The relative selectivity by moose of twigs from 26 browse species was tested in a small enclosure from June 1971 to March 1973. Twigs of Vaccinium vitis-idaea, V. myrtillus, Pirus communis, Rubus idaeus, and Salix cinerea were highly preferred by moose on a year long basis. Sixteen species were moderately preferred. Fraxinus excelsior, S. rothamnus scoparius, Ribes nigrum, Oxyccocus quadripetalus, and Evonymus verrucosa were classed as low preference browse. Selectivity varied significantly among seasons. Species preference by season were: Spring — Vaccinium vitis-idaea, Ledum palustre, Vaccinium myrtillus, Alnus glutinosa, Carpinus betulus, and Rubus idaeus; Summer — Pirus communis, Vaccinium myrtillus, and V. uliginosum; Autumn — Pirus communis and Vaccinium vitis-idaea; Winter — Vaccinium vitis-idaea, Salix cinerea, Rubus idaeus, Pirus communis, Carpinus betulus, Alnus glutinosa, Vaccinium myrtillus, Salix caprea, Populus tremula, and Ledum palustre. Food tastes differed among moose, thus, several animals are needed to adequately evaluate browse preference. The similarity in browse selectivity by moose and red deer indicate that the two species may compete directly for food when grazing the same range.

1. INTRODUCTION

The purpose of this study was to determine the relative selectivity by moose (Alces alces Linnaeus, 1758) of twigs from 26 species of trees, shrubs, and half-shrubs commonly found in forest habitats of northeastern Poland. Such information is needed to identify key food plants, to assess the potential carrying capacity of a range, and to recognize possible conflicts with other herbivores.

Previous experience and research have shown that food preference investigations with wildland grazers are best conducted with tame captive animals (Alkon, 1961; Short, 1966; Radwan & Campbell, 1968;...
Bergerud & Nolan (1970) concluded that young pen-reared caribou ate the same plants as wild caribou. Efforts to determine the food preference of wild animals in their native habitat are hampered by many procedural difficulties. The observations may be useful in special situations such as the feeding of fodder in winter (Zurowski & Sakowicz, 1965), but usually the results serve only as a general indication of preference (Davison & Sullivan, 1963).

2. EXPERIMENTAL PROCEDURE

The selectivity trials were conducted with 1 female and 3 male tamed moose, that had been pen-reared during various years near the Augustów Forest in northeastern Poland (53°51′ N and 23°00′ E). The animals were two months old at the beginning of the trials and 17 months at the end (in some cases trials were completed earlier).

Twigs from 26 species of trees, shrubs and half-shrubs (Table 1) were offered to moose in small bundles during spring (March-May), summer (June-August),

Table 1

<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific name</th>
<th>No. of tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Populus tremula L.</td>
<td>92</td>
</tr>
<tr>
<td>2</td>
<td>Rubus idaeus L.</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>Salix caprea L.</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>Calluna vulgaris (L.) Salisb.</td>
<td>92</td>
</tr>
<tr>
<td>5</td>
<td>Corylus avellana L.</td>
<td>91</td>
</tr>
<tr>
<td>6</td>
<td>Sorbus aucuparia L.</td>
<td>90</td>
</tr>
<tr>
<td>7</td>
<td>Vaccinium myrtillus L.</td>
<td>90</td>
</tr>
<tr>
<td>8</td>
<td>Vaccinium vitis-idaea L.</td>
<td>90</td>
</tr>
<tr>
<td>9</td>
<td>Vaccinium uliginosum L.</td>
<td>90</td>
</tr>
<tr>
<td>10</td>
<td>Tilia cordata Mill.</td>
<td>85</td>
</tr>
<tr>
<td>11</td>
<td>Salix cinerea L.</td>
<td>60</td>
</tr>
<tr>
<td>12</td>
<td>Oxycoccus quadripetalus Gilib.</td>
<td>58</td>
</tr>
<tr>
<td>13</td>
<td>Ribes nigrum L.</td>
<td>52</td>
</tr>
<tr>
<td>14</td>
<td>Frangula alnus L.</td>
<td>50</td>
</tr>
<tr>
<td>15</td>
<td>Pinus silvestris L.</td>
<td>46</td>
</tr>
<tr>
<td>16</td>
<td>Picea excelsa (Lam.) Lk.</td>
<td>46</td>
</tr>
<tr>
<td>17</td>
<td>Quercus robur L.</td>
<td>46</td>
</tr>
<tr>
<td>18</td>
<td>Carpinus betulus L.</td>
<td>46</td>
</tr>
<tr>
<td>19</td>
<td>Fraxinus excelsior L.</td>
<td>46</td>
</tr>
<tr>
<td>20</td>
<td>Alnus glutinosa (L.) Gaertn.</td>
<td>46</td>
</tr>
<tr>
<td>21</td>
<td>Betula pubescens Ehrh.</td>
<td>46</td>
</tr>
<tr>
<td>22</td>
<td>Pirus communis L.</td>
<td>46</td>
</tr>
<tr>
<td>23</td>
<td>Juniperus communis L.</td>
<td>46</td>
</tr>
<tr>
<td>24</td>
<td>Ledum palustre L.</td>
<td>46</td>
</tr>
<tr>
<td>25</td>
<td>Sarothamnus scoparius (L.) Wimm.</td>
<td>21</td>
</tr>
<tr>
<td>26</td>
<td>Evonymus verrucosa Scop.</td>
<td>18</td>
</tr>
</tbody>
</table>
Selection of browse twigs by moose

autumn (September-November) and winter (December-February). During vegetation season twigs of deciduous species were given with leaves growing on them. Tree and shrub bundles contained 20 twigs; dwarf shrub bundles contained 50 twigs each. Twigs were collected immediately before the feeding test. All twigs within a bundle were approximately equal in size.

Once a day at a designated time 3 bundles, each containing twigs of one plant species, were placed before the moose in a small enclosure. After one hour the uneaten material was collected and the degree of use for each twig was classified as follows: 1, whole twig remained; 2, $\frac{1}{4}$ of twig eaten; 3, $\frac{1}{2}$ of twig eaten, and 4, $\frac{3}{4}$ of twig eaten. The consumption of leaves was appraised in the same way as in the case of shoots. Data on shoots and leaves were processed separately by an analysis of variance. There was no other food available during the test.

For the period June 1971 to March 1973 541 feeding tests were conducted. Species were classified into one of three preference groups as follows: high when 75 percent or more of the material tested was eaten by moose on a yearlong basis, medium when the utilization ranged from 25 to 74 percent, and low when utilization was less than 25 percent.

Differences in selectivity between seasons, animals, and plant species were tested statistically at the 0.05 level of significance by an analysis of variance (Table 2 and 3). Data were processed on a digital computer (ODRA 1304) at the Computation Center, Polish Academy of Sciences.

3. RESULTS AND DISCUSSION

The relative selectivity of twigs by moose on a seasonal and yearlong basis are shown in table 4.

3.1. Annual Preference

_Vaccinium vitis-idaea_, _V. myrtillus_, _Pirus communis_, _Rubus idaeus_, and _Salix cinerea_ were classed as high preference browse on a yearlong basis. The high ranking of _V. vitis-idaea_ and _V. myrtillus_ is noteworthy since both of these dwarf-shrubs occur below the stratum (50 to 250 cm above ground) where moose usually feed.

Sixteen species were classed as second choice. This group includes _Populus tremula_, _Salix caprea_, _Alnus glutinosa_, _Frangula alnus_, _Sorbus aucuparia_, _Betula pubescens_, _Corylus avellana_, _Pinus silvestris_, _Quercus robur_ and _Juniperus communis_. Because of their widespread occurrence throughout the forest habitat these species are considered a staple source of food for moose.

Five browse species were classed as low preference food. The low ranking of _Fraxinus excelsior_ was unexpected since this species, especially the coppice, was commonly eaten by moose in a nearby forest association of _Carici elongatae Alnetum_. However, the frequent use may reflect a tense trophic condition in the habitat.
Table 2

Results of analysis of variance for tests with consumption of shoots.

<table>
<thead>
<tr>
<th>Variation</th>
<th>Sums of squares</th>
<th>No. of degrees of freedom</th>
<th>F test</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-directional biased classification Error</td>
<td>SS₀=793712.23</td>
<td>416</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>SS₁=1298654.68</td>
<td>1641</td>
<td></td>
</tr>
<tr>
<td>For seasons and mooses from the estimation of parameters</td>
<td>SS₄=105313.61</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Interaction seasons × mooses</td>
<td>SS₅=10439.86</td>
<td>9</td>
<td>2048.87</td>
</tr>
<tr>
<td>Bias of variation seasons × mooses</td>
<td>SS₂=123753.47</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>For seasons (biased)</td>
<td>SS₆=103690.11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>For mooses (unbiased)</td>
<td>SS₇=1623.50</td>
<td>3</td>
<td>541.17</td>
</tr>
<tr>
<td>For seasons and mooses from estimation of parameters</td>
<td>SS₈=105313.61</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>For mooses (biased)</td>
<td>SS₉=1973.37</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Seasons (unbiased)</td>
<td>SS₁₀=103340.24</td>
<td>3</td>
<td>34446.74</td>
</tr>
<tr>
<td>Seasons and mooses from estimation of parameters</td>
<td>SS₄=105313.61</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>For mooses and plants from estimation of parameters</td>
<td>SSᵫ₈=46834.96</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Interaction mooses × plants</td>
<td>SS₁₁=43838.54</td>
<td>75</td>
<td>584.52</td>
</tr>
<tr>
<td>Biased variation mooses × plants</td>
<td>SS₁₂=512573.50</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>For mooses (biased)</td>
<td>SS₁₃=1973.37</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>For plants (unbiased)</td>
<td>SS₁₄=466761.59</td>
<td>25</td>
<td>18670.46</td>
</tr>
<tr>
<td>For mooses and plants from estimation of parameters</td>
<td>SS₁₅=486734.96</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>For seasons and plants from estimation of parameters</td>
<td>SS₁₆=565532.91</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Interaction seasons × plants</td>
<td>SS₁₇=65585.84</td>
<td>75</td>
<td>1142.48</td>
</tr>
<tr>
<td>Biased variation season × plants</td>
<td>SS₁₈=651218.55</td>
<td>103</td>
<td></td>
</tr>
</tbody>
</table>

* Statistically significant differences at 0.05 level.
### Table 3

Results of analysis of variance for tests with consumption of leaves.

<table>
<thead>
<tr>
<th>Variation</th>
<th>Sums of squares</th>
<th>No. of degrees of freedom</th>
<th>$S^2$</th>
<th>$F$ test</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-directional biased classification</td>
<td>$SS_t = 224777.63$</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>$SS = 96231.73$</td>
<td>257</td>
<td>374.44</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>$SS_t = 321009.36$</td>
<td>432</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For seasons and moose from estimation of parameters</td>
<td>$SS_t = 80457.05$</td>
<td>4</td>
<td></td>
<td>interaction seasons × moose</td>
</tr>
<tr>
<td>Interaction seasons × moose</td>
<td>$SS_t = 10961.54$</td>
<td>3</td>
<td>3653.85</td>
<td>9.70*</td>
</tr>
<tr>
<td>Bias of variation seasons × moose</td>
<td>$SS = 91418.59$</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For seasons (biased)</td>
<td>$SS_t = 28401.57$</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For moose (unbiased)</td>
<td>$SS_t = 52053.48$</td>
<td>3</td>
<td>17351.83</td>
<td>46.34*</td>
</tr>
<tr>
<td>For seasons and moose from estimation of parameters</td>
<td>$SS_t = 80457.05$</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For moose (biased)</td>
<td>$SS_t = 78746.26$</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For seasons (unbiased)</td>
<td>$SS_t = 3710.79$</td>
<td>3</td>
<td>3710.79</td>
<td>19.91*</td>
</tr>
<tr>
<td>For seasons and moose from estimation of parameters</td>
<td>$SS_t = 80457.05$</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For moose (biased)</td>
<td>$SS_t = 76746.26$</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For seasons (unbiased)</td>
<td>$SS_t = 3710.79$</td>
<td>3</td>
<td>3710.79</td>
<td>19.91*</td>
</tr>
<tr>
<td>For seasons and moose from estimation of parameters</td>
<td>$SS_t = 15699.82$</td>
<td>24</td>
<td></td>
<td>interaction seasons × plants</td>
</tr>
<tr>
<td>Interaction moose × plants</td>
<td>$SS_t = 18149.38$</td>
<td>63</td>
<td>288.08</td>
<td>1</td>
</tr>
<tr>
<td>Bias of variation moose × plants</td>
<td>$SS_t = 174846.20$</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For moose (biased)</td>
<td>$SS_t = 76746.26$</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For plants (unbiased)</td>
<td>$SS_t = 79950.56$</td>
<td>21</td>
<td>3807.17</td>
<td>10.17*</td>
</tr>
<tr>
<td>For moose and plants from estimation of parameters</td>
<td>$SS_t = 58699.82$</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For seasons and plants from estimation of parameters</td>
<td>$SS_t = 113951.26$</td>
<td>22</td>
<td></td>
<td>interaction seasons × plants</td>
</tr>
<tr>
<td>Interaction seasons × plants</td>
<td>$SS_t = 23425.73$</td>
<td>21</td>
<td>1115.99</td>
<td>2.98*</td>
</tr>
<tr>
<td>Bias of variation seasons × plants</td>
<td>$SS_t = 137376.98$</td>
<td>43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Statistically significant differences at 0.05 level.
The relative selectivity of browse twigs varied significantly between seasons. Moose consumed more twigs, and the number of browse species in the preferred group was significantly greater during winter and spring than in the summer and autumn.

Winter and spring: Browse twig selectivity by moose was fairly similar during these two seasons, although the degree of use slackened towards summer. At the peak of highest use during the winter 10 species were included in the highly preferred group. The list includes Vaccinium vitis-idaea, Salix cinerea, Rubus idaeus, Pyrus communis, Carpinus betulus, Alnus glutinosa, Vaccinium myrtillus, Salix caprea, Populus tremula and Ledum palustre. All of the above species except the latter four remained in the highly preferred group during the spring.

The number of species in the moderately preferred group increased from 11 in winter to 16 in spring — further evidence of a decline in preference with an advance in season.

Species eaten least by moose during the winter were Oxycoccus quadripetalus, Fraxinus excelsior, Tilia cordata, Sarothamnus scoparius, and Evonymus verrucosa. The latter three species and Ribes nigrum were in the low preference group during the spring.

Summer and autumn: The relative low preference of moose for browse twigs during these seasons was illustrated by the fact that only two or three plant species were classed as highly preferred whereas 6 to

### Table 6

Comparison of annual food preferences of red deer and moose.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Red deer (%)</th>
<th>Moose</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH</td>
<td></td>
<td>HIGH</td>
<td></td>
</tr>
<tr>
<td>Rubus idaeus</td>
<td>60.3</td>
<td>Vaccinium vitis-idaea</td>
<td>84.0</td>
</tr>
<tr>
<td>Vaccinium vitis-idaea</td>
<td>59.6</td>
<td>Vaccinium myrtillus</td>
<td>79.4</td>
</tr>
<tr>
<td>Salix caprea</td>
<td>55.4</td>
<td>Rubus idaeus</td>
<td>79.4</td>
</tr>
<tr>
<td>Sorbus aucuparia</td>
<td>53.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corylus avellana</td>
<td>50.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDIUM</td>
<td></td>
<td>MEDIUM</td>
<td></td>
</tr>
<tr>
<td>Calluna vulgaris</td>
<td>46.6</td>
<td>Salix caprea</td>
<td>70.1</td>
</tr>
<tr>
<td>Carpinus betulus</td>
<td>42.3</td>
<td>Carpinus betulus</td>
<td>68.6</td>
</tr>
<tr>
<td>Frangula alnus</td>
<td>39.1</td>
<td>Vaccinium uliginosum</td>
<td>68.4</td>
</tr>
<tr>
<td>Vaccinium uliginosum</td>
<td>39.1</td>
<td>Frangula alnus</td>
<td>62.6</td>
</tr>
<tr>
<td>Vaccinium myrtillus</td>
<td>31.2</td>
<td>Sorbus aucuparia</td>
<td>62.3</td>
</tr>
<tr>
<td>LOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus silvestris</td>
<td>6.1</td>
<td>Calluna vulgaris</td>
<td>57.8</td>
</tr>
<tr>
<td>Juniperus communis</td>
<td>0.0</td>
<td>Corylus avellana</td>
<td>56.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus silvestris</td>
<td>46.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Juniperus communis</td>
<td>30.8</td>
</tr>
</tbody>
</table>
Selection of browse twigs by moose

9 were in the low preference group. These seasons of generally low selectivity of browse coincides with an abundance of available herbaceous and aquatic vegetation in the forest habitat.

Vaccinium uliginosum was classed as a highly preferred species only during the summer season. Other species preferred in the summer and autumn also had a high preference rating on a yearlong basis.

3.3. Animal Variation

Selectivity of a particular browse species was not always consistent among animals (Table 5). Vaccinium vitis-idaea was the only species preferred by all four moose. Pirus communis and Vaccinium myrtillus were preferred by three moose, Salix cinerea, S. caprea and Carpinus betulus by two moose, and Rubus idaeus by one moose. At the other end of the preference scale all four moose displayed low selectivity for twigs of Oxycoccus quadripetalus, Evonymus verrucosa, and Fraxinus excelsior, three moose for Ribes nigrum, Tilia cordata and Sarothamnus scoparius, and two animals for Picea excelsa and Juniperus communis.

On a yearlong basis all four moose consumed 25 to 74 percent of the browse twigs from 12 to 21 species.

3.4. Comparison of Browse Preferences Between Moose and Red Deer

Data from the present study on browse preference by moose were compared to results of an investigation conducted by Dzięciołowski (1970) on browse preferences by red deer (Cervus elaphus L.).

Twelve browse species were common to both tests (Table 6). Rubus idaeus and Vaccinium vitis-idaea were in the preferred group for both animal species. Salix caprea, Sorbus aucuparia, and Corylus avellana were highly preferred by red deer and were important second choice browse for moose, whereas Vaccinium myrtillus was highly preferred by moose and second choice for red deer.

Calluna vulgaris, Carpinus betulus, Frangula alnus, and Vaccinium uliginosum were second choice, and Pinus silvestris and Juniperus communis were low choice species for both red deer and moose.

The similarity in browse preference by red deer and moose indicates that these animal species may be in direct competition for food where their ranges overlap, particularly during winter and spring.

REFERENCES


Accepted, February 10, 1974.

Forestry Research Institute, Wery Kostrzewy 3, 02-362 Warszawa, Poland.

Ryszard DZIĘCIOŁOWSKI

DOBÓR PĘDÓW ROŚLIN DRZEWIASTYCH PRZEZ ŁOSIE

Streszczenie

Wybieralność pokarmową łosi (Alces alces L.) w stosunku do pędów drzew, krzewów i krzewinek 26 gatunków (Tabela 1) badano na 4 oswojonych osobnikach (3 ♂♂ i 1 ♀). Stosowano metodę jednoczesnego podawania pojedynczym zwierzętom w zagrodzie zestawów pędów trzech gatunków. W okresie od czerwca 1971 do marca 1973 r. przeprowadzono 541 testów. Wyniki opracowano metodą analizy wariancji w trójkierunkowym układzie klasyfikacji: 4 łosie X 4 pory roku X 26 gatunków roślin. Analizę przeprowadzono metodą wyznaczania stałych w drodze rozwiązania odpowiedników układów równań normalnych. Rachunki wykonano na maszynie cyfrowej ODRA 1304.

Analiza (Tabela 2) dowiodła istotnego wpływu pór roku i gatunków roślin na dobór zjadanych pędów oraz istotnego współdziałania: pory roku X łosie, łosie X rośliny oraz pory roku X rośliny. W przypadku liści (Tabela 3) analiza dowiodła statystycznie istotnego wpływu zwierząt doświadczalnych, pór roku i gatunków roślin na dobór zjadanych liści oraz istotności dwóch współdziałania: pory roku X łosie oraz pory roku X rośliny.

Spośród 26 gatunków roślin żerowych pięć (borówka brusznica, dzika jabłoń, borówka czarna, malina i wierzba szara) należało do grupy roślin wysoko preferowanych przez łosie w ciągu całego roku (Tabela 4). Grupę roślin drugiego wyboru
Dobór pędów roślin drzewiastych przez łosie

stanowiły: osika, wierzba iwa, grab, borówka łochynia, olsza czarna, lipa drobnolistna, kruszyina, jarzębina, bągno, brzoza omszona, wrzos, leszczyna, sosna zwycajna, dąb szypułkowy, jałowiec pospolity i świerk (w sumie 16 gatunków). Po- karm głodowy stanowiło 5 gatunków roślin, mianowicie: jesion, żarnowiec, porzeczka czarna, żurawina i trzmielina brodawkowata.

Stwierdzono statystycznie istotną sezonową zmienność preferencji żerowych łosi w stosunku do żeru pędowego. Wiosną preferowane są: borówka brusznica, bągno, borówka czarna, olsza czarna, grab i malina, latem — jabłoń, borówka czarna i bo- rówka łochynia, jesienią — jabłoń i borówka brusznica, natomiast zimą — borówka brusznica, wierzba szara, malina, jabłoń, grab, olsza czarna, borówka czarna, wierz- ba iwa, osika i bągno.

Zimą i wiosną łosie zjadają dużo pędów i preferują wiele roślin drzewiastych i krzewiastych, natomiast w okresie lata i jesieni zjadają mało pędów i ograniczają się do najbardziej smakowitych, jak borówki i dzika jabłoń.

Testowane cztery łosie charakteryzują się indywidualnymi upodobaniami żero- wymi (Tabela 5), których rozmiar, jednak, nie przekreśla przydatności metody, lecz nakłada wymóg operowania kilkoma osobnikami zwierząt doświadczalnych. Układ preferencji żerowych jelenia szlachetnego i łosia jest dość podobny (Tabe- la 6) i, w związku z tym, może między nimi dochodzić do bezpośredniej konku- rencji o dostępne zasoby żeru pędowego.

Ustalenie szeregów preferencyjnych roślin żerowych jest traktowane jako krok wstępny do wytypowania kluczowych roślin wskaźnikowych, rozmie rządowania których w środowisku otwartym pozwoli na ustalenie stopnia wykorzystania poten- cjalnej pojemności wyżywieniowej tych środowisk.