

Red-listed mosses in the Komi Republic (Russia)

Galina V. Zhelezнова & Tatyana P. Shubina

Institute of Biology, Komi SC UB RAS, 28 Kommunisticheskaya st., Syktyvkar, 167982, Komi Republic, Russia

E-mail: zheleznova@ib.komisc.ru; tshubina@ib.komisc.ru

Abstract: The paper presents data on red-listed mosses of the Komi Republic. 114 taxa of moss species have been suggested for inclusion in the new edition of the Red Data Book of the Komi Republic.

Kokkuvõte: Komi Vabariigi (Venemaa) Punase Raamatu lehtsamblad

On koostatud nimekiri 114 lehtsambla taksonist Komi Vabariigi Punase Raamatu uue versiooni jaoks.

INTRODUCTION

The Komi Republic is situated in the North-East of the European part of the Russian Federation, in the taiga and tundra zones. Its area is approximately 416,000 square kilometers. The relief is predominantly plain. There is an ancient, medium-height elevation, the Timan Ridge, with maximum height of 471 meters. The ridges of the Northern, the Sub-Polar and the Polar Urals stretch in the East. Mount Narodnaya is the highest peak in the Urals (1,900 m). Circa 70% of the Komi Republic is covered with forests, mainly spruce and pine.

The moss flora of the Komi Republic has been studied for over 100 years. The works of Zikendrath (1895, 1900) and Pole (1915) represent the earliest data. The regional bryoflora is now studied by the staff of the Institute of Biology (Komi Scientific Centre, Ural Branch, Russian Academy of Sciences).

The observed increase of human impact on the natural ecosystems has called for urgent action plan for biodiversity conservation. In this connection, the Red Data Book of the Komi Republic, which included 143 moss and 10 liverwort species, was issued in 1998. Additionally, 254 protected areas on 6 million hectares of land (15 % of the total area of the Komi Republic) have been merged into a network of specially protected natural areas. Nowadays bryologists compile the inventory of bryophyte flora of the Komi Republic, with special focus on protected natural areas. As a result, the red list of moss species has been revised. Several species from the former Red Data Book were excluded due to taxonomical changes, uncertain occurrence evidence or increase in the known number of localities. New red list includes 114 moss spe-

cies. It will make a part of the 2nd edition of the Red Data Book of the Komi Republic.

MATERIALS AND METHODS

The list of taxa is arranged in alphabetic order. Species names correspond to the accepted Check-list of mosses of East Europe and North Asia (Ignatov et al., 2006). We have provided synonyms only to species that differ from the name given in the Red Data Book of the Komi Republic (Taskaev, 1998). Each taxon is referred to one of the following Red List categories (Taskaev, 1998).

Category 2 – vulnerable species: taxa that are likely to be attributed to the Endangered category in the near future provided that the effect of adverse factors continues. Here belong taxa with abundances in all or in the most of populations declining due to intensive use, considerable disturbance of habitats or other changes.

Category 3 – rare species: taxa with small populations that are at risk of becoming vulnerable or endangered. The taxa are restricted to small areas, specific habitat or are sparsely distributed on a vast territory.

Category 4 – species insufficiently known: taxa evidently belonging to one of the preceding categories, however their condition is not known at present.

In addition, care demanding species which are relatively rare and grow in habitats with antropogenic press are listed as an appendix to the Red Data Book.

LIST OF SPECIES**Category 2**

- CODRIOPHORUS FASCICULARIS (Hedw.) Bednarek-
Ochyra & Ochyra (*Racomitrium fasciculare*
(Hedw.) Brid.)
CYNODONTIUM ASPERIFOLIUM (Lindb. & Arnell) Paris
DICRANUM VIRIDE (Sull. & Lesq.) Lindb.
DIDYMODON TOPHACEUS (Brid.) Lisa
FISSIDENS GRACILIFOLIUS Brugg.-Nann. & Nyholm
(*F. minutulus* Sull.)
FISSIDENS PUSILLUS (Wilson) Milde
GRIMMIA UNICOLOR Hook.
LESCURAEA PATENS Lindb. (*Pseudoleskea patens*
(Lind.) Kindb.)
MYURELLA SIBIRICA (Muell. Hal.) Reimers
POHLIA SAPROPHILA (Muell. Hal.) Broth.
TORTELLA INCLINATA (R.Hedw.) Limpr.

Category 3

- ANOMODON LONGIFOLIUS (Brid.) Hartm.
CAMPYLOPHYLLUM HALLERI (Hedw.) M. Fleisch.
(*Campyllum halleri* (Hedw.) Lindb.)
CINCLIDIUM ARCTICUM (Bruch et al.) Schimp.
CNESTRUM ALPESTRE (Wahlenb. ex Huebener)
Nyholm ex Mogensen.
CNESTRUM SCHISTII (F. Weber & D. Mohr) I.
Hagen.
CODRIOPHORUS ACICULARIS (Hedw.) P. Beauv.
(*Racomitrium aciculare* (Hedw.) Brid.)
CYNODONTIUM FALLAX Limpr.
DICRANUM DRUMMONDII Muell. Hal.
DISCELIUM NUDUM (Dicks.) Brid.
ENCALYPTA AFFINIS R. Hedw.
ENCALYPTA BREVICOLLA (Bruch et al.) Ångstr.
FISSIDENS RUFULUS Bruch et al.
FISSIDENS VIRIDULUS (Sw.) Wahlenb.
GRIMMIA MOLLIS Bruch et al. (*Hydrogrimmia*
mollis (Bruch et al.) Loeske)
HETEROCLADIUM DIMORPHUM (Brid.) Bruch et al.
LESCURAEA RADICOSA (Mitt.) Moenk.
(*Pseudoleskea radicata* (Mitt.) Macoun &
Kindb.)
LESCURAEA MUTABILIS (Brid.) Lindb.
MEESIA LONGISETA Hedw.
MYURELLA TENERRIMA (Brid.) Lindb.
NECKERA PENNATA Hedw.
OCHYRAEA NORVEGICA (Bruch et al.) Ignatov
& Ignatova (*Hygrohypnum norvegicum*
(Bruch et al.) J. J. Amann)
PHILONOTIS MARCHICA (Hedw.) Brid.

- PLAGIOMNIUM CONFERTIDENS (Lindb. & Arnell) T. J.
Kop.
POHLIA ELONGATA Hedw. var. GREENII (Brid.)
A.J.Shaw
POHLIA LONGICOLLIS (Hedw.) Lindb.
POHLIA LUDWIGII (Spreng. ex Schwaegr.) Broth.
POLYTRICHASTRUM FORMOSUM (Hedw.) G. L. Sm.
(*Polytrichum formosum* Hedw.)
POLYTRICHASTRUM SEXANGULARE (Floerke ex Brid.)
G.L.Sm. (*Polytrichum sexangulare* Brid.)
PSEUDOCALLIERGON TRIFARIUM (E.Weber et D.Mohr)
Loeske.
RHYNCHOSTEGIUM MURALE (Hedw.) Bruch et al.
SCHISTOSTEGA PENNATA (Hedw.) F.Weber & D.
Mohr
SCIURO-HYPNUM ORNELLANUM (Molendo) Ignatov
& Huttunen (*Scleropodium ornellanum*
(Molendo) Lorenz.)
SPHAGNUM PULCHRUM (Lindb. ex Braithw.)
Warnst.
STEREODON Plicatulus Lindb. (*Hypnum*
plicatulum (Lindb.) A. Jaeger)
ULOTA CURVIFOLIA (Wahlenb.) Lilj.

Category 4

- CYNODONTIUM BRUNTONII (Sm.) Bruch et al.
DICRANODONTIUM DENUDATUM (Brid.) E. Britton
FUNARIA MICROSTOMA Bruch ex Schimp.
SELIGERIA CAMPYLOPODA Kindb.
SELIGERIA DONNIANA (Sm.) Muell. Hal.
SELIGERIA PUSILLA (Hedw.) Bruch et al.
SELIGERIA TRIFARIA (Brid.) Lindb.
TAYLORIA ACUMINATA Hornsch.

Appendix

- AMPHIDIUM MOUGEOTII (Bruch et al.) Schimp.
ANOMODON VITICULOSUS (Hedw.) Hook. & Taylor
BARBULA CONVOLUTA Hedw.
BARTRAMIA POMIFORMIS Hedw.
BRACHYTHECIUM GLAREOSUM (Bruch ex Spruce)
Bruch et al.
BRACHYTHECIUM TOMMASINII (Sendtn. ex Boulay)
Ignatov & Huttunen (*Cirriphyllum*
tenuinerve (Lindb.) Wijk & Margad.,
Cirriphyllum tommasinii (Sendtn. ex
Boulay) Grout)
BRYOBITTONIA LONGIPES (Mitt.) D. G. Horton
BRYUM ARCTICUM (R. Br.) Bruch et al.
BRYUM NEODAMENSE Itzigs.
BRYUM PAMIRENSE H.Philib. ex Broth.
BRYUM RUTILANS Brid.

CINCLIDIUM STYGIUM Sw.
 CONOSTOMUM TETRAGONUM (Hedw.) Lindb.
 DICRANELLA HUMILIS R. Ruthe
 DICRANELLA SCHREBERIANA (Hedw.) Hilf. ex H. A.
 Crum & L. E. Anderson
 DIDYMODON RIGIDULUS Hedw.
 DISTICHUM INCLINATUM (Hedw.) Bruch et al.
 DITRICHUM PUSILLUM (Hedw.) Hampe
 ENCALYPTA CILIATA Hedw.
 ENCALYPTA VULGARIS Hedw.
 FONTINALIS SQUAMOSA Hedw.
 HOMALOTHECIUM SERICEUM (Hedw.) Bruch et al.
 HYGROAMBLYSTEGIUM TENAX (Hedw.) Jenn.
 HYGROHYPNELLA POLARE (Lindb.) Ignatov &
 Ignatova (*Hygrohypnum polare* (Lindb.)
 Loeske
 KIAERIA BLYTTII (Broth. et al.) Broth.
 KIAERIA FALCATA (Hedw.) I. Hagen
 KIAERIA GLACIALIS (Begr.) I. Hagen
 LOESKYPNUM BADIUM (Hartm.) H.K.G.Paul
 (*Drepanocladus badius* (Hartm.) G. Roth)
 MNIUM BLYTTII Bruch et al.
 OLIGOTRICHUM HERCYNICUM (Hedw.) Lam. & DC.
 ORTHOTHECIUM INTRICATUM (Hartm.) Bruch et al.
 ORTHOTHECIUM RUFESCENS (Dicks. ex Brid.) Bruch
 et al.
 ORTHOTRICHUM LAEVIGATUM J. E. Zetterst.
 OXYRRHYNCHIUM HIANIS (Hedw.) Loeske
 (*Eurhynchium hians* (Hedw.) Sande Lac.)
 PARALEUCOBRYUM LONGIFOLIUM (Hedw.) Loeske
 PLAGIOPUS OEDERIANUS (Sw.) H.A.Crum &
 L.A.Anderson
 PLAGIOTHECIUM LATEBRICOLA Bruch et al.
 PLATYGYRIUM REPENS (Brid.) Bruch et al.
 POHLIA ANDREWSII A. J. Shaw
 PSEUDOCALLIERGON LYCOPODIODES (Brid.) Hedenäs
 PTERIGYNANDRUM FILIFORME Hedw.
 RHYNCHOSTEGIUM RIPARIOIDES (Hedw.) Cardot.
 SCIURO-HYPNUM GLACIALE (Bruch et al.) Ignatov &
 Huttunen (*Brachythecium glaciale* Bruch
 et al.)
 SPLACHNUM AMPULLACEUM Hedw.
 STERIODON BAMBERGERI (Schimp.) Lindb.
 (*Hypnum bambergeri* Schimp.)
 STERIODON PALLESCENS (Hedw.) Mitt. (*Hypnum*
pallescens (Hedw.) P.Beauv.)
 STERIODON VAUCHERI (Lesq.) Lindb. ex Broth.
 (*Hypnum vaucheri* Lesq.)
 TAYLORIA TENUIS (Dicks. ex With.) Schimp.
 TETRAPLONDON PARADOXUS (R. Br.) I. Hagen
 THUIDIUM ASSIMILE (Mitt.) A. Jaeger (*T. philibertii*
 Limpr.)

THUIDIUM DELICATULUM (Hedw.) Bruch et al.
 TIMMIA NORVEGICA J.E.Zetterst.
 TORTULA HOPPEANA (Schultz) Ochyra
 (*Desmatodon latifolius* (Hedw.) Brid.)
 TORTULA LEUCOSTOMA (R. Br.) Hook. & Grev.
 (*Desmatodon leucostoma* (R.Br.) Berggr.)
 TORTULA MUCRONIFOLIA Schwaegr.
 TORTULA PROTOBRYOIDES R.H.Zander (*Pottia*
bryoides (Dicks.) Mitt.)
 TORTULA TRUNCATA (Hedw.) Mitt. (*Pottia truncata*
 (Hedw.) Bruch et al.)
 TREMATODON AMBIGUUS (Hedw.) Hornsch.
 TRICHOSTOMUM CRISPULUM Bruch
 ZYGODON VIRIDISSIMUS (Dicks.) Brid.

ACKNOWLEDGEMENTS

The work was financially supported by the Russian Foundation for Basic Research (Project 06-04-48002).

REFERENCES

- Ignatov, M.S., Afonina, O.M. & Ignatova E.A. 2006. Check-list of mosses of East Europe and North Asia. *Arctoa*. 15: 1–130.
 Taskaev, A.I. (ed.) 1998. *Red Book of Komi Republic. Rare and Endangered Species of Plants and Animals*. (In Russian). Moscow. 528 pp.
 Pole, R. 1915. Materialy dlja poznanija rastitelnosti severnoi Rossii I. K flory mhov severnoi Rossii (In Russian). *Acta Horti Petropolitani*: 33 (1): 1–148.
 Zickendrath, E. 1895. Beiträge zur Kenntnis der Moosflora Russlands I. *Bulletin de la Société Impériale des Naturalistes de Moscou* 8: 1–56.
 Zickendrath, E. 1900. Beiträge zur Kenntnis der Moosflora Russlands II. *Bulletin de la Société Impériale des Naturalistes de Moscou* 14: 241–366.

