



Cassiope tetragona – Dryas integrifolia non-acidic snowbed communities along the Thomson River, Banks Island, Canada



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Introduction: This student's research is the result of the three weeks lasting Arctic Ecology Course 2003 that was taught along the Thomson River on Banks Island in the Canadian Arctic Archipelago (N 73° 13' W 119° 32' – N 73° 50' W 119° 53'). The Thomson River lays within Bioclimatic subzone C with a mean July temperature of 5 – 7 °C (CAVM Team 2003). Using the Braun-Blanquet approach of vegetation description it was attempted to gain an overview of *Cassiope tetragona*-dominated snowbed communities of different expositions on non-acidic substrates. 23 relevés from five transects allowed to classify the distinct vegetation units and to suggest a northern vicariant of the Tetragono-Dryadetum integrifoliae Barret 1972.

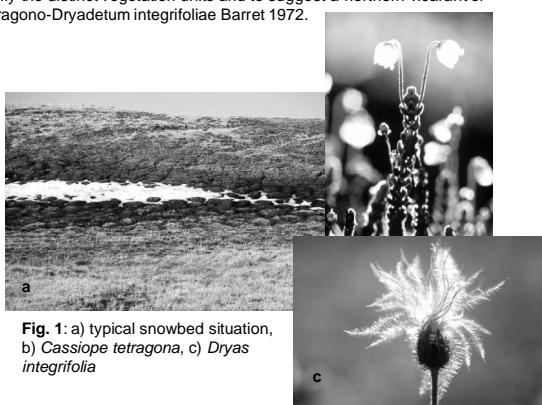


Fig. 1: a) typical snowbed situation,
b) *Cassiope tetragona*, c) *Dryas integrifolia*

Carici rupestris-Kobresietea bellardi Ohba 1974
Kobresio-Dryadetalia (Br.-Bl. 1948) Ohba 1974
Dryadion integrifoliae Ohba 1974 ex Daniëls 1982

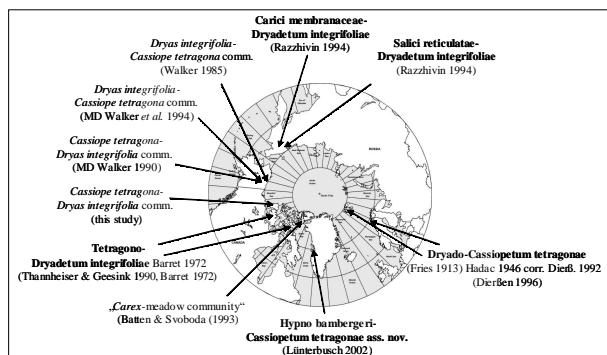


Fig. 3: Circumpolar basiphilous *Cassiope tetragona* communities

Literature: CAVM Team (2003) Circumpolar Arctic Vegetation Map, Scale 1:7,500,000, Conservation of Arctic Flora and Fauna (CAFF) Report No. 11, U.S. Fish and Wildlife Service, Anchorage, Alaska. – Barret D.S. Synderup (1993) Plant communities on the Upland in Vicinity of the Alexandra Fjord Lowland. – In: Svoboda J., Friedlman B. (eds.) Biology of a polar oasis: 97–110. – Barnett, P.E. (1972) Phytoecosystems of a coastal ecosystem. Devon Island, N.W.T. – Ph.D. thesis, University of British Columbia 1972. – Dierßen K. (1996) Vegetation Nordgrönlands. Ulmer, Stuttgart, 1996. – Lünterbush CH (2002) Vegetationsökologische Untersuchungen zu *Dryas integrifolia* M. Vahl im Lummangaaqgebiet, Nordwest-Grönland, unter besonderer Berücksichtigung von Standort und Vergeßselhaftigkeit. – Ph.D.-thesis, University of Münster, Germany. 2002. – Razzhivin, VV (1994) Snowbed vegetation of far northeastern Asia. J. Veg. Sc. 5:829–842. – Thannheiser D., Geesink B. (1990) Dryasreiche Vegetationseinheiten mit besonderer Berücksichtigung des westlichen kanadischen Arktis-Archipels. – Mitt. Geogr. Ges. Hamburg 80:175–205. – Walker DA (1985) Vegetation and environmental gradients of the Prudhoe Bay region, Alaska. CRREL Report 85-13. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH. – Walker MD (1990) Vegetation and Floraistics of Pingos, Central Arctic Coastal Plain, Alaska. Diss. Bot. 149. - Walker MD, Walker DA, Auerbach NA (1994) Plant Communities of a tussock tundra landscape in the Brooks Range Foothills, Alaska. Journal of Vegetation Science, 5:843–866.

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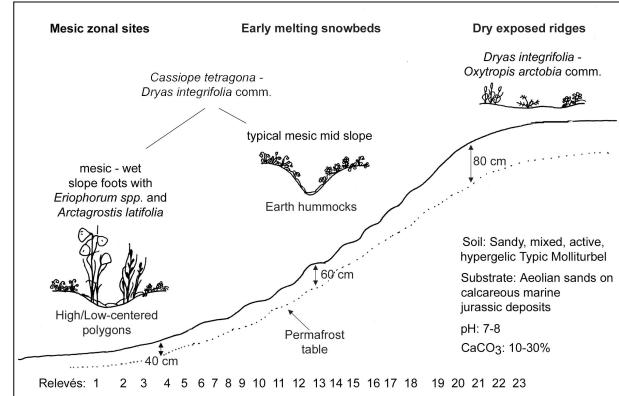


Fig. 2: Vegetation transect along an early melting snowbed toposequence

Tab.1 Relevés to the early melting snowbed toposequence (exkl. environmental data)

Cassiope tetragona	3	4	2b	2b	4	3	2b	2a	7	1	4	3	1	1	1	1	1	1	1	1	1	1	1
Tussocky plant species	2a	1	.	2b	1	2m	2	2a	1	2m	1	2a	1	2m	1	2m	2	1	1	1	1	1	1
Ceratodon purpureus	+	+	.	2m	2m	.	2a	1	2m	1	2m	1	2m	1	2m	2	1	1	1	1	1	1	1
Orthochrysum chrysanthum	+	+	.	2m	2m	.	2a	1	2m	1	2m	2	2m	1	2m	2	1	1	1	1	1	1	1
Andreae fennica	2m	2m	.	2m	2m	.	1	2m	1	2m	2	2m											
Blepharoneuron isochlorophyllum	2m	2m	.	2m	2m	.	1	2m	1	2m	2	2m											
Schizachne spicata	2m	2m	.	2m	2m	.	1	2m	2m	2m	1	2m											
Sanionia uncinata	2m	2m	.	1	2m	2m	2m	1	2m	2m	1	2m											
Juncaginaceae spp.	2m	2m	.	1	2m	2m	2m	1	2m	2m	1	2m											
Leptorhynchus spp.	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Polygonum viviparum	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Plagiochila spp.	2m	+	.	2m	+	.	2m	1	2m	2m	1	2m											
Dactylina arctica	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Trollius europaeus	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Salix polaris	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Tortella arctica	2m	2m	.	2m	2m	.	2m	1	2m	2m	1	2m											
Carex misandra	3	1	.	2m	2m	1	2m	1	2m	2m	1	2m											
Eriophorum angustifolium	2m	1	.	2m	1																		
Cardamine digitata	1	1	.	2m	1																		
Iazula mollis	2m	1	.	2m	1																		
Streptocarpus prolixosum	2m	1	.	2m	1																		
Peltigera s.p.	1	+	.	2m	1																		
Antarctostys arctica	2m	1	.	2m	1																		
Eriophorum vaginatum	2m	1	.	2m	1																		
Senecio arropurpureus	1	2m	1																				
Chlaeniopsis pectinata	2m	1	.	2m	1																		
Adonis amurensis	2m	1	.	2m	1																		
Aralia nudicaulis	+	+	.	2m	1																		
Hedysarum occidentale	1	1	.	2m	1																		
Cardamine glabra	1	1	.	2m	1																		
Peltigera canina	1	1	.	2m	1																		
Polypodium vulgare	1	1	.	2m	1																		
Flavocetraria cucullata	1	1	.	2m	1																		
Hypnum revolutum	1	1	.	2m	1																		
Bryum spp.	1	1	.	2m	1																		
Solorina bispora	1	1	.	2m	1																		
Polyblastus vermicularis ssp. subuliformis	1	1	.	2m	1																		
Flavocetraria acutula	1	1	.	2m	1																		
Racomitrium lanuginosum	1	1	.	2m	1																		
Encalypta ciliata	1	1	.	2m	1																		
Caloplaca sp.	1	1	.	2m	1																		

Ref 1: Carex tanacetifolia; Ref 2: Odontochisma macounii; Hypnum revolutum; Ref 3: Polypodium vulgare; Saxifraga cernua; Saxifraga tricuspidata; Ref 4: Peltigera leucophlebia; Ref 5: Encalypta ciliata; Ref 6: Hypnum revolutum; Ref 7: Racomitrium lanuginosum; Ref 8: Encalypta ciliata; Ref 9: Racomitrium lanuginosum; Ref 10: Cetraria islandica; Ref 11: Cetraria acutula; Ref 12: Cetraria islandica; Ref 13: Dicranum lineare; Ref 14: Potentilla valdiviana; Ref 15: Hypnum revolutum; Ref 16: Encalypta ciliata; Ref 17: Dicranum lineare; Ref 18: Cladonia furcata; Ref 19: Cladonia furcata; Ref 20: Cladonia furcata; Ref 21: Cladonia furcata; Ref 22: Cladonia furcata; Ref 23: Cladonia furcata; Ref 24: Cladonia furcata; Ref 25: Cladonia furcata; Ref 26: Cladonia furcata; Ref 27: Cladonia furcata; Ref 28: Cladonia furcata; Ref 29: Cladonia furcata; Ref 30: Cladonia furcata; Ref 31: Cladonia furcata; Ref 32: Cladonia furcata; Ref 33: Cladonia furcata; Ref 34: Cladonia furcata; Ref 35: Cladonia furcata; Ref 36: Cladonia furcata; Ref 37: Cladonia furcata; Ref 38: Cladonia furcata; Ref 39: Cladonia furcata; Ref 40: Cladonia furcata; Ref 41: Cladonia furcata; Ref 42: Cladonia furcata; Ref 43: Cladonia furcata; Ref 44: Cladonia furcata; Ref 45: Cladonia furcata; Ref 46: Cladonia furcata; Ref 47: Cladonia furcata; Ref 48: Cladonia furcata; Ref 49: Cladonia furcata; Ref 50: Cladonia furcata; Ref 51: Cladonia furcata; Ref 52: Cladonia furcata; Ref 53: Cladonia furcata; Ref 54: Cladonia furcata; Ref 55: Cladonia furcata; Ref 56: Cladonia furcata; Ref 57: Cladonia furcata; Ref 58: Cladonia furcata; Ref 59: Cladonia furcata; Ref 60: Cladonia furcata; Ref 61: Cladonia furcata; Ref 62: Cladonia furcata; Ref 63: Cladonia furcata; Ref 64: Cladonia furcata; Ref 65: Cladonia furcata; Ref 66: Cladonia furcata; Ref 67: Cladonia furcata; Ref 68: Cladonia furcata; Ref 69: Cladonia furcata; Ref 70: Cladonia furcata; Ref 71: Cladonia furcata; Ref 72: Cladonia furcata; Ref 73: Cladonia furcata; Ref 74: Cladonia furcata; Ref 75: Cladonia furcata; Ref 76: Cladonia furcata; Ref 77: Cladonia furcata; Ref 78: Cladonia furcata; Ref 79: Cladonia furcata; Ref 80: Cladonia furcata; Ref 81: Cladonia furcata; Ref 82: Cladonia furcata; Ref 83: Cladonia furcata; Ref 84: Cladonia furcata; Ref 85: Cladonia furcata; Ref 86: Cladonia furcata; Ref 87: Cladonia furcata; Ref 88: Cladonia furcata; Ref 89: Cladonia furcata; Ref 90: Cladonia furcata; Ref 91: Cladonia furcata; Ref 92: Cladonia furcata; Ref 93: Cladonia furcata; Ref 94: Cladonia furcata; Ref 95: Cladonia furcata; Ref 96: Cladonia furcata; Ref 97: Cladonia furcata; Ref 98: Cladonia furcata; Ref 99: Cladonia furcata; Ref 100: Cladonia furcata; Ref 101: Cladonia furcata; Ref 102: Cladonia furcata; Ref 103: Cladonia furcata; Ref 104: Cladonia furcata; Ref 105: Cladonia furcata; Ref 106: Cladonia furcata; Ref 107: Cladonia furcata; Ref 108: Cladonia furcata; Ref 109: Cladonia furcata; Ref 110: Cladonia furcata; Ref 111: Cladonia furcata; Ref 112: Cladonia furcata; Ref 113: Cladonia furcata; Ref 114: Cladonia furcata; Ref 115: Cladonia furcata; Ref 116: Cladonia furcata; Ref 117: Cladonia furcata; Ref 118: Cladonia furcata; Ref 119: Cladonia furcata; Ref 12