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BUTTERFLIES IN THE URBAN LANDSCAPE - CASE STUDY: TEILOR PARK FROM BUCHAREST, ROMANIA

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Abstract

In the Teilor Park (Linden Tree Park) in Bucharest, we carried out observations on the species of butterflies between July 2022 and November 2024. Butterflies are appreciated for their beauty, being a source of inspiration, they are pollinators and indicators of environmental quality. Pesticide pollution and urbanization through fragmentation of habitats cause a decrease in the diversity of insect species, including butterflies. We made a list of plant species in the park, to identify possible food sources for larvae and adults. Periodic visits carried out along the transects organized along the alleys, as well as observations on the slopes, noting: the species of butterflies, the number for each species and the plants on which the feeding behaviour of the adults was observed. We took photos of the butterflies and especially photos of the butterflies visiting flowers. We were able to identify 21 species of butterflies. As the investigated area is relatively small (7 ha), we can appreciate that the park supports relatively well the diversity of butterfly species.

Key words*: butterflies, biodiversity, urban landscape.*

INTRODUCTION

We are currently witnessing a drastic decline in biodiversity. The European Union intends to restore biodiversity and reduce the causes of biodiversity loss by 2030 (https://eur-lex.europa.eu/RO/legal-content/summary/eu-biodiversity-strategy-for-2030.html).

The biomass of insects, including pollinators, has decreased by more than 70%, and the number of species has decreased between 20 and 50% in Europe and North America in the last 30 years, as a result of anthropogenic activities, such as the use of pesticides, the destruction and fragmentation of habitats, but also due to climate changes (Rákosy and Goia, 2021). In Romania, in the last 30 years, the number of insects, including butterflies, has decreased, and one of the factors causing it is urbanization (Székely, 2024).

Although many works illustrate the negative effects of urbanization on insect populations and on the composition of the insect community, there are also studies indicating that cities can also shelter and even favor a considerable number of native species (Theodorou, 2022). Lepidoptera totals 180,000 species, of which butterflies constitute only 10%, the remaining 90% being moths (Rákosy, 2024).

Among Lepidoptera 141,600 species are known as pollinators, feeding on flower nectar, namely 18,500 species of butterflies (Rhopalocera) and 123,100 species of moths (Heterocera) (Ollerton, 2017). Butterflies are good indicators of environmental quality (Rákosy, 2024), very sensitive to urbanization (Han et al., 2021).

In Romania, of the 4,000 known species of Lepidoptera, 202 are butterflies (Rákosy, 2024).

Recent specialized literature, according to Kowarik et al., 2020, highlights the importance of cities to biodiversity and even to endangered species, despite the pressures that the urban environment creates on wildlife; for a healthy life for its inhabitants, both physically and psychologically, it is essential that the development of cities is sustainable, with a care for biodiversity and awareness of the fact that we share these urban habitats with animals as well. Parks could provide suitable habitats for fauna species, if we take into account the species that are planted, but also that the wild plants, many of which are considered weeds

that must be removed from the landscape, would play their part in drawing pollinating insects in particular.
The article presents the results of a study on butterflies in a park from Bucharest, in order to attempt an assessment of the potential of an urban park in maintaining the biodiversity of butterfly species.

MATERIALS AND METHODS

Teilor Park is one of the few parks recently created in București, sector 3. The land on which the current park is located was previously a wasteland situated at the waste-filled junction of Brățării Street and Gura Siriului Road. The park opened to the public in May 2020. With an area of approximately 7 ha, the park is located on a small artificial hill, at the junction of Brățării Street and Drumul Gura Siriului (https://primarie3.ro/index.php/spatii_verzi, accessed 20.03.2024, Figure 3). The Park is equipped with sports fields, playgrounds for children, an artificial lake, two floating islands covered in reeds. The lakeshore is bordered by weeping willows and metasequoia.
Măriuca Cristiana Hogea, the engineer hired by the City Council of District 3 between 2022-2024, told us that, during this period of time, 900 lime trees and 4,000 lavender bushes were planted on the hill in Teilor Park. Shrubs such as *Juniperus* spp. were also planted, as well as 12,000 bushes of *Hibiscus syriacus* to create hedges. (Figures 1, 2)
With the Google Maps mobile application, we took the approximate geographical coordinates at 4 corners, and the park forms a rectangle, with the sides arranged parallel to the streets Drumul Gura Siriului (eastern side), Brățării (northern side), Vărăști (the western side), Poștașului (southern side). The coordinates obtained in the field are: 44.417905 N; 26.189149 E at the entrance from Drumul Gura Siriului Street, the southern side; 44.420198 N; 26.190 453 E for the entrance from the junction between Drumul Gura Siriului and Brățării Street; 44.420959 N; 26.187991 E at the entrance from Brățării adjacent to Vărăști Street and 44.418548 N; 26.186 915 E in the green corner of the side parallel to Vărăști street.
Observations were carried out between July 2022 and November 2024, with visits made at least once a month. Transects were established along the paths, totaling approximately 800 m (Figure 3), but simple observations were also made.

Figure 1. Planting of lavender in Teilor Park, photo by Cristiana Măriuca Hogea

Figure 2. Lavender and linden tree in Teilor Park

The species of plants and butterflies observed were noted and photos were taken using a Nikon D 3300 camera with a Sigma 105 mm 1:2:8 DG Macro HSM lens; all butterfly photos in this paper belong to the authors. Field guides were used to identify the species, such as the work of Sîrbu et al., *Flora ilustrată a României* of 2013 and the book of Rákosy, *Fluturii din România. Cunoaștere, protecție, conservare*, from 2013, and we used, for the most part, the names of the species and the taxonomic classification used in these books. The species encountered and the number of individuals of each species were recorded on the transects. For easier data collection, in 2024 we also used

the *Spobs* mobile application, created and developed by Andrei Conțiu, which allowed us to record adult insects in association with the plants where we saw them feeding on nectar.

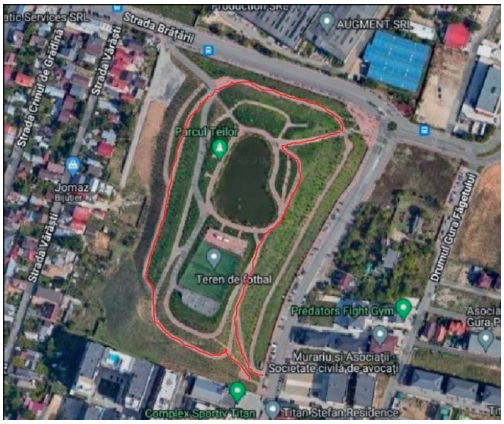

Figure 3. The Teilor Park- monthly transects in 2024 (with red)

RESULTS AND DISCUSSIONS

Between 2022-2024 we identified 21 species of butterflies in Teilor Park, belonging to the families Hesperiidae, Papilionidae, Pieridae, Lycaenidae and Nymphalidae. In 2022, 13 species of butterflies were observed, in 2023 only 10 species. In 2024 we found the species observed in previous years, to which 7 more species were added, 21 species in total (Table 2, Table 4). The best represented was the Lycaenidae family (29%), totaling 6 species, followed by Pieridae (24%) and Nymphalidae (24%), each with 5 species (Figure 4, Table 1, Table 2, Table 4).

Comparatively, in another park in sector 3 (Petrașcu Park), with an area of 3 ha, Albu and Albu (2016) identified 13 species of butterflies belonging to 5 families, over a period of 12 years (1970-1982). Our observations over a period of 13 years (2011-2024) in Petrașcu Park totaled only 7 species (Ștefan-Fotin and Petrescu, unpublished data). Currently, Petrașcu Park is a small park with mature trees, providing shade; under the trees and in open areas the lawn is maintained by mowing. Teilor Park, a new park, with young trees that do not maintain shade, presents sunny slopes, on which lavender bushes are planted, among which, between hedges, spontaneous plant bloom, but also lawns with flowers that attract pollinators, such as white and red clover.

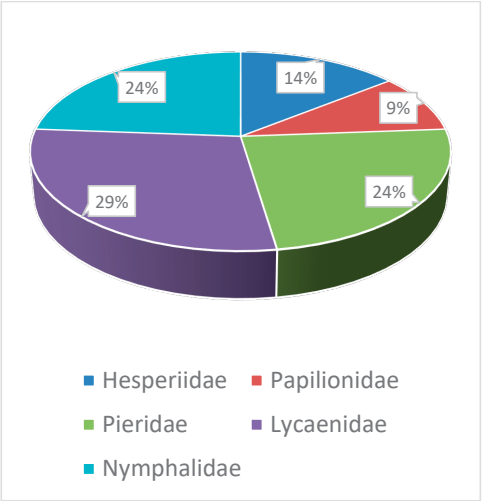

Figure 4. Percentage representation of butterfly families in Teilor Park

The study for the Văcărești Natural Park, the first urban protected area in Bucharest and the largest green space in the city, conducted by Popescu (2019) between April and October 2018, included a list of 27 butterfly species for a much larger area, of 183 ha, but our observations from recent years indicate many more species in Văcărești (Ștefan-Fotin and Petrescu, unpublished data). As the number of butterflies that can be found in Bucharest is over 50 (Székely, 2011b, Ștefan-Fotin, Petrescu, unpublished data), it can be assessed that Teilor Park sheltered at least a third of the total butterfly species in Bucharest. 107 plant species belonging to 37 families were identified in the park (Table 1). Most of them are spontaneous plant species. Lavender, but also linden trees, are the main sources of nectar that the park offers during the flowering periods of these species. When the lavender is not in bloom and the spontaneous vegetation has not been mowed, or between mowing series, a multitude of species from the spontaneous flora manage to bloom, mostly attractive to pollinators, including butterflies. Among the plant families, the best represented is Asteraceae, with 20 species, followed by the Fabaceae family, with 13 species (Figure 5). The species of the two families, but not only,

are very important for the food of the adults of many species, and on the flowers of some of them we caught butterflies collecting nectar with their proboscis.
In 2024, three mowing series were applied, between April and July. In July, August and September mowing was carried out more frequently. After mowing, a drastic decrease in butterfly species was observed, but the spontaneous vegetation recovered quite quickly, restoring the biodiversity of insect species (Figure 6, Table 3)
In June 2024, the highest number of butterfly species was recorded, namely 16 species (Figure 6). In July, after mowing around the lavender plants, only 9 species were found, the number of species being in a slight decrease until October when 8 species were recorded, and the mowed vegetation began to recover, temperatures remaining high (Figure 6).

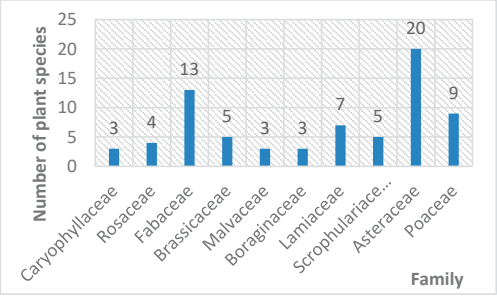

Figure 5. The families with the largest number of plant species in Teilor Park.

In the winter months (January, February, December), no butterflies were observed while flying, although they were days when higher temperatures were recorded. In March, only 4 species were recorded (Figure 6). The first butterflies to appear were *Pieris rapae* and *Pontia edusa*. *Carcharodus alceae* and *Lycaena phlaeas* appeared at the end of the month. In November there were 3 species, respectively *Pieris rapae*, *Pontia edusa* and *Lycaena phlaeas* (Figure 6, Table 4) In November, 2 larvae of *Pieris rapae* were also found (Table 4). *Pieris rapae* was the species that was seen more frequently, with the highest abundance (Table 3, Table 4).
The Hesperiidae family was represented by 3 species: *Carcharodus alceae* (Figure 8, Figure 9), *Erynnis tages* (Figure 7) and *Ochlodes sylvanus* (fig.10) (Table 2). Poaceae such as *Dactylis glomerata* or Poa spp. could be hosts for *Ochlodes sylvanus*; fabaceae such as Trifolium spp. or *Lotus corniculatus* can be consumed by the larvae of the *Erynnis tages*, and *Carcharodus alceae* forages with mallow species (Rákosy, 2024). On 19th May 2024 we observed a larva of *Carcharodus alceae* on a leaf of *Alcaea rosea* (Figure 9).

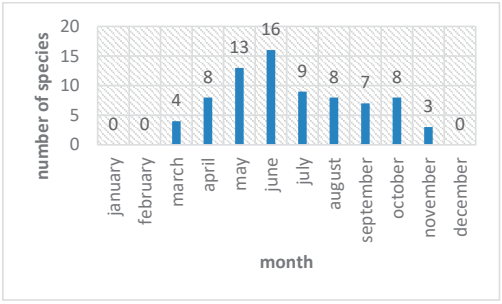

Figure 6. Number of butterfly species monthly observed in Teilor Park in 2024

Figure 7. *Erynnys tages*, feeding on *Lavandula angustifolia*, in Teilor Park

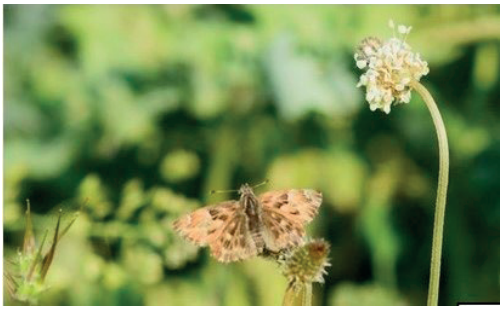

Figure 8. *Carcharodus alceae* on *Plantago lanceolata*, in Teilor Park

The Papilionidae family was represented by the swallowtails *Iphiclides podalirius* (Figure 10, Table 2, Table 4) and *Papilio machaon* (Figure

11, Table 2, Table 4). *Iphiclides podalirius* was observed in all 3 years. We did not identify possible food sources for the caterpillars of this species in the park, but the yards of houses neighboring the park could be a source of shrubs from the Rosaceae family, which are hosts for the larvae of this butterfly species, as mentioned in literature (Rákosy, 2024).

Figure 9. *Carcharodus alceae* catterpillar on the leaf of *Alcaea rosea* in Teilor Park

For *Papilio machaon*, which feeds on Apiaceae species (Rákosy, 2024), *Daucus carota*, the only Apiaceae species identified in the park could be a host. Imago was observed feeding on inflorescences of *Trifolium pratense,* on the lawn near the sports field (Figure 11).
Adults of the 5 species of the Pieridae family were seen between June and October feeding on lavender, but also on plants from the spontaneous flora.
Among the Pieridae, the larvae of Pieris species (*Pieris brassicae*, *P. napi* and *P. rapae*), but also those of *Pontia edusa*, feed on various species of the Brassicaceae family (Rákosy, 2024). *Pieris brassicae* is considered a near threatened species, due to the use of pesticides (Rákosy et al., 2021, Rákosy, 2024, Table 2).

Figure 10. *Iphiclides podalirius* and *Ochlodes sylvanus*, feeding on *Lavandula angustifolia*

Figure 11. *Papilio machaon*, feeding on inflorescences of *Trifolium pratense* in the Teilor Park

The larvae of *Colias croceus* feed on various species of Fabaceae, such as clover and alfalfa (Rákosy, 2024); adults were observed feeding on lavender inflorescences, but also on clovers and *Echium vulgare* (Figure 12, Table 5). Adults of *Pontia edusa* (Figure 15) were seen flying early, starting in March and continuing into November, feeding on various nectar sources (Table 5).

Figure 12. *Colias croceus* in Teilor Park, feeding on inflorescences of *Lavandula angustifolia*

Pieris brassicae (Figure 13) and *Pieris napi* were seen feeding on lavender (Figure 14, Table 5).

Figure 13. *Pieris brassicae* and *Pieris rapae* in the Teilor Park, on lavender

Among the species of the Lycaenidae family, *Lycaena phlaeas* and *Lycaena thersamon* feed, in the larval stage, on species from the Polygonaceae family, such as Rumex spp., and the larvae of the species *Polyommatus icarus*

and *Cupido argiades* consume various fabacee (Rákosy, 2024, Țugulea et al., 2016), being oligofagous species (Țugulea et al., 2016). Adults of the species *Cupido argiades* were seen in the Teilor Park in 2022 and 2024, feeding on *Trifolium repens* and on inflorescences of *Lotus corniculatus*, and each time a single individual was seen (Figure 17, Table 5, Table 6). *Polyommatus icarus* was seen on fabaceae, but also on lavender and other species (Figure 16, Table 5). *Lycaena thersamon* (Figure 19) is a near threatened species at national level, (Rákosy et al., 2021, Rákosy, 2024), with only two observations in the park: in August 2022 and in May 2024 (Table 4, Table 6). *Lycaena phlaeas* was frequently seen in the park, flying and feeding on lavender or on various species of spontaneous flora (Figure 18).

Figure 14. *Pieris napi* feeding on *Lavandula angustifolia* in the Teilor Park

Figure 15. *Pontia edusa*, feeding on inflorescence of *Trifolium pratense* in Teilor Park

On August 29, 2024 we observed an exemplar belonging to the species *Leptotes pirithous* (Figure 18) and in the vicinity an individual of *Lampides boeticus* (Figure 19) feeding on clover inflorescences (Table 4, Table 6). These two species are considered migratory xerothermophilous, and the few individuals that reach Romania probably do not survive the winters (Rákosy, 2024). In recent years, the two species of subtropical origin have appear more frequently in Romania, with more reports in Dobrogea (Dincă et al., 2009, Székely, 2011). After mowing, we did not find either of these two species in the park in 2024.

Figure 16. *Polyommatus icarus*, feeding on flowers of *Lotus corniculatus* in Teilor Park

Figure 17. *Cupido argiades* in Teilor Park, feeding on flowers of *Lotus corniculatus* in Teilor Park

Figure 18. *Lycaena phlaeas* in the Teilor Park, feeding on the inflorescence of *Tripleurospermum inodorum*

Among the Nymphalidae, *Lasiommata megera* and *Vanessa cardui* were observed more frequently (Table 4).

The larvae of the *Vanessa cardui* butterfly are polyphagous, but prefer the leaves of Cirsium species (Rákosy, 2024). In the park, the adult of *Vanessa cardui* was seen feeding on lavender (Figure 23), but also on *Trifolium pratense* (Table 5).

The larvae of *Lasiommata megera* feed on *Dactylis glomerata* and other poaceae (Rákosy, 2024).

Figure 19. *Lycaena thersamon* feeding on flowers of *Berteroa incana* in Teilor Park

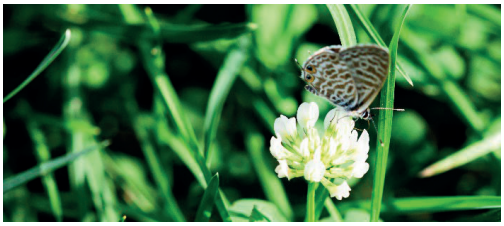

Figure 20. *Leptotes pirithous* in Teilor Park, feeding on inflorescences of *Trifolium repens*

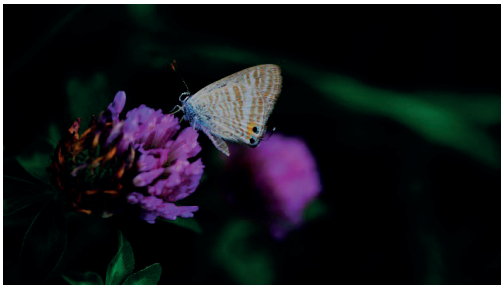

Figure 21. *Lampides boeticus* in the Teilor Park feeding on *Trifolium pratense*

In the park, the adult of *Lasiommata megera* was seen feeding on lavender (Figure 22) and on *Taraxacum officinale* (Table 5).
Vanessa atalanta was observed less frequently, once feeding on the nectar of lime-tree flowers (Figure 25). Nettles, which are food for the larvae of this butterfly (Rákosy, 2024), are not present in the park.
Issoria lathonia (Figure 26) was seen feeding on lavender and red clover (Table 5). The food for the larvae is the *Viola* species (Rákosy, L., 2024), of which we have inventoried the species *Viola tricolor* in the park (Table 1). *Melitaea phoebe* was observed only on May 6, 2024 (Table 4, Table 6), feeding on red clover inflorescences (Figure 24, Table 5).
Lavender provides nectar for the butterfly species in the park, during the flowering period, June-October; 15 of the 21 butterfly species observed in the park were seen feeding on lavender (Table 5).

Figure 22. *Lassimmata megera*, feeding on lavender Teilor Park

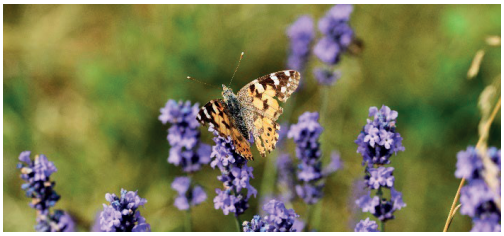

Figure 23. *Vanessa cardui*, in the Teilor Park, feeding on inflorescences of lavender

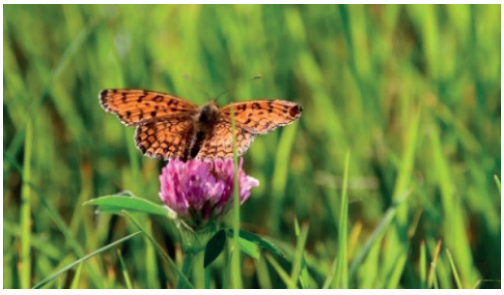

Figure 24. *Melitaea phoebe* in Teilor Park

Beside lavender, butterflies were seen feeding on Tilia spp. and on 23 species of spontaneous flora; 12 species of butterflies were captured feeding on *Trifolium pratense* (Table 5). During the period when lavender is not in bloom, food for adults can be provided by spontaneous species such as *Taraxacum officinale*, *Tripleurospermum inodorum*, *Buglossoides arvensis* and others (Table 5).

Figure 25. *Vanessa atalanta* on linden in the Teilor Park

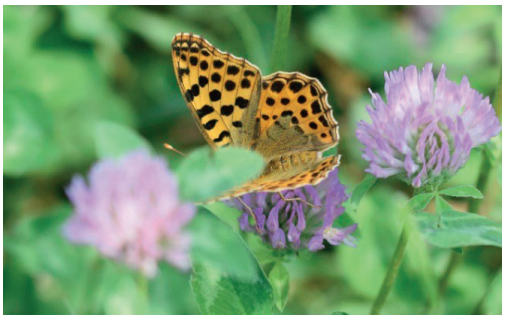

Fig 26. *Issoria lathonia* on inflorescences of *Trifolium pratense* in Teilor Park

Table 1 The list of the plants in the Teilor Park, 2022-2024

	Family	Species
1.	Ranunculaceae	*Ranunculus sardous, Ranuculus ficaria.*
2.	Papaveraceae	*Papaver rhoeas, Papaver dubium*
3.	Betulaceae	*Betula pendula**
4.	Juglandaceae	*Juglans regia*
5.	Portulacaceae	*Portulaca oleracea*
6.	Caryophyllaceae	*Silene latifolia, Stellaria media, Gypsophila muralis*
7.	Amaranthaceae	*Amaranthus retroflexus*
8.	Chenopodiaceae	*Chenopodium hybridum, Atriplex tatarica*
9.	Polygonaceae	*Polygonum aviculare, Rumex* spp..
10.	Rosaceae	*Potentilla argentea, Potentilla reptans, Rosa canina, Rubus caesius*.
11.	Fabaceae	*Coronilla varia, Lathyrus tuberosus, Lotus corniculatus, Medicago sativa, Medicago lupulina, Melilotus alba, Melilotus officinalis* Pall., *Trifolium fragiferum, Trifolium pratense, Trifolium repens, Vicia cracca, Vicia grandiflora, Vicia hirsuta,*
12.	Oxalidaceae	*Oxalis dilenii*.
13.	Geraniaceae	*Erodium cicutarium*, *Geranium dissectum*.
14.	Zygophyllaceae	*Tribulus terrestris.*
15.	Vitaceae	*Parthenocissus inserta*
16.	Apiaceae	*Daucus carota.*
17.	Hypericaceae	*Hypericum perforatum*.
18.	Violaceae	*Viola tricolor*.
19.	Brassicaceae	*Berteroa incana, Capsella bursa-pastoris, Cardaria draba, Erophila verna (Draba verna), Rorippa austriaca*
20.	Salicaceae	*Salix sp.**
21.	Tiliaceae	*Tilia sp.**
22.	Malvaceae	*Alcea rosea, Hibiscus syriacus*, Malva sylvestris*.
23.	Primulaceae	*Anagallis arvensis* L.
24.	Rubiaceae	*Galium aparine, Galium humifusum.*
25.	Valerianaceae	*Valerianella locusta*.
26.	Dipsacaceae	*Dipsacus fullonum.*
27.	Convolvulaceae	*Calystegia sepium, Convolvulus arvensis.*
28.	Boraginaceae	*Asperugo procumbens, Buglossoides arvensis, Echium vulgare.*
29.	Verbenaceae	*Verbena officinalis*.
30.	Lamiaceae	*Ajuga genevensis, Ballota nigra, Glechoma hederacea, Lamium amplexicaule, Lamium purpureum, Lavandula angustifolia**Mill., *Mentha longifolia*.
31.	Solanaceae	*Solanum nigrum*
32.	Scrophulariaceae	*Linaria vulgaris, Verbascum spp., Veronica hederifolia, Veronica persica, Veronica polita*.
33.	Plantaginaceae	*Plantago lanceolata*
34.	Asteraceae	*Achillea sp., Ambrosia artemisiifolia, Artemisia absinthium, Anthemis austriaca, Artemisia vulgaris, Carduus acanthoides, Centaurea cyanus, Cirsium arvense, Cirsium vulgare, Chondrilla juncea, Crepis spp., Erigeron annuus, Inula britannica, Lactuca serriola, Matricaria chamomilla, Onopordum acanthium, Senecio vulgaris, Sonchus arvensis, Taraxacum officinale, Tripleurospermum inodorum*
35.	Poaceae	*Cynodon dactylon, Dactylis glomerata, Echinochloa crus-galli, Festuca sp., Hordeum murinum, Lolium spp., Poa spp., Sorghum halepense., Phragmites australis*
36.	Juncaceae	*Juncus sp.*
37.	Cupressaceae	*Juniperus* sp., Metasequoia* sp.*

Legend: * Plant grown in the park for ornamental purposes

Table 2. Species of butterflies observed in the Teilor Park in 2022-2024

No.	Family	No.	Species	year			Threat category (Rákosy et al., 2021, Rákosy 2024)
				2022	2023	2024	
1.	Hesperiidae	1.	*Carcharodus alceae* (Esper, 1780)	-	+	+	LC
		2.	*Erynnis tages* (Linnaeus, 1758)	-	-	+	LC
		3.	*Ochlodes sylvanus* (Esper, 1777)	+	-	+	LC
2.	Papilionidae	4.	*Iphiclides podalirius* (Linnaeus, 1758)	+	+	+	LC
		5.	*Papilio machaon* (Linnaeus, 1758)	-	-	+	LC
3.	Pieridae	6.	*Colias croceus* (Geoffroy, 1785)	+	+	+	LC
		7.	*Pieris brassicae* (Linnaeus 1758)	-	-	+	NT
		8.	*Pieris napi* (Linnaeus, 1758)	+	+	+	LC
		9.	*Pieris rapae* (Linnaeus, 1758)	+	+	+	LC
		10.	*Pontia edusa* (Fabricius, 1777)	+	+	+	LC
4.	Lycaenidae	11.	*Cupido argiades* (Pallas, 1771)	+	-	+	LC
		12.	*Lampides boeticus* (Linnaeus, 1767)	-	-	+	NA
		13.	*Leptotes pirithous* (Linnaeus, 1767)	-	-	+	NA
		14.	*Lycaena phlaeas* (Linnaeus, 1761)	+	+	+	LC
		15.	*Lycaena thersamon* (Esper, 1784)	+	-	+	NT
		16.	*Polyommatus icarus* (Rottemburg, 1775)	+	+	+	LC
5.	Nymphalidae	17.	*Issoria lathonia* (Linnaeus, 1758)	-	-	+	LC
		18.	*Lasiommata megera* (Linnaeus, 1767)	-	+	+	LC
		19.	*Melitaea phoebe* (Denis & Schifermüller 1775)	-	-	+	LC
		20.	*Vanessa atalanta* (Linnaeus, 1758)	+	-	+	LC
		21.	*Vanessa cardui* (Linnaeus, 1758)	+	+	+	LC
TOTAL SPECIES OBSERVED				12	10	21	

Legend: LC - low concern; NT - near threatened; NA - non - autochthonous and migratory species

Table 3 Number of individuals monthly recordings on transects in 2024

No.	Species	data								
		16th march	14th april	18th may	10th june	7th july	29th august	8th september	13th october	2th november
1.	*Carcharodus alceae*	0	0	0	1	0	3	4	0	0
2.	*Iphiclides podalirius*	0	1	0	0	5	0	0	0	0
3.	*Colias croceus*	0	0	0	0	4	4	3	0	0
4.	*Pieris brassicae*	0	0	3	4	0	0	0	6	0
5.	*Pieris napi*	0	0	0	2	0	0	0	0	0
6.	*Pieris rapae*	9	12	14	22	11	10	8	7	3
7.	*Pontia edusa*	4	3	5	6	0	0	0	4	1
8.	*Lycaena phlaeas*	0	2	2	5	4	4	3	0	2
9.	*Polyommatus icarus*	0	0	0	1	5	4	5	8	0
10.	*Issoria lathonia*	0	0	0	1	1	0	0	0	0
11.	*Vanessa cardui*	0	0	0	0	0	0	1	0	0
	Number of species	2	4	5	8	6	6	5	4	3
	Number of individuals	13	18	26	46	30	26	23	25	6

Table 4. Recordings of butterfly's species in Teilor Park (2022-2024)

No.	Species	Recordings	
		year	day/month
1.	*Carcharodus alceae*	2023	09/04.
		2024	31/03, 12/04, 21/04, 27/04, 28/04, 01/05, 19/05-L, 3/06, 07/06, 10/06., 12/06, 22/06, 20/07, 29/08, 08/09, 15/09.
2.	*Erynnis tages*	2024	12/04, 22/06, 30/06.
3.	*Ochlodes sylvanus*	2022	07/08, 20/08.
		2024	26/05, 02/06, 07/06.
4.	*Iphiclides podalirius*	2022	07/08, 12/08.
		2023	09/04, 09/07.
		2024	14/04, 07/06, 12/06, 30/06., 07/07, 20/07, 15/09, 15/10
5.	*Papilio machaon*	2024	07/06, 07/07.
6.	*Colias croceus*	2022	15/07, 03/11.
		2023	09/07.
		2024	21/04, 01/05, 07/06, 30/06, 07/07, 13/07, 20/07, 29/08, 08/09, 21/09, 28/09.
7.	*Pieris brassicae*	2024	02/06, 3/06, 07/06, 13/10.
8.	*Pieris napi*	2022	9/10.
		2023	25/03.
		2024	26/05, 02/06.
9.	*Pieris rapae*	2022	07/08, 12/08, 20/08, 09/10, 23/10, 03/11, 09/03.
		2023	05/03, 12/03, 25/03, 20/05, 09/07, 08/10, 15/10.
		2024	10/03, 16/03, 30/03, 31/03, 14/04, 21/04, 27/04, 28/04, 01/05, 04/05, 05/05, 10/05, 12/05, 18/05, 19/05, 26/05, 02/06, 3.06, 07/06, 30/06, 07/07, 20/07.2024, 29/08, 08/09, 28/09, 06/10, 13/10, 22/10, 02/11, 16.11 (2-L)
10.	*Pontia edusa*	2022	19/09.
		2023	05/03, 12/03.
		2024	03/03, 10/03, 16/03, 14/04, 01/05 (A+P), 04/05, 10/05, 12/05, 18/05, 24/05, 26/05, 3/06, 08/09, 28/09, 13/10.
11.	*Cupido argiades*	2022	15/07
		2024	07/07
12.	*Lampides boeticus*	2024	29/08.
13.	*Leptotes pirithous*	2024	29/08.
14.	*Lycaena phlaeas*	2022	20/08, 09/10, 03/11.
		2023	27/08, 15/10, 21/10, 22/10, 29/10
		2024	30/03, 14/04, 04/05, 05/05, 10/05, 12/05, 18/05, 07/06, 22/06, 30/06, 07/07, 13/07, 20/07, 29/08, 08/09, 06/10, 13/10.
15.	*Lycaena thersamon*	2022	07/08.
		2024	12/05.
16.	*Polyommatus icarus*	2022	15/07, 07/08, 20/08, 09/10.
		2023	09/07, 07/08, 15/10, 21/10.
		2024	04/05, 12/05, 22/06, 30/06, 02/07, 07/07, 13/07, 20/07, 29/08, 08/09, 15/09, 28/09, 06/10, 13/10.
17.	*Issoria lathonia*	2024	10/06, 16/06, 17/06, 07/07.
18.	*Lasiommata megera*	2023	09/07.
		2024	27/04, 28/04, 04/05, 05/05, 18/05, 26/05, 10/06., 12/06, 30/06, 02/07, 28/09, 13/10.
19.	*Melitaea phoebe*	2024	06/05.
20.	*Vanessa atalanta*	2022	15/07.
		2024	07/06, 06/10.
21.	*Vanessa cardui*	2022	12/08, 20/08.
		2023	22/10.
		2024	02/06., 07/06, 29/08.

Legend: A - adult; L - larva; P - pupa

Table 5. The interaction of butterflies in the Teilor Park with the plants that provide nectar for the adult butterflies

Butterfly species	Plant species																								
	Potentilla argentea	Lotus comiculatus	Trifolium pratense	Trifolium repens	Erodium cicutarium	Daucus carota	Berteroa incana	Rorippa austriaca	Tilia sp.	Malva sylvestris	Echium vulgare	Buglossoides arvensis	Verbena officinalis	Convolvulus arvensis	Ajuga genevensis	Lavandula angustifolia	Veronica persica	Plantago lanceolata	Achillea sp.	Cirsium arvense	Carduus acanthoides	Erigeron annuus	Inula britannica	Taraxacum officinale	Tripleurospermum
Carcharodus alceae			+							+	+	+			+	+									
Erynnis tages																+		+							
Ochlodes sylvanus																+									
Iphiclides podalirius			+						+							+					+				
Papilio machaon			+													+									
Colias croceus			+	+							+					+									
Pieris brassicae																+									
Pieris napi																+									
Pieris rapae			+		+					+		+		+		+							+	+	
Pontia edusa	+		+			+		+		+		+	+			+	+	+	+	+				+	+
Cupido argiades		+		+																					
Lampides boeticus			+																						
Leptotes pirithous				+																					
Lycaena phlaeas			+	+												+						+			+
Lycaena thersamon							+																		+
Polyommatus icarus		+	+				+									+							+		
Issoria lathonia			+													+									
Lasiommata megera																+								+	
Melitaea phoebe			+																						
Vanessa atalanta									+																
Vanessa cardui			+													+									

Table 6. Geographic positioning of butterflies with just a few observations in the park (2024)

Species	2024	Geographic coordinates	
		N	E
Cupido argiades	7th july	44.418317	26.188.627
Lampides boeticus	29th august	44.419348	26.188325
Leptotes pirithous	29th august	44.419405	26.188387
Lycaena thersamon	12th mai	44.418424	26.187630
Melithaea phoebe	6th mai	44.420447	26.188629
Papilio machaon	7th june	44.418363	26.187714
	7th july	44.418524	26.188167

CONCLUSIONS

Between July 2022 and November 2024, adults of 21 butterfly species were observed in Teilor Park; on several occasions, other stages, such as larvae and pupa were observed.

Of the butterfly species identified in the park, two species, *Pieris brassicae* and *Lycaena thersamon*, are considered near threatened (NT) at national level.

Pieris rapae was the most abundant species in the park.

In 2024, two migratory and xerothermophilous elements were observed in the park, namely *Leptotes pirithous* and *Lampides boeticus*.

The spontaneous flora, consisting of 99 plant species, could provide food for the larvae of at least 16 butterfly species out of the 21 observed in 2024.

Lavender provides nectar for the adults of the park's butterfly species during the flowering period, May-October; 15 of the 21 species of butterflies observed in the park were seen feeding on lavender.

Beside lavender, butterflies were seen feeding on 23 species of spontaneous flora. 12 species of butterflies were caught feeding on *Trifolium pratense*.

During the study period (2022-2024), through its floristic composition, the park could support relatively well the diversity of butterfly species.

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