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Data article

# The list of species registered in taiga meadow community during succession under enhanced radioactive background



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### ABSTRACT

The data presented in this article are related to the research article entitled “The succession of the plant community on a decontaminated radioactive meadow site” (T. Maystrenko, B. Gruzdev, E. Belykh, A. Rybak, 2018) [1]. Primary data on floristic studies of meadow community development in taiga zone on the site contaminated with naturally occurring radionuclides are shown. The information given allows to follow a process of appearance and exclusion of high plant species from the pioneer step of succession up to stable community formation and to compare the structure and composition of meadow communities formed on territories with the enhanced and natural radioactivity background.

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### Specifications Table

|                            |   |
|----------------------------|---|
| Subject area               | Environmental sciences  |
| More specific subject area | Radioecology, floristic studies   |
| Type of data               | Table, figures, text file   |
| How data was acquired      | Floristic analyses  |
| Data format                | Raw and Analyzed  |
| Experimental factors       | Does not apply  |
| Experimental features      | Floristic analysis of meadow community in taiga zone was performed to follow succession steps from 1962 up to 2012 year on the radioactively contaminated site in. Comparison of the community developed <i>de novo</i> with the surrounding vegetation growing under normal radioactive background was made in 2012. |
| Data source location       | Around Vodny settlement, Komi Republic, Russia (63°31' N, 53°26' E)   |
| Data accessibility         | Maystrenko T., Gruzdev B., Belykh E., Rybak A.<br>The succession of the plant community on a decontaminated radioactive meadow site   |

### Value of the data

- Data presented allows to follow the meadow community formation in the north taiga subzone under technogeneous contamination.
- A process of appearance and exclusion of high plant species from the pioneer step of succession up to stable community formation is shown.
- The structure and the composition of meadow community in the North taiga zone on territories with the enhanced and natural radioactivity background could be compared with plant communities formed in other ecological conditions.

### 1. Data

Data on high plant species presence/absence during long time observation of overgrowing of the radioactively contaminated site are given in [Table 1](#) and [Figs. 1–3](#). The site contamination was resulted from the  $^{226}\text{Ra}$  production plant activity; detailed description of radiation situation during the whole observation period presented in [1]. The first floristic analysis of the site was performed in 1962 year, four years after the termination of the commercial extraction of  $^{226}\text{Ra}$ . Then in 1962 the area was deactivated with filling with sand and gravel mixture. Short-term decrease in dose rate of  $\gamma$ -irradiation in the air and activity concentration of radionuclides in the root-inhabited soil layer up to background level had happened, but gradual increase in those values observed with vegetation cover development.

Following observations of the community formation with plants from adjacent area were performed up to 2012 year. The list of species presented on the site at time of observation is given in [Table 1](#). Floristic description of reference meadow community was made in 2012 to compare the community developed *de novo* with surrounding area characterized the background radiation level.

Figures show the pattern of dominating vascular plant species on the studied site in 1965 ([Fig. 1](#)), 1967 ([Fig. 2](#)) and 1970 ([Fig. 3](#)) years.

**Table 1**

The list of species registered on the contaminated site studied during succession and on the reference site at present.

| No | Species                                     | Family       | Species presented                                   |      |      |      |      |                   |      |      |    | Longitudinal group | Latitudinal group | Ecological group | Life form | Life span |                            |
|----|---|--------------|---|------|------|------|------|-------------------|------|------|----|--------------------|-------------------|------------------|-----------|-----------|----------------------------|
|    |   |              | on the contaminated site in the year of examination |      |      |      |      |                   |      |      |    |                    |                   |                  |           |           | On the reference site 2012 |
|    |   |              | 1962 <sup>a</sup>                                   | 1965 | 1967 | 1970 | 1976 | 1992 <sup>b</sup> | 2007 | 2012 |    |                    |                   |                  |           |           |                            |
| 1  | 2   | 3            | 4   | 5    | 6    | 7    | 8    | 9                 | 10   | 11   | 12 | 13                 | 14                | 15               | 16        | 17        |                            |
| 1  | <i>Equisetum arvense</i> L.                 | Equisetaceae | +   | +    | +    | +    | +    | +                 | +    | +    |    | pz                 | hol               | mp               | h         | p         |                            |
| 2  | <i>Equisetum pratense</i> Ehrh.             | Equisetaceae |   |      |      |      |      |                   |      |      | +  | b                  | hol               | mp               | h         | p         |                            |
| 3  | <i>Equisetum sylvaticum</i> L.              | Equisetaceae |   |      |      |      |      |                   |      | +    |    | b                  | hol               | mp               | h         | p         |                            |
| 4  | <i>Pinus sylvestris</i> L.                  | Pinaceae     |   |      |      | +    | +    | +                 | +    | +    |    | b                  | ea                | mhp              | a         | p         |                            |
| 5  | <i>Agrostis gigantea</i> Roth               | Poaceae      | +   | +    | +    | +    | +    |                   |      |      | +  | b                  | ea                | hmp              | h         | p         |                            |
| 6  | <i>Agrostis stolonifera</i> L.              | Poaceae      |   |      |      |      |      |                   |      |      | +  | b                  | ea                | hp               | h         | p         |                            |
| 7  | <i>Agrostis tenuis</i> Sibth.               | Poaceae      |   |      |      |      |      | +                 |      | +    |    | b                  | ea                | mp               | h         | p         |                            |
| 8  | <i>Alopecurus aequalis</i> Sobol.           | Poaceae      |   |      | +    |      |      |                   |      |      |    | b                  | hol               | hmp              | h         | a-b       |                            |
| 9  | <i>Alopecurus pratensis</i> L.              | Poaceae      | +   | +    | +    | +    | +    | +                 | +    | +    | +  | b                  | ea                | hmp              | h         | p         |                            |
| 10 | <i>Bromopsis inermis</i> (Leyss.) Holub     | Poaceae      |   | +    | +    | +    | +    | +                 | +    | +    | +  | b                  | e                 | hmp              | h         | p         |                            |
| 11 | <i>Calamagrostis epigeios</i> (L.) Roth     | Poaceae      | +   | +    | +    | +    | +    |                   | +    | +    | +  | b                  | ea                | xmp              | h         | p         |                            |
| 12 | <i>Dactylis glomerata</i> L.                | Poaceae      |   |      |      |      |      |                   | +    | +    | +  | b                  | ea                | mp               | h         | p         |                            |
| 13 | <i>Deschampsia cespitosa</i> (L.) Beauv.    | Poaceae      | +   | +    | +    | +    | +    | +                 | +    | +    | +  | b                  | hol               | hmp              | h         | p         |                            |
| 14 | <i>Elymus fibrosus</i> (Schrenk) Tzvel.     | Poaceae      |   |      | +    | +    | +    |                   |      |      |    | b                  | a                 | mp               | h         | p         |                            |
| 15 | <i>Elymus mutabilis</i> (Drob.) Tzvel.      | Poaceae      |   | +    | +    | +    | +    |                   |      |      |    | b                  | s                 | mp               | h         | p         |                            |
| 16 | <i>Elytrigia repens</i> Nevski              | Poaceae      |   |      |      |      |      |                   |      |      | +  | b                  | ea                | mp               | h         | p         |                            |
| 17 | <i>Festuca ovina</i> L.                     | Poaceae      |   |      |      |      |      |                   |      | +    | +  | pz                 | ea                | mxp              | h         | p         |                            |
| 18 | <i>Festuca pratensis</i> Huds.              | Poaceae      |   | +    | +    | +    | +    | +                 | +    | +    | +  | b                  | ea                | mp               | h         | p         |                            |
| 19 | <i>Festuca rubra</i> L.                     | Poaceae      |   | +    |      |      |      |                   |      | +    | +  | b                  | hol               | mp               | h         | p         |                            |
| 20 | <i>Hierochloë odorata</i> (L.) Beauv.       | Poaceae      |   |      | +    | +    | +    |                   |      | +    |    | b                  | hol               | hmp              | h         | p         |                            |
| 21 | <i>Milium effusum</i> L.                    | Poaceae      |   |      |      |      |      |                   | +    | +    |    | b-n                | hol               | mp               | h         | p         |                            |
| 22 | <i>Phalaroides arundinacea</i> (L.) Rausch. | Poaceae      | +   | +    |      |      |      |                   |      | +    | +  | pz                 | hol               | hp               | h         | p         |                            |
| 23 | <i>Phleum pratense</i> L.                   | Poaceae      | +   | +    | +    | +    | +    |                   |      | +    | +  | b                  | ea                | mp               | h         | p         |                            |
| 24 | <i>Poa alpina</i> L.                        | Poaceae      |   |      |      | +    | +    |                   |      |      |    | a-a                | hol               | mp               | h         | p         |                            |
| 25 | <i>Poa annua</i> L.                         | Poaceae      | +   |      |      |      |      |                   |      |      |    | pz                 | c                 | mp               | h         | a         |                            |
| 26 | <i>Poa nemoralis</i> L.                     | Poaceae      |   |      |      | +    | +    |                   |      |      |    | b-n                | e                 | mp               | h         | p         |                            |

Table 1 (continued)

| No | Species                                      | Family          | Species presented                                   |      |      |      |      |                   |      |      |      | Longitudinal group | Latitudinal group | Ecological group | Life form | Life span |                       |
|----|--|-----------------|---|------|------|------|------|-------------------|------|------|------|--------------------|-------------------|------------------|-----------|-----------|-----------------------|
|    |  |                 | on the contaminated site in the year of examination |      |      |      |      |                   |      |      |      |                    |                   |                  |           |           | On the reference site |
|    |  |                 | 1962 <sup>a</sup>                                   | 1965 | 1967 | 1970 | 1976 | 1992 <sup>b</sup> | 2007 | 2012 | 2012 |                    |                   |                  |           |           |                       |
| 1  | 2  | 3               | 4   | 5    | 6    | 7    | 8    | 9                 | 10   | 11   | 12   | 13                 | 14                | 15               | 16        | 17        |                       |
| 27 | <i>Poa palustris</i> L.                      | Poaceae         |   |      |      | +    | +    |                   |      |      |      | +                  | b                 | hol              | hp, hmp   | h         | p                     |
| 28 | <i>Poa pratensis</i> L.                      | Poaceae         | +   |      |      | +    | +    | +                 | +    | +    | +    |                    | b                 | hol              | mp        | h         | p                     |
| 29 | <i>Poa trivialis</i> L.                      | Poaceae         |   |      | +    | +    | +    |                   |      |      |      |                    | b                 | e                | mp        | h         | p                     |
| 30 | <i>Carex acuta</i> L.                        | Cyperaceae      |   |      |      |      |      |                   |      |      |      | +                  | b                 | ea               | hp        | h         | p                     |
| 31 | <i>Carex aquatilis</i> Wahlenb.              | Cyperaceae      |   |      | +    | +    | +    | +                 | +    | +    | +    |                    | b                 | hol              | hp        | h         | p                     |
| 32 | <i>Juncus compressus</i> Jacq.               | Juncaceae       | +   |      |      |      |      |                   |      | +    |      | +                  | b                 | ea               | hp        | h         | p                     |
| 33 | <i>Luzula multiflora</i> (Ehrh.) Lej.        | Juncaceae       |   |      |      | +    | +    |                   |      |      |      |                    | b                 | ea               | mp        | h         | p                     |
| 34 | <i>Paris quadrifolia</i> L.                  | Trilliaceae     |   |      |      |      |      |                   |      | +    | +    |                    | b-n               | e                | mp        | h         | p                     |
| 35 | <i>Populus tremula</i> L.                    | Salicaceae      |   |      | +    | +    | +    |                   |      |      |      | +                  | b                 | ea               | mp        | a         | p                     |
| 36 | <i>Salix carpea</i> L.                       | Salicaceae      | +   |      |      |      |      | +                 | +    | +    |      |                    | b                 | ea               | mp        | a         | p                     |
| 37 | <i>Salix dasyclados</i> Wimm.                | Salicaceae      |   |      |      | +    | +    | +                 | +    | +    |      |                    | b                 | ea               | hp        | a         | p                     |
| 38 | <i>Salix phylicifolia</i> L.                 | Salicaceae      |   | +    | +    | +    | +    | +                 | +    | +    | +    | +                  | hyp               | e                | hp, hmp   | s         | p                     |
| 39 | <i>Alnus incana</i> (L.) Moench              | Betulaceae      |   |      | +    | +    | +    | +                 | +    | +    | +    |                    | b                 | e                | mp        | a         | p                     |
| 40 | <i>Betula pubescens</i> Ehrh.                | Betulaceae      |   |      | +    | +    | +    | +                 | +    | +    |      |                    | b                 | ea               | mp, hmp   | a         | p                     |
| 41 | <i>Urtica dioica</i> L.                      | Urticaceae      | +   |      |      |      |      | +                 | +    | +    | +    |                    | pz                | hol              | mp        | h         | p                     |
| 42 | <i>Bistorta major</i> S.F. Gray              | Polygonaceae    |   |      |      | +    | +    |                   |      |      |      |                    | b                 | hol              | hmp       | h         | p                     |
| 43 | <i>Fallopia convolvulus</i> (L.) A. Löve     | Polygonaceae    | +   |      |      |      |      |                   |      |      |      |                    | pz                | hol              | mp        | h         | a-b                   |
| 44 | <i>Polygonum aviculare</i> L.                | Polygonaceae    | +   |      |      |      |      |                   |      |      |      |                    | pz                | c                | mp        | h         | a                     |
| 45 | <i>Rumex crispus</i> L.                      | Polygonaceae    | +   | +    | +    | +    | +    |                   |      |      |      |                    | b                 | hol              | mp        | h         | p                     |
| 46 | <i>Rumex confertus</i> Willd.                | Polygonaceae    |   |      |      |      |      |                   |      | +    | +    |                    | pz                | ea               | mp        | h         | p                     |
| 47 | <i>Chenopodium album</i> L.                  | Chenopodiaceae  | +   | +    |      | +    | +    | +                 |      |      |      |                    | pz                | c                | mp        | h         | a                     |
| 48 | <i>Cerastium holosteoides</i> Fries          | Caryophyllaceae | +   | +    | +    | +    | +    |                   |      | +    |      |                    | pz                | hol              | mp        | h         | p                     |
| 49 | <i>Oberna behen</i> (L.) Jkon.               | Caryophyllaceae |   |      | +    | +    | +    |                   |      |      | +    |                    | b                 | hol              | mp        | h         | p                     |
| 50 | <i>Silene tatarica</i> (L.) Pers.            | Caryophyllaceae |   |      |      |      |      |                   |      |      | +    |                    | f-s               | e                | kmp       | h         | p                     |
| 51 | <i>Stellaria holostea</i> L.                 | Caryophyllaceae |   |      |      |      |      |                   |      |      |      | +                  | b-n               | e                | mp        | h         | p                     |
| 52 | <i>Stellaria graminea</i> L.                 | Caryophyllaceae |   |      |      | +    |      |                   |      | +    | +    | +                  | b                 | ea               | mp        | h         | p                     |
| 53 | <i>Stellaria longifolia</i> Muehl. ex Willd. | Caryophyllaceae |   |      |      |      |      |                   |      |      |      | +                  | b                 | hol              | mp        | h         | p                     |
| 54 | <i>Stellaria media</i> (L.) Vill.            | Caryophyllaceae | +   |      |      | +    | +    |                   |      |      |      |                    | pz                | hol              | mp        | h         | a-b                   |
| 55 | <i>Aconitum septentrionale</i> Koelle        | Ranunculaceae   |   |      |      | +    | +    |                   |      | +    | +    |                    | b                 | ea               | mp        | h         | p                     |
| 56 | <i>Ranunculus acris</i> L.                   | Ranunculaceae   | +   |      | +    | +    | +    | +                 | +    | +    | +    |                    | b                 | ea               | mp        | h         | p                     |

|    |  |                 |   |   |   |   |   |   |   |   |     |     |         |    |     |
|----|--|-----------------|---|---|---|---|---|---|---|---|-----|-----|---------|----|-----|
| 57 | <i>Ranunculus repens</i> L.                  | Ranunculaceae   | + |   | + | + | + | + | + | + | b   | ea  | mp, hmp | h  | p   |
| 58 | <i>Thalictrum minus</i> L.                   | Ranunculaceae   |   |   | + | + | + |   | + | + | b   | ea  | mp      | h  | p   |
| 59 | <i>Thalictrum simplex</i> L.                 | Ranunculaceae   |   |   |   |   |   |   | + | + | b   | ea  | mp      | h  | p   |
| 60 | <i>Trollius europaeus</i> L.                 | Ranunculaceae   |   |   |   | + | + |   | + | + | b   | e   | mp      | h  | p   |
| 61 | <i>Paeonia anomala</i> L.                    | Paeoniaceae     | + |   |   |   |   |   |   | + | b   | a   | mp      | h  | p   |
| 62 | <i>Capsella bursa-pastoris</i> (L.) Medik.   | Brassicaceae    | + |   |   |   |   |   |   |   | pz  | hol | mp      | h  | a-b |
| 63 | <i>Erysimum cheiranthoides</i> L.            | Brassicaceae    | + | + | + | + | + |   |   |   | pz  | hol | mp      | h  | a-b |
| 64 | <i>Lepidium ruderale</i> L.                  | Brassicaceae    | + | + | + |   |   |   |   |   | pz  | e   | xmp     | h  | a   |
| 65 | <i>Thlaspi arvense</i> L.                    | Brassicaceae    | + |   |   |   |   |   |   |   | b   | hol | mp      | h  | a-b |
| 66 | <i>Barbarea vulgaris</i> R. Br.              | Brassicaceae    |   |   |   |   |   |   | + | + | b   | ea  | mp      | h  | a   |
| 67 | <i>Ribes nigrum</i> L.                       | Grossulariaceae | + |   |   | + | + |   |   |   | b   | ea  | hmp     | s  | p   |
| 68 | <i>Ribes hispidulum</i> (Jancz.) Pojark.     | Grossulariaceae |   |   |   |   |   |   |   | + | b   | s   | hmp     | s  | p   |
| 69 | <i>Alchemilla murbeckiana</i> Bus.           | Rosaceae        |   |   |   | + |   |   | + | + | a-a | ea  | hmp     | h  | p   |
| 70 | <i>Geum rivale</i> L.                        | Rosaceae        | + |   |   | + | + | + | + | + | b   | ea  | hp      | h  | p   |
| 71 | <i>Filipendula ulmaria</i> (L.) Maxim.       | Rosaceae        | + |   |   | + | + | + | + | + | b   | ea  | hp      | h  | p   |
| 72 | <i>Fragaria vesca</i> L.                     | Rosaceae        | + | + | + |   |   |   |   | + | b   | ea  | mp      | h  | p   |
| 73 | <i>Potentilla intermedia</i> L.              | Rosaceae        | + |   |   |   |   |   |   |   | b   | e   | xmp     | h  | p   |
| 74 | <i>Rosa acicularis</i> Lindl.                | Rosaceae        |   |   | + | + | + | + | + | + | b   | hol | mp      | s  | p   |
| 75 | <i>Rubus idaeus</i> L.                       | Rosaceae        | + |   |   |   | + | + | + | + | b   | ea  | mp      | ss | p   |
| 76 | <i>Spiraea media</i> F. Schmidt              | Rosaceae        | + |   |   |   |   |   | + | + | b   | ea  | mp      | s  | p   |
| 77 | <i>Lathyrus pratensis</i> L.                 | Fabaceae        | + |   |   | + | + | + | + | + | b   | ea  | mp      | h  | p   |
| 78 | <i>Trifolium pratense</i> L.                 | Fabaceae        | + | + | + | + | + | + | + | + | b   | ea  | mp      | h  | p   |
| 79 | <i>Amoria repens</i> (L.) C. Presl           | Fabaceae        | + | + | + | + | + |   | + | + | b   | ea  | mp      | h  | p   |
| 80 | <i>Vicia cracca</i> L.                       | Fabaceae        | + |   |   | + | + |   | + | + | b   | hol | mp      | h  | p   |
| 81 | <i>Vicia sepium</i> L.                       | Fabaceae        |   |   |   | + | + | + | + | + | b   | ea  | mp      | h  | p   |
| 82 | <i>Geranium sylvaticum</i> L.                | Geraniaceae     |   |   |   | + | + | + | + | + | b   | ea  | mp      | h  | p   |
| 83 | <i>Geranium pratense</i> L.                  | Geraniaceae     |   |   |   | + | + | + | + | + | b   | ea  | mp      | h  | p   |
| 84 | <i>Viola tricolor</i> L.                     | Violaceae       | + |   |   | + | + |   | + | + | b   | e   | mp      | h  | a   |
| 85 | <i>Chamaenerion angustifolium</i> (L.) Scop. | Onagraceae      | + | + | + | + | + | + | + | + | b   | hol | mp      | h  | p   |
| 86 | <i>Epilobium palustre</i> L.                 | Onagraceae      | + |   |   | + | + |   |   |   | b   | hol | hmp     | h  | p   |
| 87 | <i>Hypericum maculatum</i> Crantz            | Hypericaceae    |   |   |   |   |   |   |   | + | b   | ea  | mp      | h  | p   |
| 88 | <i>Anthriscus sylvestris</i> (L.) Hoffm.     | Apiaceae        | + | + | + | + | + | + | + |   | b   | ea  | mp      | h  | p   |
| 89 | <i>Angelica sylvestris</i> L.                | Apiaceae        |   |   |   |   |   |   |   | + | b   | ea  | mp      | h  | p   |
| 90 | <i>Conioselinum tataricum</i> Hoffm.         | Apiaceae        |   |   |   |   |   |   |   | + | b   | ea  | hmp     | h  | p   |
| 91 | <i>Carum carvi</i> L.                        | Apiaceae        |   |   |   | + | + |   |   |   | b   | ea  | mp      | h  | p   |
| 92 | <i>Heracleum sibiricum</i> L.                | Apiaceae        |   |   |   | + | + |   | + | + | b   | ea  | hmp     | h  | p   |
| 93 | <i>Pimpinella saxifraga</i> L.               | Apiaceae        |   |   |   |   |   |   | + |   | b   | ea  | xmp     | h  | p   |
| 94 | <i>Vaccinium myrtillus</i> L.                | Ericaceae       |   |   | + | + |   |   |   |   | b   | hol | mp      | us | p   |

Table 1 (continued)

| No  | Species  | Family           | Species presented                                   |      |      |      |      |                   |      |      |      | Longitudinal group | Latitudinal group | Ecological group | Life form | Life span |                       |
|-----|--|------------------|---|------|------|------|------|-------------------|------|------|------|--------------------|-------------------|------------------|-----------|-----------|-----------------------|
|     |  |                  | on the contaminated site in the year of examination |      |      |      |      |                   |      |      |      |                    |                   |                  |           |           | On the reference site |
|     |  |                  | 1962 <sup>a</sup>                                   | 1965 | 1967 | 1970 | 1976 | 1992 <sup>b</sup> | 2007 | 2012 | 2012 |                    |                   |                  |           |           |                       |
| 1   | 2  | 3                | 4   | 5    | 6    | 7    | 8    | 9                 | 10   | 11   | 12   | 13                 | 14                | 15               | 16        | 17        |                       |
| 95  | <i>Vaccinium vitis-idaea</i> L.                      | Ericaceae        |   | +    | +    |      |      |                   |      |      |      |                    | b                 | hol              | mp        | us        | p                     |
| 96  | <i>Galium boreale</i> L.                             | Rubiaceae        | +   |      | +    | +    | +    |                   | +    | +    | +    |                    | b                 | ea               | mp        | h         | p                     |
| 97  | <i>Adoxa moschatellina</i> L.                        | Adoxaceae        | +   |      |      |      |      |                   | +    |      |      |                    | b                 | hol              | hmp       | h         | p                     |
| 98  | <i>Valeriana wolgensis</i> Kazak.                    | Valerianaceae    | +   |      |      | +    | +    |                   | +    |      |      |                    | b                 | e                | hmp       | h         | p                     |
| 99  | <i>Polemonium caeruleum</i> L.                       | Polemoniaceae    |   |      |      |      |      |                   |      |      |      | +                  | b                 | ea               | mp        | h         | p                     |
| 100 | <i>Galeopsis bifida</i> Boenn.                       | Lamiaceae        | +   |      |      |      |      |                   |      |      | +    |                    | b                 | ea               | mp        | h         | a                     |
| 101 | <i>Lamium album</i> L.                               | Lamiaceae        | +   |      |      | +    | +    |                   | +    | +    | +    |                    | b-n               | hol              | mp        | h         | p                     |
| 102 | <i>Scutellaria galericulata</i> L.                   | Lamiaceae        |   |      |      |      |      |                   |      |      |      | +                  | b                 | ea               | mgp       | h         | p                     |
| 103 | <i>Euphrasia frigida</i> Pugsl.                      | Scrophulariaceae | +   |      | +    | +    | +    |                   |      |      |      |                    | b                 | e                | hmp       | h         | a                     |
| 104 | <i>Linaria vulgaris</i> L.                           | Scrophulariaceae | +   |      |      |      |      |                   |      |      |      |                    | b                 | ea               | xmp       | h         | p                     |
| 105 | <i>Melampyrum sylvaticum</i> L.                      | Scrophulariaceae |   |      |      |      |      |                   | +    |      |      |                    | b                 | e                | mp        | h         | a                     |
| 106 | <i>Melampyrum pratense</i> L.                        | Scrophulariaceae |   |      |      |      |      |                   |      |      |      | +                  | b                 | ea               | mp        | h         | p                     |
| 107 | <i>Rhinanthus vernalis</i> (Zing.) Schischk. & Serg. | Scrophulariaceae | +   | +    | +    | +    | +    |                   | +    | +    |      |                    | b                 | ea               | mp        | h         | a                     |
| 108 | <i>Veronica chamaedrys</i> L.                        | Scrophulariaceae | +   |      |      | +    | +    | +                 | +    | +    | +    |                    | b-n               | hol              | mp        | h         | p                     |
| 109 | <i>Veronica longifolia</i> L.                        | Scrophulariaceae | +   |      | +    | +    | +    |                   | +    | +    | +    |                    | b                 | ea               | hmp       | h         | p                     |
| 110 | <i>Plantago lanceolata</i> L.                        | Plantaginaceae   |   |      |      |      |      |                   |      |      |      | +                  | pz                | ea               | kmp       | h         | p                     |
| 111 | <i>Plantago major</i> L.                             | Plantaginaceae   | +   | +    | +    | +    | +    |                   |      |      |      | +                  | pz                | hol              | mp        | h         | p                     |
| 112 | <i>Plantago media</i> L.                             | Plantaginaceae   | +   |      |      |      |      |                   |      |      |      |                    | b                 | ea               | xmp       | h         | p                     |
| 113 | <i>Achillea millefolium</i> L.                       | Asteraceae       | +   | +    | +    | +    | +    | +                 | +    | +    | +    |                    | b                 | ea               | mp        | h         | p                     |
| 114 | <i>Antennaria dioica</i> (L.) Gaertn.                | Asteraceae       |   | +    | +    | +    | +    |                   |      |      |      |                    | b                 | ea               | xmp       | h         | p                     |
| 115 | <i>Artemisia vulgaris</i> L.                         | Asteraceae       |   |      | +    | +    | +    |                   |      |      | +    |                    | b                 | hol              | mp        | h         | p                     |
| 116 | <i>Carduus crispus</i> L.                            | Asteraceae       | +   | +    | +    | +    | +    |                   | +    |      |      |                    | pz                | ea               | mp        | h         | p                     |
| 117 | <i>Centaurea jacea</i> L.                            | Asteraceae       |   |      |      |      |      |                   |      |      |      | +                  | f-s               | e                | kmp       | h         | p                     |
| 118 | <i>Centaurea phrygia</i> L.                          | Asteraceae       |   |      |      |      |      |                   |      |      |      | +                  | b                 | e                | kmp       | h         | p                     |
| 119 | <i>Cirsium heterophyllum</i> (L.) Hill               | Asteraceae       |   |      |      |      |      | +                 | +    | +    |      |                    | b                 | e                | mhp       | h         | p                     |
| 120 | <i>Cirsium palustre</i> (L.) Scop.                   | Asteraceae       |   |      |      |      |      |                   |      |      | +    |                    | b                 | ea               | hmp       | h         | p                     |

|     |   |            |   |   |   |   |   |   |   |   |   |    |     |     |   |     |
|-----|---|------------|---|---|---|---|---|---|---|---|---|----|-----|-----|---|-----|
| 121 | <i>Cirsium setosum</i> (Willd.) Bess.                   | Asteraceae | + | + | + | + |   | + | + | + | + | pz | ea  | mp  | h | p   |
| 122 | <i>Crepis tectorum</i> L.                               | Asteraceae |   | + |   | + | + |   |   |   |   | b  | ea  | mp  | h | a-b |
| 123 | <i>Crepis sibirica</i> L.                               | Asteraceae |   |   |   |   |   |   |   | + | + | b  | ea  | mp  | h | p   |
| 124 | <i>Erigeron acris</i> L.                                | Asteraceae | + |   | + | + | + |   |   |   |   | b  | hol | xmp | h | a   |
| 125 | <i>Hieracium caespitosum</i> Dumort.                    | Asteraceae | + |   |   | + |   |   |   |   |   | b  | ea  | xmp | h | p   |
| 126 | <i>Hieracium umbellatum</i> L.                          | Asteraceae |   |   |   |   |   |   |   | + |   | b  | ea  | mp  | h | p   |
| 127 | <i>Leontodon autumnalis</i> L.                          | Asteraceae | + |   |   |   |   |   |   |   |   | b  | e   | mp  | h | p   |
| 128 | <i>Lepidotheca suaveolens</i> (Pursh) Nutt.             | Asteraceae | + | + |   | + |   |   |   |   |   | pz | hol | mp  | h | a   |
| 129 | <i>Leucanthemum vulgare</i> Lam.                        | Asteraceae |   |   |   |   |   |   |   | + |   | b  | ea  | mp  | h | p   |
| 130 | <i>Ligularica sibirica</i> (L.) Cass.                   | Asteraceae | + |   |   |   |   |   |   |   |   | b  | ea  | hp  | h | p   |
| 131 | <i>Mulgedium sibiricum</i> (L.) Cass. ex Less.          | Asteraceae | + |   |   |   |   |   |   |   |   | b  | hol | mp  | h | p   |
| 132 | <i>Omalotheca sylvatica</i> (L.) Sch. Bip. & F. Schultz | Asteraceae | + | + |   |   | + |   |   |   |   | b  | hol | mp  | h | p   |
| 133 | <i>Senecio vulgaris</i> L.                              | Asteraceae | + |   |   |   |   |   |   |   |   | b  | ea  | mp  | h | a   |
| 134 | <i>Sonchus arvensis</i> L.                              | Asteraceae |   |   |   |   |   |   |   |   | + | pz | c   | mp  | h | p   |
| 135 | <i>Tanacetum vulgare</i> L.                             | Asteraceae | + |   | + | + | + |   |   |   |   | b  | ea  | mp  | h | p   |
| 136 | <i>Taraxacum officinale</i> Wigg.                       | Asteraceae | + | + | + | + | + | + | + | + | + | b  | ea  | mp  | h | p   |
| 137 | <i>Tripleurospermum perforatum</i> (Merat) M. Lainz     | Asteraceae | + | + | + | + | + |   |   |   |   | pz | e   | mp  | h | a-b |
| 138 | <i>Tussilago farfara</i> L.                             | Asteraceae | + | + | + | + | + |   | + | + |   | b  | ea  | mp  | h | p   |

Latitudinal groups: b – boreal, hyp – hypoarctic, pz – polyzonal, b-n – boreal-nemoral, a-a – arcto-alpine, f-s – forest-steppe.

Longitudinal groups: hol – Holarctic, ea – Eurasian, e – European, s – Siberian, a – Asian, c – cosmopolitan.

Ecological groups: mp – mesophytes, hmp – hygromesophytes, xmp – xeromesophytes, mxp – mesoxerophytes, hp – hygrophytes, mhp – mesohygrophytes.

Life form: h – herbs, a – arboreal, s – shrub, ss – subshrub, us – undershrub.

Life span: p – perennial, a-b – annual-biennial, a – annual.

<sup>a</sup> examination of the site performed before decontamination.

<sup>b</sup> only species significant for the cenosis were included to the list this year.

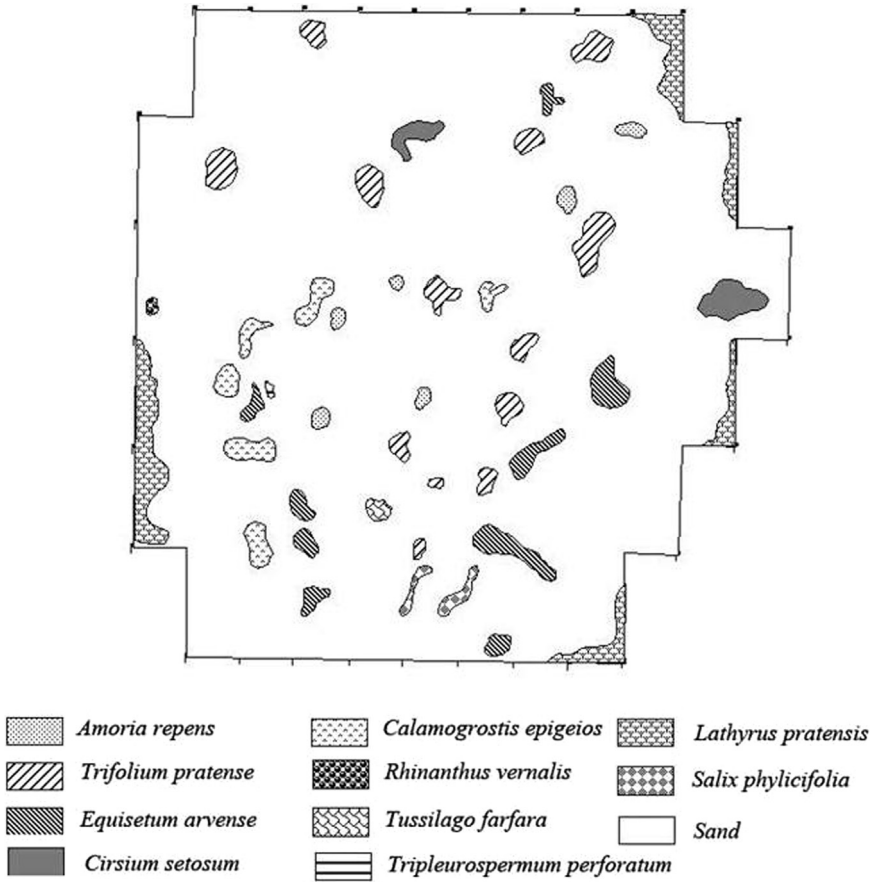


Fig. 1. The pattern of dominating vascular plant species on the studied site in 1965 year, three years after decontamination.

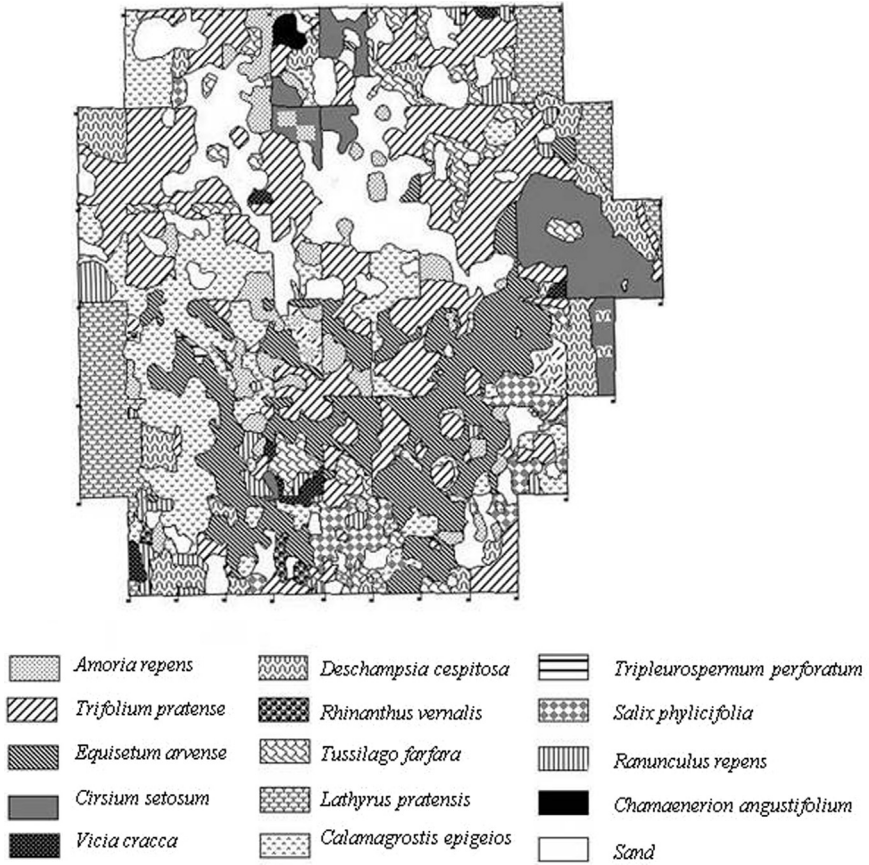
## 2. Experimental design, materials and methods

### 2.1. Floristic analysis

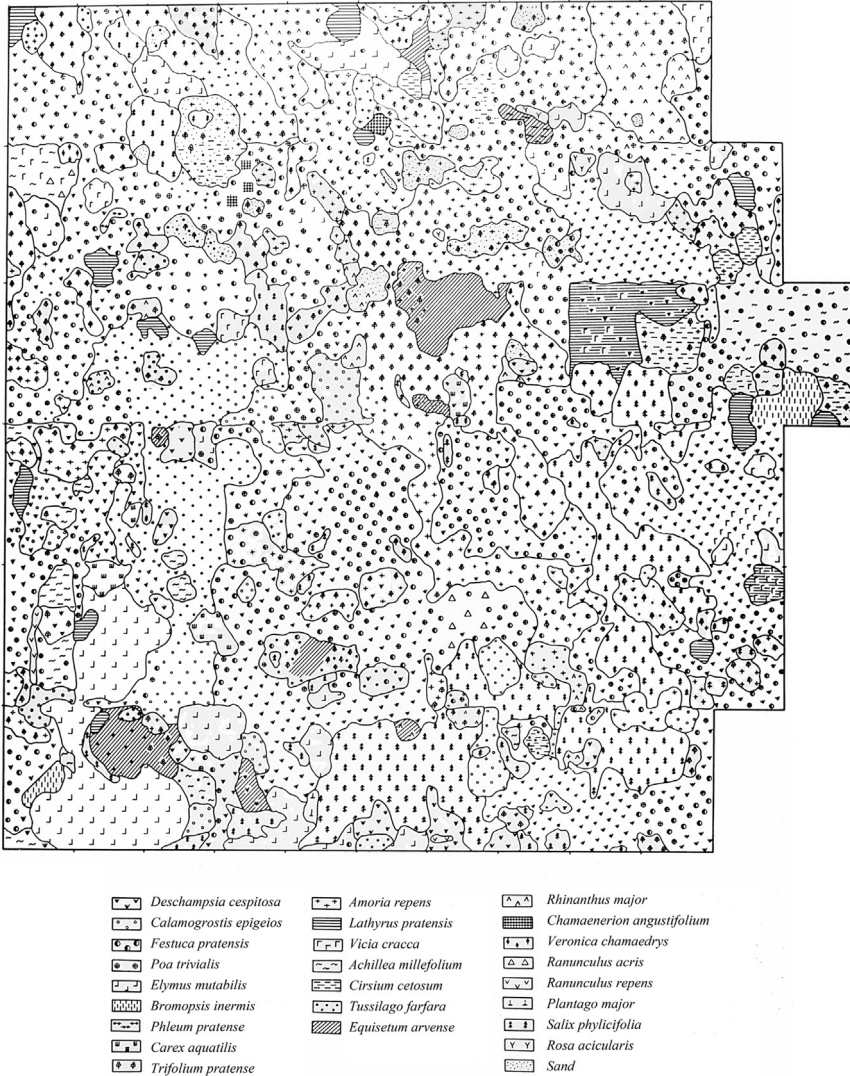
The development of plant community under dynamic radiation background was observed for 50 years. Registrations were performed in 1962, just before the deactivation and then in 1965, 1967, 1970, 1976, 1992, 2007 and 2012 years. Intervals among examinations depended on the succession steps. Also activity concentrations of radionuclides in soil and plants were traced during the observation period, detailed data presented in [1].

An auxiliary grid net containing 55 cells ( $5 \times 10$  m each) was made for the experiment on the contaminated site. Vascular plants were listed for each cell. Plant cover was mapped based on the data on dominating plant species in every square meter of the cell. A life form of each species from the list was





**Fig. 2.** The pattern of dominating vascular plant species on the studied site in 1967 year, five years after decontamination.



**Fig. 3.** The pattern of dominating vascular plant species on the studied site in 1970, eight years after decontamination.

assigned according to Raunkiær [2]. Geographical and ecological group was determined according to the regional classification [3]. Modern floristic analysis was based on comparing lists of species from geobotanical descriptions made on 100 m<sup>2</sup> sampling plots at the former radium production plant and natural vegetation sites with background concentrations of radionuclides in the soil.

### Acknowledgements

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## Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at <https://doi.org/10.1016/j.dib.2018.04.121>.

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