

## A NOTE ON SOME GRASSES RELISHED BY MARKHOR IN CHITRAL GOL.

Dr. Mirza Hakim Khan\*

Chitral Gol is a narrow valley with high mountains and steep slopes. The altitude ranges from 1500-4900 m. Snow slides and landslides are common. A number of large water courses, Meran, Tangogh, Kasavir, Bakhtanshal, Bironshal, Gokshal, Chat and Duni drain into Chitral Gol, which later on joins the river Chitral near Chitral town. A thin layer of slate and phyllites (palaeozoic) overlies the crystalline or grey limestone of midcretaceous period. The soil formed by the disintegration of rocks is generally fertile and varies from clay loam to sandy loam.

The climate is dry temperate. Frost and snow start from October on high peaks and late November in valleys. Snow stays till March in valleys and till June on mountains. Precipitation occurs from December to May. No climatic data is, however, available.

Sixty persons live in the valley and own 580 goats and sheep and 20 cattle. 3000 goats and sheep, and about 200 cattle from outside also graze in July and August.

The important grasses of the area are:

*Agropyron canaliculatum* Nevski in Bull. Jard. Bot. Acad. Sc. U.R., S.S. 30,509 (1932)  
 Syn. *Brachypodium tataricum* Munro ex Aitchison in J. Linn. Soc. (Bot.) 18, 109 (1881), nomen nudum; *A. flexuosissimum* Nevski in Bull. Jard. Bot. Acad. Sc. U.R.S.S. 30,510 (1932).

Leaf sheaths non-ciliate at the margins; leaf blades usually convolute, densely minutely hairy on the upper surface; awns long, most robust.

Habitat: Abundantly found in the Cedrus woodland on northern slopes at 2900 m in Gokshal on moist soil.

*A. schrenkianum* (Fisch. et Mey.) Drobov in Trav. Bot. Mus. Bot. Acad. Sc. Petrogr. 16, 136 (1916).

Syn. *Triticum schrenkianum* Fisch. et Mey. in Bull. Phys. Math. de l'Acad. de Sc. Petersb. 3,305 (1845); *Roegneria schrenkiana* (Fish. et Mey.) Nevski in Komarov, Fl. U.R.S.S. 2,605 (1934).

\*The author is Assistant Forest Ecologist in the Pakistan Forest Institute Peshawar.,

— Rhachilla twisted at the base, bringing the floret more or less dorsiventral to the spike-axis; spike-axis often dense, one-sided.

— Habitat: Found at 2860 m elevation on the exploited northern slopes in Viburnum type in Chat area.

*A. striatum* Nees ex Steud. Syn. Pl. Gram. 1,346 (1854).

— Spikelets imbricating or contracted; glumes linear-oblong or oblong-lanceolate (the lower nearly as long as the lower floret) acuminate; plant usually robust and tall.

— Habitat: Confined to southern slopes at 2600 m in Gokshal in Ferula type.

*Agrostis canina* L., Sp. Pl. ed. 1,62 (1753).  
Syn. *A. wightii* Nees ex Steud. Syn. Pl. Glum. 1,168, (1854).

— Awn basal to median; lemma awned; palea minute; anthers 1-1.5 mm long.

— Habitat: Found in the Viburnum type and in the Cedrus woodland at 2900 m in the suburbs of Chat area on moist habitat.

*Bromus japonicus* Thunb., Fl. Jap. 52 (1784), t. II.

Syn. *B. patulus* Mert. et Koch in Roehl., Deutsch., Fl. 1, 685 (1823). *B. cyri* Trin. in C.A. Mey., Verz. Pl. Cauc. 24 (1831); *B. abolini* Drob. in Fedde, Rep. Sp. Nov. 21, 40 (1925); *Serrafalcus patulus* (Mert. et Koch) Parl., Fl. Ital. 1,394 (1848).

*Calamagrostis pseudophragmites* (Hall. f.) Koeler, Descr. Gram. 106 (1802).

Syn. *Arundo pseudophragmites* Hall. f. in Roem., Arch. fur Bot. 1,211 (1797); *A. littorea* Schrad. Fl. Germ. 1,212 (1806); *Calamagrostis lanceolata* Aitch. in J. Linn. Soc. (Bot.) 18,107 (1880) non Roth (1788); *C. laxa* Host. Gram. Austr. 4,25 (1809).

— Awn included or very shortly exerted; lemma more than 1/2 of the lower glume, tip truncate, erose or toothed; palea 1/2-3/4 of lemma.

— Habitat: Common large grass found in Quercus type at Kasavir at 2000 m and in Gokshal at 3000 m on non-calcareous moist soils.

*Cenchrus ciliaris* Linn., Mant. Alt. 302 (1771).

Syn. *Pennisetum cenchroides* Rich. in Pers. Syn. 1,72 (1805); *Panicum vulpinum* Willd., Enum. Hort. Berol. 1031 (1809); *Setaria vulpina* (Willd.) P. Beauv., Ess. Agrost. 51 (1812).

— Base of involucre small, elliptic; inner bristles not very stout at the base, ciliate on the margins, not more than 1.5 cm long.



- Habitat: very commonly found on lower elevation at 1300 m on way to Kasavir on comparatively dry degraded rocky slopes.

*Dactylis glomerata* Linn., Sp. Pl. ed. 1, 71 (1753).

Syn. *Bromus glomeratus* (Linn.) Scop., Fl. Carn. ed. 2, 1, 76 (1772); *Festuca glomerata* (Linn.) All., Fl. Pedem. 1, 252 (1785).

- Ligules membranous; glumes persistent, lower 3.5 mm long; lemmas 3.5-5 mm long, definitely awned and more acuminate; palea as long as the lemma or shorter.
- Habitat: At 2900 m near Chat area; frequently found on moist habitat in the *Viburnum* type.

*Festuca ovina* Linn., Sp. Pl. ed. 1, 73 (1753) Sensus lato.

Syn. *F. valesiaca* Schliech. ex Gaud., Agros. Helvet. 1, 242 (1811).

- Glumes glabrous; anthers 1-2 mm long; blades complicate-setaceous, always without bulliform cells; sclerenchymatous fibres usually in a continuous band.
- Habitat: very abundantly confined to the degraded tops of *Cedrus* woodland at 3000 m in Chat area.

*Melica canescens* (Regel) Lavrenko in Komarov, Fl. U.S.S.R. 2, 752 (1934).

Syn. *M. cupani* Guss. var. *canescens* Regel, Descr. Pl. Nov. Fasc. 8, 88 (1880).

- All sheaths and both sides of the blades pilose.
- Habitat: Found on non-calcareous soil in *Quercus ilex* type near Kasavir at 1800 m elevation.

*M. inaequiglumis* Boiss. Diagn. Ser. 1, 7, 124 (1846).

Syn. *M. cupani* var. *inaequiglumis* Boiss., Fl. Orient. 5, 590 (1884).

- Upper glume 8-9.5 (10) mm long; the lower glume one-third to one half as long; culm erect, blades long, basal sheath loose and scarious; spikelets 8-9 mm long; fertile lemma elliptic, 6 mm long; palea 4-5 mm long.
- Habitat: Confined mostly to non-calcareous rocky slopes at 2500 m in *Cedrus* woodland in the suburbs of Gokshal.

*Oryzopsis munroi* Stapf ex Hook. f., Fl. Brit. Ind. 7, 234 (1896).

- Panicle 15-30 cm long, branches in distant pairs, many-spiculate; glumes longer than lemma, 6-7.5 mm long, broadly elliptic-acuminate; lemma 4-5.5 mm long, elliptic-acute, brown covered on sides and back above with golden hairs.

- Habitat: On way to Miran from Chitral town on calcareous soils at 1400 m elevation.

*Pennisetum flaccidum* Griseb. in Goett. Nachr. 86 (1868).

- Upper glume half to two-thirds the length of the spikelet, lanceolate-acuminate or setaceous; lower lemma about as long as the spikelet, 5-nerved, paleate, enclosing a male flower; upper lemma 5-nerved; bristles scabrid, sometimes sparingly ciliate.
- Habitat: On way to Meran at 1550 m elevation on the north facing slopes in the exploited places of *Quercus* type.

*Phacelurus speciosus* (Steud.) C.E. Hubbard in Kew Bull. 1928, 35 (1928).

Syn. *Andropogon speciosus* Steud. Pl. Glum. 1, 375 (1854); *Ischaemum corollatum* Nees ex Steud., Loc. cit. 369; *I. robustum* Hook. f., Fl. Brit. Ind., 7, 139 (1896).

- Racemes 3-7; lower glume of pedicelled spikelet 2-keeled above, prolonged into an awl-like mucro.
- Habitat: Commonly found in the suburbs of Kasavir in *Quercus* type at 1700 m elevation.

*Poa nemoralis* Linn., Sp. Pl. ed. 1, 69 (1753).

- Lower glume awl-shaped, 3-nerved, 2.5 mm long; lemmas ciliate on the keel and side nerves, hyaline in the upper quarter, faintly 5-nerved; ligule 5 mm long.
- Habitat: Most commonly found in *Cedrus* woodland at 2,500 m near Gokshal. An obligate sciophyte.

*P. pratensis* Linn., Sp. Pl. ed. 1, 67 (1754).

- Ligules not more than 2 mm long; lemmas 3-3.5 mm long.
- Habitat: Found in *Cedrus* woodland at 1700 m in the suburbs of Kasavir usually on northern moist slopes.

*P. sinaica* Steud., Syn. Pl. Glum. 1, 256 (1853).

- Lemma-s 3.5-4 mm long; spikelets rarely proliferating; wool not present.

Habitat: Abundantly found near Meran on calcareous soil, at 1500 m.

*P. sterilis* M.B., Fl. Taur.-Cauc. 1, 62 (1808).



- Spikelets wedge-shaped; lemma smooth, shining; lower glume 3-nerved; a yellowish band present below the hyaline tip; panicle lax; culms 30-60 cm tall.
- Habitat: Most abundantly found in Cedrus woodland at 1800-2900 m on rocky slopes near Gokshal and Kasavir.

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