

Study of the *Arctophila fulva* wetlands in the Arctic based on AVA data

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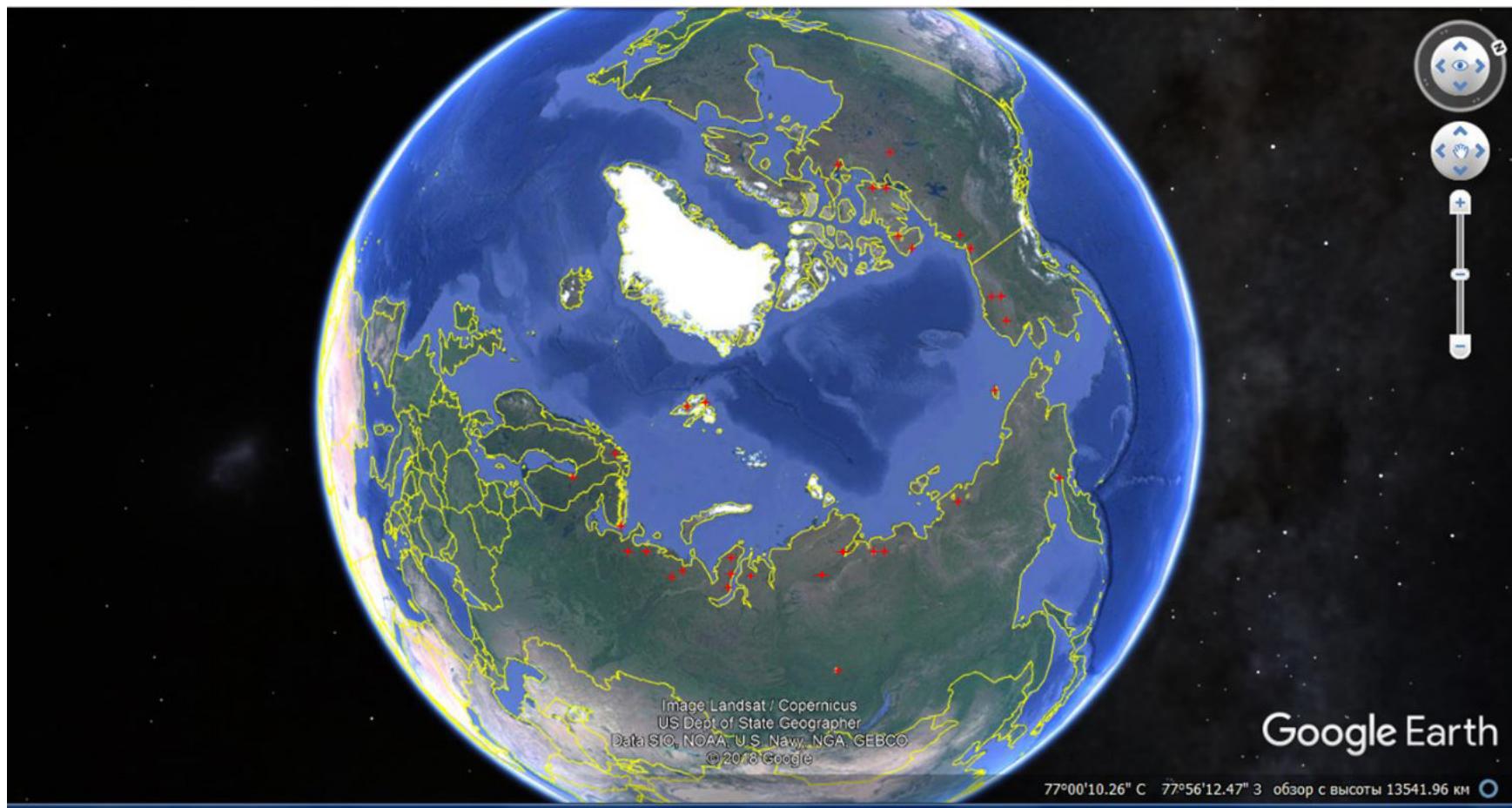
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Arctophila fulva distribution around the world



E. Hultén, M. Fries. *Atlas of North European Vascular Plants North of the Tropic of Cancer*. Koeltz Scientific Books, 1986. p. 129.

Location of *Arctophila fulva* stands studied (273 relevés at all)



Published data

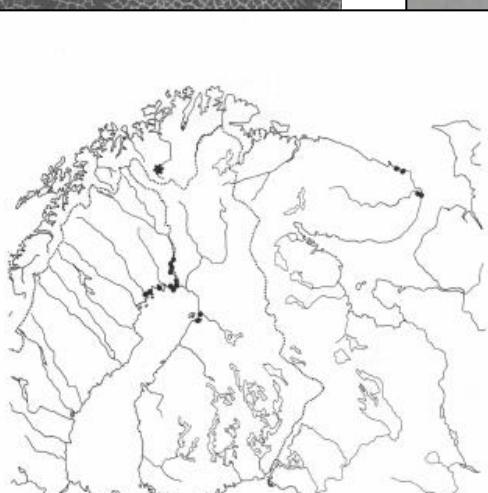
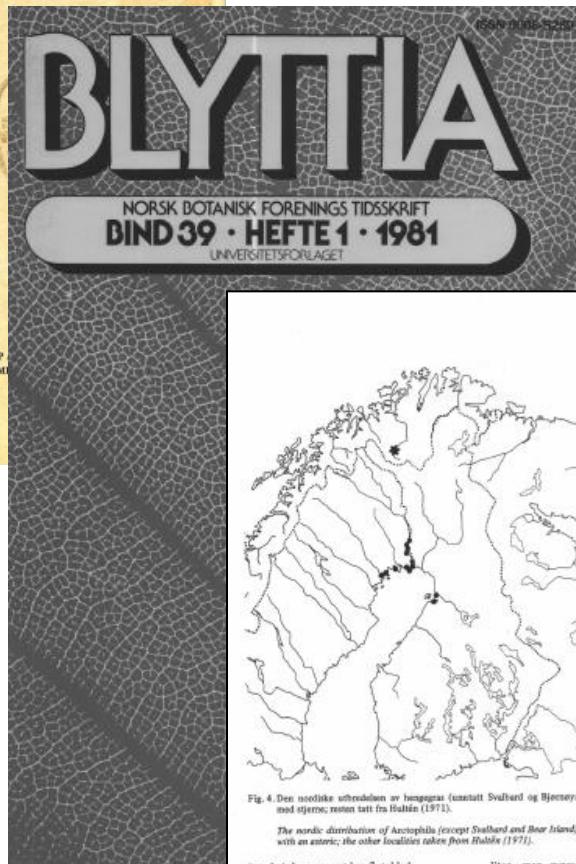
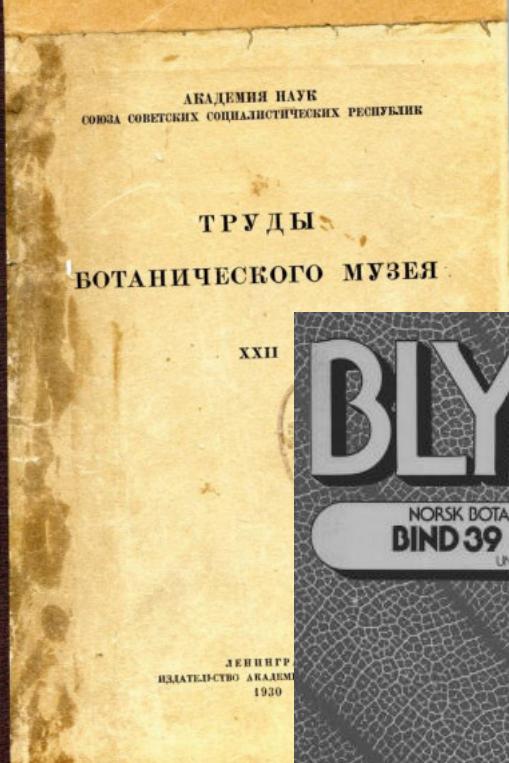


Fig. 4. Den nordiske utbredelsen av hengræs (unntatt Svalbard og Bjørnøya). Kautokeino-lokalisiteten merket med stjernen; resten tatt fra Hultén (1973).

The Nordic distribution of *Arctophila* (except Svalbard and Bear Island). The Kautokeino locality marked with an asterisk; the other localities taken from Hultén (1973).

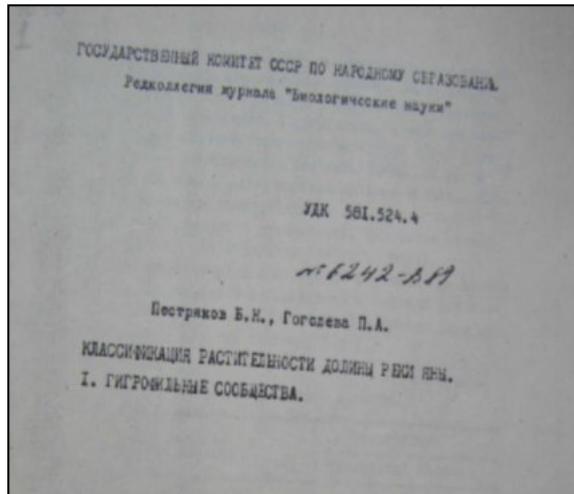
især hvis hengræs har flyteblad.

Førekommsten er så liten at den bør få et helt træt. Vi har ikke fått matemate til alle de store områdene i Norge.

Førekommsten av hengræs i Kautokeino-vassdraget ligger nokså langt fra de nærmeste andre (Fig. 4), 280 km fra Turtola i Tornedalen og vesentlig lengre fra østre Kola. Den forbinder Bottenvik/Tornedals-området med det arktiske. Skal vi dømme ut fra forekomsten i Tornedalen (flere tilgjengelige opplysninger; noen notater hos Ericson & Wallenius 1979), har arten en ganske smer akologi og svært få egne njer i N-Troms og Finnmark bortsett fra Kautokeino-elva. Førekommsten er

litten, men synes være i en vis ekspansjon. Hver av bestandene har en kant av velvokste hengræs som er godt med frø i sporene. Vi antar at graset her bare formerer seg vegetativt (mengst spes jordstamper). Hele førekommsten kan derfor skyldes en enkelt etablering. Arten sto i blomst de siste dagene i juli, og det er svært om den produserte fra i 1980, i en av de varmeste somrene Kautokeino har hatt i nyere tid. Det er ikke utslukket at førekommsten er av nokså my dato, og spredning med fugl fra Bottenvika/Tornedalen er en nærliggende mulighet.

Funnet av hengræs i Kautokeino føyser seg inn i rekken av flere gode funn i øyene



Усторев (У)

БНП
Москва - 1989 г.

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Ассоциация *Arctophyllo-Hippuridetum lanceolatae*.
Занимает пологоподъемный прибрежный склон небольших тундро-
вых озер и старых деловых рек, находящихся, омываемые во
время половодья по периферии против склонов ледниковых берегов в
устье реки. По синекологическому положению ассоциация
представляет переходное сообщество в классу *Hippuridetalia*.
Общая проективная покрытие - 45-60 %. Средняя высота - 20-
30 см. Высотная насажденность - 2-4 звена.

Таблица 3.
Ассоциация *Arctophyllo-Hippuridetum lanceolatae*.

Номер списания	1	2	3*	4	5	6	7	8	9	10
Проективное покрытие	60	80	45	30	20	70	60	60	20	сторон
Средн. высота травостоя	20	35	20	30	25	30	30	30	30	30
Количество видов	6	5	3	3	2	4	2	2	4	сторон

Л.п. *Arctophyllo-Hippuridetum lanceolatae*
Hippuris lanceolata 2 4 + 3 3 3 4 4 2 γ^{2-4}
Arctophila fulva 5 3 1 2 + 1 3 2 2 γ^3

Прочие виды
Epipactis palustris + 2 4 * III
Eriophorum polystachyon + I II

Более того, единично встречены: *Galanthus plicatus*(1),
Ranunculus acerifolius(1), *Polygonum filiforme*(6), *Ranunculus hyperboreus*(6).

Места списанных (все списания сделаны в Усть-Ямском районе) таблицы 3:
1 - 3 км. к югу от п. Нижнеленск. 05.05.88. Гоголева Н.А.
2 - берег озера дала п. Нижнеленск. 05.05.88. Гоголева Н.А.
3 - берег озера, 300 м. к сев. от п. Нижнеленск. 03.05.88.
Следом Н.П.
4 - 3,5 км. к югу от п. Нижнеленск. 05.05.88. Гоголева Н.А.
5 - берег озера, устье реки. 03.05.88. Постриков Б.Н.
6 - берег озера, ул. Лесн. 03.05.88. Гоголева Н.А.

AVA *Arctophila fulva* relevés from Alaska and northern Canada



The AVA data on Alaska and northern Canada (30 relevés)

To check the taxonomy and nomenclature of plants and lichens

The screenshot shows a website with a header menu including Home, About, The Report, Data, Policy, Download, Education, and Congress 2018. A logo for the Arctic is in the top right. Below the menu are three download links:

- Download Plants chapter chapter 9**: (PDF 2.4 MB) - image of pink flowers.
- Download Appendix 9.1**: List and distribution of all Arctic vascular plants (Excel 1.2 MB) - image of small white flowers.
- Download Appendix 9.2**: Endemic Arctic vascular plant distribution (Excel 111 KB) - image of yellow flowers.

CAFF DataBase - data on nomenclature and distribution of all Arctic vascular plants

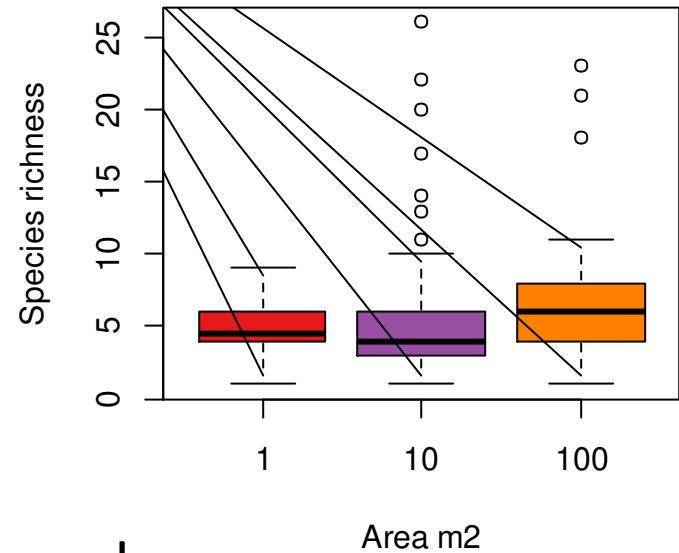
The screenshot shows the Euro+Med PlantBase homepage. It features a sidebar with links like Query the checklist, E+M Home, BDI Home, Berlin model explained, Credits, Explanations, How to cite us, and a Firefox search plugin link. The main content area has a heading: "The Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity". Below it is a detailed description of the database's scope and history. A search form is present with a "Search!" button. A note says: "Fill in the empty field in order to query the database for a specific name. Use the asterisk (*) as a wild card (e.g. Calend* will find all names starting with Calend, Calendula officinalis * will find the names of subspecies etc. of Calendula officinalis, and Ca*la will find Calendula etc.). Asterisks at the beginning of a search term will be ignored. The input must contain at least three characters. The search is only on the name itself, so please do not include authorship or year of publication." Another note says: "Search for a botanical name like "Calendula*": Name: polulus Query". A note at the bottom left says: "N.B.: Do not include taxonomic authors." and "Please send any comments, suggestions for improvement, corrections etc. to the Euro+Med Secretariat, Berlin, BGBM (e.raab-straube [at] bgm.org)". The footer includes a copyright notice: "Display software last updated: Jan 16, 2011 © Botanischer Garten und Botanisches Museum Berlin-Dahlem".

Euro-Med Database - the on-line database and information system for the vascular plants of Europe and the Mediterranean region

variable plot sizes used for sampling

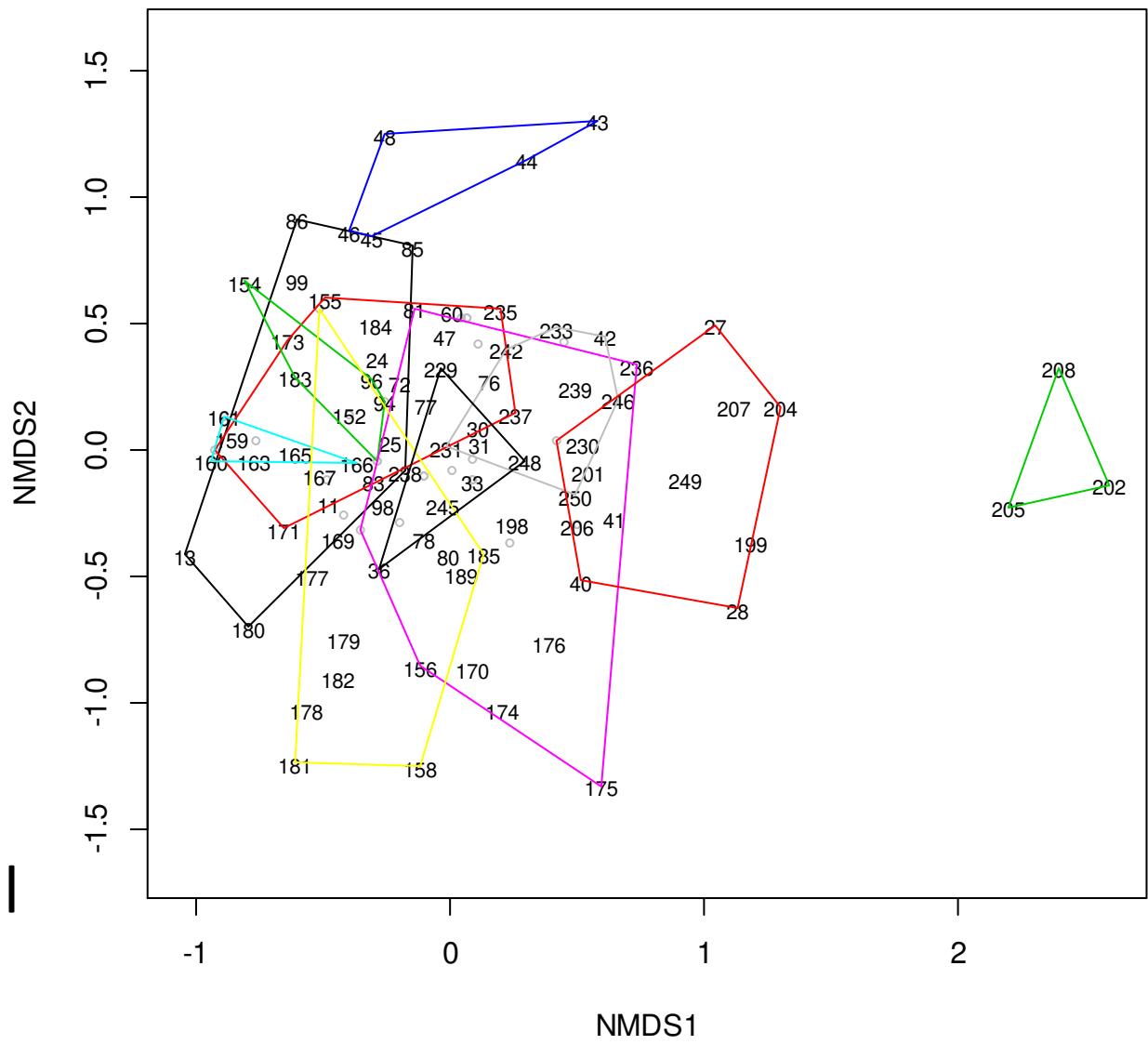
- We have to manage with the variation in plot sizes used (1, 2, 4, 9, 10, 16, 100, 314 m²)

Size	Nr. relevés	Nr. species	Mean species richness	Cumulative richness	Singletos	Doubletons
1	18	35	5	35	18	8
2	15	32	5	32	17	4
3	10	26	6	26	16	3
4	34	92	8	92	39	24
5	4	10	5	10	5	3
9	10	41	7	41	26	8
10	122	135	5	135	48	31
16	4	14	7	14	5	6
25	6	26	6	26	20	3
100	35	80	7	80	28	27
314	7	27	6	27	20	4
nd	2	6	5	6	2	4



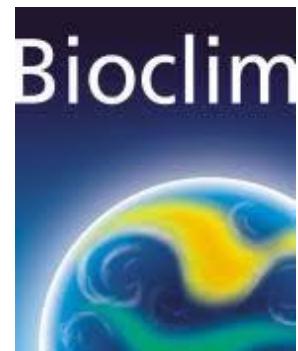
Arctophila fulva vegetation dataset partitioned according the plot size. Pools > **30 relevés** were subject to further separate classifications

- the plot size of the most of the relevés – 10 m² (122 relevés)
 - UPGMA hierarchical clustering method with Bray-Curtis coefficient
 - 11 clusters
 - Non-metric multidimensional scaling (NMDS) for visualisation



Synoptic table and preliminary groups interpretation:

- *Arctophila fulva* – *Warnstorffia exannulata* type;
 - *Arctophila fulva* – *Ranunculus gmelinii* type;
 - *Arctophila fulva* – *Ranunculus reptans* type;
 - *Arctophila fulva* – *Carex aquatilis* type;
 - *Arctophila fulva* – *Eriophorum angustifolium* type;
 - *Arctophila fulva* – *Hippuris lanceolata* type;
 - *Arctophila fulva* – *Dupontia fisheri* type



- Data on habitats and geographic position of each relevé -
- Possibility to extract WorldClim (Global Climate Data) values to check whether local climate might be correlating or not with the Arctophila vegetation patterns

Thanks for attention

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