with the geographical distribution of species.

The constitution of the Italian flora during the different periods of the Quaternary and particularly of Postglacial times has been the subject of many palynological investigations. They are particularly important for the study of the genesis of present vegetation. I had thought to list them here, but they are too numerous, and would deserve to be dealt with in an independent report.

A group of papers treats the origin and history of the flora of the Alps and that of the Pianura Padana. Among them we must mention BRAUN-BLANQUET's survey (1961) on the genesis of the vegetation of the dry valleys of the Alps, BONO's paper (1969*c*) on the origin and affinity of the Maritime and Eastern Alps, GIACOMINI's general account (1968*a*) on the history of the flora and vegetation of the Western Alps, FORNACIARI's note (1963*d*) on the origin of some endemics of the Alps and Prealps of Friuli, BERTOLANI MARCHETTI's paper (1970) on the climax and palaeoclimax of the Pianura Padano-veneta, FAMIGLIETTI's work (1967) on the history of the forest vegetation of Colli Euganei in the last part of Quaternary, and ZANGHERI's observations (1966 & 1970, 1970) on the past and present vegetation of Emilia and Romagna.

A second group of papers concerns the genesis of the flora of the Apuane Alps. They were given during the Congress of the Italian Society of Biogeography in 1970 when the origin of the fauna was also taken into consideration. FERRARINI (1971) outlined the origin of the altimontane flora and the shifting of altitudinal belts of vegetation during the Pleistocene period. PICHI SERMOLLI (1971) illustrated the composition and genesis of the pteridological flora. ORSINO (1971) pointed out the historical affinities of the

flora and BARBERO and BONO (1971) those of the vegetation, between the Apuane Alps and the Ligurian Apennines. Independently from the Congress, BONO, BARBERO and FERRARINI published (1971) on the connections which link the Apuane to the Maritime and Ligurian Alps, as well as to the Eastern and Dinaric Alps.

The origin and history of the flora of the Apennines have been sketched by PIGNATTI (1969*c*) and FUKAREK (1969). The latter has emphasized the relation between the flora of the Apennines and that of the Balkan mountains. Furthermore, FERRARINI (1962) has sketched the history of the vegetation of the Apennines of Lunigiana.

Problems concerning the origin of the flora of Puglia and the significance of this land in the migration of ancient floras have been discussed, on the basis of the epiontological evidence, by FRANCINI CORTI (1966, 1967) in two papers of great phytogeographical interest; the second was given to the Congress of the Italian Society of Biogeography in 1967.

We may also mention FERRARINI & PADULA (1970) on the past and present vegetation of the Sila Piccola and the Serre of Calabria; TOMASELLI (1972) on the genesis of the vegetation of Southern Italy and Sicily on the basis of the affinity of the present plant formations with those of the Balkans and some Afro-Asiatic countries; TOMASELLI's (1961*b*) summary of the events which are supposed to be responsible for the formation of the present flora and vegetation of Sicily; CHIAPPINI (1967), which points out the importance of the climatic vicissitudes during the Quaternary for the history of the flora and vegetation of Sardinia.

APPENDIX A

List of new species, infraspecific taxa, hybrids and changes in rank

Achillea barrelieri (Ten.) Sch.-Bip. ssp. *barrelieri* forma *schouwii* (DC.) Bazzichelli, stat. nov. (BAZZICHELLI, 1967*a*).

Achillea virescens (Fenzl) Heimerl in Kerner ssp. *tenorei* (Grande) Bässler, comb. nov. (BÄSSLER, 1963).

Aconitum divergens Pancic ssp. *burnatii* (Gayer) Seitz, comb. nov. (SEITZ, 1969).

Adonis aestivalis L. ssp. *cretica* (Huth) Steinberg, comb. et stat. nov. (STEINBERG, 1971).

Adonis aestivalis L. ssp. *provincialis* (DC.) Steinberg, comb. et stat. nov. (STEINBERG, 1971).

Adonis annua L. ssp. *castellana* (Pau) Steinberg, comb. et stat. nov. (STEINBERG, 1971).

Adonis annua L. ssp. *cupaniana* (Guss.) Steinberg, comb. et stat. nov. (STEINBERG, 1971).

Adonis flammea Jacq. ssp. *cortiana* Steinberg, ssp. nov. — Italy (STEINBERG, 1971).

Aira elegans Willd. ssp. *ambigua* (Arcang.) Holub, comb. nov. (HOLUB, 1964).

Alchemilla illyrica Rothm., sp. nov. — Italy (ROTHMALER, 1962).

Alchemilla libericola Fröhn., sp. nov. — Italy: Alps (FRÖHNER, 1965).

Alchemilla sectilis Rothm., sp. nov. — Italy (ROTHMALER, 1962).

Amaranthus × *aellenii* Cacciato, hybr. nov. — Near Rome (CACCIATO, 1968).

Amaranthus albus L. ssp. *latifolius* Lorenzoni et Ziliotto, ssp. nov. — N. Italy (LORENZONI & ZILIOTTO, 1966). — Non rite publ.

Amaranthus bouchonii Thell. var. *cacciatoi* Aellen in Cacciato, var. nov. — Rome (CACCIATO, 1966).

Amaranthus cruentus (L.) Thell. ssp. *alopecuroides* Lorenzoni et Ziliotto, ssp. nov. — N. Italy (LORENZONI & ZILIOTTO, 1966). — Non rite publ.

Amaranthus cruentus (L.) Thell. var. *erythrophyllos* Lorenzoni et Ziliotto, var. nov. — N. Italy (LORENZONI & ZILIOTTO, 1966). — Non rite publ.

Amaranthus gracilis Desf. forma *lusinae* Cacciato, forma nov. — Lazio (CACCIATO, 1964).

Amaranthus hypochondriacus L. var. *longelaxuspicus* Lorenzoni et Ziliotto, var. nov. — Italy (LORENZONI & ZILIOTTO, 1966). — Non rite publ.

Amaranthus × *monteluccii* Cacciato, hybr. nov. — C. Italy (CACCIATO, 1969).

Amaranthus paniculatus L. forma *lusinae* Cacciato, forma nov. — C. Italy (CACCIATO, 1964).

Amsinckia calycina (Moris) Chater, comb. nov. (CHATER, 1971).

Androsace vitaliana (L.) Lap. var. *sesleri* (Buser ex Sünderm.) Kress, comb. nov. (KRESS, 1965).

Anthriscus caucalis Bieb. var. *gymnocarpa* (Moris) Cannon, comb. nov. (CANNON, 1967).

Anthriscus cerefolium (L.) Hoffm. var. *longirostris* (Bertol.) Cannon, comb. nov. (CANNON, 1967).

Argyrolobium zanonii (Turra) P. W. Ball, comb. nov. (BALL, 1968*b*).

Arisarum vulgare Targ. Tozz. ssp. *transiens* Maire et Weiller var. *clusii* (Schott) Engl. in DC. forma *ferrarinii* Garbari et Monti, forma nov. — Toscana (GARBARI & MONTI, 1969).

Armeria canescens (Host) Boiss. ssp. *nebrodensis* (Guss.) P. Silva, stat. nov. (PINTO DA SILVA, 1971).

Armeria sardoa Spreng. ex Boiss. ssp. *genargentea* Arrigoni, ssp. nov. — Sardegna (ARRIGONI, 1970).

Armeria sulcitana Arrigoni, sp. nov. — Sardegna (ARRIGONI, 1970).

Arrhenatherum convolutum (Presl) Potztal, comb. nov. (POTZTAL, 1968).

Arum italicum Mill. var. *nigro-maculatum* (Fiori) Sortino, stat. nov. (SORTINO, 1970*a*). — Non rite publ.

Arum maculatum L. ssp. *maculatum* var. *maculatum* forma *roseum* (Gremblich ex Engler) H. Riedl, stat. nov. (RIEDL, 1967).

Asplenium × *aprutianum* Lovis, Melzer et Reichstein, hybr. nov. [= *A. lepidum* × *trichomanes* ssp. *quadrivalens*] — Abruzzo (LOVIS, MELZER & REICHSTEIN, 1966).

Asplenium × *eberlei* D. E. Meyer, hybr. nov. [= *A. ruta-muraria* × *seelosii*] — N. Italy: Dolomiti (MEYER, 1962).

Asplenium × *lessinense* Vida et Reichstein, hybr. nov. — N. Italy: Monti Lessini (VIDA & REICHSTEIN, 1971).

Asplenium ruta-muraria L. ssp. *dolomiticum* Lovis et Reichstein, ssp. nov. — N. Italy: Trentino (LOVIS & REICHSTEIN, 1964).

Asplenium × *valgannense* Attinger, hybr. nov. [= *A. trichomanes* ssp. *quadrivalens* × *seelosii*] — N. Italy: near Varese (ATTINGER, 1966).

Astragalus aquilanus Anzalone, sp. nov. — C. Italy: Abruzzo (ANZALONE, 1970*b*).

Astragalus centralpinus Br.-Bl., sp. nov. — SW. Alps (BRAUN-BLANQUET, 1968).

Astragalus granatensis Lam. ssp. *siculus* (Biv.) Franco et P. Silva in Franco, comb. nov. (FRANCO, 1968).

Astragalus parnassi Boiss. ssp. *calabrus* (Ten.) Chater, comb. et stat. nov. (CHATER, 1968).

Athamanta cortiana Ferrarini, sp. nov. — Alpi Apuane (FERRARINI, 1965).

Avena versicolor Vill. var. *praetutiana* (Parl. ex Arcang.) Fiori forma *rigida* Sarfatti, forma nov. — S. Italy: Sila (SARFATTI, 1959). — Non rite publ.

Bellardiochloa violacea (Bell.) Chiov. ssp. *aetnensis* (Presl) Chrtek, comb. nov. (CHRTEK, 1970).

Brimeura fastigiata (Viv.) Garbari, comb. nov. (GARBARI, 1967*a*). — Nom. illeg.

Buglossoides arvense (L.) I. M. Johnston ssp. *gasparrinii* (Heldr. ex Guss.) R. Fernandes, comb. nov. (FERNANDES, R., 1971*b*).

Buglossoides minimum (Moris) R. Fernandes, comb. nov. (FERNANDES, R., 1971*b*).

Buphthalmum salicifolium L. ssp. *flexile* (Bertol.) Garbari, stat. nov. (GARBARI, 1971).

Bupleurum baldense Turra ssp. *gussonei* (Arcang.) Tutin, comb. nov. (TUTIN, 1967*b*).

Caltha palustris L. forma *sulphurea* Fornaciari, forma nov. — NE. Italy (FORNACIARI, 1966). — Non rite publ.

Campanula apennina (Podlech) Podlech, comb. nov. (PODLECH, 1970).

Campanula carnica Schiede ex Mert. et Koch ssp. *puberula* Podlech, ssp. nov. — Prealpi Bergamasche (PODLECH, 1965).

Campanula forsythii (Arcang.) Podlech, comb. et stat. nov. (PODLECH, 1965).

Campanula fragilis Cyr. ssp. *cavolinii* (Ten.) Damboldt, comb. nov. (DAMBOLDT, 1965).

Campanula marchesettii Witasek ssp. *apennina* Podlech, ssp. nov. — C. Italy: Marche (PODLECH, 1965).

Campanula tanfanii Podlech, sp. nov. — C. Italy: Marche (PODLECH, 1965).

Campanula pollinensis Podlech, sp. nov. — S. Italy: Monte Pollino (PODLECH, 1970).

Cardamine bulbifera (L.) Crantz var. *garganica* (Fenaroli) Fenaroli, stat. nov. (FENAROLI, 1966).

Carduus affinis Guss. ssp. *brutius* (Porta) Kazmi, comb. nov. (KAZMI, 1964).

Carduus micropterus (Borb.) Teyber ssp. *perspinosus* (Lacaita) Kazmi, comb. nov. (KAZMI, 1964).

Carex elata All. forma *trigyna* Kiem, forma nov. — N. Italy: near Bolzano (KIEM, 1962).

Carex ferruginea Scop. ssp. *austroalpina* (Becherer) W. Dietrich, stat. nov. et emend. (DIETRICH, 1967).

Carex ferruginea Scop. ssp. *macrostachys* (Bertol.) W. Dietrich, stat. nov. (DIETRICH, 1967).

Carex ferruginea Scop. ssp. *tendae* W. Dietrich, ssp. nov. — Alpi Maritime (DIETRICH, 1967).

Carex flacca Schreb. var. *longivaginata* Kiem, var. nov. — N. Italy: Trentino--Alto Adige (KIEM, 1962).

Carex flacca Schreb. ssp. *serrulata* (Biv.) Greuter in Greuter et Rechinger, comb. nov. (GREUTER & RECHINGER, 1967).

Centaurea dissecta Ten. var. *scannensis* Anzalone, var. nov. — Abruzzo (ANZALONE, 1961*c* et 1962*a*).

Centaurea filiformis Viv. ssp. *ferulacea* (Martelli) Arrigoni, stat. nov. (ARRIGONI, 1972*a*).

Centaurea × *sordida* Willd. var. *spinulifera* Zirnich et Cohrs in Cohrs, var. nov. — NE. Italy (COHRS, 1963).

Cerastium carinthiacum Vest. ssp. *austroalpinum* (Kunz) Kunz in Kunz et Reichstein, comb. nov. (KUNZ & REICHSTEIN, 1959).

Cerastium diffusum Pers. ssp. *gussonei* (Tod. ex Lojac.) P. D. Sell et Whitehead, comb. et stat. nov. (SELL & WHITEHEAD, 1964).

Cerastium ligusticum Viv. ssp. *granulatum* (Huter, Porta et Rigo ex Möschl) P. D. Sell et Whitehead, comb. nov. (SELL & WHITEHEAD, 1964).

Cerastium ligusticum Viv. ssp. *palustre* (Loris) P. D. Sell et Whitehead, comb. nov. (SELL & WHITEHEAD, 1964).

Cerastium viscatum (Montelucci) Jalas, stat. nov. (JALAS, 1963).

Chaenorhinum rubrifolium (Robill. et Cast. ex DC.) Fourr. ssp. *rubrifolium* forma *rupestre* (Guss.) R. Fernandes, comb. nov. (FERNANDES, R., 1971*a*).

Chamaecytisus hirsutus (L.) Link var. *garganicus* (Bertol.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Chamaecytisus spinescens (Presl) Rothm. var. *candidus* (Presl) Fenaroli, comb. et stat nov. (FENAROLI, 1970).

Chamaecytisus spinescens (Presl) Rothm. var. *ramosissimus* (Ten.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Cichorium intybus L. ssp. *spicatum* Ricci, ssp. nov. — C. and S. Italy (RICCI, 1966*a* et 1966*b*). — Non rite publ.

Convolvulus tricolor L. var. *cupanianus* (Todaro) Sa'ad, comb. et stat. nov. (SA'AD, 1967) [var. cupanianus «(Todaro, nom. nud.)» Sa'ad].

Convolvulus tricolor L. ssp. *cupanianus* (Sa'ad) Stace, stat. nov. (STACE, 1971).

Corothamnus decumbens (Durande) K. Koch ssp. *elatus* (Ten.) Skalicka, comb. nov. (SKALICKA, 1967).

Corothamnus glaber Skalicka, sp. nov. — NE. Italy (SKALICKA, 1967).

Crepis setosa Haller forma *discoidea* Zirnich in Cohrs, forma nov. — Near Gorizia (COHRS, 1963).

Cryptogrammaceae Pic. Ser., fam. nov. (PICHI SERMOLLI, 1963).

Cuscuta australis R. Br. ssp. *cesatiana* (Bertol.) Feinbrun, stat. nov. (FEINBRUN, 1970).

Cuscuta australis R. Br. ssp. *tinei* (Insenga) Feinbrun, stat. nov. (FEINBRUN, 1970).

Cytisus decumbens (Durande) Spach ssp. *elatus* (Ten.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Cytisus decumbens (Durande) Spach ssp. *elatus* (Ten.) Fenaroli var. *multiflorus* Fenaroli, var. nov. — S. Italy: Gargano (FENAROLI, 1970).

Daucus carota L. ssp. *drepanensis* (Arcang.) Heywood, comb. nov. (HEYWOOD, 1968*b*).

Daucus carota L. ssp. *hispidus* (Arcang.) Heywood, comb. nov. (HEYWOOD, 1968*b*).

Daucus carota L. ssp. *rupestris* (Guss.) Heywood, comb. nov. (HEYWOOD, 1968*b*).

Dianthus ferrugineus Miller ssp. *vulturius* (Guss. et Ten.) Tutin, stat. nov. (TUTIN, 1963).

Dianthus giganteus D'Urv. ssp. *italicus* Tutin, ssp. nov. — Abruzzo (TUTIN, 1963).

Dianthus seguieri Vill. ssp. *italicus* Tutin, ssp. nov. — Alpi Apuane (TUTIN, 1963).

Dianthus sylvestris Wulfen in Jacq. ssp. *siculus* (C. Presl) Tutin, stat. nov. (TUTIN, 1963).

Diplotaxis erucoides DC. forma *odorata* Zodda, forma nov. — Abruzzo (ZODDA, 1962).

Draba dolomitica Buttler, sp. nov. — NE. Italy: Dolomiti (BUTTLER, 1969).

Euphorbia amygdaloides L. ssp. *arbuscula* Meusel, ssp. nov. — Sicilia (MEUSEL, 1969).

Euphorbia hyberna L. ssp. *canuti* (Parl.) Tutin, comb. et stat. nov. (TUTIN, 1968*b*).

Euphorbia pithyusa L. ssp. *cupanii* (Guss. ex Bertol.) A. R. Smith, stat. nov. (SMITH, 1968).

Euphorbia triflora Schott, Nym. et Kotschy ssp. *kerneri* (Huter) Poldini, comb. et stat. nov. (POLDINI, 1969*a*).

Festuca pratensis Huds. ssp. *palustris* Lorenzoni, ssp. nov. — N. Italy (LORENZONI, 1966). — Non rite publ.

Filago pyramidata L. var. *gussonei* (Fiori) Wagenitz, comb. nov. (WAGENITZ, 1969).

Filago pyramidata L. var. *prostrata* (Fiori) Wagenitz, comb. nov. (WAGENITZ, 1969).

Filago tyrrhenica Chrtek et Holub, nom. nov. [= *Evax rotundata* Moris] (CHRTEK & HOLUB, 1963).

Fumana thymifolia (L.) Spach var. *barrelieri* (Ten.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Fumana thymifolia (L.) Spach var. *juniperina* (Lag. ex Dun. in DC.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Gagea trinervia (Viv.) Greuter, comb. nov. (GREUTER, 1970).

Galeopsis speciosa Miller forma *nana* Zirnich et Cohrs in Cohrs, forma nov. — Alpi Carniche (COHRS, 1963).

Gentiana pilosa Wettst. var. *ramosissima* Zirnich et Cohrs in Cohrs, var. nov. — Alpi Giulie (COHRS, 1963).

Gentiana pilosa Wettst. var. *uniflora* Zirnich et Cohrs in Cohrs, var. nov. — Alpi Giulie (COHRS, 1963).

Gentiana terglouensis Hacquet ssp. *schleicheri* (Vaccari) Tutin, stat. nov. (TUTIN, 1971).

Gentiana zirnichiana Cohrs, sp. nov. — Alpi Giulie (COHRS, 1963).

Gentianella columnae (Ten.) Holub, comb. nov. (HOLUB, 1967).

Gentianella insubrica (H. Kunz) Holub, comb. nov. (HOLUB, 1967).

Gifola eriocephala (Guss.) Chrtek et Holub, comb. nov. (CHRTEK & HOLUB, 1963).

Helianthemum croceum (Desf.) Pers. ssp. *bicolor* (Presl) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Helianthemum nummularium (L.) Mill. ssp. *semiglabrum* (Badaro) M. C. F. Proctor, comb. nov. (PROCTOR, 1968).

Helichrysum barrelieri (Ten.) Greuter in Greuter et Rechinger, comb. nov. (GREUTER & RECHINGER, 1967).

Helictotrichon versicolor (Villar) Pilger ssp. *praetutianum* (Arcang.) Cela Renzoni comb. nov. (CELA RENZONI, 1968).

Heliotropium suaveolens Bieb. ssp. *bocconei* (Guss.) Brummitt, comb. et stat. nov. (BRUMMITT, 1971).

Helleborus bocconei Ten. ssp. *siculus* (Schiffn.) Merxm. et Podlech, comb. nov. (MERXMÜLLER & PODLECH, 1961).

Hemionitidaceae Pic. Ser., fam. nov. (PICHI SERMOLLI, 1966).

Hemionitidaceae Pic. Ser. trib. *Hemionitideae* (PICHI SERMOLLI, 1966).

Heptatera angustifolia (Bertol.) Tutin, comb. nov. (TUTIN, 1967*b*).

Herniaria alpina Chaix var. *foliosa* Chaudhri, var. nov. — N. Italy: Val d'Aosta (CHAUDHRI, 1968).

Herniaria alpina Chaix var. *alpina* subvar. *puberula* Chaudhri, subvar. nov. — N. Italy: Val d'Aosta and elsewhere (CHAUDHRI, 1968).

Herniaria bornmuelleri Chaudhri, sp. nov. — C. Italy: Abruzzi (CHAUDHRI, 1968).

Herniaria glabra L. var. *magniflora* Chaudhri, var. nov. — N. Italy and elsewhere (CHAUDHRI, 1968).

Herniaria hirsuta L. ssp. *aprutia* Chaudhri, ssp. nov. — C. Italy: Abruzzi (CHAUDHRI ,1968).

Hieracium bifidum Kit. [var.] *pachyrrizon* Vignolo Lutati et Zodda in Zodda, var. nov. — C. Italy (ZODDA, 1964*b*). — Non rite publ.

Hieracium carthusianum Vignolo Lutati, sp. nov. — Piemonte: Valle di Pesio (VIGNOLO LUTATI, 1964).

Hieracium murorum L. ssp. *carnicum* Zirnich et Cohrs in Cohrs, ssp. nov. — Carnia (COHRS, 1963).

Hieracium piovanii Vignolo Lutati, sp. nov. — Piemonte: Valle di Pesio (VIGNOLO LUTATI, 1964).

Huetia cynapioides (Guss.) P. W. Ball, comb. nov. ssp. *cynapioides* (BALL, 1968*a*).

Hypolepidaceae Pic. Ser., fam. nov. (PICHI SERMOLLI, 1970).

Iberis spathulata J. P. Berg ssp. *nana* (All.) Heywood, comb. et stat. nov. (HEYWOOD, 1964).

Inula spiraeifolia L. var. *glabrata* Zirnich et Cohrs in Cohrs, var. nov. — NE. Italy: near Monfalcone (COHRS, 1963).

Isatis allionii P. W. Ball. nom. et sp. nov. (BALL, 1964).

Jovibarba allionii (Jord. et Fourr.) D. A. Webb, comb. nov. (WEBB, 1963).

Juncus conglomeratus L. forma *sphaericus* Montelucci, forma nov. — Near Firenze (MONTELUCCI, 1971). — Sine design. typi.

Kohlrauschia nanteuilii (Burnat) P. W. Ball et Heywood, comb. nov. (BALL & HEYWOOD, 1962).

Lamyropsis microcephala (Moris) Dittrich et Greuter in Greuter, comb. nov. provis. (GREUTER, 1972*a*).

Lathyrus venetus (Mill.) Wohlf. var. *latifolius* Fenaroli, var. nov. — S. Italy: Gargano (FENAROLI, 1970).

Lavatera triloba L. ssp. *agrigentina* (Tin.) R. Fernandes, comb. et stat. nov. (FERNANDES, R., 1967).

Leontodon hispidus L. var. *carnicus* Zirnich et Cohrs in Cohrs, var. nov. — Carnia (COHRS, 1963).

Leucanthemum ceratophylloides (All.) Nym. ssp. *tenuifolium* (Guss.) Bazzichelli et Marchi in Bazzichelli, comb. nov. (BAZZICHELLI, 1967*b*).

Leucanthemum tridactylites (Fiori) Bazzichelli, comb. nov. (BAZZICHELLI, 1967*b*).

Ligusticum lucidum Mill. ssp. *seguieri* (Jacq.) Leute, comb. et stat. nov. (LEUTE, 1970).

Limonium albidum (Guss.) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium calcarae (Todaro ex Janka) Pignatti, comb. nov. (PIGNATTI, 1971).

Limanium × *dolcheri* Pignatti in Dolcher et Pignatti, hybr. nov. [= *L. articulatum* × *graecum* ssp. *divaricatum*?] — Sardegna (DOLCHER & PIGNATTI, 1971*b*).

Limonium graecum (Poiret) Rech. f. ssp. *divaricatum* (Rouy) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium hermaeum Pignatti, sp. nov. — Sardegna: Isola Tavolara (PIGNATTI, 1971).

Limonium japigicum (Groves) Pignatti, comb. et stat. nov. (PIGNATTI, 1971).

Limonium johannis Pignatti, sp. nov. — Near Napoli (PIGNATTI, 1971).

Limonium laetum (Nyman) Pignatti, comb. et stat. nov. (PIGNATTI, 1971).

Limonium lausianum Pignatti, sp. nov. — W. Sardegna (PIGNATTI, 1971).

Limonium multiforme (Martelli) Pignatti, comb. et stat. nov. (PIGNATTI, 1971).

Limonium panormitanum (Todaro) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium parviflorum (Tineo) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium pontium Pignatti, sp. nov. — Isole Ponziane (PIGNATTI, 1971).

Limonium ramosissimum (Poiret) Maire ssp. *confusum* (Gren. et Godron) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium ramosissimum (Poiret) Maire ssp. *provinciale* (Pignatti) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium ramosissimum (Poiret) Maire ssp. *siculum* Pignatti, ssp. nov. — Sicilia (PIGNATTI, 1971).

Limonium ramosissimum (Poiret) Maire ssp. *tommasinii* (Pignatti) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium remotispiculum (Lacaita) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium tenoreanum (Guss.) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium tenuiculum (Tineo ex Guss.) Pignatti, comb. nov. (PIGNATTI, 1971).

Limonium × *tibulatium* Pignatti in Dolcher et Pignatti, hybr. nov. [= *L. articulatum* × *acutifolium*?] — Sardegna (DOLCHER & PIGNATTI, 1971*b*).

Linum flavum L. ssp. *capitatum* (Kit. in Schult.) Montelucci, comb. nov. (MONTELUCCI, 1965). — Non rite publ.

Linum flavum L. var. *capitatum* (Kit. in Schult.) Fiori forma *hartigii* Montelucci, forma nov. — Lazio (MONTELUCCI, 1965). — Non rite publ.

Linum flavum L. ssp. *capitatum* (Kit. in Schult.) Montelucci forma *serrulatum* (Bertol.) Montelucci, comb. nov. (MONTELUCCI, 1965). — Non rite publ.

Lygos raetam (Forsk.) Heywood, comb. nov., ssp. *gussonei* (Webb) Heywood, comb. et stat. nov. (HEYWOOD, 1968*a*).

Medicago sativa L. ssp. *glomerata* (Balbis) Tutin, comb. et stat. nov. (TUTIN, 1968*a*).

Melittis melissophyllum L. ssp. *albida* (Guss.) P. W. Ball, comb. et stat. nov. (BALL, 1971).

Mentha suaveolens Ehrh. ssp. *insularis* (Req.) Greuter, comb. et stat. nov. (GREUTER, 1972*b*).

Mentha suaveolens Ehrh. ssp. *insularis* (Req.) Greuter var. *reverchonii* (Rouy) Greuter, comb. nov. (GREUTER, 1972*b*).

Micromeria graeca (L.) Benth. ssp. *consentina* (Ten.) Guinea, comb. nov. (GUINEA, 1971).

Micromeria graeca (L.) Benth. ssp. *fruticulosa* (Bertol.) Guinea, comb. et stat. nov. (GUINEA, 1971).

Micromeria graeca (L.) Benth. ssp. *garganica* (Briq.) Guinea, comb. nov. (GUINEA, 1971).

Micromeria graeca (L.) Benth. ssp. *imperica* Chater, nom. nov. (CHATER, 1971).

Micromeria marginata (Sm.) Chater, comb. nov. (CHATER, 1971).

Moehringia bavarica (L.) Grenier ssp. *insubrica* (Degen) Sauer, comb. nov. (SAUER, 1965).

Moehringia lebrunii Merxm., sp. nov. — Italy (MERXMÜLLER, 1965).

Muscari lafarinae (Tin. ex Parl.) Garbari, comb. et stat. nov. (GARBARI, 1968). — Nom. illeg.

Muscari lafarinae (Lojac.) Garbari, comb. nov. (GARBARI, 1970).

Muscarimia alpina (J. Gay ex Bak.) Garbari, comb. nov. (GARBARI, 1968).

Muscarimia flava (Ker-Gawl.) Garbari, comb. et stat. nov. (GARBARI, 1968).

Muscarimia macrocarpa (Sweet) Garbari, comb. nov. (GARBARI, 1970).

Myosotis alpestris F. W. Schmidt ssp. *ambigens* (Béguinot) Grau, stat. nov. (GRAU, 1964).

Myosotis ambigens (Béguinot) Grau, stat. nov. (GRAU, 1970).

Myosotis decumbens Host ssp. *florentina* Grau, ssp. nov. — C. Italy: Toscana (GRAU, 1970).

Myosotis sicula Guss. ssp. *virgata* (Béguinot) R. Schuster, comb. nov. (SCHUSTER, 1967).

Myosotis silvatica Ehrh. ex Hoffm. ssp. *elongata* (Strobl) Grau, comb. et stat. nov. (GRAU, 1964).

Myosotis sylvatica Ehrh. ex Hoffm. ssp. *subarvensis* Grau, ssp. nov. — S. Italy (GRAU, 1964).

Onobrychis alba (Waldst. et Kit.) Desv. ssp. *echinata* (Guss.) P. W. Ball, comb. nov. (BALL, 1968*c*).

Onocleaceae Pic. Ser., fam. nov. (PICHI SERMOLLI, 1970).

Ophrys aranifera Huds. [var.] *atrata* Lindl. forma *nuorensis* Charrier, forma nov. — Sardegna (CHARRIER, 1961). — Nom. nud.

Ophrys fuciflora (Crantz) Moench ssp. *exaltata* (Ten.) Nelson, comb. nov. (NELSON, 1962).

Ophrys fuciflora (Crantz) Moench ssp. *pollinensis* Nelson, ssp. nov. — S. Italy: Monte Pollino (NELSON, 1962).

Ophrys sphecodes Mill. ssp. *garganica* Nelson, ssp. nov. — S. Italy: Gargano (NELSON, 1962).

Ophrys sphecodes Mill. ssp. *panormitana* (Tod.) Nelson, comb. et stat. nov. (NELSON, 1962).

Ophrys sphecodes Mill. ssp. *sicula* Nelson, ssp. nov. — Sicilia (NELSON, 1962).

Opopanax chironium (L.) Koch ssp. *garganicus* (Burnat ex Lacaita) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Oreoherzogia fallax (Boiss.) W. Vent ssp. *liburnia* W. Vent, ssp. nov. — NE. Italy (VENT, 1962).

Oreoherzogia glaucophylla (Sommier) W. Vent, comb. nov. (VENT, 1962).

Oreoherzogia pumila (Turra) W. Vent, comb. nov. (VENT, 1962).

Oreoherzogia pumila (Turra) W. Vent ssp. *velutina* (Bornm.) W. Vent var. *glabra* W. Vent, var. nov. — N. Italy: Dolomiti (VENT, 1962).

Oreoherzogia pumila (Turra) W. Vent ssp. *velutina* (Bornm.) W. Vent var. *glabra* W. Vent forma *lanceolata* W. Vent, forma nov. — N. Italy: Alto Adige (VENT, 1962).

Oreoherzogia pumila (Turra) W. Vent ssp. *pumila* var. *neapolitana* (DC.) W. Vent, comb. nov. (VENT, 1962).

Oreoherzogia pumila (Turra) W. Vent ssp. *pumila* var. *pseudo-alpina* (Huter et Porta) W. Vent, comb. nov. (VENT, 1962).

Oreopteris Holub, gen. nov. *(O. limbosperma)* (HOLUB, 1969).

Oreopteris limbosperma (All.) Holub, comb. nov. (HOLUB, 1969).

Paeonia mascula (L.) Mill. ssp. *russii* (Biv.) Cullen et Heywood, comb. et stat. nov. (CULLEN & HEYWOOD, 1964).

Paeonia officinalis L. ssp. *corallina* forma *barbaricina* Charrier, forma nov. — Sardegna (CHARRIER, 1964). — Non rite publ.

Parapholis marginata Runemark, sp. nov. — Italy and elsewhere (RUNEMARK, 1962).

Parapholis pycnantha (Hack.) Hubb. — Lectotypification: type from Sicilia (RUNEMARK, 1962).

Parvotrisetum myrianthum (Bertol.) Chrtek, comb. nov. (CHRTEK, 1965).

Pedicularis gyroflexa Vill. ssp. *praetutiana* (Levier in Steining.) H. Kunz et E. Mayer in E. Mayer, stat. nov. (MAYER, 1971).

Pedicularis rostrato-capitata Crantz ssp. *glabra* Kunz in Kunz et Reichstein, ssp. nov. — Alpi Bergamasche (KUNZ & REICHSTEIN, 1959).

Petrorhagia saxifraga (L.) Link var. *gasparrinii* (Guss.) Ball et Heywood, comb. nov. (BALL & HEYWOOD, 1964).

Petrorhagia saxifraga (L.) Link var. *glomerata* (Ten.) Ball et Heywood, comb. nov. (BALL & HEYWOOD, 1964).

Petrorhagia velutina (Guss.) Ball et Heywood, comb. nov. (BALL & HEYWOOD, 1964).

Peucedanum × *zirnichii* Cohrs, hybr. nov. — NE. Italy (COHRS, 1963).

Phagnalon graecum Boiss. et Heldr. ssp. *ginzbergeri* Pignatti, ssp. nov. — Malta and elsewhere (PIGNATTI, 1969*b*).

Phagnalon metlesicsii Pignatti, sp. nov. — Sicilia (PIGNATTI, 1969*b*).

Phagnalon rupestre (L.) DC. ssp. *annotinum* (Jord.) Pignatti, comb. et stat. nov. (PIGNATTI, 1969*b*).

Phillyrea latifolia L. var. *typica* C. K. Schneider forma *stroblii* (Fiori) Sarfatti, comb. nov. (SARFATTI, 1965). — Non rite publ.

Phyteuma betonicifolium Vill. var. *rupicolum* Barbero et Bono, var. nov. — Alpi Marittime (BARBERO & BONO, 1967).

Pilosella fulviseta (Bertol.) Sojak, comb. nov. (SOJAK, 1971).

Pilosella pseudopilosella (Ten.) Sojak, comb. nov. (SOJAK, 1971).

Pinguicula longifolia Ram. ex DC. ssp. *reichenbachiana* (Schindler) Casper, comb. nov. (CASPER, 1962).

Pinus clusiana Clem. in Arn. ssp. *nigra* (Arn.) Sarfatti, comb. nov. (SARFATTI, 1959). — Non rite publ.

Potentilla pedata Nestler var. *laeta* (Reichenb.) Fenaroli, comb. et stat. nov. (FENAROLI, 1970).

Primulaceae Ventenat subfam. *Coridoideae* (Reichenb.) Bizzarri, subfam. nov. (BIZZARRI, 1970).

Ptilostemon gnaphaloides (Cyr.) Greuter in Greuter et Rechinger, comb. nov. (GREUTER & RECHINGER, 1967).

Ptilostemon niveus (C. Presl) Greuter in Greuter et Rechinger, comb. nov. (GREUTER & RECHINGER, 1967).

Ptilostemon strictus (Ten.) Greuter in Greuter et Rechinger, comb. nov. (GREUTER & RECHINGER, 1967).

Pulsatilla halleri (All.) Willd. ssp. *halleri* var. *cognensis* K. Krause, var. nov. — NW. Italy: Cogne (KRAUSE, 1958).

Pulsatilla montana (Hoppe in Sturm) Reichenb. ssp. *montana* var. *calyciformis* Rummelspacher, var. nov. — Prealpi Venete (RUMMELSPACHER, 1965).

Pulsatilla montana (Hoppe in Sturm) Reichenb. ssp. *montana* var. *gavensis* Rummelspacher, var. nov. — Appennino Ligure (RUMMELSPACHER, 1965).

Quercus coccifera L. ssp. *calliprinos* (Webb) Corti, comb. et stat. nov. (CORTI, 1967).

Quercus suber L. ssp. *eu-suber* Camus forma *fusicarpa* Valsecchi, forma nov. — Sardegna (VALSECCHI, 1967*a*). — Non rite publ.

Quercus suber L. ssp. *eu-suber* Camus forma *kraspedata* Valsecchi, forma nov. — Sardegna (VALSECCHI, 1966*b*). — Non rite publ.

Quercus suber L. ssp. *eu-suber* Camus forma *poliisosquama* Valsecchi, forma nov. — Sardegna (VALSECCHI, 1966*b*). — Non rite publ.

Quercus suber L. ssp.*eu-suber* Camus forma *radisquama* Valsecchi, forma nov. — Sardegna (VALSECCHI, 1967*a*). — Non rite publ.

Ranunculus polyganthemos L. ssp. *thomasii* (Ten.) Tutin, comb. et stat. nov. (TUTIN, 1964).

Ranunculus venetus Huter ex Landolt, sp. nov. — Veneto (LANDOLT, 1965).

Rhamnus alpinus L. ssp. *glaucophyllus* (Sommier) Tutin, comb. et stat. nov. (TUTIN, 1967*a*).

Rhinanthus pampaninii Chab. forma *simplex* Zirnich et Cohrs in Cohrs, forma nov. — NE. Italy (COHRS, 1963).

Rhinanthus × *zirnichii* Cohrs, hybr. nov. — Alpi Giulie (COHRS, 1963).

Ribes multiflorum Kit. ssp. *sandalioticum* Arrigoni, ssp. nov. — Sardegna (ARRIGONI, 1968).

Rosa micrantha Sm. forma *praetutiana* Zodda, forma nov. — Abruzzo (ZODDA, 1965). — Nom. nud.

Rosa tomentosa Sm. var. *microphylla* Heinis ex Zodda, var. (vel forma?) nova — Abruzzo (ZODDA, 1965). — Non rite publ.

Rubus ulmifolius Schott var. *amplifolius* Zodda, var. (vel ssp.?) nov. — Abruzzo (ZODDA, 1962*b* et 1964*a*).

Salicornia veneta Pignatti et Lausi in Lausi, sp. nov. — Veneto (LAUSI, 1969).

Santolina pinnata Viv. ssp. *corsica* (Jord. et Fourr.) Guinea, comb. et stat. nov. (GUINEA, 1970). — Non rite publ.

Santolina pinnata Viv. ssp. *etrusca* (Lacaita) Guinea, comb. et stat. nov. (GUINEA, 1970). — Non rite publ.

Santolina pinnata Viv. ssp. *insularis* (Gennari in Fiori) Guinea, comb. et stat. nov. (GUINEA, 1970). — Non rite publ.

Santolina pinnata Viv. ssp. *neapolitana* (Jord. et Fourr.) Guinea, comb. et stat. nov. (GUINEA, 1970). — Non rite publ.

Saxifraga aspera L. ssp. *aspera* var. *aurina* Lausi in Pignatti, var. nov. — NE. Alps: Valle Aurina (PIGNATTI, 1969*a*).

Saxifraga aspera L. ssp. *micrantha* Pignatti, ssp. nov. — Alps (PIGNATTI, 1969*a*).

Saxifraga aspera L. ssp. *aspera* var. *aspera* forma *zygomorpha* Pignatti, forma nov. — Alpi Pennine (PIGNATTI, 1969*a*).

Saxifraga berica (Béguinot) D. A. Webb, stat. nov. (WEBB, 1963).

Saxifraga bryoides L. var. *bryoides* forma *glabra* Pignatti, forma nov. — E. Alps (PIGNATTI, 1969*a*).

Saxifraga callosa Sm. in Dickson ssp. *callosa* var. *australis* (Moric.) D. A. Webb, comb. et stat. nov. (WEBB, 1963).

Saxifraga etrusca Pignatti, sp. nov. — Toscana (PIGNATTI, 1969a).

Saxifraga italica D. A. Webb, nom. nov. (WEBB, 1963).

Saxifraga pseudogranulata (Lacaita) Fenaroli, stat. nov. (FENAROLI, 1966).

Saxifraga retusa Gouan ssp. *augustana* (Vaccari) D. A. Webb, stat. nov. (WEBB, 1963).

Senecio alpinus (L.) Scop. var. *samnitum* Fiori forma *silensis* (Fiori et Paol.) Sarfatti, comb. nov. (SARFATTI, 1965) — Non rite publ.

Serapias orientalis Nelson ssp. *apulica* Nelson, ssp. nov. — S. Italy: Puglie (NELSON, 1968).

Seseli montanum L. ssp. *polyphyllum* (Ten.) P. W. Ball, comb. nov. (BALL, 1968*e*).

Soldanella alpina L. var. *alpina* forma *major* Cristofolini et Pignatti, forma nov. — Italy (CRISTOFOLINI & PIGNATTI, 1962). — Non rite publ.

Soldanella alpina L. var. *alpina* forma *pirolaefolia* (Scott) Cristofolini et Pignatti, comb. nov. (CRISTOFOLINI & PIGNATTI, 1962). — Non rite publ.

Soldanella minima Hoppe ssp. *minima* var. *ganderi* (Huter) Cristofolini et Pignatti, comb. nov. (CRISTOFOLINI & PIGNATTI, 1962). — Non rite publ.

Soldanella minima Hoppe ssp. *minima* var. *minima* forma *latifolia* Cristofolini et Pignatti, forma nov. — Italy (CRISTOFOLINI & PIGNATTI, 1962). — Non rite publ.

Soldanella minima Hoppe ssp. *samnitica* Cristofolini et Pignatti, ssp. nov. — C. Italy (CRISTOFOLINI & PIGNATTI, 1962). — Non rite publ.

Soldanella pusilla Baumg. var. *carestiae* Cristofolini et Pignatti, var. nov. — W. Alps (CRISTOFOLINI & PIGNATTI, 1962) — Non rite publ.

Stipa ser. *Pulcherrimae* Martinovsky, ser. nov. (MARTINOVSKY, 1965).

Stipa austroitalica Martinovsky, sp. nov. — S. Italy (MARTINOVSKY, 1965).

Stipa austroitalica Martinovsky var. *appendiculata* (Celak.) Martinovsky, comb. nov. (MARTINOVSKY, 1965).

Stipa eriocaulis Borb. ssp. *austriaca* (Beck) Martinovsky, comb. et stat. nov. (MARTINOVSKY, 1965).

Stipa rigida Martinovsky, sp. nov. — C. Italy: Lazio (MARTINOVSKY, 1967).

Stipa siciliensis Martinovsky, sp. nov. — Sicilia (MARTINOVSKY, 1965).

Tamarix dalmatica Baum, sp. nov. — E. Italy (BAUM, 1966).

Taraxacum absurdum van Soest, sp. nov. — Italy (VAN SOEST, 1966*a*).

Taraxacum aestivum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum apenninum (Ten.) DC. emend. van Soest — Species emendata (VAN SOEST, 1959).

Taraxacum aureocucullatum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1969).

Taraxacum aurosuloides van Soest, sp. nov. — Italy (VAN SOEST, 1966*a*).

Taraxacum austriacum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1966*a*).

Taraxacum capricum van Soest, sp. nov. — S. Italy: Capri (VAN SOEST, 1966*a*).

Taraxacum dolomiticum van Soest, sp. nov. — N. Italy (VAN SOEST, 1965).

Taraxacum epirense van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1966*a*).

Taraxacum fontanicolum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum formosum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1969).

Taraxacum gracillimum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1969).

Taraxacum huterianum van Soest, sp. nov. — Italy (VAN SOEST, 1965).

Taraxacum illyricum Dahlstedt in van Soest, sp. nov. — Italy (VAN SOEST, 1965).

Taraxacum insubricum van Soest, sp. nov. — N. Italy (VAN SOEST, 1966*b*).

Taraxacum lacustre van Soest, sp. nov. — Italy (VAN SOEST, 1965).

Taraxacum martellense van Soest, sp. nov. — Italy (VAN SOEST, 1966*a*).

Taraxacum miniatum Guss. forma *stramineum* van Soest, forma nov. — Sardegna (VAN SOEST, 1966*a*).

Taraxacum oreinicolum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1966*a*).

Taraxacum pedemontanum van Soest, sp. nov. — Italy (VAN SOEST, 1969).

Taraxacum pedrottii van Soest, sp. nov. — N. Italy (VAN SOEST, 1966*b*).

Taraxacum perfissum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum petiolulatum (Huter) van Soest, comb. nov. (VAN SOEST, 1959).

Taraxacum pohlii van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum pseudofontanum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum reophilum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum rhaeticum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum rigidum van Soest, sp. nov. — Italy (VAN SOEST, 1969).

Taraxacum rufocarpum van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum saasense van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum sabaundum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1966*a*).

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Taraxacum simpliusculum van Soest, sp. nov. — Italy and elsewhere (VAN SOEST, 1969).

Taraxacum tortilobiforme van Soest, sp. nov. — N. Italy (VAN SOEST, 1966*b*).

Taraxacum vaccarii van Soest, sp. nov. — N. Italy (VAN SOEST, 1966*a*).

Taraxacum vereinense van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum vernelense van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Taraxacum vetteri van Soest, sp. nov. — Italy (VAN SOEST, 1959).

Thelypteridaceae Pic. Ser., fam. nov. (PICHI SERMOLLI, 1970).

Thesium sommieri Hendrych, sp. nov. — Alpi Apuane (HENDRYCH, 1964).

Thymus longicaulis Presl var. *termini* Machule, var. nov. — N. Italy: Trentino-Alto Adige (MACHULE, 1962).

Thymus ortmannianus Opiz ex Borbas var. *pycnotrichoides* Pawlowski, var. nov. — Italy and elsewhere (PAWLOWSKI, 1968).

Thymus richardii Pers. ssp. *nitidus* (Guss.) Jalas, comb. nov. (JALAS, 1971*b*).

Thymus × *zirnichianus* Cohrs, hybr. nov. — NE. Italy: Carso (COHRS, 1963).

Trifolium repens L. var. *biasolettii* Asch. et Gr. forma *diminutum* Sarfatti, forma nov. — S. Italy: Sila (SARFATTI, 1959) — Non rite publ.

Trisetum Pers. sect. *Gracilia* Chrtek et Jirasek, sect. nov. [Typus: *Trisetum gracile* (Moris) Parl.] (CHRTEK & JIRASEK, 1963).

Urginea undulata (Desf.) Steinh. var. *sardoa* Picci, var. nov. — Sardegna (PICCI, 1969). — Non rite publ.

Vicia cracca L. ssp. *incana* (Vill.) Rouy et Fouc. var. *aetnensis* (Guss.) Sarfatti, comb. nov. (SARFATTI, 1959). — Non rite publ.

Vicia giacominiana Segelberg, sp. nov. — S. Italy: Porto Badisco (SEGELBERG, 1968*a* et 1968*b*).

Vicia villosa Roth ssp. *pseudocracca* (Bertol.) P. W. Ball, comb. nov. (BALL, 1968*d*).

Viola corsica Nyman ssp. *ilvensis* (W. Becker) Merxm., comb. nov. (MERXMÜLLER, 1968).

Viola pseudogracilis Strobl ssp. *cassinensis* (Strobl) Merxm. et A. Schmidt, stat. nov. (MERXMÜLLER & SCHMIDT, 1967).

Vitaliana obtusifolia O. Schwarz, sp. nov. — C. Italy: Maiella (SCHWARZ, 1963).

Vitaliana primuliflora Bertol. ssp. *praetutiana* (Buser ex Sundermann) I. K. Ferguson, comb. nov. (FERGUSON, 1969).

Vulpia stipoides (L.) Dumort. ssp. *tenuis* (Tineo) H. Scholz, comb. et stat. nov. (SCHOLZ, 1971).

Woodsia glabella R. Br. ssp. *pulchella* (Bertol.) A. et D. Löve, stat. nov. (LÖVE, A. & LÖVE, D., 1961).

Xanthium italicum Moretti lusus *fimbriatum* Anzalone, lusus nov. — Lazio (ANZALONE, 1963*a*).

APPENDIX B

List of new records of native taxa

Achillea ageratum L. — New to Sardegna (DESOLE, 1958).

Airopsis globosa Desv. — Grosseto: 2nd Italian locality (PIGNATTI WIKUS, 1966).

Althenia filiformis Petit — New to Sardegna (ONNIS, 1966); Orbetello, new to C. Italy (ONNIS, 1967*b*); new to Sicilia (ONNIS, 1970).

Amaranthus × *ozanonii* Thell. — New to Italy (ZODDA, 1965).

Amaranthus ralletii Contré — Rome: new to Italy (CACCIATO, 1968).

Anemone trifolia L. ssp. *albida* (Mariz) Tutin — N. Apennines: the ssp. new to Italy (HOFMANN, 1968 et 1969).

Arrhenatherum elatius (L.) Mert. et Koch ssp. *erianthum* (Boiss. et Reut.) Trab. — The ssp. new to Sicilia and to Italy (PIGNATTI WIKUS, 1963).

Asplenium × *bechereri* D. E. Meyer — Piemonte: new to Italy (RASBACH, H. RASBACH, K. & REICHSTEIN, 1969).

Asplenium petrarchae (Guérin) DC. — New to Sardegna (ARRIGONI & RICCERI, 1969).

Asplenium × *poscharskyanum* Preissmann — Piemonte: new to Italy (RASBACH, H., RASBACH, K. & REICHSTEIN, 1969).

Asplenium × *trichomaniforme* Woynar — Piemonte: new to Italy (RASBACH, H., RASBACH, K. & REICHSTEIN, 1969)

Astragalus pastellianus Pollini — Val d'Aosta: new to NW. Italy (OBERWINKLER, 1969, et FAVARGER, 1970).

Barbarea vulgaris R. Br. — New to Sardegna (VALSECCHI, 1969*a*).

Barlia longibracteata (Biv.) Parl. — Lago di Garda: new to N. Italy (NOTHDURFT & ENGEL, 1963).

Brassica insularis Moris — Panteleria: new to Sicilia sensu Fl. Eur. (CATANZARO, 1966).

Carex buxbaumii Wahlenb. — C. Italy: new to Peninsular Italy (PEDROTTI, 1968 et 1972*a*).

Centaurea haynaldii Borb. ssp. *julica* (Hayek) E. Mayer — Prealpi Giulie: the ssp. new to Italy (POLDINI, 1967).

Centaurea rupestris L. × *C. scabiosa* L. — Marche: new to Peninsular Italy (BRILLI-CATTARINI, 1968).

Chenopodium viride L. — Near Tarvisio: new to Italy (AELLEN, 1963).

Clypeola jonthlaspi L. ssp. *microcarpa* Arc. var. *microcarpa* — New to Continental Italy (ANZALONE, 1962*d*).

Convolvulus sabatius Viv. — Near Bari: new to Peninsular Italy (BIANCO, 1969).

Crocus corsicus Vanucci — Sardegna: new to Sardegna and to Italy (CONRAD, 1966).

Crocus weldenii Hoppe — Carso: new to Italy (LAUSI, 1965).

× *Danthosieglingia breviaristata* (Back ex Vierh.) Domin — Marche: new to Peninsular Italy (BRILLI-CATTARINI, 1968).

Dentaria heptaphylla Vill. — New to NE. Italy (POLDINI, 1965).

Draba tomentosa Clairv. — Abruzzo: new to the Apennines (BUTTLER, 1967).

Dryopteris abbreviata (DC.) Newman — N. Apennines: new to the Apennines (REICHSTEIN, 1962).

Echinophora spinosa L. var. *angustifolia* Pecout — New to Sardegna (CHIAPPINI, 1968*c*).

Erodium glaucophyllum Ait. — Puglia (Metaponto): new to Italy (CHIESA, 1969).

Euphorbia dendroides L. — New to E. Central Italy (BRILLI-CATTARINI, 1965).

Euphorbia hyberna L. ssp. *insularis* (Boiss.) Briq. — Toscana: new to C. Italy (BAZZICHELLI, 1967c, et FERRARINI, 1970*d*).

Festuca calva (Hackel) Richter — Friuli: new to Italy (POLDINI, 1970).

Festuca laxa Host — Alpi Carniche: new to Italy (POLDINI, 1970).

Filago minima (J. E. Smith) Pers. — New to Sardegna (WAGENITZ, 1968).

Fuirena pubescens Kunth — New to Sardegna (ARRIGONI, 1964).

Gentiana dinarica Beck — Abruzzo: new to Italy (KUNZ & REICHSTEIN, 1966).

Gentiana lutea L. ssp. *symphyandra* Murb. — Friuli: the ssp. new to Italy (POLDINI, 1970).

Helianthemum caput-felis Boiss. — Sardegna: new to Sardegna and to Italy (ARRIGONI, 1971).

Hieracium flagelliferum Rav. — Abruzzo: new to Italy (ZODDA, 1962*a*).

Holcus setiglumis Boiss. et Reut. — Isola di Capraia: new to Italy (RICCERI, 1970).

Hypericum aegyptiacum L. — New to Sardegna (ARRIGONI, 1965).

Iris xiphium L. — Lazio: new to Peninsular Italy (RICCI, 1966*d*).

Juncus tenuis Willd. — Viareggio: new to C. Italy (MONTELUCCI, 1962*a*).

Lepidium graminifolium L. ssp. *suffruticosum* (L.) P. Monts. — The ssp. new to Sardegna (VALSECCHI, 1965 et 1966).

Linum hirsutum L. — Many loc.: new to Italy (KUNZ & REICHSTEIN, 1966).

Lonicera xylosteum L. var. *nigra* Loisel. — Abruzzo: the var. new to Italy (ANZALONE, 1962*c*).

Lupinus hispanicus Boiss. et Reut. — Sardegna: new to Sardegna and to Italy (PICCI, 1970).

Matricaria inodora L. — New to Peninsular Italy (ANZALONE, 1961).

Mercurialis longistipes (Borb.) Baksay — New to NE. Italy (POLDINI, 1965).

Muscari tenuiflorum Tausch — C. Italy, Marche: new to Italy (BRILLI-CATTARINI, 1964).

Odontites lutea Clairv. var. *linifolia* (G. Don) «Fiori» — The var. new to Sardegna (VALSECCHI, 1965 et 1966).

Onosma stellulatum Waldst. et Kit. — Trieste, Pavia: new to Italy (CACCIATO, 1966).

Ophioglossum vulgatum L. — New to Sardegna (CHIAPPINI, 1968*b*).

Orchis laxiflorus Lam. ssp. *paluster* (Jacq.) Asch. et Graebn. — The ssp. new to NE. Italy (POLDINI, 1965).

Papaver alpinum L. ssp. *ernesti-mayeri* Markgraf — Abruzzo: the ssp. new to Peninsular Italy (ZODDA, 1961*a*).

Petrorhagia nanteuilii (Burnat) Ball et Heywood — Sardegna: new to Sardegna and to Italy (BALL & HEYWOOD, 1964).

Phyllitis sagittata (DC.) Guinea et Heywood — Near Vicenza: new to N. Italy (PIROLA, 1962*a*). — Friuli, mentioned as new to N. Italy; it is really the 2nd locality in N. Italy (LORENZONI & PAIERO, 1966).

Polygala alpina (DC.) Steudel — Abruzzo: new to the Apennines (KUNZ & REICHSTEIN, 1966).

Phyteuma villarsii R. Schultz — Val Gesso: new to Italy (BONO, 1968).

Pinguicula reichenbachiana Schindler — New to Italy (previously mentioned with different names) (CASPER, 1959).

Polygonum aviculare L. ssp. *aequale* (Lindman) Asch. et Graebn. var. *minimum* Asch. et Graebn. — The var. new to Sardegna (CHIAPPINI, 1962*b*).

Polygonum aviculare L. var. *litorale* Koch — The var. new to Sardegna (VALSECCHI, 1965 et 1966).

Polygonum × *condensatum* F. Schultz — Marche: new to Peninsular Italy (BRILLI-CATTARINI, 1968).

Potamogeton gramineus L. ssp. *heterophyllus* (Schreb.) Schinz et Keller — Fiuggi: second locality in Peninsular Italy for the ssp. (ANZALONE, 1967).

Pyrus aria Ehrh. var. *edulis* (W.) (?) — The var. new to Peninsular Italy (ANZALONE, 1961).

Quercus suber L. ssp. *eu-suber* Camus forma *suboccultata* Coutinho — The form. new to Sardegna (VALSECCHI, 1967*a*).

Rorippa sylvestris (L.) Besser — New to Sardegna (VALSECCHI, 1969*a*).

Salvia pratensis L. var. *bertolonii* (Schult.) (?) — Abruzzo: the var. new to Peninsular Italy (ZODDA, 1967).

Saussurea discolor (Willd.) DC. — N. Apennines: new to the Apennines (FERRARINI, 1966).

Scorpiurus vermiculata L. — Sicilia: new records to Sicilia after 170 years (DI MARTINO, 1970*a*).

Silene cucubalus Wibel ssp. *alpina* (Lam.) Cif. et Giac. — The ssp. new to Sardegna (CHIAPPINI, 1962*b*).

Soldanella montana Willd. ssp. *hungarica* (Simk.) Lüdi — To be eliminated from N. Italy; new to Peninsular Italy (Sila) (CRISTOFOLINI & PIGNATTI, 1962).

Sorbus aria (L.) Cr.: see *Pyrus aria* Ehrh.

Spartina juncea Willd. — New to Sardegna (VALSECCHI, 1963*a*). — Veneto: new to N. Italy (SIMONETTI & MUSI, 1970).

Stipa austroitalica Martinovsky var. *austroitalica* — NE. Italy: new to N. Italy (POLDINI, 1969).

Stipa paradoxa (Junge) Smirnov — N. Italy: lake of Como, new to Italy (SCHOLZ, 1968).

Teucrium × *castrense* Vergouin — N. Italy, near Lignano: new to Italy (MAURER, 1967).

Trinia dalechampii Janchen et Watzl — Alpi Apuane: new to the northern part of Peninsular Italy (FERRARINI, 1966).

Trisetum myrianthum C. A. Meyer — New to Sardegna (COSSU, 1967).

Veronica × *tournefortii* (Villars) Schmidt [= *V. allionii* × *officinalis*] — W. Alps: new to Italy (BOCQUET, FAVARGER & ZÜRCHER, 1967).

Vicia pisiformis L. — New to Peninsular Italy (ANZALONE, 1962*d*).

APPENDIX C

List of new records of aliens

Amaranthus gracilis Desf. — New to Continental Italy (CACCIATO, 1962).

Amaranthus muricatus Gillies — Palermo: new to Sicilia and to Italy (SORTINO, 1970*b*).

Ammannia auriculata Willd. — Near Novara: new to Italy and to Europe (FENAROLI, 1962*a*).

Artemisia annua L. — NE. Italy: new to Italy (POLDINI, 1963).

Aster squamatus (Spreng.) Hieron. — New to Sardegna (VALSECCHI, 1965*a* et 1965*b*).

Bidens bipinnata L. — New to Sicilia (LUCIANI, 1969).

Bidens frondosa L. — Veneto: new to N. Italy (ZILIOTTO, 1967).

Bidens radiatus Thuill. — New to NE. Italy (POLDINI, 1963).

Boerhaavia repens L. ssp. *viscosa* (Choisy) Maire — Palermo: the sp. new to Sicilia and to Italy (DE LEO, 1967).

Clematis orientalis Lam. — NW. Italy: new to Italy (PESANTE & ARIELLO, 1962).

Cotula coronopifolia L. — New to Sardegna and perhaps also to Italy (MARCHIONI, 1967).

Cytisus nigricans L. — New to Sardegna: to be treated as an alien (VALSECCHI, 1965*a* et 1965*b*).

Dichrocephala latifolia (Lam.) DC. — New record to Italy after 40 years (PIGNATTI, E. & PIGNATTI, S., 1961).

Egeria densa Planchon — Pisa: new to Italy (CELA RENZONI, 1969 et 1970*b*).

Erigeron naudinii Bonnier — Many places: new to Italy (ANZALONE, 1964*c* et 1965).

Euphorbia geniculata Ortega — Palermo: new to Sicilia and to Italy (TRAPANI, 1968).

Gaura cfr. *sinuata* Nuttal — New to Italy (MONTELUCCI, 1962*b*).

Lepidium bonariense L. — C. Italy: new to Italy (ANZALONE, 1970*a*).

Muhlenbergia schreberi J. F. Gmel. — N. Italy, Campione: new to Italy (BECHERER, 1966*c*).

Myoporum insulare R. Br. — Mentioned as new to Sardegna (CHIAPPINI, 1962*a*).

Oenothera rosea Sol. — New to Sardegna (CHIAPPINI, 1964).

Oxalis corymbosa DC. (*O. martiana* Zucc. ?) — Abruzzo: new to Italy (ZODDA, 1964*a*).

Oxalis purpurata Jacq. — Sicilia: new to Sicilia and to Italy (POLI, 1968).

Panicum dichotomiflorum Michx. — N. Italy: new to Italy (FENAROLI & LORENZONI, 1964).

Paspalum quadrifarium Lam. — Near Pisa: new to Italy (GARBARI, 1967*b*).

Pennisetum ruppellii Steud. — Near Palermo: new to Sicilia and to Italy (TRAPANI, 1965).

Polanisia dodecandra (L.) DC. ssp. *dodecandra* var. *trachysperma* (Torr. et Gray) Iltis — Near Pavia: new to Italy (PIROLA, 1964*a*). — Liguria and Toscana: new to C. Italy (CHIOSI, 1967 et 1968; TORNADORE & GARBARI, 1971).

Rumex obtusifolius L. ssp. *silvester* (Wallr.) Rech. — New to Sardegna (CHIAPPINI, 1964).

Senecio reclinatus L. f. — New to Italy (CARRARA PANTANO, 1961; PIGNATTI, E. & PIGNATTI, S., 1961).

Solanum pyrethrifolium Gris. — Near Pisa: new to Italy and to Europe (CELA RENZONI, 1968*a* et 1968*b*).

Solanum torreyi A. Gray — Rome: new to Italy (CACCIATO, 1969).

Tagetes glanduligera Schrk. (*T. minuta* L.) — NE. Italy: new to Italy (POLDINI, 1963). — New to Sicilia (LUCIANI, 1969). — Near Pisa: new to Peninsular Italy (CONTARDO, 1969).

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We have consulted nearly all the works mentioned below. The indication «(not seen)» is placed after the citation of the few papers which we were unable to find. The great majority of papers were examined by consultation of the periodicals of which they form part. However, we were able to consult some papers only in the form of reprints. Some of them bear no trace of the pagination in the volume of the periodical, and in this case we have quoted the pages shown in the reprint preceded by the indication «(seors.)», being uncertain whether they correspond to the pagination of the volume or not. The same indication follows the citation of those papers of which we have seen the preprint only.

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