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## REFERENCES

- ABDALADZE O.G., 1987: CO<sub>2</sub> exchange of plants in subalpine zone, the Central Caucasus (In Russ.). *Botan.Zhurn. (Soviet Journal of Botany)*, 72 (8), 1042-1049.
- AKATOV V.V., 1989: On syntaxonomy of high mountain bogs and wet meadows of the West Caucasus. (In Russ.) VINITI (Deponir. rukopis N 7472-B89), Moscow. 28 pp.
- ANDREJKO M. and COHEN A., 1984: Scanning electron microscopy of silicophytoliths from the Okefenokie swamp-march complex. In: COHEN A.D., CASAGRANDE D.L., ANDREJKO M.J. and BEST G.R. (eds.), *The Okefenokie swamp: Its natural history, geology and geochemistry. Wetland surveys, Los Alamos, New Mexico.* 468-491.
- ARCHIBOLD O.W., 1984: A comparison of seed reserves in arctic, subarctic and alpine soils. *Can.Field Natur.* 98 (3), 337-344.
- BAKER G., 1959: Opal phytoliths in some Victorian soils and "Red rain" residues. *Austr.J. Bot.* 7, 64-87.
- BLACKMAN E., 1971: Opaline silica in the range grasses of southern Alberta. *Can.J.Bot.* 49, 769-781.
- BLINNIKOV M.S., 1992: Phytolith analysis of plants and soils of alpine communities in the Northwestern Caucasus. (In Russ.) Diploma work, Geobotany Dept., Faculty of Biology, Moscow State Univ. 94 pp.
- BOUMA J., HOEKS J., VAN DER PLAS L. and VAN SCHERRENBURG B., 1969: Genesis and morphology of some Alpine Podzol Profiles. *J.Soil Sci.* 20, 384-398.
- BOUMA J. and PLAS VAN DER L., 1971: Genesis and morphology of some alpine pseudogley profiles. *J.Soil Sci.* 22, 81-93.
- BROWN D.A., 1984: Prospects and limits of a phytoliths key for grasses in the Central United States. *J.Archaeol.Sci.* 11 (4), 345-368.
- CARBONE V., 1977: Phytoliths as paleoecological indicators. *Ann. N.Y. Acad.Sci.* 288, 194-205.
- CHUYO H., 1985: Patterned grounds and vegetation in the alpine area of Mt. Ontake, central Japan. *J.Sci.Hirosima Univ., Ser.2B* 19 (2), 171-236.
- CLEMENTS F.E., 1905: *Research methods in ecology.* Univ. Publ. Co., Lincoln. 334 pp.
- CLEMENTS F.E. and HALL H.M., 1918: *Reciprocal transplantants.* Carnegie Inst.Wash. Year Book, 17, 292 pp.
- CLEMENTS F.E. and WEAVER J.E., 1924: *Experimental vegetation.* Carnegie Inst.Wash. 601 pp.
- COLLINS S.L. and BARBER S.C., 1986: Effects on disturbance on diversity in mixed-grass prairie. *Vegetatio* 64 (2-3), 87-94.
- CONNELL J.H., 1990: Apparent versus "real" competition in plants. In: GRACE J.B., TILMAN D. (ed.), *Perspectives on plant competition.* Acad.Press, San Diego. 9-26.
- COSTIN A.B., 1955: Alpine soils in Australia with reference to conditions in Europe and New Zealand. *J.Soil Sci.* 6 (1), 35-50.
- COSTIN A.B., HALLSWORTH E.G. and WOOD M., 1952: Studies in pedogenesis in New South Wales. III. The Alpine Humus Soils. *J.Soil Sci.* 3 (2), 190-218.
- DEL MORAL R., 1983: Competition as a control mechanism in subalpine meadows. *Am.J. Bot.* 70 (2), 232-245.
- DINESMAN L.G., KISELEVA N.K. and KNYASEV A.V., 1989: The history of steppe ecosystems in Mongolia [Istoriya stepnykh ekosistem MNR.]. (In Russ.). Nauka, Moscow. 214 pp.
- EBERSOLE J.J., 1989: Role of the seed bank in providing colonizers on a tundra disturbance in Alaska. *Can.J.Bot.* 67 (2), 466-471.
- ELLENBERG H., 1953: Physiologisches und ökologisches Verhalten derselben Pflanzenarten. *Ber.Deut.Bot.Ges.* 65, 351-352.
- ELLENBERG H., 1954: Über einige Fortschritte der kausalen Vegetationskunde. *Vegetatio*

- 5/6, 199-211.
- FENNER M., 1985: Seed ecology. Chapman and Hall, London. 160 pp.
- FOMIN S.V., ONIPCHENKO V.G. and SENNOV A.V., 1989: Feeding and digging activities of the pine vole (*Pitymys majori* Thos.) in alpine coenoses of the Northwestern Caucasus. (In Russ.) Byull. Mosk. o-va ispyt. prir. otd. biol. 94 ( 3), 6-13.
- GEIS J.W., 1973: Biogenetic silica in selected species of deciduous angiosperms. J.Soil Sci. 116, 113-130.
- GIGON A., 1971: Vergleich alpiner Rasen auf Silikat- und Karbonatboden. Veröff.Geobot. Inst.ETH,Stiftung Rübel, Zürich 48. 159 pp.
- GIGON A., 1983: Welches ist der wichtigste Standortsfaktor für die floristischen Unterschiede zwischen benachbarten Pflanzengesellschaften? Verh.Ges.Ökol. (Festschrift Ellenberg) 11, 145-160.
- GIGON A., 1987: A hierarchic approach in causal ecosystem analysis the calcifuge-calcicole problem in alpine grasslands. In: SCHULZE E.-D. and ZWÖLFER H. (eds.) Potentials and limitat. ecosyst. anal. (Ecol. Stud. 61). Springer, Berlin. 228-244.
- GOGINA E.E., 1960: Seed productivity of some high mountain meadow edificators in South Osetia. (In Russ.) Botan. Zhurn. 45 (9), 1330-1336.
- GORCHAKOVSKY P.L., 1975: Flora and vegetation of high mountain zone of the Ural. [Rastitelnyi mir visocogornogo Urala] (In Russ.). Nauka, Moscow. 283 pp.
- GRABHERR G., 1987a: Produktion und Produktionsstrategien im Krummseggenrasen (*Caricetum curvulae*) der Silikatalpen und ihre Bedeutung für die Bestandesstruktur. Veröff.Österr. MaB-Programm. Österr.Akad.Wiss. 10, 233-241.
- GRABHERR G., 1987b: High alpine flora and vegetation of the Tyrolean Alps (W. Austria). 14th Int.Botan.Congr. Excursion Guide (exc. 18). Berlin. 82 pp.
- GRABHERR G., 1989: On community structure in high alpine grasslands. Vegetatio 83, 223-227.
- GRABHERR G., MAHR T. and REISIGL H., 1978: Nettoprimärproduktion und Reproduktion in einem Krummseggenrasen (*Caricetum curvulae*) der Ötztaler Alpen. Tirol. Oecol. Plant. 13 (3), 227-252.
- GRACANIN Z., 1972: Die Böden der Alpen. In: GANSSEN R. and GRACANIN Z., Bodengeographie mit besonderer Berücksichtigung der Böden Mitteleuropas. Koehler, Stuttgart. 172-191.
- GRIME J.P., 1979: Plant strategies and vegetation processes. Wiley, Chichester. 222 pp.
- GRIME J.P., 1981: Plant strategies in shade. In: SMITH H. (ed), Plants and the daylight spectrum. Acad. Press, London. 159-186.
- GRISHINA L.A., CHERKINSKY A.O., ZHAKOVA O.E. and ONIPCHENKO V.G., 1987: Radiocarbon age of mountain meadow alpine soils of the Northwestern Caucasus. (In Russ.). Doklady Akademii nauk SSSR. [Reports of Soviet Acad. of Sci.] 296 (1), 218-220.
- GRISHINA L.A., ONIPCHENKO V.G., MAKAROV M.I. et al., 1986: Composition and structure of alpine heath biogeocoenosis [Sostav i struktura biogeocenoza alpijskih pustoshei] (In Russ.). Moscow Univ.Press, Moscow. 88 pp.
- GRISHINA L.A., ONIPCHENKO V.G., MAKAROV M.I. and VANJASIN V.A., 1993: The features of alpine mountain-meadow soils at different ecological conditions in the Northwestern Caucasus. Sov.Soil Sci. [Pochvovedenie] 4, 5-13.
- GROSSHEIM A.A., 1948: Vegetation of the Caucasus (In Russ.) [Rastitelnyi pokrov Kavkasa]. Mosc. Soc. Natur., New serie, 4 (XII). 268 pp.
- GRUBB P., 1977: The maintenance of species richness in plant communities: the importance of the regeneration niche. Biol.Rev. 52 (1), 107-145.
- GUBANOV I.A., KISELEVA K.V., NOVIKOV V.S. and TIKHOMIROV V.N., 1990: Meadow plants. (In Russ.) [Lugovie travjanistye rastenia]. Agropromizdat, Moscow. 183 pp.
- HATT M., 1991: Samenvorrat von zwei alpinen Böden. Ber.Geobot.Inst.ETH, Stiftung Rübel, Zürich 57, 41-71.

- HODACHEK E.A., 1985: Soil seed banks of tundras (Taimyr) and polar deserts (Novaja Zemla). (In Russ.). *Botan. Zhurn.* 70 (7), 896-908.
- HOFER H., 1981: Der Einfluss des Massenschilauflaufes auf alpine Sauerbödenrasen am Beispiel der Gurgler Heide (Ötztal/ Tirol) und Beobachtungen zur Phänologie des *Curvuletums*. *Ber. Naturwiss.-med. Ver. Innsbruck* 68, 31-56.
- HUTCHINSON G.E., 1957: Concluding remarks. *Cold Spring Harbor Symp. Quant. Biol.* 22, 415-422.
- JOHNSON D.D. and CLINE A.J., 1965: Colorado mountain soils. *Advances in agronomy. Acad. Press, New York and London* 17, 233-281.
- JONASSON S., 1992: Plant responses to fertilization and species removal in tundra related to community structure and clonality. *Oikos* 63 (3), 420-429.
- KHAPAEV S.A., 1976: Timberline oscillation in Teberda State Reserve. (In Russ.) In: AGAHANJANZ O.E. et al. (ed.) *High mountain geoecology [Vysokogornaya geoecologia.]*. *Inst. Geogr. Acad. Sci. USSR, Moscow.* 55-57.
- KISELEVA N.K., 1982: Phytolith soil studies as a tool for the investigation of the history of East Mongolia steppes. (In Russ.). *Izvestiya AN SSSR. [News of Soviet Acad. Sci.] ser. Geogr.* 2, 95-106.
- KISELEVA N.K., 1992: Botanical and phytolith analysis of Holocene zoogenic deposits in North Osetia. (In Russ.). In: DINESMAN L.G. (ed.), *Historical ecology of wild and domestic ungulates: History of pasture ecosystems. [Istoricheskaya ekologiya dikikh kopytnykh.]* Nauka, Moscow. 24-83.
- KLEIN R.L. and GEIS J.W., 1978: Biogenetic silica in the Pinaceae. *J. Soil Sci.* 126, 145-156.
- KLÖTZLI F., 1980: Zur Verpflanzung von Streu- und Moorwiesen. *ANL Tag. Ber.* 5, 41-50.
- KNIGHT D.H., WEAVER S.W., STARR C.R. and ROMME W.H., 1979: Differential response of subalpine meadow vegetation to snow augmentation. *J. Range Manag.* 32 (5), 356-359.
- KÖRNER Ch., 1982: CO<sub>2</sub>-exchange in the alpine sedge *Carex curvula* as influenced by canopy structure, light and temperature. *Oecologia (Berlin)* 53, 98-104.
- KOROTKOV V.N., 1991: The new paradigm in forest ecology. (In Russ.). *Biol. nauki* 8, 7-20.
- LEPS J. and STURSA T., 1989: Species-area curve, life history strategies and succession: a field test of relationships. *Vegetatio* 83 (1-2), 249-257.
- LIKENS G.E. (ed.), 1989: *Long-term studies in ecology.* Springer, New York. 214 pp.
- MAKAROV M.I., 1985: Dynamics of some properties of the soils of alpine lichen heath in the Northwestern Caucasus. *Vestn. Mosk. Univ., ser. 17, 1,* 71-73.
- MAKHOVA Yu.V. and PATYK-KARA N.G., 1961: On the history of high mountain vegetation of the Great Caucasus in Holocene. (In Russ.). In: MARKOV K.K. (ed.), *Paleogeography of Quaternary period in the USSR [Paleogeographia chetvertichnogo perioda SSSR]*. Moscow. 125-130.
- MARGALITADZE N.A. and KIMERIDZE K.R., 1985: Holocene history of vegetation of Upper Svanetia. (In Russ.). In: NAKHUTSRISHVILI G.S. (ed.), *Flora and vegetation of Svanetia [Flora i rastitelnost' Svanetii]*. *Mezniereba, Tbilisi.* 240-260.
- MAY D.E., WEBBER P.J. and MAY T.A., 1982: Success of transplanted alpine plants on Niwot Ridge, Colorado. *Univ. Color. Inst. Arct. and Alp. Res. Occas. Pap.* 37, 73-81.
- MCGROW J.B. and VAVREK M.C., 1989: The role of buried viable seeds in arctic and alpine plant communities. In: LECK M.A. et al. (ed.), *Ecology of soil seed banks.* Acad. Press, London. 91-105.
- MCKENDRICK J.D., BATZLI G.O., EVERETT K.R. and SWANSONS J., 1980: Some effects of mammalian herbivores and fertilization on tundra soils and vegetation. *Arct. and Alp. Res.* 12 (4), 565-578.
- MEHRA P.N. and SHARMA O.P., 1965: Epidermal silica cells in the *Cyperaceae*. *Bot. Gaz.* 126 (1), 53-58.

- METCALFE C.R., 1960: Anatomy of the Monocotyledons. I. Gramineae. Clarendon Press, Oxford. 731 pp.
- MORIN H. and PAYETTE S., 1988: Buried seed populations in the montane, subalpine, and alpine belts of Mont Jacques-Cartier, Quebec. *Can.J.Bot.* 66 (1), 101-107.
- MUELLER M., 1987: Bodenbildung auf Silikatunterlage in der alpinen Stufe des Oberengadins (Zentralalpen, Schweiz). *Catena* 14, 419-437.
- NAKHUTSRISHVILI G.S., 1974: Ecology of high-mountain plants and plant communities of the Central Caucasus. Phenology, photosynthesis and life forms. (In Russ.). [Ekologia visokogornih rastenii i fitozenosov Zentralnogo Kavkasa]. Mezniereba, Tbilisi. 194 pp.
- NAKHUTSRISHVILI G.S., 1988: Ecological characteristic of high mountain meadow vegetation (Kazbegi, Central Caucasus). (In Russ.). In: NAKHUTSRISHVILI G.Sh. (ed.), The ecology of high mountains. Mezniereba, Tbilisi. 175-200.
- NESTROY O., 1984: Aspekte der Bodenentwicklung unter Almen der Ostalpen. *Wien.Geogr.Schr.*, 59-60, 67-72.
- OLSVIG-WHITTAKER L., 1988: Relating small-scale vegetation patterns to the environment. In: DURING H.J. et al. (ed.), Diversity and pattern in plant communities. SPB Acad. Publ., Hague. 87-84.
- ONIPCHENKO V.G., 1982: The biomass of fruticose lichens in the alpine heath of the Teberdinsk Nature Reserve. (In Russ.). *Byull. Mosk. o-va ispyt.prirod.biol.* 87 (1), 97-99.
- ONIPCHENKO V.G., 1984: Experimental investigation of alpine lichen heath's structure. (In Russ.). *Doklady Mosk. o-va ispyt. prirod. Zoologia i botanika.* Nauka, Moscow. 78-81.
- ONIPCHENKO V.G., 1985: The structure, phytomass and production of alpine lichen heaths. (In Russ.) *Byull. Mosk. o-va ispyt.prirod.biol.* 90 (1), 59-66.
- ONIPCHENKO V.G., 1987: Mechanisms of ecological niches separation in terrestrial plants. (In Russ.). *Zhurn. obshch. biol. (Soviet Journal of General Biology)* 48 (5), 687-695.
- ONIPCHENKO V.G., 1990: Phytomass of the alpine communities in the Northwestern Caucasus. (In Russ.) *Byull. Mosk. o-va ispyt.prirod.biol.* 95 (6), 52-62.
- ONIPCHENKO V.G., GUZHOVA G.A., SEMENOVA G.V. and RABOTNOVA M.V., 1991: Population strategies of alpine plants of the Northwestern Caucasus. (In Russ.). In: SHILOV I.A. (ed.), *Ekologia populazij (Population ecology)*. Nauka, Moscow. 165-180.
- ONIPCHENKO V.G., LUBEZNOVA N.V., POKARZHEVSKAYA G.A. and RABOTNOVA M.V., 1992: Syntaxonomy of alpine plant communities in the Teberda Reserve. Class *Salicetea herbaceae* Br.-Bl. 1947. (In Russ.). *VINITI (Deponir.rukopis N 2828-B92)*, Moscow. 20 pp.
- ONIPCHENKO V.G., MINAEVA T.Y. and RABOTNOVA M.V., 1987: On syntaxonomy of alpine plant communities of Teberda reserve. (In Russ.). *VINITI (Deponir. rukopis N 1675-B87)*, Moscow. 33 pp.
- ONIPCHENKO V.G. and SEMENOVA G.V., 1988: Species richness of some alpine plant communities of the N.-W. Caucasus. *Vestn. Mosk. Univ. ser. 16 (Biol.)*, 3, 42-45.
- ONIPCHENKO V.G. and SENNOV A.V. 1992: Syntaxonomy of *Rhododendron caucasicum* - communities in the Teberda reserve (the Northwestern Caucasus). (In Russ.). *Biol. nauki* 4, 14-22.
- PALMER M.W., 1990: Spatial scale and patterns of species - environment relationships in Hardwood forest of the North Carolina Piedmont. *Coenoses* 5 (2), 79-87.
- PALMER P.G., 1976: Grass cuticles: a new paleoecological tool for East African lake sediments. *Can.J.Bot.* 54, 1725-1734.
- PARISH R. and TURKINGTON R., 1990a: The influence of dung pats and molehills on pasture composition. *Can.J.Bot.* 68 (8), 1698-1705.
- PARISH R. and TURKINGTON R., 1990b: The colonization of dung pats and molehills in permanent pastures. *Can.J.Bot.* 68 (8), 1706-1711.
- PARTRIDGE T.R. and WILSON F.B., 1988: The use of field transplants in determining envi-

- romental tolerance in salt marshes of Otago, New Zealand. *N.Z.J.Bot.* 26 (2), 183-192.
- PAVLOVA I.V. and ONIPCHENKO V.G., 1992: Holocene dynamics of the Northwestern Caucasus alpine vegetation. (In Russ.). In: DINESMAN L.G. (ed.), Historical ecology of wild and domestic ungulates: History of pasture ecosystems. [Istoricheskaja ekologija dikih i domashnih kopytnyh. Istoria pastbitznych ekosystem.]. Nauka, Moscow. 109-122.
- PICKETT S.T.A. and WHITE P.S. (ed.), 1985: The ecology of natural disturbance and patch dynamics. Acad.Press, Orlando. 472 pp.
- PIGOTT C.D., 1982: The experimental study of vegetation. *New Phytol.* 90 (3), 389-404.
- PIPERNO D.R., 1988: Phytolith analysis: An archaeological and geological perspective. Acad.Press, San Diego. 260 pp.
- PIPERNO D.R., 1991: The status of phytolith analysis in the American tropics. *J.World Prehist.* 5 (2), 155-191.
- POSCH A., 1977: Bodenkundliche Untersuchungen im Bereich der Glocknerstrasse in den Hohen Tauern (2300-2600 m MH). In: CERNUSCA A. (ed.), Alpine Grasheide Hohe Tauern. Ergebnisse der Ökosystemstudie. Innsbruck 1, 111-121.
- RABOTNOV T.A., 1982: Viable seeds in soils of natural biogeocoenoses of the USSR (In Russ.). In: DROSDOV N.N. et al. (ed.), Theoretical and applied aspects of biogeography. Nauka, Moscow. 35-59.
- RABOTNOV T.A., 1983: Phytocoenology [Phytocoenologiya]. (In Russ.). Mosc.Univ. Press, Moscow. 292 pp.
- RABOTNOV T.A. (ed.), 1987a: Biogeocoenoses of alpine heaths (NW Caucasus). (In Russ.). Nauka, Moscow. 76 pp.
- RABOTNOV T.A., 1987b: Experimental phytocoenology [Experimentalnaja phytozenologija] (In Russ.). Mosc.Univ. Press, Moscow. 160 pp.
- RABOTNOVA M.V., ONIPCHENKO V.G. and USTINOVA J.A. 1992: Influence of artificial shading on alpine lichen heaths. (In Russ. and Engl. transl.). *Vestn.Mosk.Univ.*, ser. 16 Biol., 1, 57-65.
- RAMENSKY L.G., 1938: Introduction to complex soil and geobotanical investigation of lands [Vvedenie v kompleksnoe pochveno-geobotanicheskoe izuchenie zemel] (In Russ.). Selhooziz, Moscow. 620 pp.
- RETZER J.L., 1956: Alpine soils of the Rocky Mountains. *J. Soil Sci.* 7 (1), 22-32.
- RETZER J.L., 1974: Alpine soils. In: IVES J.D. and BARRY R.G. (ed.), Arctic and alpine environments. Methuen, London. 771-802.
- ROVNER I., 1971: Potential of opal phytoliths for use in paleoecological reconstruction. *Quatern. Res.* 1, 343-359.
- RYSER P., 1990: Influence of gaps and neighbouring plants on seedling establishment in limestone grassland. *Veröff.Geobot.Inst.ETH, Stiftung Rübel, Zürich* 104. 71 pp.
- SAVINETSKY A.B., 1992: Centenary changes of pasture ecosystems in North Osetia. (In Russ.). In: DINESMAN L.G. (ed.), Historical ecology of wild and domestic ungulates: History of pasture ecosystems. [Istoricheskaja ekologija dikih i domashnih kopytnyh. Istoria pastbitznych ekosystem.]. Nauka, Moscow. 165-171.
- SEDELNIKOV V.P., 1988: High mountain vegetation of Altai and Sajan mountains [Visokogornaja rastitelnoct altae-sajanskoi gornoj oblasti]. (In Russ.). Nauka, Novosibirsk. 222 pp.
- SEMENOVA G.V. and ONIPCHENKO V.G., 1990: Soil seed banks in the alpine communities in the Teberda Reserve, the Northwestern Caucasus. (In Russ.). *Byull.Mosk.o-va ispyt.prirod.biol.* 95 (5), 77-87.
- SEMENOVA G.V. and ONIPCHENKO V.G., 1991: Field investigation of the soil diasporae bank in alpine communities. (In Russ.). *Byull. Mosk.o-va ispyt.prirod.biol.* 96 (4), 117-122.
- SENDSTAD E., 1981: Soil ecology of a lichen heath at Spitsbergen, Svalbard: effects of artificial removal of the lichen plant cover. *J. Range Manag.* 34 (6), 442-445.

- SEREBRYANY L.R., GEY N.A., DZHAPARIDZE R.N. et al., 1980: Vegetation of the central part of the high mountain Caucasus in Holocene. (In Russ.). Bull. Commiss Quatern. studies [Bulletin' Comissii po izucheniyu chetvertichnogo perioda.] 50, 123-137.
- SHATVORJAN P.V., 1981: Influence of different fertilizers on production of alpine meadows with *Carum caucasicum*. (In Russ.). Armen.agricul.inst. Erevan 4, 105-111.
- SHENNIKOV A.P., 1942: Experimental view on natural factors of plant distribution. (In Russ.). Zhurn.obtch.biol. (J. Gen. Biology) 3 (5-6), 331-361.
- SHMIDA A. and ELLNER S., 1984: Coexistence of plant species with similar niches. Vegetatio 58, 29-55.
- SMITHSON F., 1958: Grass opal in British soils. J.Soil Sci. 9 (1), 148 -154.
- SOHLBERG E.H., BLISS L.C., 1984: Microscale pattern of vascular plant distribution in two high arctic plant communities. Can.J.Bot. 62 (10), 2033-2042.
- SOKOLOVA N.S., 1982: On the history of vegetation of the Great Caucasus. (In Russ.). Vestn.Mosk.Univ., ser. 5 (Geography), 5, 40-44.
- STANJUKOVICH K.B., 1960: High mountain vegetation of the USSR. [Rastitelnost visokogorii SSSR]. (In Russ.). Acad.sci. Tadjik SSR, Stalinobad. 172 pp.
- STEPANOV A.L. and ONIPCHENKO V.G., 1989: Assessment of respiration rate and nitrogen-fixing and denitrifying activity in high-meadow alpine soils of Northwestern Caucasus. Vestn.Mosk.Univ., ser. 17, 44 (2), 55-56.
- Supplement to soil classification system (7-th Approximation), 1967: Soil Survey Staff, Soil Conservation Service, U.S.D.A. 207 pp.
- SYDES C.L., GRIME J.P., 1984: A comparative study of root development using a simulated rock crevice. J.Ecol. 72 (3), 937-946.
- TAPPEINER U., CERNUSCA A. and NAKHUZRISHVILI G.S. 1989: Bestandesstruktur und Lichtklima ausgewählter Pflanzenbestände der subalpinen Stufe des Zentralkaukasus. Sitzungberichte der Österr. Akademie der Wissenschaften Mathem.-naturw. Kl., Wien, Abt.1, 197 (5-10), 395- 421.
- TILMAN D., 1988: Plant strategies and the dynamics and structure of plant communities. Monographs in population biology (v.26). Princeton Univ.Press, Princeton, New Jersey. 360 pp.
- TUSHINSKY G.K., 1962: Rythms in glaciation and snowness in Teberda State Reserve. (In Russ.). Transactions of Teberda State Reserve [Trudy Teberdinskogo Gos. Zapovednika.]. Stavropol 4, 57-71.
- TWISS P.S., SUSS E. and SMITH R.M., 1969: Morphological classification of grass phytoliths. Soil Sci.Soc.Am.Proc. 33 (1), 109-115.
- VADUNINA A.F. and KORCHAGINA Z.A., 1986: Techniques for studying of physics properties of soils. (In Russ.). Agropromizdat, Moscow. 230 pp.
- VORONINA I.N., ONIPCHENKO V.G. and IGNATOVA O.V., 1986: Components of biological turnover in alpine lichen barrens of the Northwestern Caucasus. Sov.Soil Sci. 18 (3), 20-29.
- WALTER H., HARNICKELL E. and MUELLER-DOMBOIS D. 1975: Klimadiagramm-Karten. Fischer, Stuttgart. 36 pp.
- WATT A.S., 1947: Pattern and process in the plant community. J.Ecol. 35 (1), 1-22.
- WILDING L.P., DREES L.R., 1971: Biogenetic opal in Ohio soils. Soil Sci.Soc.Am.Proc. 35, 1004 -1010.
- WILSON J.B., 1990: Mechanisms of species coexistence: twelve explanations for Hutchinson's "Paradox of the Plankton": Evidence from New Zealand plant communities. N. Z. J. Ecol. 13, 17-42.
- WIELGOLASKI F.E., 1980: Tundra plant structure and production in relation to the environment. Int.J.Biometeorol., 24 (1), 23-30.
- WITTY J.E., KNOX E.G., 1964: Grass opal in some Chestnut and Forest soils in north central Oregon. Soil Sci.Soc.Am.Proc. 28, 685 - 687.

ZINGG Th., 1961: Beitrag zum Klima vom Weissfluhjoch. Winterberg. Eidg. Inst. Schnee- und Lawinenforsch. 24, 102-127.

ZIROJAN A.N., 1988: Phytocoenotic properties and productivity of main vegetation types of Armenia. (In Russ.). Autoreferat doct. disser. Erevan. 43 pp.

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