

Report on the status of the Rhodopean lily (*Lilium rhodopeum*) at the locality near Stoykite, Smolyan Province, Rhodope Mountains, Bulgaria, 2026

2026 monitoring and population results

In 2026, the Rhodopean lily locality near Stoykite (Fig. A1) was visited twice, on 27 June and 6 September. The survey covered the locality, with an area of approximately 0.5 ha (5 dka).

During the June census, a total of 518 individuals were recorded, of which 473 were flowering and 45 were vegetative (Table 1). Each clearly distinguishable above-ground stem was counted as one individual. Of the flowering individuals, 370 bore one flower, 68 – two flowers and 35 – three flowers (Figs A2–A4).

Above-ground abundance was high in 2026, with the total count increasing by 180% compared with the 185 individuals recorded in 2025.

The marked year-to-year variation in recorded above-ground abundance may result from the interaction of several factors. Long-term field observations indicate that natural variation in above-ground emergence and flowering, including periods of dormancy, as well as climatic conditions such as drought, may play an important role. Habitat condition is also relevant, as the absence of grazing and mowing is associated with gradual encroachment by species like bracken (*Pteridium aquilinum*), white false hellebore (*Veratrum album*) and other competitive vegetation. Observations following mowing or grazing indicate improved conditions for the above-ground emergence of the species, but at this stage the available data do not allow the individual factors to be clearly separated or quantitatively assessed.

Habitat condition and recorded pressures

Insect feeding damage was recorded on 23 individuals, representing 4.4% of the total count (Fig. A8). Rooting-up of the turf and trampling by wild boar were also observed (Fig. A7).

Part of the locality lies beneath an overhead power line. In 2026, the corridor beneath it was cleared of woody vegetation, including young European aspen trees (*Populus tremula*). The felled stems and branches were left on site and covered part of the herbaceous vegetation (Fig. A5). Abundant aspen regeneration in the same area creates a risk of renewed encroachment and shading.

Bracken (*Pteridium aquilinum*) continues to spread in parts of the locality, forming dense patches. The Rhodopean lily grows both in open grassland and among the bracken (Fig. A6).

Fruit development and reproductive outcome

On 6 September, 25 fruit capsules were recorded, compared with 10 in 2025. Capsules ranged from closed to fully open, and mature seeds were confirmed by direct inspection (Figs A9–A11). Most post-flowering individuals examined had no developed capsules and bore dry, shrivelled reproductive structures (Fig. A12). Despite abundant flowering, the number of capsules remained low.

Management and monitoring recommendations

Appropriate mowing and/or controlled grazing is recommended to limit encroachment. These activities should take place after field confirmation that seed maturation and dispersal have been completed. The felled woody material should be carefully removed or relocated away from areas occupied by the Rhodopean lily during the dormant period, without the use of heavy machinery.

Management activities aimed at maintaining and improving the condition of the Rhodopean lily population are recommended; however, at this stage, their specific implementation and responsible parties cannot be defined because the relevant land parcels are privately owned.

Annual monitoring should continue with one visit during peak flowering and a second during fruit and seed maturation.

Long-term monitoring results

Table 1. Results of the censuses conducted during 2008–2026

Year	Flowering	Vegetative	F/V ratio	Damaged	Total	Change from previous year (%)
2008	122	66	1.85	28	188	–
2009	98	44	2.23	–	142	–24.47
2010	96	–	–	19	96	–32.39
2011	145	–	–	–	145	51.04
2012	78	52	1.50	–	130	–10.34
2013	17	46	0.37	–	63	–51.54
2014	42	11	3.82	15	53	–15.87
2015	41	4	10.25	14	45	–15.09
2016	56	23	2.43	5	79	75.56
2017	75	34	2.21	34	109	37.97
2018	117	31	3.77	10	148	35.78
2019	123	71	1.73	30	194	31.08
2020	262	107	2.45	36	369	90.21
2021	287	68	4.22	15	355	–3.79
2022	356	257	1.39	5	613	72.68
2023	211	40	5.28	7	251	–59.05
2024	586	105	5.58	30	691	175.30
2025	160	25	6.40	10	185	–73.23
2026	473	45	10.51	23	518	180.00

F/V = flowering-to-vegetative ratio. “–” indicates that no reliable numerical value is available, not zero. Damaged individuals are included in the total count.

Totals for 2010 and 2011 include flowering individuals only; percentage changes for 2010–2012 are not directly comparable with those for other years.

Data for 2009 were recovered from the completed field survey form; the percentage change for 2010 was recalculated accordingly.

The 2024 flowering count has been corrected to 586, based on the sum of the recorded flowering categories; the corresponding F/V ratio is 5.58.

Selected literature and monitoring sources

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Vladimir Trifonov, 2026

Appendix 1. Photographic documentation

Population and flowering



Figure A1. General view of the locality and its grassland-forest setting, 27 June 2026.



Figure A2. Dense group of flowering *Lilium rhodopeum* plants, 27 June 2026.



Figure A3. Single-flowered plant (F*), 27 June 2026.



Figure A4. Three-flowered plant (F***), with two flowers open and the third in bud, 27 June 2026.

Appendix 1. Photographic documentation (continued)
Habitat condition and recorded pressures



Figure A5. Felled stems and branches left beneath the power line, with a flowering *Lilium rhodopeum* plant in the affected area, 27 June 2026.



Figure A6. Rhodopean lilies within a dense patch of bracken (*Pteridium aquilinum*), 27 June 2026.



Figure A7. Turf rooted up and trampled by wild boar within the locality, 27 June 2026.



Figure A8. Example of leaf and stem damage recorded during the June survey, 27 June 2026.

Appendix 1. Photographic documentation (continued)
Fruit development and reproductive outcome



Figure A9. Closed mature fruit capsule, 6 September 2026.



Figure A10. Fruit capsule beginning to dehisce, 6 September 2026.



Figure A11. Fully open capsule with mature seeds visible, 6 September 2026.



Figure A12. Dry, unsuccessful reproductive structures without developed capsules, 6 September 2026.