Individual identity of ultrasonic calls along ontogeny in the yellow steppe lemming (*Eolagurus luteus*)

Ilya A. Volodin¹,², Daria D. Yurlova¹, Julia D. Kozhevnikova¹, Olga G. Ilchenko² and Elena V. Volodina²

¹ Department of Vertebrate Zoology, Faculty of Biology, Lomonosov Moscow State University, Russia
² Scientific Research Department, Moscow Zoo, Russia
volodinsvoc@gmail.com

http://www.bioacoustica.org

**HYPOTHESIS**

Individual identity of ultrasonic calls (USV) will increase with age.
For mobile adolescents and adults it is more important to be individualistic than for neonate pups falling out of the nest

**METHODS**

**Supported by:** RSF grant 19-14-00037

Support: RSF grant 19-14-00037

12 post-natal-day (PND) age-classes:

<table>
<thead>
<tr>
<th>PND</th>
<th>Individuals per age-class</th>
<th>Pups</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>9-12</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>13-16</td>
<td>10</td>
<td></td>
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<tr>
<td>17-20</td>
<td>10</td>
<td></td>
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<tr>
<td>21-24</td>
<td>10</td>
<td></td>
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<tr>
<td>25-28</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29-32</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33-36</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37-40</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-60/ad</td>
<td>10</td>
<td></td>
<td></td>
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</tbody>
</table>

Each individual was recorded for 2 min at 22°C using a recorder Pettersson D1000X (384 kHz, 16 bit). After this — measurement and weighing.

Up to 10 USV calls per individual were analyzed using Avisoft SASLab Pro software. 1176 USV calls in total.

**RESULTS**

**Body size**

<table>
<thead>
<tr>
<th>Body weight, g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
</tr>
<tr>
<td>PND (1-4)</td>
</tr>
<tr>
<td>PND (5-8)</td>
</tr>
<tr>
<td>PND (9-12)</td>
</tr>
<tr>
<td>PND (13-16)</td>
</tr>
<tr>
<td>PND (17-20)</td>
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<td>PND (29-32)</td>
</tr>
<tr>
<td>PND (33-36)</td>
</tr>
<tr>
<td>PND (37-40)</td>
</tr>
</tbody>
</table>

**Ultrasonic call acoustics**

Types of frequency contours:

<table>
<thead>
<tr>
<th>Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat</td>
</tr>
<tr>
<td>Up-FM</td>
</tr>
<tr>
<td>Down-FM</td>
</tr>
<tr>
<td>Chevron</td>
</tr>
<tr>
<td>Complex</td>
</tr>
</tbody>
</table>

**Discriminant Function Analysis**

<table>
<thead>
<tr>
<th>Age</th>
<th>% correct classifying</th>
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</thead>
<tbody>
<tr>
<td>1-4</td>
<td>57</td>
</tr>
<tr>
<td>5-8</td>
<td>53</td>
</tr>
<tr>
<td>9-12</td>
<td>47</td>
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<tr>
<td>13-16</td>
<td>55</td>
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<tr>
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<tr>
<td>37-40</td>
<td>62</td>
</tr>
<tr>
<td>41-60/ad</td>
<td>52</td>
</tr>
</tbody>
</table>

**CONCLUSION**

Against expectations, vocal individuality of USV calls in yellow steppe lemmings did not increase with age, remaining at the same level in pups and adults.