Универзитет у Београду
Шумарски факултет
Кнеза Вишеслава 1
11030 Београд

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
ПРИМЉЕНО: 19. 10. 2026
Орг. јед. | Број | Прилог | Вредност
02- | 16/3 | | 

**ИЗБОРНОМ ВЕЋУ УНИВЕРЗИТЕТА У БЕОГРАДУ ШУМАРСКОГ ФАКУЛТЕТА**

**Предмет:** Извештај Комисије за избор једног редовног професора за ужу научну област Пејзажна архитектура и хортикултура

Одлуком Изборног већа Универзитета у Београду – Шумарског факултета (Бр: 01-3/37 од 28. августа 2026. године) образована је комисија за писање извештаја по расписаном конкурсу за избор једног наставника у звање редовног професора за ужу научну област Пејзажна архитектура и хортикултура у саставу:

**1.** Др **Мирјана Оцокољић**, редовни професор,
Универзитета у Београду – Шумарског факултета
(председавајући члан Комисије);
**2.** Др **Ненад Ставретовић**, редовни професор,
Универзитета у Београду – Шумарског факултета и
**3.** Др **Јелена Чукановић**, редовни професор
Универзитета у Новом Саду – Пољопривредног факултета.

На основу одлуке Изборног већа Универзитета у Београду – Шумарског факултета (Бр: 01-3/37 од 28. августа 2026. године) расписан је конкурс који је објављен у листу „Послови“ (број 1215 од 23. септембра 2026. године), на сајту Националне службе за запошљавање као и на сајтовима Универзитета у Београду и Шумарског факултета. После прегледа конкурсне документације, Комисија подноси следећи

**И З В Е Ш Т А Ј**

На расписани конкурс за избор једног наставника у звање редовног професора за ужу научну област Пејзажна архитектура и хортикултура на основу извештаја стручне службе Шумарског факултета бр. 02-16/2-2026. од 9. октобра 2026. год. у предвиђеном року пријавио се само један кандидат, др **Ђурђа Петров**, ванредни професор Универзитета у Београду – Шумарског факултета (пријава бр. 02-16/1 од 28. септембра 2026. године). Комисија констатује да је кандидаткиња др Ђурђа Петров уз пријаву поднела сва неопходна документа, списак објављених радова, као и да испуњава услове конкурса (VIII степен стручне спреме, докторат из уже научне области Пејзажна архитектура и хортикултура).

## РЕФЕРАТ О ПРИЈАВЉЕНОМ КАНДИДАТУ др ЂУРЂИ Л. ПЕТРОВ

### БИОГРАФСКИ ПОДАЦИ

Др Ђурђа Петров је рођена 19. фебруара 1984. године у Београду, где је завршила основну школу и гимназију. Школске 2003/2004. године уписала се на Шумарски

факултет Универзитета у Београду, на Одсек пејзажна архитектура и хортикултура, где је и дипломирала у новембру 2008. године, са просечном оценом 8,76. Дипломски рад, под називом „Утицај климатских промена на фенофазу цветања код скривеносеменица," одбранила је на Катедри за пејзажни инжењеринг и стекла звање дипломирани инжењер пејзажне архитектуре и хортикултуре.

Од 2006. до 2011. године била је ангажована као студент демонстратор на Универзитету у Београду Шумарском факултету, на Одсеку за пејзажну архитектуру и хортикултуру на предмету Декоративна дендрологија.

Године 2007. је обавила двомесечну специјализацију у оквиру стручне праксе и усавршавања у Јужној Кореји, под менторством професора Бе Јонг Хјанг (Bae, Jong Hyang) на Одсеку за хортикултуру на Вонкванг Универзитету у Иксану (Department of Horticulture, Wonkwang University).

Била је стипендиста Министарства за науку и технолошки развој Републике Србије од 2008. до 2011. године. У периоду од 2009. до 2011. године била је ангажована као истраживач-докторанд и истраживач на два научно-истраживачка пројекта Министарства за науку Републике Србије у области Биотехнике и Интердисциплинарних итраживања.

У Шпанији, 2011. и 2012. године на 2. и 3. Међународном фестивалу вртова у Аљарису, са колегама је освојила награде за пројекте „Dodola garden" и „Garden at the Edge of the World."

У јулу 2013. године у Чешкој на Мендел Универзитету у Брну учествовала је у CEEPUS Summer School: Designed landscape – Protection – Planning – Development.

На Шумарском факултету Универзитета у Београду је запослена од 2011. године. У звању истраживач-приправник радила је као сарадник на Пројекту Министарства за науку и технолошки развој од фебруара 2011. године. У звање асистента за ужу научну област Пејзажна архитектура и хортикултура изабрана је јула 2011.године и била ангажована на реализацији вежби на предметима: Декоративна дендрологија, Управљање зеленилом града и Украсни култивари дрвенастих биљака.

Докторску дисертацију под називом „Утицај фактора спољашње средине на цветање дрвенастих врста из пододељка Magnoliophyta у Београду" одбранила је јуна 2014. године на Универзитета у Београду - Шумарском факултету. Тиме је стекла звање доктор наука - биотехничке науке за област Пејзажна архитектура и хортикултура. У звање доцента је изабрана новембра 2014. године када преузима обавезу реализације наставе на предметима Катедре за пејзажни инжењеринг на основним и мастер академским студијама Пејзажна архитектура.

Године 2015. на Америчком универзитету у Бејруту у Либану (Department of Landscape Design and Ecosystem Management) учествовала је у радионици The workshop „e-scape Transitional settlement", чија је тематика била решавање уређења, организације и дизајна простора избегличких кампова.

У периоду од 2012. до 2017. године била је секретар Одсека за пејзажну архитектуру и хортикултуру. Обављала је функцију заменика шефа Катедре за пејзажни

инжењеринг са прекидима у периоду од 2015. до 2023.године. Учествовала је 2022. и 2025. године у Пројекту реконструкције и ревитализације Арборетума Шумарског факултета. Од 2026. године је члан Комисије за родну равноправност. До сада је објавила 122 публикације, научних и стручних радова у домаћим и страним часописима и публикацијама, као и радове саопштене на домаћим и страним научним скуповима и симпозијумима, укључујући и два предавања по позиву. Коаутор је два универзитетска уџбеника под називом: Декоративана дендрологија и Орнаментални таксони дрвенастих биљака. Била је ментор 1 дипломског и 7 мастер радова, као и члан Комисије 15 дипломских и 14 мастер радова. Члан је Удружења пејзажних архитеката Србије (УПАС), Удружења за пејзажну хортикултуру Србије (УПХС), Европског савета за арборикултуру (EAC – European Arboricultural Council) и Инжењерске коморе Србије (ИКС). Поседује две лиценце: Одговорног пројектанта (373) и Одговорног извођача радова (474).

## I – ОПШТИ УСЛОВИ ЗА ИЗБОР У ЗВАЊЕ РЕДОВНИ ПРОФЕСОР

### I.1 – ДИСЕРТАЦИЈЕ

**ДОКТОРСКА ДИСЕРТАЦИЈА:**

На основу поднете конкурсне документације, Комисија констатује да је кандидаткиња др Ђурђа Петров завршила докторске академске студије на студијском програму Пејзажна архитектура и хортикултура.

Кандидаткиња др Ђурђа Петров је 2. јуна 2014. године одбранила докторску дисертацију, под називом „Утицај фактора спољашње средине на цветање дрвенастих врста из пододељка Magnoliophyta у Београду“ на Универзитету у Београду – Шумарском факултету, чиме је стекла научни назив доктор наука - биотехничке науке за област Пејзажна архитектура и хортикултура.

Од фебруара 2011. године, запослена је на Универзитету у Београду – Шумарском факултету, где од фебруара 2022. године обавља послове ванредног професора за ужу научну област Пејзажна архитектура и хортикултура, на основним, мастер и докторским студијама.

## II – ОБАВЕЗНИ УСЛОВИ

### II.1 – ИСКУСТВО У ПЕДАГОШКОМ РАДУ СА СТУДЕНТИМА

Кандидаткиња је од 2006. до 2011. године била ангажована као студент демонстратор на Универзитету у Београду - Шумарском факултету, на Одсеку за пејзажну архитектуру и хортикултуру на предмету Декоративна дендрологија, где је обављала послове припрема вежби и колоквијума.

Била је запослена као истраживач-приправник у периоду од фебруар 2011. до јула. 2011. године, након чега је изабрана у звање асистента за ужу научну област Пејзажна архитектура и хортикултура (5. јул 2011.). Од школске 2011/12. реализовла је вежбе на предметима основних академских студија (Декоративна дендрологија) и мастер академских студија (Украсни култивари дрвенастих биљака) одсека за Пејзажну архитектуру и хортикултуру. Осим ангажовања у извођењу вежби, у наставном раду кандидаткиња је активно учествовала и у другим облицима наставе - консултацијама, колоквијумима и извођењу теренске наставе.

Од 2014. године учествује са позиције наставника (доцента) у реализацији предавања и практичне наставе на више предмета основних (Декоративна дендрологија, Увод у пејзажну архитектуру и Еколошки инжењеринг у пејзажној архитектури), мастер академских студија (Управљање зеленилом града и Украсни култивари дрвенастих биљака) студијских програма Пејзажна архитектура.

Од фебруара 2022. године учествује са позиције наставника (ванредног професора) у реализацији предавања и практичне наставе на више предмета основних (Увод у пејзажни инжењеринг, Декоративна дендрологија и Радна пракса), мастер академских студија (Управљање зеленилом града – студио и Украсни култивари дрвенастих биљака) и докторских академских студија (Биљни материјал за посебне намене, Биљни материјал у пејзажној архитектури и хортикултури и Вегетација предела) студијских програма Пејзажна архитектура односно ДАС Пејзажна архитектура и хортикултура.

У раду са студентима показује висок ниво објективности. Свој приступ предавањима и вежбама континуирано унапређује и модернизује са најновијим сазнањима из савремене домаће и стране стручне литературе. О квалитету њеног педагошког рада најбоље говоре високе просечне оцене које добија током студентског вредновања наставника. Према резултатима анкета, др Ђурђа Петров је остварила укупну просечну оцену 4.81 и добијала високе оцене (Табела 1 и Прилог 1) на предметима Катедре за пејзажни инжењеринг.

**Табела 1.** Извештај о студентском вредновању педагошког рада наставника и сарадника на Универзитету у Београду – Шумарском факултету

| Школска година | Декоративна дендрологија | Основе пејзажног инжењеринга | Избор у звање |
|---|---|---|---|
| 2021/22. | 4.89 | 4.88 | Након првог избора у звање ванредног професора |
| 2022/23. | 4.80 | 5.00 | |
| 2023/24. | 4.82 | 4.60 | |
| 2024/25. | 4.86 | 4.61 | |
| 2025/26. | 4.83 | / | |
| | **4.84** | **4.77** | **4.81** |

Поред реализације наставе, такође је учествовала у комисијама за оцену и одбрану 16 дипломских радова и 21 мастер рада, који су одбрањени на Универзитету у Београду - Шумарском факултету, Одсеку за пејзажну архитектуру и хортикултуру.

## II 2 - НАУЧНО-ИСТРАЖИВАЧКИ РАД

Кроз обим и структуру научноистраживачке активности др Ђурђе Петров се сагледава укупни научни и стручни допринос. Током академске каријере, самостално или у сарадњи са другим ауторима др Петров је остварила укупно **118** научноистраживачких резултата укључујући и докторску дисертацију, од чега **72** након избора у звање ванредног професора (списак радова је дат у Прилогу 2). Структура научноистраживачких резултата (Прилози 3, 4, 5 и 6) након избора у звање је следећа: укупно **7 (седам)** радова у врхунским међународним часописима (М21), **4 (четири)** рада у истакнутим међународним часописима (М22), **7 (седам)**

радова у међународним часописима (М23), **3 (три)** рада у водећим националним часописима од међународног значаја (М24), **2 (два)** предавања по позиву са међународног скупа штампана у изводу (М32), **30 (тридесет)** радова саопштених на међународним скуповима штампаних у целини (М33), **7 (седам)** саопштења са међународних скупова штампаних у изводу (М34), **2 (два)** рада у врхунском часопису националног значаја (М51), **2 (два)** рада у истакнутим националним часописима (М52), **2 (два)** саопштења са скупа националног значаја штампаних у целини (М63), **2 (два)** саопштења са скупа националног значаја штампаних у изводу (М64) и **4 (четири)** стручна рада. У погледу испуњености обавезног услова који се односи на објављена 2 рада из категорије М21, М22 или М23 (Прилог 3), од првог избора у звање ванредног професора из научне области за коју се бира, Комисија констатује да је овај услов у потпуности испуњен. Такође, Комисија констатује да је испуњен обавезни услов који се односи на саопштавање 5 научноистраживачких резултата на међународним или домаћим скуповима – категорије М31-М34 (Прилог 4) и М61-М64 (Прилог 6), од којих 1 мора да буде пленарно предавање или предавање по позиву на међународном или домаћем научном скупу, од избора у претходно звање из научне области за коју се бира.

Научно-истраживачки рад (Прилог 2) кандидата може се поделити у шест тематских целина које се баве проблематиком везаном за материју уже научне области Пејзажна архитектура и хортикултура: 1) утицаји климатских промена; 2) фенологија дрвенастих биљака 3) зелена инфраструктура и услуге екосистема, 4) дизајн биљкама и визуелна перцепција, 5) морфолошке карактеристике дрвенастих биљака и 6) биохемијске карактеристике плодова.

1) Првој групи припадају радови у којима се кандидаткиња бавила проучавањем утицаја климатских промена на дрвенасте таксоне. Истраживана је могућност примене аклиматизованих дрвенастих биљака, њихова прилагодљивост и отпорност на измењене метеоролошке услове. Разматрани су ефекти климатских фактора који утичу на осетљивост и адаптивност дрвенастих биљака, тачније утврђиване су емпиријске везе са температуром ваздуха, падавинама, светлошћу, влажношћу ваздуха и др. Анализирани су могући утицаји измењених климатских фактора на екологију и биологију, као и процеси и варијабилност дрвенастих биљака (19 библиографских јединица, бр: 1, 5, 7, 8 11, 13, 18, 26, 31, 32, 35, 37, 40, 46, 52, 55, 59, 62, 64).
2) Друга група обухвата радове у којима је кандидаткиња проучавала фенологију и различите појаве и фазе развоја дрвенастих биљака, као што су појава и размицање пупољака, листање, цветање, формирање, развој и сазревање плодова и др. Истраживања су обухватала испитивање фенофаза елемената урбане дендрофлоре, као и прилагодљивост дрвенастих таксона измењеним условима средине и њиховом утицају на раст и развиће. Временски редоследи, појаве и периодични догађаји који се јављају код дрвенастих таксона представљају важне биоиндикаторе приликом праћења климатских промена, па ови радови пружају велике користи за праксу пејзажне архитектуре, шумарства, пољопривреде и др. (10 библиографских јединица, бр: 6, 9, 15, 19, 42, 47, 51, 58, 63, 68).
3) Трећој групи припадају радови који су везани за проучавње зелене инфраструктуре и услуга екосистема. Анализирани су биљни елементи умрежених зелених површина који утичу на умањење негативних ефеката урбанизације и климатских промена. У радовима се обрађују функције зелених простора које су уско повезане са биодиверзитетом и стаништима, и представљају функционалну

целину. Утврђене су различите екосистемске услуге у виду вишеструких користи које позитивно делују на ментално и физичко здравље људи, смањење ефеката градског острва топлоте, филтрирање ваздуха, ублажавање атмосферских талога и др. (12 библиографских јединица, бр: 2, 3, 10, 14, 28, 29, 30, 33, 37, 65, 66, 67).
4) Четврта група се бави дизајном биљкама и визуелном перцепцијом у пејзажном обликовању. У овим радовима износе се резултати о функционалности зелених површина, као и о модерним приступима у постизању естетских и психолошких ефеката. Примењивани су биофилни механизми еколошког инжењеринга у пејзажној архитектури и приказани су резултати истраживања добијени на основу савремених трендова пројектовања, планирања и озелењавања урбаних средина, као и улога зелених простора у регулацији микроклиматских фактора (12 библиографских јединица, бр: 3, 21, 23, 24, 25, 27, 34, 38, 43, 44, 49, 50).
5) Пета група обухвата радове о варијабилности морфолошких карактеристика дрвенастих биљака. Сакупљани су и анализирани различити морфолошки параметри листова, цветова и плодова, на основу чега су испитиване виталност, кондиција, распрострањеност и популациона разноврсност интродукованих дрвенастих таксона, као и представника аутохтоне дендрофлоре. Оваква истраживања могу да буду основа за производњу садног материјала јер истичу плус стабла која поседују супериорне особине и вредан су дендрофонд, који може бити полазни материјал у оплемењивању (10 библиографских јединица, бр: 12, 16, 17, 22, 48, 53, 56, 57, 60, 61).
6) Шеста група обухвата истраживања усмерена на проучавање биохемијског профила плодова дрвенастих биљака. У овим радовима анализиран је утицај еколошких фактора на различите генотипове, као и ефекат различитих термина бербе на хемијски састав и квалитет плодова. На основу утврђених образаца варијабилности, дефинисани су оптимални термини бербе за максималну екстракцију биоактивних једињења, што омогућава њихову даљу примену у прехрамбеној индустрији и развоју фармацеутских производа. Добијени резултати су научна база за креирање адаптивних стратегија у воћарству и фитомедицини у контексту глобалних климатских промена (6 библиографских јединица, бр: 19, 20, 39, 41, 45, 54).

Укупна научна компетентност др Петров исказана кроз вредност коефицијента М према „Правилнику о поступку, начину вредновања и квантитативном исказивању научноистраживачких резултата истраживача" (Службени гласник РС, бр. 80/2024 и 70/2025) износи укупно **197.1 бодова** (Табела 2).

**Табела 2.** Број радова и вредност коефицијента компетентности

| **Врста научног резултата** | | **До првог избора у звање ванредног професора** | | **Након првог избора у звање ванредног професора** | | **Укупно** | |
|---|---|---|---|---|---|---|---|
| **Категорија (М)** | Вредност | Број радова | Укупно бодова | Број радова | Укупно бодова | Број радова | Укупно бодова |
| **М21** | 8 | - | - | 7 | 56 | 7 | 56 |
| **М22** | 5 | 1 | 5 | 4 | 20 | 5 | 25 |
| **М23** | 3 | 2 | 6 | 7 | 21 | 9 | 27 |
| **М24** | 3 | - | - | 3 | 9 | 3 | 9 |
| **М32** | 1.5 | - | - | 2 | 3 | 2 | 3 |
| **М33** | 1 | 14 | 14 | 30 | 30 | 44 | 44 |
| **М34** | 0.5 | 8 | 4 | 7 | 3.5 | 15 | 7.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **M45** | 1.5 | 2 | 3 | - | - | 2 | 3 |
| **M51** | 2 | 4 | 8 | 2 | 4 | 6 | 12 |
| **M52** | 1.5 | - | - | 2 | 3 | 2 | 3 |
| **M63** | 0.5 | - | - | 2 | 1 | 2 | 1 |
| **M64** | 0.2 | 1 | 0.2 | 2 | 0.4 | 3 | 0.6 |
| **M71** | 6 | 1 | 6 | - | - | 1 | 6 |
| | | **33** | **46.2** | **68** | **150.9** | **101** | **197.1** |

## II 3 – ЦИТИРАНОСТ

Према Правилнику о минималним условима за стицање звања наставника на Универзитету у Београду („Гласник Универзитета у Београду“ бр. 192/16, 195/16, 199/17, 203/18 и 223/21), групација техничко – технолошких наука, за избор у звање редовног професора потребна је цитираност од најмање 10 хетероцита. Комисија констатује да је услов у потпуности испуњен. На основу базе података Scopus, цитираност радова др Ђурђе Петров износи 140 хетероцитата, док вредност Хиршовог индекса (h-index) износи 4 (Прилог 7).

## II 4 - НАСТАВНА ЛИТЕРАТУРА

Комисија констатује да је др Ђурђа Петров коаутор **два уџбеника** (Прилог 8) који су намењени студентима Шумарског факултета:

1. Оцокољић, М. и **Петров, Ђ.** (2022): Декоративна дендрологија. Универзитет у Београду - Шумарски факултет. ISBN 978-86-7299-339-4 и
2. Оцокољић, М. и **Петров, Ђ.** (2026): Орнаментални таксони дрвенастих биљака. Универзитет у Београду - Шумарски факултет. Београд. ISBN 978-86-7299-401-8

Као и да је испуњен и овај обавезан услов за избор у звање редовног професора.

Уџбеници су основна литература за обавезни предмет Декоративна дендрологија који се слуша на основним академским студијама и изборни предмет Украсни култивари дрвенастих биљака на мастер академским студијама и изборне предмете на докторским академским студијама Биљни материјал за посебне намене и Биљни материјал у пејзажној архитектури и хортикултури, студијских програма Пејзажна архитектура односно Пејзажна архитектура и хортикултура.

## II 5 - РЕЗУЛТАТИ У РАЗВОЈУ НАУЧНОНАСТАВНОГ ПОДМЛАТКА И УЧЕШЋЕ У КОМИСИЈИ ЗА ОДБРАНУ ЗАВРШНИХ РАДОВА НА АКАДЕМСКИМ, МАСТЕР ИЛИ ДОКТОРСКИМ СТУДИЈАМА

Поред реализације наставе, такође је учествовала у комисијама за оцену и одбрану дипломских и мастер радова, који су одбрањени на Универзитету у Београду - Шумарском факултету, Одсеку за пејзажну архитектуру и хортикултуру. Била је ментор 1 дипломског и 7 мастер радова, као и члан Комисије 15 дипломских и 14 мастер радова.

Ментор одбрањебних мастер радова

1. Јована Јаковљевић (2022): Функције и значај биљног материјала у предшколским установама. Мастер рад, Шумарски факултет, Београд.
2. Дејан Дерета (2024): Стање и перспективе дрвореда у Херцеговачкој улици у Београду. Мастер рад. Универзитет у Београду - Шумарски факултет
3. Јована Степановић (2024): Мобилни дрвореди у Београду - стање и перспективе. Мастер рад, Шумарски факултет, Београд.
4. Кристина Бељаковић (2024): Fraxinus excelsior L. у дрворедима у Краљеву. Мастер рад, Шумарски факултет, Београд.
5. Јелена Мицић (2024): Визуелно-естетски аспект зеленила ОШ Свети Сава у Шапцу. Мастер рад, Шумарски факултет, Београд.
6. Ана Старовлах (2025): Дрвенасте биљке у дизајну зелених трака дуж бициклистичких стаза у Краљеву. Мастер рад, Шумарски факултет, Београд.
7. Смиљана Петровић (2026): Дрвенасте биљке у пејзажноархитектонском уређењу Медицинске школе на Звездари. Мастер рад, Шумарски факултет, Београд.

Члан комисије одбрањених мастер радова

1. Милица Грујичић (2015): Дендрофлора Градског парка у Требињу. Мастер рад, Шумарски факултет, Београд.
2. Милица Борић (2016): Избор дрвенастих биљака за обликовање у плитким посудама. Мастер рад, Шумарски факултет, Београд.
3. Стана Брођовић (2016): Биоеколошка анализа зелене површине видиковца на Бежанијској коси. Мастер рад, Шумарски факултет, Београд.
4. Тијана Павловић (2016): Syringa vulgaris L. у долини Ибра од Рашке до Краљева. Мастер рад, Шумарски факултет, Београд.
5. Душманић Весна (2016): Platanus x acerifolia (Aiton) Willd. У уличним просторима у Смедереву. Мастер рад, Шумарски факултет, Београд.
6. Милина Перић (2016): Дрвенасте биљке дечијих вртића у Лазаревцу. Мастер рад, Шумарски факултет, Београд.
7. Јелена Митровић (2016): Утицај здравственог стања и виталности на декоративни значај заштићених стабала у Београду. Мастер рад, Шумарски факултет, Београд.
8. Милијана Зец (2021): Пројекат вертикалног озелењавања стамбено-пословног објекта у Улици Кнеза Милоша, Београд. Мастер рад, Шумарски факултет, Београд.
9. Јована Павловић (2023): Параметарско моделовање врсте Picea omorika (Pančić) Purkyne у експерименталном дизајну. Мастер рад, Шумарски факултет, Београд.
10. Маја Кизић (2023): Пројекат реконструкције излетишта језера Очага код Лазаревца. Мастер рад, Шумарски факултет, Београд.
11. Стефана Андрејић (2023): Планинарско-туристичке стазе споменика природе Слапови Сопотнице. Мастер рад, Шумарски факултет, Београд.
12. Ирена Чонић (2023): Влажна станишта Аде Хује у Београду и могућности њихове еколошке ревитализације. Мастер рад, Шумарски факултет, Београд.
13. Ивана Петковић (2026): Дрвенасте биљке у визуелној перцепцији променаде у Београду на води. Мастер рад, Шумарски факултет, Београд.
14. Андреја Стаменић (2026): Примена QR кодова дрвенастих биљака у Арборетуму Шумарског факултета. Мастер рад, Шумарски факултет, Београд.

Ментор одбрањених завршних радова

1. Мирјана Граовчевић (2022): Дендрофлора Земунског кеја. Дипломски рад, Шумарски факултет, Београд.

Члан комисије одбрањених завршних радова

1. Душан Голубић (2011): Анализа и стање дендрофлоре парка Мањеж у условима повећане аерозагађености. Дипломски рад, Шумарски факултет, Београд.
2. Милица Ђукић (2011): Цветови и цвасти дрвенастих биљака у икебани. Дипломски рад, Шумарски факултет, Београд.
3. Јелена Грмуша (2011): Дрвенасте биљке које нису адекватне за примену у школским двориштима. Дипломски рад, Шумарски факултет, Београд.
4. Марија Радосављевић (2011): Израда гео информационог система дендрофлоре на примеру ботаничке баште у Јагодини. Дипломски рад, Шумарски факултет, Београд.
5. Ана Орашанин (2012): Адаптивност врсте Juglans regia L. у Лозници. Дипломски рад, Шумарски факултет, Београд.
6. Катарина Николић (2013): Стање и перспективе вертикалног озелењавања у Београду. Дипломски рад, Шумарски факултет, Београд.
7. Марко Николајевић (2013): Дрвенасте биљке са афричког континента. Дипломски рад, Шумарски факултет, Београд.
8. Данијела Богдановић (2014): Идејно решење реконструкције градског парка у Ћуприји. Дипломски рад, Шумарски факултет, Београд.
9. Милош Станојевић (2014): Хабитуси дрвенастих биљака и њихова примена у пејзажној архитектури. Дипломски рад, Шумарски факултет, Београд.
10. Тања Бановић (2015): Стање дендрофлоре у парку испред Народне скупштине Србије. Дипломски рад, Шумарски факултет, Београд.
11. Милица Грујичић (2015): Дендрофлора градског парка у Требињу. Дипломски рад, Шумарски факултет, Београд.
12. Марија Бурчул (2016): Анализа здравственог стања стабала платана у дрвореду у улици Булевар краља Александра са предлогом реконструкције. Дипломски рад, Шумарски факултет, Београд.
13. Ивана Порчић (2016): Дендрофлора живих ограда у Земуну. Дипломски рад, Шумарски факултет, Београд.
14. Бранислава Драгодан (2016): Биоеколошка основа градског парка у Сремској Митровици. Дипломски рад, Шумарски факултет, Београд.
15. Селена Пантовић (2016): Управљање урбаним шумама Беча. Дипломски рад, Шумарски факултет, Београд.

## II 6 - УСЛОВ ЗА МЕНТОРСТВО У ВОЂЕЊУ ДОКТОРСКЕ ДИСЕРТАЦИЈЕ

Према чл. 6. Правилника о минималним условима за стицање звања наставника на Универзитету у Београду, наставник који се бира у звање редовног професора мора испуњавати и услове да буде ментор за вођење докторске дисертације, у складу са Правилником о стандардима и поступку за акредитацију високошколских установа и студијских програма (Стандард 9, за акредитацију студијских програма докторских студија).

Комисија констатује да др Ђурђа Петров испуњава овај услов, јер је коаутор 20 радова из категорија М21, М22 и М23 у претходних 10 година (2023-2026. год.).

## III – ИЗБОРНИ УСЛОВИ ЗА ИЗБОР У НАСТАВНИЧКА ЗВАЊА

## III.1 – СТРУЧНО-ПРОФЕСИОНАЛНИ ДОПРИНОС

Руковођење и учешће на пројектима

Др Ђурђа Петров је учесник на пројектима које финансира Министарство за науку, технологију и развој Републике Србије.

У периоду од 2009. до 2011. године је учествовала у научном пројекту Министарства за науку и технолошки развој, под називом: TR - 20029 Истраживања морфолошких, анатомских и техничких својстава *Paulownia* sp. у циљу интродукције и коришћења (руководилац пројекта: проф. др Драгица Вилотић).

У периоду од 2011-2018, учествовала је у научном пројекту Министарства за науку и технолошки развој, под називом: ЕВБ 43007 Истраживање климатских промена и њиховог утицаја на животну средину – праћење утицаја, адаптација и ублажавања (руководилац пројекта: проф. др Ратко Кадовић).

Током 2018. и 2019. године учествовала је у пројекту који је финансиран од стране Министарства просвете, науке и технолошког развоја у оквиру програмске активности „Развој високог образовања" под насловом „Медитерански флорни елементи на зеленим површинама Београда у условима климатских промена" (руководилац пројекта: др Јована Петровић, доцент).

Била је члан пројектног тима у оквиру Изазова за иновативна решења пројекта „Локални развој отпоран на климатске промене" бр: DVEAPB37 „Зелени зидови у функцији смањења ГХГ" за период 2017-2021. које финансира Министарство заштите животне средине, у сарадњи са развојним програмом Уједињених Нација (менаџер пројекта проф. др Драгица Обратов – Петковић).

У периоду од 2020. до данас учествује у Институционалном пројекату бр. 200169: Реализација и финансирање научноистраживачког рада НИО - Шумарског факултета (Министарства просвете, науке и технолошког развоја).

Учествовала је у Пројекту реконструкције и ревитализације Арборетума Шумарског факултета: 2022. године Пројекат санације и рекултивације Арборетума Шумарског факултета (одлука о 01-4140/4 од 19.04.2022.) и 2025. године Биоеколошка основа и анализа постојећег зеленила са катастром стабала у проширеној зони ЗПП Арборетума Шумарског факултета (PR-43/1, 14.10.2025., одлука о 01-7570/2 од 27.08.2025.) (Прилог 9).

Била је члан радног тима пројекта: Пејзажноархитектонска студија простора комплекса Астрономске опсерваторије у Београду (2024), руководилац Дејан Скочајић, Универзитет у Београду – Шумарски факултет (DK-16/24/1, 30.12.2024.) (Прилог 9).

Као члан коауторског тима 2025. године учествовала је у изради Стратегије зелене инфраструктуре града Београда израђене на предлог Секретаријата за заштиту животне средине (у даљем тексту: Секретаријат), у складу са Законом о планском систему Републике Србије („Службени гласник РС", бр. 30/2018), Законом о планирању и изградњи („Службени гласник РС", број 72/2009, 81/2009 - испр., 64/2010 - одлука УС, 24/2011, 121/2012, 42/2013 - одлука УС, 50/2013 - одлука УС, 98/2013 - одлука УС, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - др. закон, 9/2020, 52/2021 и 62/2023), Законом о заштити животне средине („Службени гласник РС", број 135/2004, 36/2009, 36/2009 - др. закон, 72/2009 - др. закон, 43/2011 – одлука УС, 14/2016, 76/2018, 95/2018 - др. закон, 95/2018 - др. закон и 94/2024 - др. закон) и другим релевантним секторским законима (Прилог 9).

Учествовала је у рецензијама научноистраживачких радова у међународним часописима и водећим националним часописима међународног значаја (Прилог 10).

Кандидаткиња поседује две стручне лиценце (Прилог 11) Одговорног пројектанта (373) и Одговорног извођача радова (474).

## III.2 – ДОПРИНОС АКАДЕМСКОЈ И ШИРОЈ ЗАЈЕДНИЦИ

Од почетка свог рада на Универзитету у Београду – Шумарском факултету др Ђурђа Петров је била члан више организационих тела и комисија формираних на факултету. Неки од значајнијих су (Прилог 13): руководилац основних академских студија Одсека ПАХ, члан Комисије за родну равноправност, заменик шефа Катедре за пејзажни инжењеринг, секретар Одсека за пејзажну архитектуру и хортикултуру, члан Комисије за обезбеђење и унапређење квалитета Факултета, члан Комисије за рангирање кандидата за упис студената на мастер академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за рангирање кандидата - Централна комисија за упис студената на основне академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за евалуацију педагошког рада наставника и сарадника, члан Наставно-научног већа Факултета, представник Одсека - координатор за уређење Арборетума, део тима за акредитацију Шумарског факултета (процес акредитације студијског програма Пејзажна архитектура) 2014. и 2026. године и др.

Кандидаткиња је учествовала у коауторском тиму који је добио Велику награду (Grand Prix) XI Међународног Салона пејзажне архитектуре за документ јавне политике Стратегија зелене инфраструктуре града Београда - Изведена дела, награде и изложбе публикованом у Катлогу XI Међународног салона пејзажне архитектуре: Шта би било да нас нема (Српска академија наука и уметности, Галерија науке и технике) ISBN: 978-86-6184-080-7 (Прилог 14).

Исти коауторски тим је добио Прву награду на XXXIV Међународном Салону урбанизма за документ јавне политике Стратегија зелене инфраструктуре града Београда (категорија: истраживања и студије из области заштите природе, заштите предела, заштите животне средине и пејзажне архитектуре) на 34. Међународни салон урбанизма, који је публикован у Каталогу 34. међународног Салона урбанизма, Зрењанин, 7-11. новембар 2025. / 34rd International Urban Planners' Exhibition, Zrenjanin, 7-11 November (Прилог 14).

## III 3 – САРАДЊА СА ДРУГИМ ВИСОКОШКОЛСКИМ, НАУЧНОИСТРАЖИВАЧКИМ УСТАНОВАМА, ОДНОСНО УСТАНОВАМА КУЛТУРЕ ИЛИ УМЕТНОСТИ У ЗЕМЉИ И ИНОСТРАНСТВУ

Др Ђурђа Петров је члан професионалног Удружења пејзажних архитеката Србије, Удружења за пејзажну хортикултуру Србије (УПХС), Европског савета за арборикултуру (EAC – European Arboricultural Council) и Инжењерске коморе Србије (ИКС).

У јулу 2013. године у Чешкој на Мендел Универзитету у Брну учествовала је у CEEPUS Summer School: Designed landscape – Protection – Planning – Development.

У јануару и мају 2015. године у сарадњи са Америчким универзитетом у Бејруту у Либану, Department of Landscape Design and Ecosystem Management учествовала је у The workshop „e-scape Transitional settlement".

## IV – ЗАКЉУЧАК И ПРЕДЛОГ КОМИСИЈЕ

Увидом у достављени конкурсни материјал, Комисија је констатовала да се на расписани конкурс за избор једног наставника у звање редовног професора за ужу

научну област Пејзажна архитектура и хортикултура, у предвиђеном року пријавио 1 (један) кандидат:

- др **Ђурђа Л. Петров**

На основу конкурсне документације коју је кандидаткиња поднела, а у складу с одредницама Закона о високом образовању, Статута Универзитета у Београду, Правилника о минималним условима за стицање звања наставника на Универзитету у Београду, Статута Универзитета у Београду – Шумарског факултета, Правилника о начину и поступку стицања звања и заснивању радног односа наставника и сарадника Шумарског факултета и Правилника о организацији и систематизацији послова на Универзитету у Београду – Шумарском факултету (заводни број ШФ 01-1522/1 од 20. априла 2018. године), Комисија је закључила да:

- **др Ђурђа Петров испуњава све услове расписаног конкурса**.

Комисија је закључила да кандидаткиња др Ђурђа Петров испуњава услове правилника о стицању звања наставника у групацији техничко-технолошких наука као и других норматива:

- **општи услов:**
  - научни назив доктора наука из научне области за коју је расписан Конкурс, односно, др Петров је доктор наука - биотехничке науке из области Пејзажна архитектура и хортикултура;
- **обавезни услови:**
  - искуство у педагошком раду са студентима: поседује 20 година педагошког искуства у раду са студентима на студијском програму Пејзажна архитектура и хортикултура;
  - позитивна оцена педагошког рада у студентским анкетама: висока просечна оцена вредновања др Петров током целокупног претходног изборног периода износи 4.81;
  - објављена два рада из категорије М21, М22 или М23 из научне области за коју се бира: од последњег избора у звање др Петров је објавила 18 радова (7 - М21, 4 - М22 и 7 - М23) из предметних категорија;
  - саопштено 5 радова на међународним или домаћим скуповима (категорије М31-М34 и М61-М64) од којих један мора да буде пленарно предавање или предавање по позиву на међународном или домаћем научном скупу од избора у претходно звање из научне области за коју се бира: од последњег избора у звање др Петров је објавила 43 рада (2 - М32, 30 - М33, 7 - М34 и 2 - М63, 2 - М64) из предметних категорија, од чега су 2 предавања по позиву са међународног скупа штампани у изводу;
  - цитираност од 10 хетеро цитата: на основу базе података Scopus цитираност кандидаткиње је 140, а h-index 4;
  - књига из релевантне области, одобрен уџбеник за ужу област за коју се бира, поглавље у одобреном уџбенику за ужу област за коју се бира или превод иностраног уџбеника одобреног за ужу област за коју се бира, објављени у периоду од избора у наставничко звање: кандидаткиња је коаутор два одобрена уџбеника за ужу

област Декоративна дендрологија, ISBN 978-86-7299-339-4 и Орнаментални таксони украсних биљака, ISBN 978-86-7299-401-8;
- резултати у развоју научнонаставног подмлатка: објавила је укупно 20 радова на СЦИ листи у претходних 10 година (2017-2026.), чиме је испунила услов за менторство и вођење докторске дисертације;
- учешће у комисији за одбрану три завршна рада на академским специјалистичким, мастер или докторским студијама: кандидаткиња је била ментор на 7 мастер радова и члан комисије 14 мастер радова.

- **изборни услови (минимално 2 од 3):**
Кандидаткиња др Ђурђа Петров испуњава четири одреднице из изборног услова који се односи на стручно-професионални допринос, три одреднице из изборног услова који се односи на допринос академској и широј заједници и три одреднице из изборног услова који се односи на сарадњу са другим високошколским, научноистраживачким установама, односно установама културе или уметности у земљи и иностранству.

  - Кандидаткиња др Ђурђа Петров испуњава четири одреднице из изборног услова који се односи на стручно-професионални допринос. Била је ментор и учествовала у већем броју комисија за оцену и одбрану мастер радова реализованих у оквиру мастер академских студија Пејзажна архитектура на Универзитету у Београду – Шумарском факултету (четрнаест чланстава у комисијама), као и дипломских радова (петнаест чланстава у комисијама). Такође је учествовала у четири пројекта науке Министарства просвете, науке и технолошког развоја. Када су у питању иновације, била је део пројектног тима у оквиру Изазова за иновативна решења пројекта „Локални развој отпоран на климатске промене“ бр: DVEAPB37 „Зелени зидови у функцији смањења GHG“ за период 2017-2021. које финансира Министарство заштите животне средине, у сарадњи са развојним програмом Уједињених Нација. Учествовала је у Пројекту реконструкције и ревитализације Арборетума Шумарског факултета у два пројекта 2022. и 2025. године. Као члан коауторског тима 2025. године учествовала је у изради Стратегије зелене инфраструктуре града Београда израђене на предлог Секретаријата за заштиту животне средине. Поседује две лиценце: Одговорног пројектанта (373R41119) и Одговорног извођача радова (474L38018).

- Кандидаткиња др Ђурђа Петров испуњава три одреднице из изборног услова који се односи на допринос академској и широј заједници. Била је члан више организационих тела и комисија формираних на Универзитету у Београду – Шумарском факултету: заменик шефа Катедре за пејзажни инжењеринг, руководилац основних академских студија Одсека ПАХ, секретар Одсека за пејзажну архитектуру и хортикултуру, члан Комисије

за родну равноправност, члан Комисије за обезбеђење и унапређење квалитета Факултета, члан Комисије за рангирање кандидата за упис студената на мастер академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за рангирање кандидата - Централна комисија за упис студената на основне академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за евалуацију педагошког рада наставника и сарадника, члан Наставно-научног већа Факултета, представник Одсека - координатор за уређење Арборетума. Кандидаткиња је као докторанд у јулу 2013. године учествовала у наставним активностима која се тичу перманентног образовања у оквиру CEEPUS летње школе: Designed landscape – Protection – Planning – Development, у Чешкој на Мендел Универзитету у Брну. Др Ђурђа Петров поседује признања и награде. У Шпанији је 2011. и 2012. године на II и III Међународном фестивалу вртова у Аљарису, са колегама освојила награде за пројекте „Dodola garden" и „Garden at the Edge of the World." На изложбама у Галерији науке и технике САНУ у Београду имала је изложена два рада, који су такође објављени у каталогу Салона пејзажне архитектуре: Стојичић, Ђ, Чавловић, Д, Милошевић, Б. (2011): „ Dodola Garden" Fashion in the Garden. IV Салон пејзажне архитектуре, Каталог COBISS.SR-ID 198692108. Удружење пејзажних архитеката Србије и Стојичић, Ђ. & Станојевић, М. (2013): „Garden at the Edge of the World". V Салон пејзажне архитектуре, Каталог COBISS.SR-ID 198692108. Удружење пејзажних архитеката Србије. Такође је била добитник Плакете VI Салона пејзажне архитектуре за рад: Dodola Garden, Fashion in the Garden, 2011, Београд. Када су у питању Изведена дела, награде и изложбе, коауторски тим, са којим је учествовала и кандидаткиња, је добио Велику награду (Grand Prix) XI Међународног Салона пејзажне архитектуре за документ јавне политике Стратегија зелене инфраструктуре града Београда, публикованог у Каталогу XI Међународног салона пејзажне архитектуре: Шта би било да нас нема (Српска академија наука и уметности, Галерија науке и технике) ISBN: 978-86-6184-080-7. Такође коауторски тим са којим је учествовала је добио Прву награду на XXXIV Међународном Салону урбанизма за документ јавне политике Стратегија зелене инфраструктуре града Београда (категорија: истраживања и студије из области заштите природе, заштите предела, заштите животне средине и пејзажне архитектуре), публикован у Каталогу 34. међународног Салона урбанизма, Зрењанин, 7-11. новембар 2025. / 34rd International Urban Planners´ Exhibition, Zrenjanin, 7-11 November.

- Кандидаткиња др Ђурђа Петров испуњава три одреднице из изборног услова који се односи на сарадњу са другим високошколским, научноистраживачким установама, односно установама културе или уметности у земљи и иностранству. Године 2015. на Америчком универзитету у Бејруту у Либану на Одсеку за пејзажни дизајн и менаџмент екосистема, учествовала је у радионици „e-scape Transitional settlement", чија је тематика била

решавање уређења, организације и дизајна простора избегличких кампова. Др Ђурђа Петров је члан четири професионална удружења: члан је Удружења пејзажних архитеката Србије, Удружење за пејзажну хортикултуру Србије (УПХС), Европског савета за арборикултуру (EAC – European Arboricultural Council) и Инжењерске коморе Србије (ИКС).

На основу обавезујућих норматива који се односе на избор у звање редовног професора као и изложених аргумената и чињеница о **др Ђурђи Петров**, Комисија констатује да кандидаткиња поседује богато и дугогодишње педагошко искуство у области образовања студената у оквирима студијских програма Пејзажна архитектура и Пејзажна архитектура и хортикултура, као и да је остварила значајне научноистраживачке резултате у ужој научној области Пејзажна архитектура и хортикултура, те предлаже Изборном већу Универзитета у Београду – Шумарског факултета, да **др Ђурђу Петров изабере у звање редовног професор за ужу научну област Пејзажна архитектура и хортикултура** на Универзитету у Београду – Шумарском факултету.

У Београду, 19.10.2026. године

Чланови комисије

Др **Мирјана Оцокољић,** редовни професор
Универзитета у Београду - Шумарског факултета

Др **Ненад Ставретовић,** редовни професор
Универзитета у Београду - Шумарског факултета

Др **Јелена Чукановић,** редовни професор
Универзитета у Новом Саду - Пољопривредног факултета

ПРИЛОЗИ

-уз Извештај Комисије за избор редовног професора за ужу научну област Пејзажна архитектура и хортикултура.

Напомена: прилози су дати у сажетом облику због саопштења Сената (обавештење Пољопривредног факултета Универзитета у Београду од 13.12.2019) да сва документација која се шаље ка Ректорату и стручним већима, укључујући материјал за избор кандидата у звање, не сме по канадидату бити обимнија од 4.4MB, због ограничења меморије пријема материјала од стране РЦУБ-а. Кандидат је у документацији предатој у оквиру пријаве на конкурс дао пуне и видљиве материјале који доказују веродостојност информација наведених у биографији и сажетку.

**Прилог 1.** Оцена педагошког рада у студентским анкетама.

**Прилог 2.** Списак објављених научних и стручних радова.

**Прилог 3.** Радови са SCI листе из категорије M20 и M24 након избора у звање ванредног професора.

**Прилог 4.** Радови саопштени на међународним или домаћим скуповима и предавања по позиву након избора у звање ванредног професора (Предавања по позиву са доказима, M31 и M32; M33 и M34).

**Прилог 5.** Радови из категорије M50 након избора у звање ванредног професора (M51 M52).

**Прилог 6.** Радови из категорије M60 након избора у звање ванредног професора (M63 и M64)

**Прилог 7.** Цитираност радова (без аутоцитата) према SCOPUS-у, на дан 7.10.2026.

године.

**Прилог 8**. Одобрен уџбеник за ужу научну област за коју се бира.

**Прилог 9.** Руководилац или сарадник у реализацији пројеката.

**Прилог 10.** Рецензије научних публикација у часописима после избора у звање ванредни професор.

**Прилог 11.** Стручна усавршавања.

**Прилог 12.** Председник или члан организационог одбора или учесник на стручним или научним скуповима националног или међународног нивоа.

**Прилог 13.** Председник или члан органа управљања, стручног органа, помоћних стручних органа или комисија на факултету или универзитету у земљи или иностранству.

**Прилог 14.** Домаће или међународне награде и признања у развоју образовања или науке.

**Прилог 1.** Оцена педагошког рада у студентским анкетама.

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Број: 03-8279/1
Датум: 09.09.2026

**За др Ђурђу Петров**

Потврђујем да је др Ђурђа Петров остварила следеће оцене у вредновању педагошког рада:

| Предмет | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 |
|---|---|---|---|---|---|
| | | | | | |
| Декоративна дендрологија | 4,89 | 4,80 | 4,82 | 4,86 | 4,83 |
| Основе пејзажног инжењеринга* | 4,88 | 5,00 | 4,60 | 4,61 | / |
| | | | | | |

* - изборни предмет

Референт за наставу и осигурање квалитета
дипл.инж. Милијана Весић

**Прилог 2.** Списак објављених научних и стручних радова.

## I – РАДОВИ ОБЈАВЉЕНИ ПРЕ ИЗБОРА У ЗВАЊЕ ВАНРЕДНОГ ПРОФЕСОРА (ДО 8.2.2022. ГОДИНЕ)

### Радови у међународним часописима (M22=5)

1. Ruml, M, Gregorić, E, Vujadinović, M, Radovanović, S, Matović, G, Vuković, A, Počuča, V, **Stojičić, Dj.** (2017): Observed changes of temperature extremes in Serbia over the period 1961−2010, Atmospheric Research 183: p. 26–41, ISSN: 0169-8095 http://dx.doi.org/10.1016/j.atmosres.2016.08.013, Elsevier

### Радови у међународним часописима (M23=3)

2. Ocokoljić, M, Medarević, M, Nikić, Z, Galečić, N, **Stojičić, Đ.** (2010): Variability of features at half sib posterity as a base in plant breeding of the species Koelereuteria paniculata Laxm., Archives of biological sciences ISSN 0354-4664, Vol. 62(3), pg. 693-703. (http://www.doiserbia.nb.rs/img/doi/0354-4664/2010/0354-46641003693O.pdf)
3. Stojanović, N, Veselinović, M, **Petrov, Đ,** Petrović, J, Tešić, T, Lisica, A. (2019): The Impact Of Plant Cover And Dendrological Structure Of Roadside Green Spaces On Microclimate In The Urban Environment, Fresenius Environmental Bulletin, Volume 28, No 10/2019, p. 7609-7620, ISSN: 1018-4619

### Радови саопштени на међународним скуповима штампани у целини (M33=1)

4. **Стојичић, Ђ,** Чавловић, Д, Оцокољић, М. (2009): Еко-физиолошке карактеристике дендрофлоре Земунског парка. Научно-стручни скуп Еколошка истина, Зборник радова, ISBN 978-86-80987-69-9, COBISS. SR-ID 167497740, Издавач: Универзитет у Београду - Технички факултет у Бору, Србија.
5. **Стојичић, Ђ,** Чавловић, Д, Оцокољић, М. (2009): Стање и перспективе реконструкције травњака на зеленој површини на Топличином венцу. Научно-стручни скуп Еколошка истина, Зборник радова, ISBN 978-86-80987-69-9, COBISS. SR-ID 167497740, Издавач: Универзитет у Београду - Технички факултет у Бору, Србија.
6. **Stojičić, Đ,** Ocokoljić, M, Obratov-Petković, D. (2011): Impact of climate parameters on introduced woody species in Belgrade, XIX International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'11, Proceedings, ISBN 978-86-80987-84-2, COBISS. SR-ID 183947276, University of Belgrade – Technical Faculty in Bor, Serbia.
7. **Stojičić, Đ,** Ocokoljić, M, Milošević, B, Čavlović, D, Skočajić, D. (2011): Chimonanthus praecox (L.) Link. in changed conditions of temperate continental climate in Serbian flora, XIX International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'11, Proceedings, ISBN 978-86-80987-84-2, COBISS. SR-ID 183947276, University of Belgrade – Technical Faculty in Bor, Serbia.
8. **Stojicic, Dj,** Ocokoljic, M, Obratov-Petkovic, D, Stojanovic, N. (2012): Influence of Changed Climate Conditions on Adaptability and Vitality of Ficus carica L. Species on Green Spaces in Belgrade, XX International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'12, Proceedings, ISBN 978-86-80987-98-9, COBISS. SR-ID 191154444, University of Belgrade – Technical Faculty in Bor, Serbia.
9. **Stojicic, Dj,** Ocokoljic, M, Obratov-Petkovic, D, Skocajic, D. (2012): Effect of Age and Site on the Yield and Viability of Empress Tree Seeds, XX International Scientific and Professional

Meeting ECOLOGICAL TRUTH, Eco-Ist'12, Proceedings, ISBN 978-86-80987-98-9, COBISS. SR-ID 191154444, University of Belgrade – Technical Faculty in Bor, Serbia.

10. Stojanovic, N, Mesicek, M, Ocokoljic, M, **Stojicic, Dj,** Matic, S. (2012): Plan and Program Development of Managing Urban Green Spaces, XX International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'12, Proceedings, ISBN 978-86-80987-98-9, COBISS. SR-ID 191154444, University of Belgrade – Technical Faculty in Bor, Serbia.
11. **Stojicic, Dj,** Ocokoljic, M, Obratov-Petkovic, D. (2013): Influence of changed climate conditions on the adaptability of 'Pleniflora' type pomegranate in Belgrade. XXI International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'13, Proceedings, ISBN 978-86-80987-98-9, COBISS.SR-ID 198699020CIP, University of Belgrade – Technical Faculty in Bor, Serbia.
12. **Stojicic, Dj,** Ocokoljic, M, Obratov-Petkovic, D. (2013): Rosa banksiae Ait. – New species in Belgrade dendroflora. XXI International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'13, Proceedings, ISBN 978-86-80987-98-9, COBISS.SR-ID 198699020CIP, University of Belgrade – Technical Faculty in Bor, Serbia.
13. Vukovic, A, Vujadinovic, M, Djurdjevic, V, **Stojicic, Dj,** Djordjevic, M, Cvetkovic, B, Krzic, A, Ruml, M, Dacic, M, Jaksic, D. (2014): Regional Climate Change and Agriculture, With Applications in Serbia. Book of Abstracts. Milutin Milankovitch 135 Anniversary UNESCO Symposium, 3-5. September, Belgrade, Serbia: 93. ISBN: 978-86-82565-42-0. Jaroslav Černi Institute for the Development of Water Resources and Serbian Academy of Sciences and Arts.
14. Stanojevic, M, **Stojicic, Dj,** Ocokoljic, M. (2015): Overview of the reconstruction of square of Jovan Saric in Kraljevo city. XXIII International Scientific and Professional Meeting ECOLOGICAL TRUTH, Eco-Ist'15, Proceedings, ISBN 978-86-6305-032-7, COBISS.SR-ID 215721710CIP, University of Belgrade – Technical Faculty in Bor, Serbia.
15. **Stojicic, Dj.** & Tutundzic A. (2016): Planting design in Remediation of environmentally disrupted landscapes of Syrian informal settlements in Lebanon. Tasting the landscape. 53rd IFLA world congress. 20-22 April 2016, Torino, Italy. ISBN 978-88-7970-781-7
16. Stavretović, N, **Petrov, Dj,** Ocokoljić, M, Petrović, J. (2019): Lagerstroemia indica L. in climate change conditions in Belgrade. 27th International Conference Ecological Truth And Environmental Research – EcoTER'19 (18-21.06.2019.), Proceedings pp. 178-182, ISBN 978-86-6305-097-6, COBISS.SR-ID 277159692, University of Belgrade – Technical Faculty in Bor, Serbia.
17. Stavretović, N, Petrović, J, Ocokoljić, M, **Petrov, Dj.** (2019): Mediterranean herbaceous plants in climate change conditions in Belgrade green areas. 27th International Conference Ecological Truth And Environmental Research – EcoTER'19 (18-21.06.2019.), Proceedings pp. 178-182, ISBN 978-86-6305-097-6, COBISS.SR-ID 277159692, University of Belgrade – Technical Faculty in Bor, Serbia.

**Рад саопштен на међународном скупу штампан у изводу (M34=0,5)**

18. **Stojičić, Đ,** Ocokoljić, M. (2009): Effect of high temperatures on Angiosperm flowering in Belgrade. 5th Balkan Botanical Congress, Book of Abstracts, ISBN 978-86-7078-056-9, COBISS. SR-ID 168835084, Publisher: Faculty of Biology, University of Belgrade, Studentski trg 3, 11000 Belgrade, Serbia.
19. **Stojičić, Đ,** Ocokoljić, M, Obratov-Petković, D. (2010): Global change influence on decorative woody species of Mediterranean floral elements. XIII OPTIMA Meeting, Book of Abstracts, Proceedings. Antalya, Turkey.
20. **Stojičić, Đ,** Ocokoljić, M, Obratov-Petković, D, and Skočajić, D. (2010): Анализа клијавости врсте Paulownia tomentosa (Thunb.) Steud у циљу оплемењивања врсте. стр. 119-120. 10th Symposium on the Flora of Southeastern Serbia and Neighbouring regions, Book of Abstracts.

Vlasina, Serbia.

21. **Stojičić, Đ,** Ocokoljić, M, Obratov-Petković, D. (2010): The impact of global changes on the flowering phenophase of the autochtonous dendroflora in urban cenoses of Belgrade, First Serbian Forestry Congress, Congress Abstract, Belgrade, Serbia.
22. Ocokoljić, M, Vilotić, D, Šijačić-Nikolić, M, **Stojičić, Đ,** Milenković, M. (2012): Prospects of Paulownia plantation establishment in the Danube Basin in Serbia. International Conference on Land Conservation – LANDCON 1209, Sustainable Land Management and Climate Changes, Conference Abstracts. ISBN 978-86-7299-205-2, COBISS.SR-ID 193311500. University of Belgrade, Faculty of Forestry, Belgrade, Serbia.
23. Vukovic, A, Vujadinovic, M, Djurdjevic, V, Cvetkovic, B, Djordjevic, M, Ruml, M, Rankovic-Vasic, Z, Przic, Z, **Stojicic, Dj,** Krzic, A, Rajkovic, B. (2015): Latest research related to climate change analysis with applications in impact studies over the territory of Serbia, EGU General Assembly, Geophysical Research Abstracts, Vol. 17, EGU2015-13823, 12-17 April 2015, Vienna. (http://meetingorganizer.copernicus.org/EGU2015/EGU2015-13823.pdf)
24. Mitrovic, J, Golubovic Curguz, V, Glavendekic, M, **Stojicic Dj.** (2017): The health condition and vitality influence on the aesthetic significance of protected trees (nature monuments) on the territory of Belgrade. International scientific conference "Sustainable forestry – fact or fiction?" Book of Abstract. pp.25-26. 70 years Faculty of Forestry in Skopje 04-06.10.2017. "Ss. Cyril and Methodius" University in Skopje (Univerzitet „Sv. Kiril i Metodij", Skopje) Faculty of Forestry – Skopje (Sumarski fakultet, Skopje) bul. 16ta makedonska brigada br. 1 Skopje, Rep. of Macedonia.
25. Vukovic, A, Vujadinovic, M, Krzic, A, Djurdjevic, V, Cvetkovic, B, Repac, A, Bozanic, D, Przic, Z, Rankovic-Vasic, Z, Ruml, M, Stricevic, R, **Stojicic, Dj,** Jaksic, D. (2017): Implications of climate change in human livelihood within Serbia. Earth's Climate Change: Science and Impacts. Book of Abstract SANU pp.81-83. 11-13. October 2017. Belgrade, Serbia. https://www.sanu.ac.rs/english/ClimateChange/ECCSI-Book%20of%20Abstract.pdf

**Поглавље у књизи М42 – Монографија националног значаја (М45=1,5)**

26. **Stojicic, Dj.** (2017): Analiza klimatskih parametara u Beogradu za period od 2007. do 2013. godine. Invazivne i ukrasne biljke u uslovima klimatskih promena – uticaji i adaptacije. pp.16-25, Šumarski fakultet Univerzitet u Beogradu.
27. **Stojicic, Dj.** (2017): Praćenje fenologije invazivnih drvenastih vrsta. Invazivne i ukrasne biljke u uslovima klimatskih promena – uticaji i adaptacije. pp.154-168, Šumarski fakultet Univerzitet u Beogradu.

**Радови у водећим националним часописима (М51=2)**

28. Оцокољић, М, Стојановић, Н, **Стојичић, Ђ.** (2009): Мрежа од кокосових влакана - нови материјал у еколошко-инжењерској заштити земљишта у Србији. Ecologica, YU ISSN 0354-3285. UDC: 504.53.052.056:624.131.21=861, Издавач: Научно-стручно друштво за заштиту животне средине Србије „Ecologica", Академска издања, Земун, Београд, Србија.
29. **Стојичић, Ђ,** Оцокољић, М, Обратов-Петковић, Д. (2010): Адаптивност Paulownia tomentosa (Thumb.) Sieb. et Zucc. на зеленим површинама у Београду. Гласник Шумарског факултета 101, YUISSN 0353-4537. UDK 630*16+630*17]:582,916,21. DOI 10.2298/GSF1001151S. COBISS.SR-ID 27226370. Издавач: Шумарски факултет, Београд, Србија.
30. Ocokoljić, M, Vilotić, D, Šijačić-Nikolić, M, Stojičić, Đ, Milenković, M. (2012): Paulownia plantation establishment in mediterranean and submediterranean regions of Montenegro in the

aim of sustainable economy development, UDC (UDK) 630*1:582.916.21 (497.16). Agriculture & Forestry, Vol. 58. Issue 3: 115-123. Podgorica, Montenegro.

31. Ocokoljić, M, Vilotić, D, **Stojičić, Đ. (**2013): Significance of the absence of seed dormancy in white bark pine gene pool conzervation, UDC (UDK) 582.478:631.53.027. Agriculture & Forestry, Vol. 59. Issue 4: 175-181. Podgorica, Montenegro.

**Радови саопштени на скуповима националног значаја штампани у изводу (M64=0,2)**

32. **Stojicic, Dj,** Vukovic, A, Vujadinovic, M, Djurdjevic, V, Obratov-Petkovic, D. (2013): Flowering of woody taxa in Belgrade: observation and climate change impact. Meteorološki Izazovi 3. Ekstremne vremenske prilike i utjecaj na društvo 21.-22. Studenog 2013, Kraš Auditorium, Zagreb.

**Одбрањена докторска дисертација (M71=6)**

33. **Стојичић, Ђ** (2014): Утицај фактора спољашње средине на цветање дрвенастих врста из пододељка Magnoliophyta у Београду. Шумарки факултет, Универзитет у Београду.

**Стручни радови**

**34. Стојичић, Ђ** (2009): Атрактиван врт у сва четири годишња доба. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

**35. Стојичић, Ђ.** (2010): Долина јоргована. Пољопривредников календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

36. **Стојичић, Ђ.** (2011): „Голицљиво дрво" - Lagerstroemia indica L. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

37. **Стојичић, Ђ.** (2012): Додола врт наших аутора. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

38. **Стојичић, Ђ,** Станојевић, М. (2013): Рајска башта на крају света. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

39. **Стојичић, Ђ.** (2013): Смоква као воћна и орнаментална врста. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

**40. Стојичић, Ђ.** (2014): Нар – симбол богатства, љубави и плодности. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

41. **Стојичић, Ђ.** (2015): Расте и као дрво и као жбун. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

42. **Стојичић, Ђ.** (2016): Криптомерија – зимзелени четинар који мења боју. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник" Холдинг АД, Нови Сад, Србија.

43. **Стојичић, Ђ.** (2016): Дрвеће као запис. Пољопривредников пољопривредни календар, ISSN

1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.

44. **Стојичић, Ђ.** (2017): Живи фосил. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.
45. **Стојичић, Ђ.** (2019): Орнаменталне курике. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.
46. **Стојичић, Ђ.** (2021): Слична ловору, али отровних листова. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.

**РАДОВИ ОБЈАВЉЕНИ ПОСЛЕ ИЗБОРА У ЗВАЊЕ ВАНРЕДНОГ ПРОФЕСОРА (2021–2026)**

**Радови у врхунским међународним часописима (М21=8)**

47. Ocokoljić, M, **Petrov, Dj**, Galečić, N, Skočajić, D, Košanin, O, Simović, I. (2023): Phenological Flowering Patterns of Woody Plants in the Function of Landscape Design: Case Study Belgrade. Land 12 (3): 706. https://doi.org/10.3390/land12030706
48. Čukanović, J., Ljubojević, M., Djordjević, S., Narandžić, T., **Petrov, Dj,** Ocokoljić, M. (2024): The Impact of Climate Variability on the Blooming of Fraxinus ornus ‘Globosa’ as a Component of Novi Sad’s (Serbia) Green Infrastructure. Sustainability, 16(19):8404. https://doi.org/10.3390/su16198404
49. Čukanović, J., Đorđević, S., **Petrov, D**., Ocokoljić, M., Kolarov, R., Čurčić, M., & Ljubojević, M. (2025). The Sustainability of Rosa rugosa Thunb. Under Climate Change Conditions: A Study of Morphological Variability in Urban Areas. Horticulturae, 11(6), 684. https://doi.org/10.3390/horticulturae11060684
50. Ljubojević, M., Čukanović, J., Đorđević, S., **Petrov, D**., Galečić, N., Skočajić, D., & Ocokoljić, M. (2025). Characterizing the Flowering Phenology of Rosa rugosa Thunb. as an Ecosystem Service in the Context of Climate Change in Kupinovo (Vojvodina), Serbia. Plants, 14(12), 1875. https://doi.org/10.3390/plants14121875
51. Galečić, N., **Petrov, Dj**., Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S., Ocokoljić, M. (2026): Diversity, Growth Parameters, and Ecosystem Services of Urban Trees Under Climate-Change Conditions: A Case Study of Topčider Park. Forests 2026, 17(1), 114; https://doi.org/10.3390/f17010114
52. Skočajić, D., **Petrov, D**., Galečić, N., Čukanović, J., Kolarov, R., Đorđević, S., & Ocokoljić, M. (2026). Adaptability and Resilience of Chaenomeles japonica (Thunb.) Lindl. ex Spach (Rosaceae) in Urban Landscape Design. Horticulturae, 12(3), 396. https://doi.org/10.3390/horticulturae12030396
53. **Petrov, D**., Vujičić, D., Galečić, N., Skočajić, D., Čukanović, J., Kolarov, R., & Ocokoljić, M. (2026). Comparative Study of Thermal Accumulation and Adaptive Responses of Forsythia × intermedia Zabel and Kerria japonica (L.) DC. ‘Pleniflora’ Under Conditions of Climatic Fluctuations. Plants, 15(17), 2682. https://doi.org/10.3390/plants15172682

**Радови у истакнутим међународним часописима (М22=5)**

54. **Petrov, D.,** Ocokoljić, M., Galečić, N., Skočajić, D., Simović, I. (2024): Adaptability of Prunus cerasifera Ehrh. to Climate Changes in Multifunctional Landscape. Atmosphere 15, 335. https://doi.org/10.3390/atmos15030335
55. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., & **Petrov, D.**

(2025). Flowering Patterns of Cornus mas L. in the Landscape Phenology of Roadside Green Infrastructure Under Climate Change Conditions in Serbia. Sustainability, 17(12), 5334. https://doi.org/10.3390/su17125334

56. Đorđević, S., Tóth, A., Kuczman, G., Čukanović, J., Ljubojević, M., Ocokoljić, M., **Petrov, D.,** & Orlović, S. (2025). Biodiversity, Heritage and Ecosystem Service Potential of Woody Taxa in Scattered Built Environments of Traditional Agricultural Landscapes. Sustainability, 17(21), 9865. https://doi.org/10.3390/su17219865
57. Ocokoljić, M., **Petrov, Dj,** Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Simović, I. (2026). The impact of air temperature on the sustainability of Trachelospermum jasminoides (Lindl.) Lem. under conditions of a temperate continental climate. Pak. J. Bot., 58(7): DOI: http://dx.doi.org/10.30848/PJB2026-7(6)

**Радови у међународним часописима (M23=3)**

58. Ocokoljić, M., **Petrov, Dj.,** Galečić, N. (2022): Medial−vegetative proliferation of European larch Larix decidua Mill. cones. Sylwan 166 (9): 603−610, DOI: https://doi.org/10.26202/sylwan.2022069, Journal homepage: https://sylwan−journal.pl, Available online: 25 January 2023, ISSN: 0039-7660, Poland.
59. **Petrov, Dj**.,Ocokoljić, M. (2023): Picea abies (L.) H. Karst. leaf temperature as an indicator of species resilience: a case study of the Čemernik mountains in Southeast Europe. Applied Ecology and Environmental Research 21(3):2031-2054. http://www.aloki.hu, ISSN 1589 1623 (Print), ISSN1785 0037 (Online) DOI: http://dx.doi.org/10.15666/aeer/2103_20312054, © 2023, ALÖKI Kft., Budapest, Hungary
60. Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Šišaković, N., Simović, I. (2024): The study of Jasminum nudiflorum Lindl. in urban green infrastructure in conditions of climate change in Belgrade, Serbia. Applied ecology and environmental research, 22(5):4779-4805. https://aloki.hu/pdf/2205_47794805.pdf
61. Ocokoljić, M., **Petrov, Dj**., Košanin, O., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): Phenological patterns of Fraxinus ornus L. flowering in the context of ecosystem services preservation in urban forests: a case study of Košutnjak, Belgrade, Serbia. Sylwan 168 (11): 801-821, DOI: https://doi.org/10.26202/sylwan.2024047
62. **Petrov, Dj.,** Ocokoljić, M., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2025): Variability in needle transverse anatomy of Picea abies (l.) H. Karst.: a case study from Čemernik mountain, Serbia. Applied Ecology and Environmental Research 23(2): 3785-3804. http://dx.doi.org/10.15666/aeer/2302_37853804
63. Ocokoljić, M., Čukanović, J., **Petrov, Dj.,** Kolarov, R., Đorđević, S., Skočajić, D.M., Galečić, N., Skočajić, D.Lj. (2025): Mahonia aquifolium (Pursh) Nutt.: varieties globosa and tears in the urban dendroflora under climate changes. Applied Ecology And Environmental Research 23(4):8251-8273. http://dx.doi.org/10.15666/aeer/2304_82518273
64. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., **Petrov, Dj**. 2025. The influence of air temperature and precipitation on the flowering and sustainability of Acer pseudoplatanus L. in the Zvezdara Urban Forest (Belgrade, Serbia). Sylwan 169 (9): 669−687, September 2025. https://doi.org/10.26202/sylwan.2025050

**Радови у водећим националним часописима међународног значаја (M24=3)**

65. **Petrov, Dj.,** Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D.Lj., Vujičić, D., Ocokoljić, M. (2025): Fhenology and biochemical analysis of spontaneous Prunus spinosa L. population in the victinity of Belgrade. Journal of Agricultural Sciences (Belgrade), 70 (3): 317-336.

https://doi.org/10.2298/JAS2503317P

66. Kolarov, R., Čukanović, J., Đorđević, S., **Petrov, Dj.,** Galečić, N., Skočajić, D. & Ocokoljić, M. 2025. Ecosystem services of blackthorn: effects of harvesting time on the functional extraction of polyphenolic compounds and antioxidant activity. Contemporary Agriculture. 74(3-4), 75-85. https://doi.org/10.2478/contagri-2025-0026
67. Skočajić, D., Čukanović, J., **Petrov, D.,** Galečić, N., Kolarov, R., Đorđević, S. & Ocokoljić, M. (2025). Rose 'Casino' as an Element of Landscape Architectural Composition in the Courtyard of the Church of St George in Belgrade Under Changing Climate Conditions. Contemporary Agriculture, 74(1-2), 75-85. https://doi.org/10.2478/contagri-2025-0010, https://sciendo.com/article/10.2478/contagri-2025-0010

**Предавање по позиву са међународног скупа штампано у изводу (M32=1,5)**

68. **Petrov, Dj.** & Ocokoljic, M. (2022): Picea abies (L.) H. Karst. morphological characteristics variability in the climate change conditions on Čemernik mountain. Introductory lecture. 14th Symposium on the Flora of Southeastern Serbia and Neighboring Regions. Kladovo 26 to 29 June 2022. Book of abstracts. Department of Biology and Ecology, Faculty of Science and Mathematics, University of Niš, pp.195. ISBN 978-86-6275-140-9. http://www.sfses.com/archive/sfses14/Book-of-Apstracts.pdf
69. Ocokoljić, M., **Petrov, Đ**., Galečić, N., Skočajić, D. Lj., Čukanović, J., Vujičić, D., Simović, I. (2025): Trachelospermum jasminoides (Lindl.) Lem. in pergola design: An experimental study in Belgrade. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 174

**Радови саопштени на међународним скуповима штампани у целини (M33=1)**

70. Ocokoljić, M, **Petrov, Dj**, Galečić, N, Miodrag M. (2022): Ecological and aesthetic characteristics of trees in "Belgrade waterfront" parking lots. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 149-153, ISBN 978-86-6305-123-2, COBISS.SR-ID 69053705, University of Belgrade – Technical Faculty in Bor, Serbia.
71. Ocokoljić, M, **Petrov, Dj**, Tutundzić, A, Skočajić, D, Petrović, S. (2022): State, functions and perspectives of dendroflora in the schoolyard of the Medical School in Belgrade. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 154-158, ISBN 978-86-6305-123-2, COBISS.SR-ID 69053705, University of Belgrade – Technical Faculty in Bor, Serbia.
72. Ocokoljić, M, **Petrov, Dj**, (2022): Trachycarpus fortunei (hook.) H. Wendl. In the conditions of changed temperate continental climate in Belgrade. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 159-163, ISBN 978-86-6305-123-2, 4COBISS.SR-ID 659053705, University of Belgrade – Technical Faculty in Bor, Serbia.
73. **Petrov, Dj**., Ocokoljić, M., Galečić, N., Skočajić, D., Simović, I.(2023): Chaenomeles × superba 'Pink Lady' in designing private gardens in conditions of climate change. 30th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 62-68, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.
74. **Petrov, Dj**., Ocokoljić, M., Galečić, N., Skočajić, D. (2023): Application of species of the genus Parthenocissus L. in urban green infrastructure – state and perspectives. 30th INTERNATIONAL

CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 210-215, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.

75. **Petrov, Dj**., Ocokoljić, M., Galečić, N., Skočajić, D. Simović, I. (2023): Second flowering of Philadelphus coronarius L. in green-blue infrastructure of Belgrade. 30th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 216-221, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.
76. Ocokoljić, M., **Petrov, Dj.,** Vujičić, D., Galečić, N. (2023): Seasonal variations of flowering of Amorpha fruticosa L. as an indicator of global warming in blue-green infrastructure. XIV International Scientific Agriculture Symposium "AGROSYM 2023", Book of proceedings, ISBN 978-99976-816-1-4 COBISS.RS-ID 139524097, Jahorina 5-8.10.2023. pp. 846-852. M33
77. Ocokoljić, M., **Petrov, Dj**., Vujičić, D., Galečić, N. (2023): Effects of climate parameters on blackthorn in agroforestry ecotones as green road infrastructure elements. XIV International Scientific Agriculture Symposium "AGROSYM 2023", Book of proceedings, ISBN 978-99976-816-1-4 COBISS.RS-ID 139524097, Jahorina 5-8.10.2023. pp. 853-858.
78. Ocokoljić, M., **Petrov, Dj**. (2023): Impact of urban heat island on butterfly-bush (Buddleja davidii Franch.). International scientific and professional conference "Politehnika 2023", Conference proceedings, ISBN 978-86-7498-110-8, COBISS.RS-ID 132801289, Belgrade 15.12.2023. pp. 100-105.
79. Ocokoljić, M., **Petrov, Dj**., Vujičić, D. (2023): Effects of urbanisation on Simphoricarpos orbiculatus Moench in the green infrastructure of Belgrade. International scientific and professional conference "Politehnika 2023", Conference proceedings, ISBN 978-86-7498-110-8, COBISS.RS-ID 132801289, Belgrade 15.12.2023. pp. 106-111.
80. Ocokoljić, M., **Petrov, Dj.,** Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Chaenomeles japonica (Thunb.) Lindl. ex Spach in the design of urban parks: learning from nature. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 113-118, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.
81. Ocokoljić, M., **Petrov, Dj.,** Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Effectiveness of Photinia × fraseri 'Red Robin' in the urban landscape: towords of climate change. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 106-112, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.
82. Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Parthenocissus quinqefolia L.: phenomonitoring in blue-green infrastructure of Belgrade and Novi Sad. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 119-125, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.
83. Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): The influence of air temperature trends on cherry plum (Prunus cerasifera Ehrh) in the blue-green infrastructure. XV International Scientific Agriculture Symposium "AGROSYM 2024" Book of proceedings, ISBN ISBN 978-99976-816-8-3, COBISS.RS-ID 141807105, Jahorina 10-13 October 2024. pp. 1000-1006.
84. Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): Green infrastructure: implementation of wintersweet in landscape design and enhancement of ecosystem

services. XV International Scientific Agriculture Symposium “AGROSYM 2024” Book of proceedings, ISBN ISBN 978-99976-816-8-3, COBISS.RS-ID 141807105, Jahorina 10-13 October 2024. pp. 1007-1013.

85. **Petrov, Dj**., Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D. Vujičić, D., Ocokoljić, M. (2025): 17Chaenomeles japonica (Thunb.) Lindl. - fruit crop in the18 context of climate change: cultural and ecosystem servic19es. Book of Proceedings International Confere20nce ACCHE (Annual conference on Challenges of Contemporary Higher Education), p.327-331, Kopaonik, Serbia, 03. – 07.2.2025. https://acche.rs/ACCHE_2025/radovi/agriculture/47.pdf
86. **Petrov, Dj**., Ocokoljić, M., Galečić, N., Skočajić, D.M., Gavrilović Grmuša, I., Čukanović, J., Simović, I. (2025): Evaluation of the utilisation potential of Ficus carica L. under conditions of climatic challenges: state and perspectives, Book of Proceedings International Conference ACCHE (Annual conference on Challenges of Contemporary Higher Education), p.332-337, Kopaonik, Serbia, 03. – 07.2.2025. https://acche.rs/ACCHE_2025/radovi/agriculture/48.pdf
87. Ocokoljić, M., Čukanović, J., Kolarov, R., **Petrov, Dj.,** Galečić, N., Skočajić, D., Simović, I. (2025): The impact of harvest time on the content of polyphenolic compounds and antioxidant capacity of fruits of Chaenomeles japonica (Thunb.) Lindl. ex Spach. XVI International Scientific Agriculture Symposium “AGROSYM 2025”, Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 595-601.
88. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Kolarov, R., Vujičić, D., **Petrov, Dj.** (2025): The impact of local adaptation on the phenological patterns of flowering in Buddleja davidii 'Pink Delight' in Karađorđev park, Belgrade (Serbia). XVI International Scientific Agriculture Symposium “AGROSYM 2025”, Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 602-608.
89. Ocokoljić, M., Galečić, N., Čukanović, J., Đorđević, S., Kolarov, R., **Petrov, Dj**. (2025): Ornamental cherry trees in the open urban spaces in front of the temple of Saint Sava in Belgrade: identification and significance. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 372-377.
90. **Petrov, Dj.,** Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Kolarov, R., Ocokoljić, M. (2025): Punica granatum L. in garden design in Serbia. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 365-371.
91. Ocokoljić, M., Kolarov, R., Čukanović, J., Galečić, N., Skočajić, D., Đorđević, S., **Petrov, Dj.** (2025): Morphological and biochemical characteristics of the fruits of Malus hupehensis var. pinyensis N.G.Jiang in Belgrade. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 359-364.
92. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., **Petrov, Dj.** (2025): Viburnum tinus L.: mediterranean floral element in the urban and suburban landscape of Belgrade. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 353-358.
93. Galečić, N., **Petrov, Dj.,** Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S., Ocokoljić, M. (2025): Adaptation of flowering phenology and flower longevity of Philadelphus coronarius L. in landscape design under climate change conditions. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 347-352.
94. Ocokoljić, M., Čukanović, J., Đorđević, S., Galečić, N., Skočajić, D., Kolarov, R., **Petrov, Dj.** (2025): Amorpha fruticosa L. in the alluvial habitats of Belgrade and Novi Sad: morphological and

phenological characteristics of inflorescences, flowers, and flowering in the context of ecosystem services. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 341-346.

95. **Petrov, Dj**., Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Đorđević, S., Ocokoljić, M. (2025): Secondary flowering and fruiting of Laburnum anagyroides Medik. and their importance in urban landscape design. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 335-340.
96. Galečić, N., **Petrov, Dj.,** Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., Ocokoljić, M. (2025): The influence of light and air temperature on the visual perception of Photinia × fraseri 'Red Robin' in the parterre composition of Savski square in Belgrade. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 329-334.
97. Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Đorđević, S., Kolarov, R., Čukanović, J. (2025): A study on the flowering characteristics of Chaenomeles × superba 'Pink Lady'. XVI International Scientific Agriculture Symposium "AGROSYM 2025", Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 609-614.
98. Kolarov, R., **Petrov, Dj.,** Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): THE INFLUENCE OF THE URBAN HEAT ISLAND ON Abelia × grandiflora (ROVELLI EX ANDRÉ) REHDER TAXA, DOI: 10.5937/EcoTER26085K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 85-92, https://scindeks-clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf
99. Kolarov, R., **Petrov, Dj**., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): Pyracantha angustifolia (Franch.) C.K.SCHNEID. A NEW EXOTIC SPECIES IN THE DENDROFLORA OF BELGRADE, DOI: 10.5937/EcoTER26093K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 93-99, https://scindeks-clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf M33

**Радови саопштени на међународном скупу штампан у изводу (M34=0,5)**

100. Kolarov, R., Ljubojević, M., Čukanović, J., **Petrov, Đ.,** Galečić, N., Skočajić, D., Ocokoljić, M. (2025): Impact of Harvest Season and Solvent Selection on Bioactive Compound Profiles and Antioxidant Capacity of Prunus spinosa Fruits. Book of Abstract. The 2nd International Electronic Conference on Horticulturae, Online, (27-29.05.2025.) pp. 41-42) https://sciforum.net/paper/view/23001
101. Ocokoljić, M., **Petrov, Đ.,** Galečić, N., Skočajić, D. Lj., Čukanović, J., Kolarov, R., Đorđević, S. (2025): Potential of the climbing rose 'Casino' in urban environments: Towards to climate change. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 173
102. Ocokoljić, M., **Petrov, Đ**., Galečić, N., Skočajić, D.M., Čukanović, J., Vujičić, D., Simović, I. (2025): Indigofera heterantha Wall. ex Brandis – a new exotic species in Serbia. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 176

103. Jelena Čukanović, Mirjana Ljubojević, Sara Đorđević, Radenka Kolarov, Magdalena Pušić Devai, **Djurdja Petrov**, Mirjana Ocokoljić. Variability of morphological characteristics of Rosa rugosa Thunb. populations under different light conditions in urban environment. 15th CASEE Conference "Green transitions in agriculture, forestry, veterinary medicine and food systems under a changing climate", University of Novi Sad, Faculty of Agriculture, Serbia. 25th–27th June 2025.
104. **Petrov, D.L.;** Galečić, N.; Skočajić, D.L.; Čukanović, J.; Kolarov, R.; Đorđević, S.; Ocokoljić, M. Assessment of the impact of air temperature variations on the duration and abundance of flowering of Abelia × grandiflora 'Little Richard' in the context of urban planning and design, in Proceedings of the 1st International Online Conference on Urban Sciences, 20–22 May 2026, MDPI: Basel, Switzerland. https://sciforum.net/paper/view/30986
105. Marić, L.; Sentić, I.; Pavlović, L.; Đorđević, S.; **Petrov, D.;** Ocokoljić, M.; Čukanović, J. Urban microclimatic influence on flowering phenology and floral traits of Chaenomeles x superba 'Pink Lady', in Proceedings of the 1st International Online Conference on Urban Sciences, 20–22 May 2026, MDPI: Basel, Switzerland. https://sciforum.net/paper/view/30974
106. Kolarov, R., **Petrov, Dj.,** Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): CHALLENGES, LIMITATIONS AND KNOWLEDGE GAPS CONCERNING ALLOCHTHONOUS TREES IN URBAN ENVIRONMENTS: WINGED ELM, DOI: 10.5937/EcoTER26083K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 83-84 https://scindeks-clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf

**Радови у врхунским часописима националног значаја (M51=2)**

107. **Petrov, Dj.** & Ocokoljic, M. (2022): Dendrometric analyses and determining biological characteristics of needles for the purpose of conservation and directed utilization of the spruce in southeastern Serbia. Biologica Nyssana. 13 (1): 41-46. ISSN: 2217-4478. DOI: 10.5281/zenodo.7117571 https://journal.pmf.ni.ac.rs/bionys/index.php/bionys/article/view/442
108. Čukanović, J., **Petrov, Dj.,** Đorđević, S., Galečić, N., Skoačjić, D., Vujičić, D., Ocokoljić, O. (2024): Prunus spinosa L. In PeriUrban Environments Under Climate Change Conditions; Vulnerability and Adaptability. Contemporary Agriculture, Vol. 73, No. 3-4: 165-171 DOI: https://doi.org/10.2478/contagri-2024-0020 UDC: 712.24

**Радови у истакнутим националним часописима (M52=1,5)**

109. Petrov, Dj., Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D., Vujičić, D., Ocokoljić, M. (2024): Japanese quince in an urban environment: mechanisms of phenological responses in the function of preserving ecosystem services and selection. Voćarstvo (Journal of Pomology) 58, 219–220: 15–22. DOI: 10.18485/pomology.2024.58.219_220.2 https://www.casopisnvd.rs/pdf-dow/58_219-220/2.pdf
110. Ocokoljić, M., **Petrov, Dj.,** Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Simović, I. (2025): The impact of climatic parameters in Belgrade on the Indigo Himalayan species from the subtropical biome, Biologica Nyssana, 16 (1): 93-104, ISSN: 2217-4605, DOI: 10.46793/BiolNyss.16.1.30O M51/M53

**Радови саопштени на скуповима националног значаја штампани у целини (M63=0,5)**

111. Đurđević, K., Golubović Ćurguz, V., Skočajić, D., **Petrov, Dj.**, Ocokoljić, M. (2025): ANALIZA PARAZITSKE I SAPROFITSKE MIKOFLORE NA DRVEĆU U PARKU GAVRILA PRINCIPA U BEOGRADU (ANALYSIS OF PARASITIC AND SAPROPHYTIC MYCOFLORA ON TREES IN GAVRILA PRINCIP PARK IN BELGRADE). 4. KONFERENCIJA SA MEĐUNARODNIM UČEŠĆEM "NAPREDNE TEHNOLOGIJE U OBRAZOVANJU I PRIVREDI". VISOKA TEHNIČKA ŠKOLA STRUKOVNIH STUDIJA U NOVOM SADU U saradnji sa Akademijom mašinskih nauka Srbije, Društvom za tehničku dijagnostiku Srbije, Adam institutom iz Smedereva i Edukativnim centrom iz Novog Sada; Vrnjačka Banja, Hotel „Kralj", 22. septembar 2025. – 23. septembar 2025./THE HIGHER EDUCATION TECHNICAL SCHOOL OF PROFESSIONAL STUDIES IN NOVI SAD in collaboration with the Academy of Mechanical Sciences of Serbia, Society for Technical Diagnostics of Serbia, Adam Institute from Smederevo and Educational center from Novi Sad. THE 4th CONFERENCE WITH INTERNATIONAL PARTICIPATION "ADVANCED TECHNOLOGIES IN EDUCATION AND INDUSTRY" Vrnjačka Banja, Hotel „Kralj", on 22. September 2025 – 23. September 2025. BOOK OF PROCEEDINGS ISBN-978-86-6211-152-4, p 520-524.

112. Đurđević, K., Golubović Ćurguz, V., Skočajić, D., **Petrov, Dj.,** Ocokoljić, M. (2025): SASTAV I RAZNOVRSNOST DENDROFLORE U URBANOJ ZELENOJ INFRASTRUKTURI BEOGRADA (DENDROFLORA COMPOSITION AND DIVERSITY IN THE URBAN GREEN INFRASTRUCTURE OF BELGRADE). 4. KONFERENCIJA SA MEĐUNARODNIM UČEŠĆEM "NAPREDNE TEHNOLOGIJE U OBRAZOVANJU I PRIVREDI". VISOKA TEHNIČKA ŠKOLA STRUKOVNIH STUDIJA U NOVOM SADU U saradnji sa Akademijom mašinskih nauka Srbije, Društvom za tehničku dijagnostiku Srbije, Adam institutom iz Smedereva i Edukativnim centrom iz Novog Sada; Vrnjačka Banja, Hotel „Kralj", 22. septembar 2025. – 23. septembar 2025./THE HIGHER EDUCATION TECHNICAL SCHOOL OF PROFESSIONAL STUDIES IN NOVI SAD in collaboration with the Academy of Mechanical Sciences of Serbia, Society for Technical Diagnostics of Serbia, Adam Institute from Smederevo and Educational center from Novi Sad. THE 4th CONFERENCE WITH INTERNATIONAL PARTICIPATION "ADVANCED TECHNOLOGIES IN EDUCATION AND INDUSTRY" Vrnjačka Banja, Hotel „Kralj", on 22. September 2025 – 23. September 2025. ZBORNIK RADOVA/BOOK OF PROCEEDINGS ISBN-978-86-6211-152-4, p 525-529.

**Радови саопштени на скуповима националног значаја штампани у изводу (M64=0,2)**

113. **Petrov, Dj.,** Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D., Vujičić, D., Ocokoljić, M (2024): The impact of climate change on fruiting and functionality of blackthorn in green infrastructure [Uticaj klimatskih promena na plodonošenje i funkcionalnost trnjine u zelenoj infrastrukturi]. 17th Serbian Congress of Fruit & Grapevine Growers, 16-18 October 2024, Vršac, University in Belgrade – Faculty of Agriculture, ISBN 978-86-7834-443-5, pp.120-121.

114. **Petrov, Dj.,** Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D., Vujičić, D., Ocokoljić, M (2024): Multiple phenological responses of Chaenomeles japonica (Trhunb.) Lindl. ex Spach to climate change in an urban environment [Višestruki fenološki odgovori Chaenomeles japonica (Trhunb.) Lindl. ex Spach na klimatske promene u urbanoj sredini]. 17th Serbian Congress of Fruit & Grapevine Growers, 16-18 October 2024, Vršac, University in Belgrade – Faculty of Agriculture, ISBN 978-86-7834-443-5, pp.122-123.

**Стручни радови**

115. **Petrov, Dj.** (2022): Столетна лепотица. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.
116. **Petrov, Dj.** (2023): Заштићене дрвенасте врсте Старе планине. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.
117. **Petrov, Dj.** (2024): Декоративна током целе године. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија.
118. **Петров, Ђ.** (2025): Тиса – чувар среће. Пољопривредников пољопривредни календар, ISSN 1450-5436. COBISS. SR-ID 11296007, Издавач „Дневник” Холдинг АД, Нови Сад, Србија. 368-369.

**Прилог 3.** Радови са SCI листе из категорије М20 и М24 након избора у звање ванредног професора.

Референце 53, 54, 59, 62 и 65 из Прилога 1 (др Ђурђа Петров, први аутор)



plants

MDPI

Article

# Comparative Study of Thermal Accumulation and Adaptive Responses of *Forsythia* × *intermedia* Zabel and *Kerria japonica* (L.) DC. 'Pleniflora' Under Conditions of Climatic Fluctuations


Djurdja Petrov [1,*], Dragan Vujičić [1], Nevenka Galečić [1], Dejan Skočajić [1], Jelena Čukanović [2], Radenka Kolarov [2] and Mirjana Ocokoljić [1]

[1] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; dragan.vujicic@sfb.bg.ac.rs (D.V.); nevenka.galecic@sfb.bg.ac.rs (N.G.); dejan.skocajic@sfb.bg.ac.rs (D.S.); mirjana.ocokoljic@sfb.bg.ac.rs (M.O.)
[2] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; jelena.cukanovic@polj.uns.ac.rs (J.Č.); radenka.kolarov@polj.uns.ac.rs (R.K.)
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs; Tel.: +381637421328



**Abstract**

The study establishes a locally specific basis that may serve as an indicator for the selection of climate-adaptive taxa in urban landscape design through a comparative evaluation of the effects of thermal anomalies on the flowering phenodynamics of *Forsythia* × *intermedia* and *Kerria japonica* 'Pleniflora' in Belgrade (2007–2026). By integrating empirical phenological parameters into a long-term climatological retrospective, the study bridges a methodological gap and distinguishes anthropogenic influences from regional climatic fluctuations. Non-parametric analyses identified a stable long-term trend, while the absence of statistically significant macro-scale effects confirms the predominant role of natural climatic variability. Nevertheless, microclimatic modifications induce distinct, taxon-specific phenological responses. Non-linear regression models identified two divergent adaptive mechanisms during warmer years: a phenological compression model in *F.* × *intermedia* (shortening of the flowering cycle accompanied by an annual increase in growing degree days (GDDs) of 0.71%) and a non-linear expansion model in *K. japonica* 'Pleniflora' (extension of the flowering period by more than one month, with the end of flowering delayed by 8.4 days per decade). Circular statistical analyses confirmed a high degree of temporal synchronisation and genetically determined phenological rhythmicity in both taxa, while revealing asynchrony in the terminal phenophases that was independent of growing degree day (GDD) accumulation. The synchronous shift towards warmer thermal classes positions both taxa as bioindicators of microclimatic change, although *K. japonica* 'Pleniflora' exhibited greater adaptive capacity. These findings highlight the importance of applying non-linear models in phenological forecasting and a contextualised taxonomic and ecological basis for the planning, introduction, and management of green spaces, supporting the sustainability of shrub taxa within the analysed urban core.



**Keywords:** Border Forsythia; Double Japanese Rose; plants in extreme environments; biodiversity; acclimatization; flowering phenological patterns; phenological synchronization

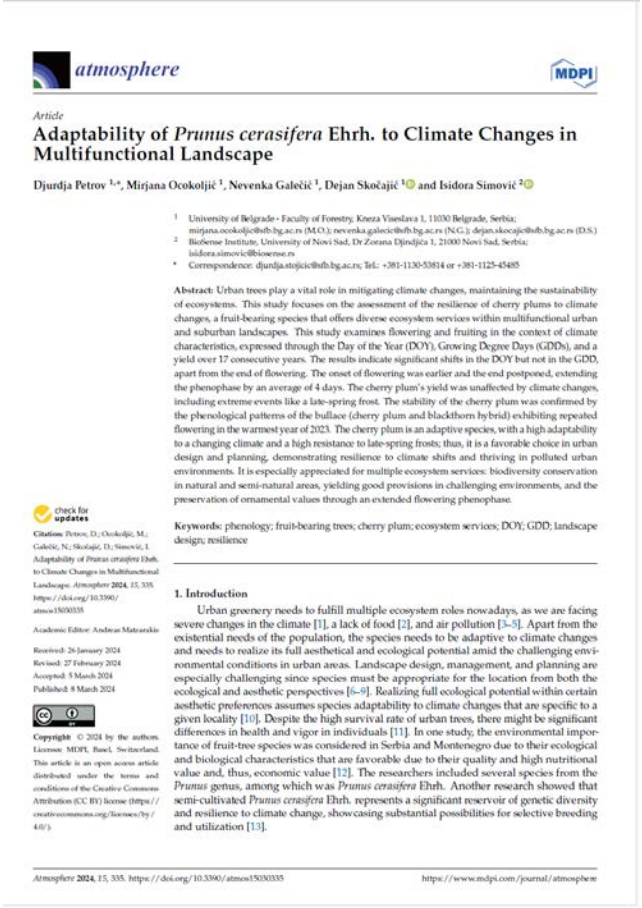
Academic Editors: Hans Raj Ghayi, Alberto Soares De Melo, João Everthon da Silva Ribeiro and Antônio Gustavo de Luna Souto

Received: 9 August 2026
Revised: 27 August 2026
Accepted: 29 August 2026
Published: 31 August 2026



**Copyright:** © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.



atmosphere

MDPI

Article

# Adaptability of *Prunus cerasifera* Ehrh. to Climate Changes in Multifunctional Landscape


Djurdja Petrov [1,*], Mirjana Ocokoljić [1], Nevenka Galečić [1], Dejan Skočajić [1] and Isidora Simović [2]

[1] University of Belgrade - Faculty of Forestry, Kneza Viseslava 1, 11030 Belgrade, Serbia; mirjana.ocokoljic@sfb.bg.ac.rs (M.O.); nevenka.galecic@sfb.bg.ac.rs (N.G.); dejan.skocajic@sfb.bg.ac.rs (D.S.)
[2] BioSense Institute, University of Novi Sad, Dr Zorana Đinđića 1, 21000 Novi Sad, Serbia; isidora.simovic@biosense.rs
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs; Tel.: +381-1130-53814 or +381-1125-45485



**Abstract:** Urban trees play a vital role in mitigating climate changes, maintaining the sustainability of ecosystems. This study focuses on the assessment of the resilience of cherry plums to climate changes, a fruit-bearing species that offers diverse ecosystem services within multifunctional urban and suburban landscapes. This study examines flowering and fruiting in the context of climate characteristics, expressed through the Day of the Year (DOY), Growing Degree Days (GDDs), and a yield over 17 consecutive years. The results indicate significant shifts in the DOY but not in the GDD, apart from the end of flowering. The onset of flowering was earlier and the end postponed, extending the phenophase by an average of 4 days. The cherry plum's yield was unaffected by climate changes, including extreme events like a late-spring frost. The stability of the cherry plum was confirmed by the phenological patterns of the bullace (cherry plum and blackthorn hybrid) exhibiting repeated flowering in the warmest year of 2023. The cherry plum is an adaptive species, with a high adaptability to a changing climate and a high resistance to late-spring frosts; thus, it is a favorable choice in urban design and planning, demonstrating resilience to climate shifts and thriving in polluted urban environments. It is especially appreciated for multiple ecosystem services: biodiversity conservation in natural and semi-natural areas, yielding good provisions in challenging environments, and the preservation of ornamental values through an extended flowering phenophase.



**Keywords:** phenology; fruit-bearing trees; cherry plum; ecosystem services; DOY; GDD; landscape design; resilience

check for updates

**Citation:** Petrov, D.; Ocokoljić, M.; Galečić, N.; Skočajić, D.; Simović, I. Adaptability of *Prunus cerasifera* Ehrh. to Climate Changes in Multifunctional Landscape. *Atmosphere* **2024**, *15*, 335. https://doi.org/10.3390/atmos15030335

Academic Editor: Andreas Matzarakis

Received: 26 January 2024
Revised: 27 February 2024
Accepted: 5 March 2024
Published: 8 March 2024



**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).


## 1. Introduction

Urban greenery needs to fulfill multiple ecosystem roles nowadays, as we are facing severe changes in the climate [1], a lack of food [2], and air pollution [3–5]. Apart from the existential needs of the population, the species needs to be adaptive to climate changes and needs to realize its full aesthetical and ecological potential amid the challenging environmental conditions in urban areas. Landscape design, management, and planning are especially challenging since species must be appropriate for the location from both the ecological and aesthetic perspectives [6–9]. Realizing full ecological potential within certain aesthetic preferences assumes species adaptability to climate changes that are specific to a given locality [10]. Despite the high survival rate of urban trees, there might be significant differences in health and vigor in individuals [11]. In one study, the environmental importance of fruit-tree species was considered in Serbia and Montenegro due to their ecological and biological characteristics that are favorable due to their quality and high nutritional value and, thus, economic value [12]. The researchers included several species from the *Prunus* genus, among which was *Prunus cerasifera* Ehrh. Another research showed that semi-cultivated *Prunus cerasifera* Ehrh. represents a significant reservoir of genetic diversity and resilience to climate change, showcasing substantial possibilities for selective breeding and utilization [13].

# *PICEA ABIES* (L.) H. KARST. LEAF TEMPERATURE AS AN INDICATOR OF SPECIES RESILIENCE: A CASE STUDY OF THE ĆEMERNIK MOUNTAINS IN SOUTHEAST EUROPE

PETROV, DJ.* – OCOKOLJIĆ, M.

*University of Belgrade - Faculty of Forestry, Kneza Viseslava 1, Belgrade 11000, Serbia (phone: +381-11-305-3814; fax: +381-11-254-5485)*

**Corresponding author*
*e-mail: djurdja.stojicic@sfb.bg.ac.rs; phone: +381-11-305-3814; fax: +381-11-254-5485*

(Received 5th Dec 2022; accepted 17th Mar 2023)

**Abstract.** Norway spruce (*Picea abies* (L.) H. Karst.) is one of the ecologically and economically most important species in European forestry. According to the latest genoecological tests, environmental factors have a significant influence on the species' survival, and there is no decrease in variability in the periphery of its areal, thus the research of its resilience requires work on "plus" trees. The paper analyzed differences in thermal data of leaves in the sun and shade, trunk bark in the shade, and control surfaces in the sun: dry grass, dry soil, asphalt, and concrete, to obtain data on temperature differences as indicators of species resilience and to understand the impacts of local climate change in mountainous regions. In the summer of 2022, surface temperatures were recorded with a thermal camera on Mount Čemernik in Southeastern Europe. Monitoring and analysis of air temperatures included interpolations using a digital elevation model (DEM) and was based on the percentile method. The research results confirm significant differences between the temperatures of leaves and control surfaces. The importance of this paper is in the wide application of selected, resilient, Norway spruce "plus" trees in forestry, landscape architecture, and horticulture in Southern European habitats where scenarios predict that the climate will change, and the Norway spruce will move north.
**Keywords:** *Norway spruce, climate warming, distributions, plasticity, dendroecology*

## Introduction

Surface temperatures are very important in climatological research, especially when analyzing environmental factors that indicate climate changes in micro-locations. Surface temperatures might be influenced by various radiation effects, as well as humidity, thermal transmittance, and surface emissivity. Current ways to obtain information about the temperatures of different surfaces are the use of unmanned aerial vehicles (UAV) and satellite remote sensing. Unmanned aerial vehicles (UAV) su se pojavile kao tehnologija koja se brzo razvila i primenjuje u različitim sektorima zbog mogućnosti da funkcioniše u opasnim okruženjima (Yousaf et al., 2022). UAVs have emerged as a technology that has been rapidly developed and applied in various sectors due to the possibility of operating in hazardous environments (Yousaf et al., 2022). UAV detection systems use different algorithms and techniques depending on the application to detect, classify, locate, and track, using a hybrid fusion of radio frequency, radar, acoustic and visual sensors to improve detection. Over the years, the technology and characteristics of UAVs have improved significantly to meet the requirements of spatio-temporal coverage and remote sensing capabilities (Liu et al., 2014; Kannadaguli, 2020). However, it should be noted that flight control is necessary while using UAVs (Prisacariu, 2017). Satellite remote sensing technology is an important method for exploration, identification, classification, and monitoring of various resources (Prata et al., 1995; Sailesh, 2009). This technology enables the collection of data in a short period of time, and it is appreciated


http://www.aloki.hu ● ISSN 1589 1623 (Print) ● ISSN1785 0037 (Online)
DOI: http://dx.doi.org/10.15666/aeer/2103_20312054
© 2023, ALÖKI Kft., Budapest, Hungary



# VARIABILITY IN NEEDLE TRANSVERSE ANATOMY OF *PICEA ABIES* (L.) H. KARST.: A CASE STUDY FROM ĆEMERNIK MOUNTAIN, SERBIA

PETROV, DJ.[1*] – OCOKOLJIĆ, M.[1] – GALEČIĆ, N.[1] – SKOČAJIĆ, D.[1] – VUJIČIĆ, D.[1] – ČUKANOVIĆ, J.[2] – SIMOVIĆ, I.[3]

[1]*Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, Belgrade 11000, Serbia*

[2]*Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, Novi Sad 21000, Serbia*

[3]*BioSense Institute, University of Novi Sad, Dr Zorana Djindjića 1, Novi Sad 21000, Serbia*

**Corresponding author*
*e-mail: djurdja.stojicic@sfb.bg.ac.rs; phone: +381-11-305-3814; fax: +381-11-254-5485*

(Received 19th Dec 2024; accepted 27th Feb 2025)

**Abstract.** Norway spruce is an important forest species facing the risk of range shift from its current distributional boundaries. This study analyzes the morphological and anatomical characteristics of Norway spruce needles with the aim of determining and understanding the variability and population diversity of this species on Mt. Čemernik in Serbia, a site outside its native range. Differences between one-year-old and two-year-old needles from Norway spruce trees aged 100 and 50 years were investigated. Morpho-anatomical parameters, including needle length, width and thickness, vascular bundle diameter and area, and the number and diameter of resin canals, were analyzed. The research findings and statistical analyses confirm that the old trees possess exceptional traits and represent a valuable gene pool. Considering that ecological valence is a heritable trait, i.e., the ability to adapt is determined by the plant's genetic basis. A selected phenogroup of three old trees demonstrated successful adaptation to the Čemernik site, suggesting their potential for wider application and further introduction into other mountainous regions with similar conditions where the species is non-native.
**Keywords:** *Norway spruce, old conifers, needle size, multivariate analyses, adaptation, conservation*

## Introduction

Norway spruce is among the most extensively cultivated conifer species, valued for its high-quality timber and applications in the wood-processing, pharmaceutical, and cosmetic industries (Skroppa, 2003; Jansson et al., 2013). As a result, it has been widely planted beyond its native range, leading to the establishment of both natural forests and numerous plantations. This extensive cultivation has often made it difficult to distinguish between natural and artificially established Norway spruce forests.

Norway spruce belongs to the boreal-European floristic element, occurring from sea level to elevations of up to 3000 m above sea level (Cvjetićanin et al., 2016). Its natural range of distribution in Europe spans from the Balkan Peninsula at 41°27'N (southern Greece) to Siberia at 72°15'N, and longitudinally from the French Alps in the west (5°27'E) to eastern Siberia (154°E) (Caudullo et al., 2017). However, throughout history, the range of Norway spruce has shifted significantly (Huntley and Birks, 1983; Latałowa and van der Knaap, 2006). In Serbia, Norway spruce is the most widespread conifer species, with natural populations in the western and southwestern regions, while in the eastern regions, it has been artificially introduced (Ivetić, 2004; Banković et al., 2009; Cvjetićanin et al., 2016; Petrov and Ocokoljić, 2022). Nevertheless, it has not


http://www.aloki.hu ● ISSN 1589 1623 (Print) ● ISSN 1785 0037 (Online)
DOI: http://dx.doi.org/10.15666/aeer/2302_37853804
© 2025, ALÖKI Kft., Budapest, Hungary

Journal of Agricultural Sciences (Belgrade)
Vol. 70, No. 3, 2025
Pages 317-336

https://doi.org/10.2298/JAS2503317P
UDC: 634.22(497)"2007-2024"
Original scientific paper

# PHENOLOGY AND BIOCHEMICAL ANALYSIS OF SPONTANEOUS *PRUNUS SPINOSA* L. POPULATION IN THE VICTINITY OF BELGRADE

**Đurđa L. Petrov[1*], Jelena D. Čukanović[2], Radenka D. Kolarov[2], Nevenka M. Galečić[1], Dejan Lj. Skočajić[1], Dragan G. Vujičić[1] and Mirjana Z. Ocokoljić[1]**

[1]University of Belgrade - Faculty of Forestry,
Kneza Višeslava 1, 11030 Belgrade, Serbia
[2]University of Novi Sad - Faculty of Agriculture,
Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

**Abstract:** The aims of the research were to determine the variability of the phenological patterns of natural populations of *Prunus spinosa* L. in the ecotones of the southeastern part of the Balkan Peninsula and to create an informational database regarding the impact of air temperature and precipitation on the phenology of this species, based on research conducted during the period from 2007 to 2024. The obtained data were analysed using descriptive and multivariate statistical methods. The results showed that the onset of spring phenological phases has been significantly accelerated by the increase in air temperature, especially in 2024, when flowering started 31 days earlier, the flowering phase lasted 13 days longer, and fruit ripening occurred 65 days earlier compared to the 2007–2023 period. The content of phenols, flavonoids, anthocyanins, and antioxidant activity in fruits was determined in distilled water and 70% ethanol. The analysed extracts contained a high percentage of phenols and demonstrated significant antioxidant activity. The obtained results are the starting point for studying changes in the phenological patterns of blackthorn in response to climate change under the agro-ecological conditions of the southwestern suburb of Belgrade. The study confirmed the adaptability of blackthorn, except for the vulnerability of its flowering phenophase to late spring frosts, as observed in 2023. The resilience of the species to climatic challenges was further confirmed by its drought tolerance in 2024 and a significant correlation between fruit ripening and high air temperatures during the growing season over 18 consecutive years of research.

**Key words:** blackthorn, adaptability, functionality, antioxidant capacity of fruits, ecosystem services, heat waves, ecotones.

*Corresponding author: e-mail: djurdja.stojicic@sfb.bg.ac.rs

-Остале референце из категорије М20 (из Прилога 1)

land

MDPI

Article

# Phenological Flowering Patterns of Woody Plants in the Function of Landscape Design: Case Study Belgrade

Mirjana Ocokoljić [1], Djurdja Petrov [1,*], Nevenka Galečić [1], Dejan Skočajić [1], Olivera Košanin [1] and Isidora Simović [2]

[1] University of Belgrade–Faculty of Forestry, Kneza Viseslava 1, 11030 Beograd, Serbia
[2] BioSense Institute, University of Novi Sad, Dr Zorana Djindjića 1, 21000 Novi Sad, Serbia
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs; Tel.: +381-1130-53814 or +381-1125-45485

**Abstract:** The study focuses on describing key events in the flowering phenophases of woody taxa that promote practical landscape sustainability and design planning. Apart from the beginning of flowering, the full development and the duration of phenophases are important for landscape architecture, consumers, and pollination. The phenological patterns of 13 woody taxa were monitored for 16 years through 90,860 phenological observations from the BBCH scale for the period 2007–2022. Growing degree days were determined by combining phenological and climatic data and a linear trend was used to assess phenophase tendencies. Mann–Kendall and Sen's slope tests and Spearman's correlation coefficient were used to assess statistical significance. Shifts in flowering indicated warming trends, reflecting various changes in phenology. Early flowering taxa were affected the most, but plants shifted phenophases in both directions (earlier and later in the year). Repeated flowering (and occasionally fruiting) and even third flowering, as seen in 2022, can significantly affect biodiversity and lead to plant–pollinator asynchrony and changes in ecosystem functioning, ecological interaction, and landscape design. A list of native and introduced taxa and their adaptation mechanisms to climate change are provided and can be used for sustainable landscape design and nature-based solutions in landscape architecture.

**Keywords:** adaptation; bioclimatology; landscape planning; landscape design

check for updates

**Citation:** Ocokoljić, M.; Petrov, D.; Galečić, N.; Skočajić, D.; Košanin, O.; Simović, I. Phenological Flowering Patterns of Woody Plants in the Function of Landscape Design: Case Study Belgrade. *Land* **2023**, *12*, 706. https://doi.org/10.3390/land12030706

Academic Editors: Mauro André Maurício Raposo, Constança Camilo Alves and Carlos Pinto-Gomes

Received: 15 February 2023
Revised: 12 March 2023
Accepted: 15 March 2023
Published: 18 March 2023

**Copyright:** © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

Ecology and geography, as well as landscape science (including landscape design and planning), should play an important role in sustainability research and practice and focus on regional and local problem solving. At the landscape level, it is easiest to link ecology to landscape architecture and its practice, linking ecological processes, nature, and the urban environment, as well as ecosystem services [1–3]. For ecosystem services to be sustainable, it is crucial to understand how we need to design, conserve, and manage landscapes [4]. Understanding and organizing natural, economic, social, and cultural spaces, as well as the very integration of human–environment interactions (which are linked to local processes), are very important to achieve long-term sustainability and environmental stability [5–7]. Climate changes, as well as the consequences they cause, have a major impact on sustainable development and quality of life, so it is very important to connect science and practice in order to improve the environment. Global environmental change can be tracked through shifts in phenology that further influence both individual species and ecosystems [8]. One of the major ecological problems is the application of phenological observations in the function of landscape design, landscape sustainability, and ecosystem services. Comparison of phenological patterns and liaison between the occurrence of second and even third flowering in the same vegetative season and the fruiting in autumn and at the beginning of winter is detrimental to plant taxa due to the asynchrony between the plants and the pollinators.



sustainability

MDPI

Article

# The Impact of Climate Variability on the Blooming of *Fraxinus ornus* 'Globosa' as a Component of Novi Sad's (Serbia) Green Infrastructure

Jelena Čukanović [1], Mirjana Ljubojević [1], Sara Djordjević [1], Tijana Narandžić [1], Djurdja Petrov [2] and Mirjana Ocokoljić [2,*]

[1] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; jelena.cukanovic@polj.uns.ac.rs (J.Č.); mirjana.ljubojevic@polj.uns.ac.rs (M.L.); sara.djordjevic@polj.edu.rs (S.D.)
[2] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; djurdja.stojicic@sfb.bg.ac.rs
* Correspondence: mirjana.ocokolji@sfb.bg.ac.rs

**Abstract:** Climate change increasingly impacts urban dendroflora, affecting plant physiology and phenological phases. This paper investigates the impact of changing climatic conditions on the blooming of *Fraxinus ornus* 'Globosa', a decorative form of ash that is a significant component of green infrastructure in Novi Sad, Serbia. The research, conducted over 15 years on 42 individuals in a linear planting near a large river, analyzed temperature and precipitation effects on blooming times and inflorescence characteristics. The results indicate changes in the timing of blooming, earlier than recorded in the literature, suggesting that temperature variations and changes in climatic conditions have significantly influenced the phenological phases of the selected clones of globe flowering ash. Additionally, the studied individuals showed exceptional adaptation to climate change and are not considered vulnerable. This study confirmed that this cultivar of flowering ash in urban environments is a key link in the green infrastructure of cities, functioning as green corridors along river flows as a nature-based solution. The studied cultivar is an important element of cultural heritage, contributing to the recreational potential of the linear composition of the promenade, especially during the flowering phenophase, when, in addition to its aesthetic values, it has psychological effects on users of the space, offering a calming influence due to its regular canopy and planting rhythm. Additionally, this cultivar provides important ecological functions, such as offering pollen for pollinators, thereby significantly contributing to the implementation of ecosystem services.

**Keywords:** globe flowering ash; flowering time; inflorescence morphology; climate changes; green infrastructure; landscape architecture

check for updates

**Citation:** Čukanović, J.; Ljubojević, M.; Djordjević, S.; Narandžić, T.; Petrov, D.; Ocokoljić, M. The Impact of Climate Variability on the Blooming of *Fraxinus ornus* 'Globosa' as a Component of Novi Sad's (Serbia) Green Infrastructure. *Sustainability* **2024**, *16*, 8404. https://doi.org/10.3390/su16198404

Academic Editor: Richard Ross Shaker

Received: 20 August 2024
Revised: 20 September 2024
Accepted: 24 September 2024
Published: 27 September 2024

**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

Cities are threatened by intensified urbanization and global climate changes, which lead to rising air temperatures and the effects of urban heat islands (UHI) [1]. In this context, elements of green infrastructure (GI), as parts of cultural ecosystems (parks, residential blocks, green corridors along roads and rivers, private gardens, and other elements of special purpose), play an important role in both suburban and central zones of urban areas [2]. The ecological benefits of GI are significant for the health, protection, promotion, and preservation of biodiversity, and they are also a means for mitigating and improving microclimatic conditions in urban environments [3]. In particular, trees—as an element of GI—provide cities with benefits such as managing atmospheric runoff, improving air quality, accumulating carbon, providing shade, reducing UHI effects, and being a crucial link in biodiversity [4]. As a key ecosystem service related to biodiversity, the interdependence between woody plants and insects, and vice versa, stands out [5]. Additionally, the



horticulturae

MDPI

Article

# The Sustainability of *Rosa rugosa* Thunb. Under Climate Change Conditions: A Study of Morphological Variability in Urban Areas

Jelena Čukanović [1], Sara Đorđević [1], Djurdja Petrov [2], Mirjana Ocokoljić [2], Radenka Kolarov [1], Milana Čurčić [1] and Mirjana Ljubojević [1,*]

[1] University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia
[2] University of Belgrade, Faculty of Forestry, Kneza Viseslava 1, 11030 Belgrade, Serbia
* Correspondence: mirjana.ljubojevic@polj.uns.ac.rs or ikrasevm@polj.uns.ac.rs

**Abstract:** Urban stressors intensified by climate change affect plants in terms of growth, vitality, and ornamental value. This study examines how different light availability (full sun, partial shade, and shade) affect the development, fruit morphology, and planting suitability of Rosa rugosa Thunb. in urban environments. A total of 360 shrub individuals were analyzed in a linear formation along a riverbank in Novi Sad, Serbia, linking climatic parameters with the bioecological characteristics of the investigated plants. Comparison of the groups was performed using the multivariate methods and Principal Component Analysis (PCA). Furthermore, 13 morphological parameters were analyzed on a sample of 100 fruits per group. There were no significant deviations in fruiting patterns, but the fruit parameters, even though showing high yield and favorable fruit size, indicated that light variation affects morphology. These findings confirm the species' resilience and adaptability to urban environments, capable of withstanding various challenges, including proximity to paved surfaces, heavy traffic, and diverse light conditions. *R. rugosa* proves to be an ideal choice for urban planting and nature-based solutions that enhance human well-being.

**Keywords:** rugosa rose; light conditions; fruit morphology; resilient plants; horticulture

check for updates

Academic Editors: Mihaela Corneа Cipcigan, Zsolt Szekely-Varga and Endre Kentelky

Received: 23 April 2025
Revised: 7 June 2025
Accepted: 11 June 2025
Published: 14 June 2025

**Citation:** Čukanović, J.; Đorđević, S.; Petrov, D.; Ocokoljić, M.; Kolarov, R.; Čurčić, M.; Ljubojević, M. The Sustainability of *Rosa rugosa* Thunb. Under Climate Change Conditions: A Study of Morphological Variability in Urban Areas. *Horticulturae* **2025**, *11*, 684. https://doi.org/10.3390/horticulturae11060684

**Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

*Rosa rugosa* Thunb. (commonly known as Rugosa rose, Beach rose, Japanese rose, or Ramanas rose) is a shrub species belonging to the genus *Rosa* L. and the family *Rosaceae* Juss. Native to eastern Asia—including China, Japan, Korea, and Southeastern Siberia (Kamchatka)—it has a rich history of use in traditional medicine and the food industry [1,2]. Introduced to Europe in the 19th century for ornamental purposes, *R. rugosa* is now considered an invasive species in northwestern Europe [3], where it occupies sandy beaches and sand dunes along the Baltic and North Seas [4] and suppresses native vegetation [5]. However, in other parts of Europe, it is naturalized, not posing a threat and remaining underutilized in urban greening, becoming a landscape component that enhances environmental conditions [6].

Rugosa rose is a deciduous shrub reaching 1.5–2 m in height, with fragrant, nectarless flowers (6–8 cm) that bloom from May to August and sometimes into autumn. These flowers occur singly or in small clusters. Cultivated varieties display a diverse range of colors and forms [2,7–9]. Its brick-red, globular hips (up to 2.5 cm) ripen from August to October, containing numerous nutlets, with flowers and fruits often present simultaneously on the shrub [7,9].



plants

MDPI

Article

# Characterizing the Flowering Phenology of *Rosa rugosa* Thunb. as an Ecosystem Service in the Context of Climate Change in Kupinovo (Vojvodina), Serbia

Mirjana Ljubojević [1], Jelena Čukanović [1], Sara Đorđević [1], Djurdja Petrov [2,*], Nevenka Galečić [2], Dejan Skočajić [2] and Mirjana Ocokoljić [2]

[1] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; mirjana.ljubojevic@polj.uns.ac.rs (M.L.); jelena.cukanovic@polj.uns.ac.rs (J.Č.); sara.djordjevic@polj.edu.rs (S.Đ.)
[2] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; nevenka.gajecic@sfb.bg.ac.rs (N.G.); dejan.skocajic@sfb.bg.ac.rs (D.S.); mirjana.ocokoljic@sfb.bg.ac.rs (M.O.)
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs

**Abstract:** Given the growing impact of climate change, this study examines the flowering phenology of *Rosa rugosa* Thunb. in Kupinovo (Vojvodina, Serbia). Data collected over 18 years (2007–2024) were analyzed to assess changes in primary flowering, while secondary flowering was monitored from 2022 to 2025. Phenological stages were recorded every other day, and dates were converted into day-of-year (DOY) values. Heat accumulation (GDD) was calculated using daily max/min temperatures and thresholds. In 2024, *R. rugosa* exhibited a 37-day earlier onset and a 50.4-day later completion of primary flowering compared to previous years. The variability of key phenological events of primary flowering was observed in the interaction with climatic parameters, with regular fruiting. The species proved tolerant to heat and drought, suggesting potential range expansion. Optimal temperatures for secondary flowering were identified: abundant flowering occurred at 13.6 °C max and 4.9 °C min, while moderate flowering occurred at 9.0 °C max and 4.2 °C min. Regression analysis confirmed the positive effect of rising temperatures on flowering intensity. While freezing halted secondary flowering and damaged open buds, unopened buds remained unaffected. These findings highlight *R. rugosa* as a resilient, ornamental species, relevant to climate adaptation strategies, nature-based solutions, and the preservation of ecosystem services under global warming scenarios.

**Keywords:** shrub roses; flowering stages; reblooming; frost damage; landscape sustainability

check for updates

Academic Editor: Panayiotis Dimitrakopoulos

Received: 15 May 2025
Revised: 4 June 2025
Accepted: 16 June 2025
Published: 18 June 2025

**Citation:** Ljubojević, M.; Čukanović, J.; Đorđević, S.; Petrov, D.; Galečić, N.; Skočajić, D.; Ocokoljić, M. Characterizing the Flowering Phenology of *Rosa rugosa* Thunb. as an Ecosystem Service in the Context of Climate Change in Kupinovo (Vojvodina), Serbia. *Plants* **2025**, *14*, 1875. https://doi.org/10.3390/plants14121875

**Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

The concept of ecosystem services has been promoted internationally as a way to communicate and understand the relationship between people and nature [1]. It provides an opportunity to translate biophysical issues into socially relevant terms, facilitates communication with decision-makers [2], and enhances public engagement within various planning processes, including landscape planning and design [3]. In these processes, shrub plants have significant implications for ecosystem functioning and services [4], depending on climatic variables, soil characteristics, and specific shrub traits [5]. The presence of shrub plants provides benefits such as reducing soil surface temperature, increasing infiltration and water content [6], and enhancing soil nutrient levels [7]. However, it should be noted that ecosystems with a high percentage of shrub plants are dynamic, and changes in the relative abundance of grass and woody plant species can impact ecosystem functioning

forests

MDPI

Article

# Diversity, Growth Parameters, and Ecosystem Services of Urban Trees Under Climate-Change Conditions: A Case Study of Topčider Park

**Nevenka Galečić [1], Djurdja Petrov [1,*], Dejan Skočajić [1], Jelena Čukanović [2], Radenka Kolarov [2], Sara Đorđević [2] and Mirjana Ocokoljić [1]**

[1] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; nevenka.galecic@sfb.bg.ac.rs (N.G.); dejan.skocajic@sfb.bg.ac.rs (D.S.); mirjana.ocokoljic@sfb.bg.ac.rs (M.O.)
[2] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovica 8, 21000 Novi Sad, Serbia; jelena.cukanovic@polj.uns.ac.rs (J.C.); radenka.kolarov@polj.uns.ac.rs (R.K.); sara.djordjevic@polj.edu.rs (S.D.)
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs

**Abstract**

Urban tree planting is widely promoted for its benefits, but the long-term condition of trees is poorly documented, especially as changing and often incompatible conditions, intensified by climate change, affect their ability to deliver those benefits. A case study in Topčider Park (since 1836) was conducted during 2025 through the evaluation of diversity, growth parameters, ornamental value, vitality, and total fresh biomass and the identification of tree taxa with high carbon-sequestration potential in Belgrade (Serbia). The data were statistically processed using descriptive statistics, the Shannon diversity and the Pielou evenness index, PCA, Spearman rank and Chi-square tests. The results indicated a wide distribution and high homogeneity of taxa, greater stability within Angiospermae and moderate stability within Gymnospermae, with PCA showing no correlations between growth parameters, vitality, and ornamental value, confirming the close proximity of all taxa. At the taxon level, London plane, English oak, Ginkgo and Bald cypress stood out in growth parameters, while the assessment of total fresh biomass for all 51 taxa highlighted London plane, Scots pine and Bald cypress as particularly productive and adaptive. Carbon sequestration and $CO_2$ reduction varied with total fresh biomass. The study offers evidence-based recommendations for selecting urban tree taxa to enhance ecosystem services and support climate-adaptation efforts in urban planning.

**Keywords:** growing conditions; Shannon diversity index; Pielou evenness index; biomass; carbon sequestration; $CO_2$ reduction; resilience; urban greening; urban forestry

Check for updates

Academic Editors: Astrid Reischl and Carlo Calfapietra

Received: 21 November 2025
Revised: 23 December 2025
Accepted: 10 January 2026
Published: 14 January 2026

**Copyright** © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

## 1. Introduction

Green infrastructure in cities essentially encompasses vegetation systems, including parks, which are responsible for and capable of providing ecosystem services that extend beyond the urban area itself. Nevertheless, many urban residents are unaware of their ecological footprint, and reconnecting cities with nature and the biosphere can contribute to raising awareness and changing behaviour [1]. In ecosystems such as urban areas, where natural and artificial elements coexist, new relationships are established between plants, between plants and human populations, animals or other organisms, and between plants and artefacts. The fragile balance regulating the interactions between plants and the urban environment, shaped by centuries of urbanisation across much of the inhabited part of the



horticulturae

MDPI

Article

# Adaptability and Resilience of *Chaenomeles japonica* (Thunb.) Lindl. ex Spach (*Rosaceae*) in Urban Landscape Design

**Dejan Skočajić [1], Djurdja Petrov [1,*], Nevenka Galečić [1], Jelena Čukanović [2], Radenka Kolarov [2], Sara Đorđević [2] and Mirjana Ocokoljić [1]**

[1] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; dejan.skocajic@sfb.bg.ac.rs (D.S.); nevenka.galecic@sfb.bg.ac.rs (N.G.); mirjana.ocokoljic@sfb.bg.ac.rs (M.O.)
[2] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; jelena.cukanovic@polj.uns.ac.rs (J.C.); radenka.kolarov@polj.uns.ac.rs (R.K.); sara.djordjevic@polj.edu.rs (S.D.)
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs

**Abstract**

This research is interdisciplinary in nature and supports the process of selecting individual plants to achieve sustainable visual and ecological effects in the urban landscape. The importance of this study is further emphasised by climate change, which necessitates modifications to the existing selection of ornamental plants. Those individuals must be capable of adapting to urban ecosystems in order to mitigate the impacts of climate change on humans and other organisms and to maintain a high level of biodiversity. Accordingly, this paper highlights, at the individual level, the significance of Japanese quince (*Chaenomeles japonica* (Thunb.) Lindl. ex Spach) as an element of urban green infrastructure in the Balkan Peninsula. Based on a real case study conducted over the period 2007–2025 and through an integrative approach involving 3841 phenological observations and climate parameters over 19 consecutive years, local phenological flowering patterns were identified, upon which the species' functional potential depends. The key patterns and abundance of flowering are the result of interactions with daily maximum and minimum air temperatures and precipitation levels, as confirmed by correlations with percentile-based classifications of climatic variables for the study years. The statistical non-significance of the trends points to the influence of extreme climatic events but also to the adaptability of the selected genotype compared with other Japanese quince genotypes in the vicinity. Regression analysis determined the optimal daily air temperatures for continuous flowering during 2024 and 2025. The results confirm that the selected individual is sustainable, and it is, therefore, proposed for inclusion in the assortment of ornamental plants important for preserving ecosystem services in urban landscape design, particularly in view of its demonstrated utilitarian benefits.

**Keywords:** Japanese quince; flowering; individual selection; ornamental traits; sustainable landscaping

Check for updates

Academic Editor: Jiafu Jiang

Received: 21 February 2026
Revised: 20 March 2026
Accepted: 21 March 2026
Published: 23 March 2026

**Copyright** © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

## 1. Introduction

Intensive urbanisation is transforming the urban landscape and generating major ecological challenges, particularly under conditions of climate change, thereby calling into question the sustainability of the urban environment [1], in which plants play a crucial role. Monitoring the impact of climatic conditions on utilitarian plants has been the subject of extensive and continuous research, as they determine national and global food security



sustainability

MDPI

Article

# Flowering Patterns of *Cornus mas* L. in the Landscape Phenology of Roadside Green Infrastructure Under Climate Change Conditions in Serbia

**Mirjana Ocokoljić [1], Nevenka Galečić [1], Dejan Skočajić [1], Jelena Čukanović [2], Sara Đorđević [2], Radenka Kolarov [2] and Djurdja Petrov [3,*]**

[1] Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; mirjana.ocokoljic@sfb.bg.ac.rs (M.O.); nevenka.galecic@sfb.bg.ac.rs (N.G.); dejan.skocajic@sfb.bg.ac.rs (D.S.)
[2] Department of Fruit Growing, Viticulture, Horticulture and Landscape Architecture, Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; jelena.cukanovic@polj.uns.ac.rs (J.C.); sara.djordjevic@polj.edu.rs (S.Đ.); radenka.kolarov@polj.uns.ac.rs (R.K.)
* Correspondence: djurdja.stojicic@sfb.bg.ac.rs

**Abstract:** One of the emerging services provided by roadside green infrastructure is its contribution to the quality of landscape phenology, which is measured through the succession of colours and forms throughout the seasons. In the seasonal dynamics of space, flowering phenological patterns play a key role, particularly in early blooming species such as *Cornus mas* L. Therefore, this paper aims to highlight the significance of the Cornelian cherry as a component of roadside green infrastructure in the southwestern suburban zone of Belgrade. Through an integrative approach to phenological and climatic elements, and by means of a specific case study covering the period from 2007 to 2025, under climate change conditions, the influence of air temperature and precipitation on local flowering patterns of the Cornelian cherry has been assessed. Based on 1140 phenological observations conducted over 19 consecutive years, from January to April, key flowering elements were identified—those that influence pollination, fruiting, and the species' practical potential. The Mann–Kendall, Sen's slope, Raylegh, and Watson–Williams tests were used to examine spatio-temporal changes in flowering patterns, while the Spearman Rank test and circular statistics were applied to quantify correlations among the analysed parameters. The results confirm that Cornelian cherry is an adaptive and sustainable species that continuously provides visual identity during its flowering period, while simultaneously reflecting climate change through phenological responses. These phenological responses are closely linked to local climatic conditions. In addition to enriching landscape phenology with vibrant visual features during the colder months, Cornelian cherry also enhances biodiversity by providing ecosystem services as a nectar-producing species, with its pollen serving as an early and valuable food source for bees. The study also confirms that the seasonal dynamics of landscape phenology can be used as a scientifically valid criterion for assessing the ecological quality of roadside green infrastructure.

**Keywords:** Cornelian cherry; spatio-temporal change; response; landscape dynamics; ecosystem services

check for updates

Academic Editor: Sharif Ahmed Mairal

Received: 5 May 2025
Revised: 27 May 2025
Accepted: 4 June 2025
Published: 9 June 2025

**Citation:** Ocokoljić, M.; Galečić, N.; Skočajić, D.; Čukanović, J.; Đorđević, S.; Kolarov, R.; Petrov, D. Flowering Patterns of *Cornus mas* L. in the Landscape Phenology of Roadside Green Infrastructure Under Climate Change Conditions in Serbia. *Sustainability* **2025**, *17*, 5334. https://doi.org/10.3390/su17125334

**Copyright** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

Phenology is the study of recurring phenomena influenced by biological processes and climatic variables. Phenological shifts, expressed through phenotypic plasticity, serve



sustainability

MDPI

Article

# Biodiversity, Heritage and Ecosystem Service Potential of Woody Taxa in Scattered Built Environments of Traditional Agricultural Landscapes

**Sara Đorđević [1], Attila Tóth [2,*], Gabriel Kuczman [2], Jelena Čukanović [1], Mirjana Ljubojević [1], Mirjana Ocokoljić [3], Djurdja Petrov [3] and Saša Orlović [1,4]**

[1] Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia; sara.djordjevic@polj.edu.rs (S.Đ.); jelena.cukanovic@polj.uns.ac.rs (J.C.); sasao@uns.ac.rs (S.O.)
[2] Institute of Landscape Architecture, Faculty of Horticulture and Landscape Engineering, Slovak University of Agriculture in Nitra, Tr. A. Hlinka 2, 949 76 Nitra, Slovakia; gabriel.kuczman@uniag.sk
[3] Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, 11030 Belgrade, Serbia; mirjana.ocokoljic@sfb.bg.ac.rs (M.O.); djurdja.stojicic@sfb.bg.ac.rs (D.P.)
[4] Institute of Lowland Forestry and Environment, University of Novi Sad, Antona Čehova 13d, 21000 Novi Sad, Serbia
* Correspondence: attila.toth@uniag.sk

**Abstract**

Agricultural landscapes often exhibit low tree cover and homogeneity, leading to various environmental challenges. Traditional farmsteads, as scattered built environments in agricultural landscapes with diverse woody vegetation, enhance ecological heterogeneity and provide significant ecosystem services (ES), yet their dendroflora remains understudied. This study assesses woody vegetation on ten traditional farmsteads in Vojvodina, Serbia as case studies, through field surveys of woody species, biodiversity indices, GIS-based spatial analyses, and classification of species according to functional and ecosystem-related traits, offering insights into ecological patterns within these landscapes. The analysis examines species composition, abundance, origin, structural traits (tree cover, density, age, height, and crown width), and functional roles in ES provision. The vegetation shows potential to contribute to ES, especially through melliferous species (about 80%), food sources (about 82% for humans, 91% for birds, 91% for small mammals, 87% for domestic animals), and windbreak functions (about 76%). Phytoncide-producing species (about 62%) suggest a potential provision of air quality benefits, while entomophilous species (about 83%) indicate a potential provision of pollination support. Traditional farmsteads support biodiversity conservation, habitat provision, and preservation of genetic resources, particularly through old and rare species. Integrating these systems into agroforestry and biodiversity-friendly practices may increase ecological resilience and balance in intensive farming areas. Recognising traditional farmsteads as biodiversity reservoirs is vital for sustainable land use, and for conserving cultural and natural heritage within agricultural landscapes.

**Keywords:** agricultural landscapes; woody vegetation; Shannon and Simpson's diversity index; ecosystem services; tree cover

check for updates

Academic Editor: Li Yang and Peijun Yu

Received: 18 August 2025
Revised: 25 October 2025
Accepted: 3 November 2025
Published: 5 November 2025

**Citation:** Đorđević, S.; Tóth, A.; Kuczman, G.; Čukanović, J.; Ljubojević, M.; Ocokoljić, M.; Petrov, D.; Orlović S. Biodiversity, Heritage and Ecosystem Service Potential of Woody Taxa in Scattered Built Environments of Traditional Agricultural Landscapes. *Sustainability* **2025**, *17*, 9865. https://doi.org/10.3390/su17219865

**Copyright** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

*Pak. J. Bot.*, 58(7) July, 2026.

ARTICLE | DOI: http://dx.doi.org/10.30848/PJB2026-7(6)

# THE IMPACT OF AIR TEMPERATURE ON THE SUSTAINABILITY OF *TRACHELOSPERMUM JASMINOIDES* (LINDL.) LEM. UNDER CONDITIONS OF A TEMPERATE CONTINENTAL CLIMATE

MIRJANA OCOKOLJIĆ[1], DJURDJA PETROV[1], NEVENKA GALEČIĆ[2], DEJAN SKOČAJIĆ[1], JELENA ČUKANOVIĆ[3], DRAGAN VUJIČIĆ[3] AND ISIDORA SIMOVIĆ[3]

[1]University of Belgrade - Faculty of Forestry, Kneza Viseslava 1, Belgrade 11000, Serbia
[2]University of Novi Sad - Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia
[3]BioSense Institute, University of Novi Sad, Dr Zorana Djindjica 1, Novi Sad 21000, Serbia

*Corresponding author's email: djurdja.stojicic@sfb.bg.ac.rs

**Abstract**

Star Jasmine (*Trachelospermum jasminoides* (Lindl.) Lem.) is an economically important commercial species for to its ornamental and ecological benefits. Therefore, responses to variations in air temperature are significant for its sustainability and shifts in phenophases, which can have long-term effects on its distribution, functions, and ecosystem services. An integrative approach to phenological patterns using the BBCH scale and biometric traits in the study, along with the analysis of trends and correlations, is a key step in obtaining valuable information for the management and conservation of Star Jasmine. The findings of intensive research in Serbia over three consecutive years stand out due to crucial information about the morphological features of leaves, inflorescences, flowers, and the species' acclimatization. The obtained results confirm the temporally consistent phenological patterns of leafing, but a 57-day earlier onset and a 26-day longer full flowering phenophase, influenced by high air temperatures in the globally hottest year, 2024. Additionally, it was observed that Star Jasmine tolerates frosts down to -15.5°C and multiple consecutive frost days, under conditions of a temperate continental climate at altitudes up to 200m. The results are important for complementing the list of suitable plants for nature-based landscape design, attractive to birds, bees, butterflies, and other organisms displaced due to rapid urban development and play a vital role in ecosystem services, as they help regulate harmful insect populations and support pollination. Our study confirms that seasonal changes in Star Jasmine are influenced by fluctuating air temperatures, a trend that must be confirmed in the coming years to highlight the impact of climate change on urban landscape phenology and species sustainability.

**Key words:** Star Jasmine; Acclimatization; Phenology; Biometric attributes; Residual values

## Introduction

The worldwide climate change research, particularly about temperature variations, confirm trend of increasing air temperatures since the second half of the nineteenth century, with more intense warming from 1920 to 1944, after 1975 (Rebetez & Reinhard, 2008), and especially since 2015 (Anon., 2021, Ocokoljić *et al*., 2023). Responses to air temperature variations are shifts in phenophases over time, and these shifts may have long-term effects on species distribution, ecosystem functions, and services (Parmesan, 2006, Cramans *et al*., 2010, Richardson *et al*., 2010). This is particularly relevant for flowering of ornamental taxa, such as *Trachelospermum jasminoides* (Lindl.) Lem. (*THJA*), which has been widely introduced into the horticultural market (Wellington, 2017). The timing of reproductive phenophases is crucial for this species as it can influence the strength of interactions between plants and their pollinators (Forrest, 2015).

*THJA* belongs to the family *Apocynaceae* Juss., which includes around 400 genera and 4,555 species, primarily distributed in tropical to warm temperate regions (Stevens, 2012), and the genus *Trachelospermum* Lem. with 15 species according to the Flora of China Editorial Committee (2017) and 10 species according to POWO (2025), consisting of woody climbers, one of which is native to North America, while the others are native to Asia (Flora of China Editorial Committee, 2017). The botanical and common names of *THJA* (Asiatic jasmine, Chinese star jasmine, Confederate jasmine, Japanese star jasmine, Small leaf confederate jasmine, Star jasmine) reflect its fragrant flowers, which resemble those of jasmine (Rojas-Sandoval, 2022). *THJA* is a light and partial shade species and in its native populations grows in well-drained soils (pH ranging from 4.5 to 8) on forest edges, thickets, disturbed habitats, and along roads and paths at altitudes between 200 and 1,300 meters (Flora of China Editorial Committee, 2017). Owing its fast growth, it colonizes areas even when not fruiting, as it spreads vegetatively and poses a potential threat to biodiversity (Gilman, 1999; Clifford & Kobayashi, 2010), though as an invasive species, it has only been recorded in the Bahamas (Anon., 2025). In landscape design, it is an element of gardens, parks, recreational areas, and other open spaces (Gilman, 1999; TGA Australia, 2017) as a ground cover and in vertical greening of landscape architectural structures, serving functions such as creating shade, fostering contact with nature, providing aesthetic value, supporting education, filtering air pollution, and providing habitat for birds and insects (Hansen, 2010).

Received: 29-02-2025 | Revised: 17-07-2025 | Accepted: 25-07-2025 | Online: 06-03-2026

**SYLWAN** 166 (9): 603-610, September 2022
https://doi.org/10.26202/sylwan.2022069
Journal homepage: https://sylwan-journal.pl

SHORT COMMUNICATION

# Medial-vegetative proliferation of European larch *Larix decidua* Mill. cones

Mirjana Ocokoljić✉, Djurdja Petrov, Nevenka Galečić

University of Belgrade, Faculty of Forestry, Kneza Viteslava 1, 11030 Belgrade, Serbia

ABSTRACT

Identification and analysis of proliferated cones in conifers has both theoretical and practical significance, particularly in systematic and taxonomic investigations, but also in the study of population and individual variability within a species. Comparative morphological-anatomical studies of reproductive organs can contribute to solving many issues in phylogeny and can identify abnormal phenomena in cone formation. In light of the value of such information, this paper presents the results of monitoring European larch *Larix decidua* Mill. cone proliferation in Serbia over a 24-year period, with the aim of studying cone apical meristem activity, which usually is limited. Cone proliferation was confirmed by comparative morphological and genetic-physiological analyses of cones from European larch growing in the Arboretum of the Faculty of Forestry in Belgrade, at ages of 41, 51, and 65 years old.

KEY WORDS

genotype, morphogenetic control, teratological phenomenon

## Introduction

Cone proliferation in conifers is an exceptionally rare phenomenon in both natural and managed stands, because apical and diffuse meristems in cone structures usually have limited or determined growth. The limited growth of cones is achieved through the apical and diffuse meristem, and their growth is strictly controlled. The problem of this control is complex because it includes two types of morphogenetic controls. Interruption of limited growth – proliferation of cones includes both types of morphogenetic control, and consists of interconnected and not isolated processes. Intraspecific variability can either result from genetic or environmental factors (Borojević, 1981; Tucović and Stilinović, 1981; Mather and Jinks, 1982). Looney and Duffield (1958) attributed the mass formation of vegetatively proliferated Douglas-fir cones *Pseudotsuga menziensii* (Mirb.) Franco in North America to genetic factors. Tucović and Stilinović (1973) identified five types of proliferation of mature cones of *Cryptomeria* in Serbia, a unique and exceptional phenomenon occurring in plants of the *Pinophyta* division: medial-vegetative, medial-floral, medial-vegetative--floral, medial-vegetative-floral-vegetative-floral and medial-floral-vegetative*, which are induced by genetic factors (Isajev *et al*., 2000; Rudall *et al*., 2011).

*medial-vegetative: axial growth of fruits and formation of shoots with leaves; medial-floral: axial growth of fruits and formation of flowers; medial-vegetative-floral: axial growth of fruits and formation of shoots with leaves and flowers; medial-vegetative-floral-vegetative-floral: axial sprouting and formation of flowers and further sprouting and formation of shoots with leaves and flowers; and medial-floral-vegetative: axial sprouting and formation of flowers and shoots with leaves.

✉e-mail: mirjana.ocokoljic@sfb.bg.ac.rs

Received: 18 October 2022; Revised: 24 November 2022; Accepted: 12 December 2022; Available online: 25 January 2023

Open access ©2022 The Author(s). http://creativecommons.org/licenses/by/4.0



# THE STUDY OF *JASMINUM NUDIFLORUM* LINDL. IN URBAN GREEN INFRASTRUCTURE IN CONDITIONS OF CLIMATE CHANGE IN BELGRADE, SERBIA

OCOKOLJIĆ, M.[1] – PETROV, DJ.[1*] – GALEČIĆ, N.[1] – SKOČAJIĆ, D.[1] – ŠIŠAKOVIĆ, N.[2] – SIMOVIĆ, I.[3]

[1]*University of Belgrade - Faculty of Forestry, Kneza Viseslava 1, Belgrade 11000, Serbia*

[2]*JKP Zelenilo Beograd, Rajkova 15, Novi Beograd 11070, Serbia*

[3]*BioSense Institute, University of Novi Sad, Dr Zorana Djindjića 1, Novi Sad 21000, Serbia*

[*]*Corresponding author*
*e-mail: djurdja.stojicic@sfb.bg.ac.rs; phone: +381-113-053-814; fax: +381-112-545-485*

(Received 19th Mar 2024; accepted 8th Jul 2024)

**Abstract.** The research aims to assess the significance of early (winter) jasmine as a fundamental component within Belgrade's urban green infrastructure (UGI) in Serbia. Through a specific case study, it investigates the intricate interplay between climate, biodiversity, and vegetation across spatial and temporal scales influenced by climate change. The study analyzes the layout of UGI, its various spatial typologies, and the importance of relation between these characteristics, morphology and phenology for the social and cultural context. Results demonstrate that Weeping Winter Jasmine, particularly during its cold-season flowering phase, enhances visual appeal and attractiveness without conflicting with ethical, spiritual, or cultural values. Morphological analysis of 2,250 flowers revealed a distinction between trimmed and free-growing plants, yet differing characteristics did not impact flowering abundance or visual perception. Flowering phenology was monitored across the municipalities of Savski venac, Vračar, and Čukarica to assess shifts in flowering patterns. Over the autumn, winter, and spring of 2022/2023, 30,925 phenological observations were recorded, while 125,600 from the period 2007-2022 were utilized to determine key flowering phases and events important for landscape design. Cluster analysis delineated location 3 from locations 1 and 2, which share similarities and are influenced by the urban heat island (UHI) effect, confirming phenological changes are a prominent indicator of climate change. Despite belonging to the oldest group, location 3 individuals exhibited the longest flowering phenophase, commencing 54.5 days earlier and concluding 15 days later compared to the previous sixteen-year period. The study confirmed the importance of *Jasminum nudiflorum* Lindl. as a UGI element in Belgrade, sustaining vibrant and cascading displays throughout the colder months and maintaining social and cultural contribution of the location amidst climate change.
**Keywords:** *climate change, social context, flowering shrub, landscape design, urban heat island (UHI), greenery layout*

## Introduction

More than half of the world's population lives in urban areas, and further population growth is expected to be mainly in cities (United Nations, 2019). Furthermore, the increase in the urban population leads to a higher degree of urbanization and the awareness of the importance of UGI is stronger (Schwarz et al., 2011). Reconciling ecological and other ecosystem services is a challenging because UGI elements are mostly small-sized and fragmented (Summers et al., 2012). Taxon richness, ecological uniqueness, and assessment of flora quality are used for the preservation of the identity and revitalization of UGI elements (Schetke et al., 2010). Ecological uniqueness


http://www.aloki.hu ● ISSN 1589 1623 (Print) ● ISSN 1785 0037 (Online)
DOI: http://dx.doi.org/10.15666/aeer/2205_47794805
© 2024, ALÖKI Kft., Budapest, Hungary

**SYLWAN** 168 (11): 801-821, November 2024
https://doi.org/10.26202/sylwan.2024047
Journal homepage: https://sylwan-journal.pl

ORIGINAL PAPER

# Phenological patterns of *Fraxinus ornus* L. flowering in the context of ecosystem services preservation in urban forests: a case study of Košutnjak, Belgrade, Serbia

Mirjana Ocokoljić[(1)], Djurdja Petrov[(1)✉], Olivera Košanin[(1)], Nevenka Galečić[(1)], Dejan Skočajić[(1)], Dragan Vujičić[(1)], Isidora Simović[(2)]

[(1)] University of Belgrade – Faculty of Forestry, 1 Kneza Viteslava, 11030 Belgrade, Serbia

[(2)] BioSense Institute, University of Novi Sad, 1 Dr Zorana Đinđića, 21000 Novi Sad, Serbia

ABSTRACT

In light of the rapid and unpredictable urban expansion posing significant challenges for humanity, urban forests are increasingly recognised for their role in climate change adaptation in the coming decades. This study focuses on *Fraxinus ornus* (manna ash) within the urban forest of Košutnjak in Belgrade, summarising the results of an 18-year phenological study (2007-2024). The study evaluates flowering patterns of manna ash across various soil types, exposures, altitudes, and slopes, alongside an analysis of soil characteristics in observed populations. Observations were conducted at three distinct sites within native populations of downy oak and large-leaved downy oak and Turkey oak, large-leaved downy oak and manna ash. Phenological changes were documented by recording key events every other day and converting these dates into days of the year across the three populations. For the first time for manna ash in a temperate continental climate, the accumulated chilling hours necessary for bud break were determined by summing chilling hours from 1 November 2006 until the first bud break in 2007, with this procedure repeated annually for each of the 17 subsequent research years. Additionally, the accumulated heat sums required for key phenological events were calculated using daily maximum and minimum air temperatures and temperature threshold for each of the 18 years of research. Results revealed an earlier beginning of flowering by more than two weeks in the Košutnjak urban forest, with notable variability in key phenological events influenced by climatic parameters. Despite this variability, flowering and fruiting occurred regularly, with abundant yields every second or third year. Sexual dimorphism was observed consistently across all analysed populations, with a male-to-hermaphrodite ratio of 49:51% in the study area. The study confirms the vigour and high reproductive capacity of indigenous *Fraxinus ornus* populations, as well as their tolerance to high temperatures and moisture deficiency. Projections suggest an expanding range of distribution for manna ash in the coming decades, highlighting its value as an adaptive and ornamental species. The findings underscore its importance for maintaining ecosystem services, supporting nature-based solutions, and promoting sustainable management and restoration of urban forests, with significant benefits for biodiversity and human well-being.

✉e-mail: djurdja.stojicic@sfb.bg.ac.rs

Received: 29 August 2024; Revised: 31 October 2024; Accepted: 13 November 2024; Available online: 14 December 2024

Open access ©2024 The Author(s). http://creativecommons.org/licenses/by/4.0

# *MAHONIA AQUIFOLIUM* (PURSH) NUTT.: VARIETIES GLOBOSA AND TEARS IN THE URBAN DENDROFLORA UNDER CLIMATE CHANGES

OCOKOLJIĆ, M. Z.[1] – ČUKANOVIĆ, J. D.[2] – PETROV, DJ. L.[2]* – KOLAROV, R. D.[2] – ĐORĐEVIĆ, S. Ž.[2] – SKOČAJIĆ, D. M.[2] – GALEČIĆ, N. M.[1] – SKOČAJIĆ, D. L.[1]

[1]*Faculty of Forestry, University of Belgrade, Kneza Viseslava 1, Belgrade 11000, Serbia*

[2]*Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia*

**Corresponding author*
*e-mail: djurdja.stojicic@sfb.bg.ac.rs; phone: +381-11-305-3814; fax: +381-11-254-5485*

(Received 28th Apr 2025; accepted 26th Jun 2025)

**Abstract.** *Mahonia aquifolium* (Pursh) Nutt. (MA), from the *Berberidaceae* family, is an indigenous species of North America that was introduced to Europe for ornamental purposes. With the expansion of the food industry, it has been classified as a non-traditional crop for industrial use. Chemical analyses of its fruit mesocarp confirmed significant quantities of bioactive compounds, suggesting broader potential applications. This study analyzed the genetic structure and variability of secondary populations, as well as the species' role in providing ecosystem services and contributing to the stability of urban parks, supporting the diversity of shrub-dominated tree flora. An integrative approach, focusing on fruiting patterns and climatic variables, was used. From 30,816 phenological observations, the sustainability of the new varieties was confirmed, with earlier fruit ripening occurring within the appropriate accumulated heat sums under climate change conditions. Biochemical studies confirmed the significant role of both varieties in preserving urban health, revealing substantial levels of bioactive compounds and antioxidant capacity. Ethanol proved to be a more effective solvent for extracting phenols, tannins, flavonoids, and anthocyanins, with antioxidant properties strongly linked to phenolic compounds. The vitamin C content was higher in the *globosa* variety, highlighting the importance of genotypic and morphological traits. Both varieties serve as multifunctional fruits for consumption and medicinal use. The presence of anthocyanins makes the berries suitable for extracting natural food colors. Regarding ecosystem services, both MA genotypes, as adaptive taxa, provide shelter, nesting, and resting sites for birds. Their fruits play a vital role in the food chain, particularly in Important Bird Areas.
**Keywords:** *genetic diversity, phenological patterns, morphometry analysis, fruit, bioactive compounds, antioxidant activity*

## Introduction

*Mahonia aquifolium* (Pursh) Nutt. (MA) is an invasive evergreen shrub native to western North America. It has spread from the Pacific coast to Montana and Idaho (Ross and Auge, 2008), as well as to Australia and Europe since 1822, when it was introduced for horticultural purposes (Ross, 2009). *M. aquifolium* used in landscape design and for medicinal purposes (Auge and Brandl, 1997;), particularly in areas with heavy traffic or other pollutants due to its high resistance to contamination (Samecka-Cymerman and Kempers, 1999). It thrives best in rich, well-drained soils with a pH of 6–8, but can also grow successfully in poor soils (Ocokoljić and Petrov, 2022). It is drought-tolerant and resistant to strong sunlight and extremely low temperatures (Hrubek, 2005). Although Serbia is not a center of origin for MA, the species has been identified in gardens, parks, and elements of urban green infrastructure along roadways.

MA contains secondary metabolites in all parts: leaves, flowers, fruits, seeds, roots, and bark (Mathew and Abraham, 2006), as well as other pharmacological compounds that

APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH 23(4):8251-8273.
http://www.aloki.hu ● ISSN 1589 1623 (Print) ● ISSN 1785 0037 (Online)
DOI: http://dx.doi.org/10.15666/aeer/2304_82518273
© 2025, ALÖKI Kft., Budapest, Hungary

**SYLWAN** 169 (9): 669-687, **September 2025**
https://doi.org/10.26202/sylwan.2025050
Journal homepage: https://sylwan-journal.pl

**ORIGINAL PAPER**

# The influence of air temperature and precipitation on the flowering and sustainability of *Acer pseudoplatanus* L. in the Zvezdara Urban Forest (Belgrade, Serbia)

Mirjana Ocokoljić[(1)], Nevenka Galečić[(1)], Dejan Skočajić[(1)], Jelena Čukanović[(2)], Sara Đorđević[(2)], Radenka Kolarov[(2)], Djurdja Petrov[(1)]*

[(1)] University of Belgrade, Faculty of Forestry, 1 Kneza Višeslava, 11030 Belgrade, Serbia

[(2)] University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

## ABSTRACT

The aim of this study is to highlight the importance of *Acer pseudoplatanus* as a component of urban forests within the urban heat island zone of Belgrade. Through an integrative approach combining phenological and climatic elements, and using a case study covering the period from 2007 to 2025, the influence of air temperature and precipitation on the flowering patterns of this native species in Serbia was assessed. Based on 5,738 phenological observations over 19 consecutive years, key flowering elements were identified, which are crucial for pollination, fruiting, and the long-term sustainability of the species. To investigate the spatio-temporal changes in flowering patterns, the Mann-Kendall test in conjunction with Sen's slope estimator and the Spearman Rank test were applied. To quantify correlations between the studied species parameters and to confirm seasonality, particularly in comparison with *Acer platanoides*, circular statistics, along with the Rayleigh and Watson-Williams tests, were used. The results confirm that *A. pseudoplatanus* is an adaptive species under climate change conditions. Findings indicate that key flowering phase shifts in *A. pseudoplatanus* are not significantly influenced by climatic variables; rather, the onset, full bloom, and end of flowering occur within defined thresholds of accumulated heat. However, compared to the average, the flowering phenophase was extended by 10.4 days in 2024 and by 2.4 days in 2025, although the trends did not reach statistical significance. The visual identity of the Zvezdara Forest in landscape phenology, as a reflection of climate change through phenological indicators, is characterised by a strong seasonality in the flowering patterns of sycamore maple *A. pseudoplatanus* in mid-spring, preceded by the flowering of *A. platanoides* in early spring. In conclusion, the study highlights the importance of promoting native species in the design of urban forests, both for their ecosystem services as nectar-producing (pollinator-supporting) species, and for enabling the development of nature-based solutions that mitigate the effects of urban heat islands. Their contribution to springtime landscape phenology reinforces the ecological and aesthetic value of such species in urban environments.

## KEY WORDS

biodiversity, human well-being, monitoring, native species, pollinator-friendly plants

✉e-mail: djurdja.stojicic@sfb.bg.ac.rs
Received: 26 September 2025; Revised: 27 October 2025; Accepted: 12 November 2025; Available online: 7 December 2025
Open access ©2025 The Author(s). http://creativecommons.org/licenses/by/4.0

*Contemporary Agriculture*, Vol. 74, No. 3-4 (2025): 237-251
DOI: https://doi.org/10.2478/contagri-2025-0026
UDC: 634.1 577.338

*Research article*

# ECOSYSTEM SERVICES OF BLACKTHORN: EFFECTS OF HARVESTING TIME ON THE FUNCTIONAL EXTRACTION OF POLYPHENOLIC COMPOUNDS AND ANTIOXIDANT ACTIVITY

ISSN 2466-4774
https://www.contagri.info/

**Radenka Kolarov[1], Jelena Čukanović[1*], Sara Đorđević[1], Djurdja Petrov[2], Nevenka Galečić[2], Dejan Skočajić[2], Mirjana Ocokoljić[2]**

[1]Faculty of Agriculture, University of Novi Sad, Novi Sad, Serbia
[2]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
**Corresponding author:* jelena.cukanovic@polj.uns.ac.rs

Submitted: 22.07.2025.
Reviewed: 30.07.2025.
Accepted: 04.08.2025.

*ABSTRACT*

*The objective of this study was to examine the potential ecosystem services of Blackthorn (Prunus spinosa L.) in view of its traditional importance as a source of food and medicine. Fruits were sampled from a suburban population in the southwestern part of Belgrade at three time points: after ripening in late summer, in early winter, and in early spring. Using spectrophotometric methods and ethanol and distilled water as solvents, the contents of polyphenolic compounds and the antioxidant capacity were determined. To assess the influence of the harvesting period, the results were analysed using descriptive statistics, one-way ANOVA, Tukey's HSD and LS Means tests, Spearman's correlation coefficient, and confidence interval models. The biochemical composition of the fruits was shown to depend on the time of harvest, as confirmed by the statistically significant differences between the sampling periods for all the parameters except anthocyanins. In all the sampling periods, the ethanolic extracts exhibited higher values of polyphenolic compounds and antioxidant capacity compared to the aqueous extracts. Early spring and early winter were identified as the most suitable harvesting times, as the strongest antioxidant activity measured by the FRAP test was recorded in the third period, and by the DPPH and ABTS tests in the second period. This study makes a significant contribution by confirming that the harvest time does not affect the anthocyanin content, thus highlighting the commercial potential of Blackthorn fruits as natural colourants based on anthocyanins. The patterns of variability suggest optimal harvesting times for the efficient extraction of bioactive compounds and the use of Blackthorn fruits in the development of functional foods and pharmaceutical products. Furthermore, the findings serve as a basis for developing strategies aligned with climate change predictions, as the results confirm a positive influence of low air temperatures preceding the second and third sampling on the bioactive components of the fruits.*

*Key words:*
*Prunus spinosa L., fruit plants, targeted use, bioactivities, FRAP, ABTS+, DPPH*

**Citation:**
Kolarov, R., Čukanović, J., Đorđević, S., Petrov, Dj., Galečić, N., Skočajić, D. & Ocokoljić, M. 2025. Ecosystem services of blackthorn: effects of harvesting time on the functional extraction of polyphenolic compounds and antioxidant activity. *Contemporary Agriculture*, 74(3-4): 237-251. https://doi.org/10.2478/contagri-2025-0026

## INTRODUCTION

Woody plants bearing edible fruits represent valuable raw materials for meeting fundamental nutritional needs, as fruits serve diverse dietary functions. In addition to their basic nutritional value, they often contain bioactive


© 2025 Author(s). This is an open access article licensed under the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by/4.0/).

sciendo

*Contemporary Agriculture*, Vol. 74, No. 1-2 (2025): 75-85
DOI: https://doi.org/10.2478/contagri-2025-0010
UDC: 582.711.712.712.254.28

*Research article*

# ROSE 'CASINO' AS AN ELEMENT OF LANDSCAPE ARCHITECTURAL COMPOSITION IN THE COURTYARD OF THE CHURCH OF ST GEORGE IN BELGRADE UNDER CHANGING CLIMATE CONDITIONS

ISSN 2466-4774
https://www.contagri.info/

**Dejan Skočajić[1], Jelena Čukanović[2*], Djurdja Petrov[1], Nevenka Galečić[1], Radenka Kolarov[2], Sara Đorđević[2], Mirjana Ocokoljić[1]**

[1]Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia,
[2]Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21 000 Novi Sad, Serbia
**Corresponding author:* jelena.cukanovic@polj.uns.ac.rs

Submitted: 01.03.2025.
Reviewed: 12.03.2025.
Accepted: 21.03.2025.

*ABSTRACT*

*The study analyses the in situ sustainability of the climbing rose 'Casino' in the courtyard of the Church of St George in Belgrade. The aim of the research was to assess the impact of changing climate conditions on its phenological flowering pattern. The evaluation assessed frost damage and timing of the phenological flowering phases - bud break, beginning of flowering, full bloom and end of flowering-as well as daily flowering abundance. The findings indicate that bud break timing was correlated with accumulated cold hours, which reached a sum level typical for early - flowering plants (to which the studied cultivar does not belong), as well as the accumulated heat sum for subsequent phenological phases. The flowering began 93 days earlier, and continued uninterrupted until the end of 2024 and into January 2025, with varying abundance. A comparative analysis determined the optimal daily maximum and minimum temperatures for peak flowering - 22.9°C (maximum) and 11.7°C (minimum) - and for abundant flowering - 20.8°C (maximum) and 9.8°C (minimum). Regression analysis confirmed a decline in flowering abundance when daily maximum and minimum air temperatures exceeded the optimal ranges. These findings have practical applications in urban landscape design, especially considering the projected global warming trends. Despite the resistance of the 'Casino' rose' to changing climate conditions, there is no certainty regarding the stability of the flowering phenophase in the coming years. In line with sustainable global trends, the 'Casino' cultivar is recommended for inclusion in Serbia's first rosarium and for future research programmes aimed at cultivar conservation and breeding improvements. Additionally, given its significance as a 30-year-old element of the landscape architectural composition, it is proposed for protection as a natural asset and as valuable source material for vegetative reproduction.*

*Key words:*
*climbing rose, flowering, seasonality, climate warming, sustainability, landscape design*

**Abbreviations**:
DOY – day of the year; GDD – growing degree days

**Citation:**
Skočajić, D., Čukanović, J., Petrov, Dj., Galečić, N., Kolarov, R., Đorđević, S. & Ocokoljić, M. 2025. Rose 'Casino' as an element of landscape architectural composition in the courtyard of the Church of St George in Belgrade under changing climate conditions. *Contemporary Agriculture*, 74(1-2): 75-85. https://doi.org/10.2478/contagri-2025-0010


© 2025 Author(s). This is an open access article licensed under the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by/4.0/).

**Прилог 4.** Радови саопштени на међународним или домаћим скуповима и предавања по позиву- Предавања по позиву (М32).



14th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Kladovo, 26th to 29th June 2022

Dr Đurđa Petrov
Associate Professor
Faculty of Forestry
University of Belgrade
Belgrade, Serbia

Dear dr Đurđa Petrov,

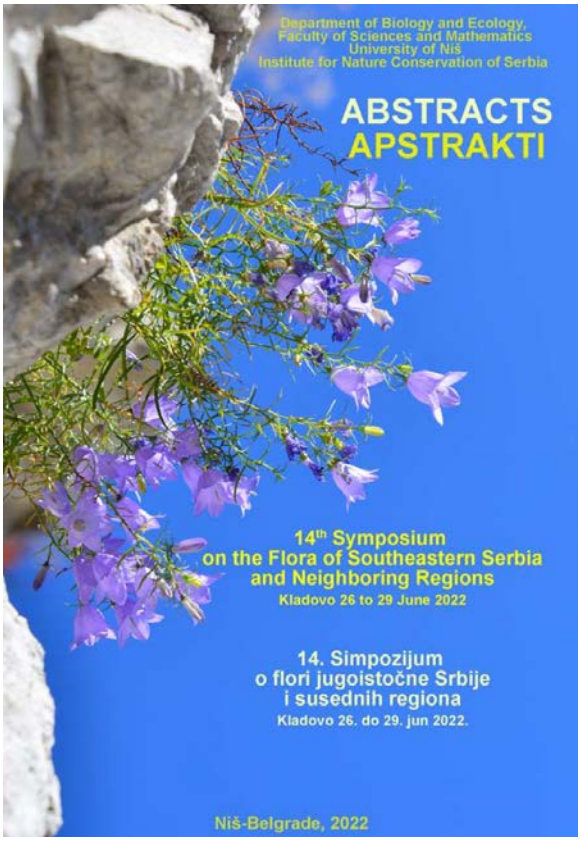
We are writing to formally invite you to be the **Introductory speaker** at the session **Genetics, Selection and Biotechnology, Agriculture, Forestry and Landscape Architecture, Zoology (Animals and Plants Interactions)** of the 14th Symposium on the Flora of Southeastern Serbia and Neighboring Regions (14th SFSES), which will be held in Kladovo (Serbia) from 26th to 29th June 2022.
As a great contributor in your field, we are sure that the participants at the meeting will appreciate hearing your perspectives on the theme ***"Picea abies (L.) H. Karst. morphological characteristics variability in the climate change conditions on the Čemernik mountain"***. We believe that the proposed theme is an interesting topic for several reasons and that your lecture on this topic will be of great benefit.

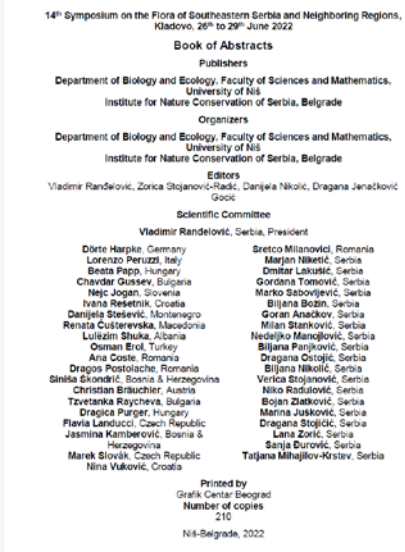
We look forward to a positive confirmation. Please be so kind to inform us about your participation as soon as possible.

Best regards,
Dr Sanja Đurović
Member of the Organizing Committee
Faculty of Agriculture
University of Niš, Niš, Serbia

In Kruševac,
13. 5. 2022.

Department of biology and Ecology | Faculty of Sciences and Mathematics | University of Niš, Serbia | Institute for Nature Conservation of Serbia



14th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Kladovo, 26th to 29th June 2022

Book of Abstracts

Publishers

Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš
Institute for Nature Conservation of Serbia, Belgrade

Organizers

Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš
Institute for Nature Conservation of Serbia, Belgrade

Editors

Vladimir Randelović, Zorica Stojanović-Radić, Danijela Nikolić, Dragana Jenačković Gocić

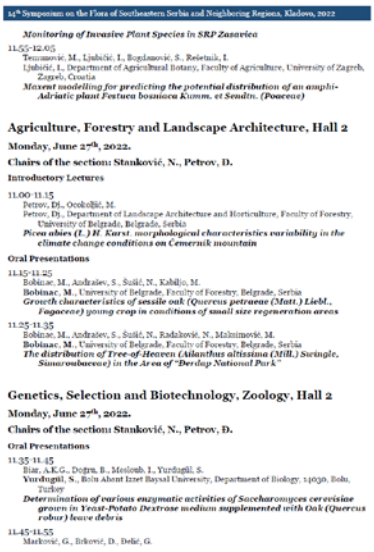
Scientific Committee

Vladimir Randelović, Serbia, President

Dörte Harpke, Germany
Lorenzo Peruzzi, Italy
Beata Papp, Hungary
Chavdar Gussev, Bulgaria
Nejc Jogan, Slovenia
Ivana Rešetnik, Croatia
Danijela Stešević, Montenegro
Renata Ćuševerska, Macedonia
Lulëzim Shuka, Albania
Osman Erol, Turkey
Ana Coste, Romania
Dragos Postolache, Romania
Siniša Škondrić, Bosnia & Herzegovina
Christian Bräuchler, Austria
Tzvetanka Raycheva, Bulgaria
Dragica Purger, Hungary
Flavia Landucci, Czech Republic
Jasmina Kamberović, Bosnia & Herzegovina
Marek Slovák, Czech Republic
Nina Vuković, Croatia
Sretco Milanovici, Romania
Marjan Niketić, Serbia
Dmitar Lakušić, Serbia
Gordana Tomović, Serbia
Marko Sabovljević, Serbia
Biljana Božin, Serbia
Goran Anačkov, Serbia
Milan Stanković, Serbia
Nedeljko Manojlović, Serbia
Biljana Panjković, Serbia
Dragana Ostojić, Serbia
Biljana Nikolić, Serbia
Verica Stojanović, Serbia
Niko Radulović, Serbia
Bojan Zlatković, Serbia
Marina Jušković, Serbia
Dragana Stojičić, Serbia
Lana Zorić, Serbia
Sanja Đurović, Serbia
Tatjana Mihajilov-Krstev, Serbia

Printed by
Grafik Centar Beograd
Number of copies
210

Niš-Belgrade, 2022





*Monitoring of Invasive Plant Species in SRP Zasavica*

11.55-12.05
Tesmanović, M., Ljubičić, I., Bogdanović, S., Redetnik, I.
Ljubičić, I., Department of Agricultural Botany, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia
*Maxent modelling for predicting the potential distribution of an amphi-Adriatic plant Festuca bosniaca Kumm. et Sendtn. (Poaceae)*

**Agriculture, Forestry and Landscape Architecture, Hall 2**

**Monday, June 27th, 2022.**

**Chairs of the section: Stanković, N., Petrov, Đ.**

**Introductory Lectures**

11.00-11.15
Petrov, Đ., Ocokoljić, M.
Petrov, Đ., Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Belgrade, Serbia
*Picea abies (L.) H. Karst. morphological characteristics variability in the climate change conditions on Čemernik mountain*

**Oral Presentations**

11.15-11.25
Bobinac, M., Andrašev, S., Šušić, N., Kabiljo, M.
Bobinac, M., University of Belgrade, Faculty of Forestry, Belgrade, Serbia
*Growth characteristics of sessile oak (Quercus petraea (Matt.) Liebl., Fagaceae) young crop in conditions of small size regeneration areas*

11.25-11.35
Bobinac, M., Andrašev, S., Šušić, N., Radaković, N., Malnimović, M.
Bobinac, M., University of Belgrade, Faculty of Forestry, Belgrade, Serbia
*The distribution of Tree-of-Heaven (Ailanthus altissima (Mill.) Swingle, Simaroubaceae) in the Area of "Derdap National Park"*

**Genetics, Selection and Biotechnology, Zoology, Hall 2**

**Monday, June 27th, 2022.**

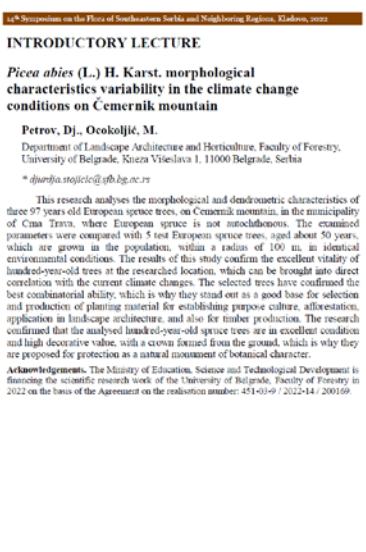
**Chairs of the section: Stanković, N., Petrov, Đ.**

**Oral Presentations**

11.35-11.45
Bür, A.K.G., Doğru, B., Mesloub, I., Yurdagül, S.
**Yurdagül, S.**, Bolu Abant Izzet Baysal University, Department of Biology, 14030, Bolu, Turkey
*Determination of various enzymatic activities of Saccharomyces cerevisiae grown in Yeast-Potato Dextrose medium supplemented with Oak (Quercus robur) leave debris*

11.45-11.55
Marković, G., Brković, D., Đelić, G.







**INTRODUCTORY LECTURE**

***Picea abies* (L.) H. Karst. morphological characteristics variability in the climate change conditions on Čemernik mountain**

**Petrov, Đ., Ocokoljić, M.**
Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11000 Belgrade, Serbia

* djurdja.stojicic@sfb.bg.ac.rs

This research analyses the morphological and dendrometric characteristics of three 97 years old European spruce trees, on Čemernik mountain, in the municipality of Crna Trava, where European spruce is not autochthonous. The examined parameters were compared with 5 test European spruce trees, aged about 50 years, which are grown in the population, within a radius of 100 m, in identical environmental conditions. The results of this study confirm the excellent vitality of hundred-year-old trees at the researched location, which can be brought into direct correlation with the current climate changes. The selected trees have confirmed the best combinatorial ability, which is why they stand out as a good base for selection and production of planting material for establishing purpose culture, afforestation, application in landscape architecture, and also for timber production. The research confirmed that the analysed hundred-year-old spruce trees are in excellent condition and high decorative value, with a crown formed from the ground, which is why they are proposed for protection as a natural monument of botanical character.

**Acknowledgements.** The Ministry of Education, Science and Technological Development is financing the scientific research work of the University of Belgrade, Faculty of Forestry in 2022 on the basis of the Agreement on the realization number: 451-03-9 / 2022-14 / 200169.

УНИВЕРЗИТЕТ У НИШУ, ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ У НИШУ
UNIVERSITY OF NIŠ, FACULTY OF SCIENCES AND MATHEMATICS

*15th Symposium on the Flora of Southeastern Serbia*

*and Neighboring Regions, Niš, May 2025*

## Certificate of Invited Lecture Presentation

This is to certify that **Đurđa Petrov** delivered an **invited lecture as the Introductory Speaker** at the **15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions**, held from **May 23rd to 25th, 2025**.

The lecture, entitled:

**"Potential of the Climbing Rose 'Casino' in Urban Environments: Towards to Climate Change"**
was presented as part of the official symposium program.

**Authors of the lecture**:
Mirjana Ocokoljić, Đurđa Petrov, Nevenka Galečić, Dejan Skočajić, Jelena Čukanović, Radenka Kolarov, Sara Djordjević

We hereby acknowledge and express our appreciation for the valuable contribution of Đurđa Petrov to the symposium's success.

*Date:* 15.06.2025.
*Place:* Niš

With kind regards,

**Prof. Dr. Zorica Stojanović Radić**
President of the Organizing Committee


*18000 Ниш • Вишеградска 33 • Пош. фах 224*
*Телефон (018) 533-015; 226-310 Факс (018) 533-014*
*ЈМБР: 17267906*
*ПИБ: 100668023*

*18000 Niš • Višegradska 33 • P.O. Box 224*
*Phone +381 18 533-015; 226-310 Fax +381 18 533-014*
*E-mail pmfinfo@pmf.ni.ac.rs*
*www.pmf.ni.ac.rs*


Department of Biology and Ecology,
Faculty of Sciences and Mathematics, University of Niš
Institute for Nature Conservation of Serbia
Science Technology Park Niš

# 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions

Niš, 23th to 25th May, 2025

## Abstracts


15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, 23th to 25th May 2025

**Book of Abstracts**

**Publishers**

Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš

**Organizers**

Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš
Institute for Nature Conservation of Serbia, Belgrade
Science Technology Park Niš

**Editors**
Danijela Nikolić, Zorica Stojanović-Radić, Dragana Jenačković Gocić

**Scientific Committee**

**Danijela Nikolić**, Serbia, President

**Antun Alegro**, Croatia
**Beata Papp**, Hungary
**Bojan Zlatković**, Serbia
**Biljana Nikolić**, Serbia
**Biljana Panjković**, Serbia
**Chavdar Gussev**, Bulgaria
**Danijela Stešević**, Montenegro
**Dörte Harpke**, Germany
**Dinko Zima**, Croatia
**Dmitar Lakušić**, Serbia
**Dragana Vukov**, Serbia
**Dragana Ostojić**, Serbia
**Dragana Stojičić**, Serbia
**Gordana Tomović**, Serbia
**Goran Anačkov**, Serbia
**Ivana Rešetnik**, Croatia
**Lana Zorić**, Serbia
**Luljzim Shuka**, Albania
**Marko Sabovljević**, Serbia
**Marina Jušković**, Serbia
**Marjan Niketić**, Serbia
**Martina Temunović**, Croatia
**Michal Hroneš**, Czech Republic
**Milan Stanković**, Serbia
**Mirjana Ocokoljić**, Serbia
**Nejc Jogan**, Slovenia
**Nedeljko Manojlović**, Serbia
**Nevena Kuzmanović**, Serbia
**Niko Radulović**, Serbia
**Osman Erol**, Türkiye
**Perica Vasiljević**, Serbia
**Renata Ćušterevska**, Macedonia
**Sanja Đurović**, Serbia
**Siniša Skondrić**, Bosnia & Herzegovina
**Sretco Milanovici**, Romania
**Tatjana Mihajilov-Krstev**, Serbia
**Tsvetanka Raycheva**, Bulgaria
**Verica Stojanović**, Serbia
**Vladimir Vladimirov**, Bulgaria
**Zorica Mitić**, Serbia

**Printed by**
Unigraf-X-Copy Niš
**Number of copies**
210
Niš, 2025




### Agriculture, Forestry and Landscape Architecture, Hall 2
**Friday, May 23th, 2025.**

**Chairs of the section: Đurović, S., Crnković, M.**

**Introductory Lecture**

14.00-14.15
Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S.
**Petrov, Đ.**, Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Belgrade, Serbia
***Potential of the climbing rose 'Casino' in urban environments: Towards to climate change***

**Oral Presentations**

14.15-14.25
Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Šimović, I.
**Petrov, Đ.**, Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Belgrade, Serbia
***Trachelospermum jasminoides (Lindl.) Lem. in pergola design: An experimental study in Belgrade***

14.25-14.35
Bobinac, M., Andrašev, S., Šuljić, N.
**Bobinac, M.**, Faculty of Forestry, University of Belgrade, Belgrade, Serbia
***The phases of degradation in oak forests of the western part of the National park 'Fruška Gora' - a challenge for sustainable forest management***

14.35 14.45
Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Šimović, I.
**Petrov, Đ.**, Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Belgrade, Serbia
***Indigofera heterantha Wall. ex Brandis – a new exotic species in Serbia***

### Phytogeography, Floristics and Phytoecology, Hall 1
**Friday, May 23th, 2025.**

**Chairs of the section: Radak, B., Papp, B.**

**Introductory Lectures**

16.15-16.30
**Čuk, M.**, Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia
***Diversity and dynamics of sand dune habitats in Serbia***

16.30-16.45
Papp, B., Lőkös, L., Dragićević, S.
**Papp, B.**, Botanical Department, Hungarian Natural History Museum, Budapest, Hungary
***Montenegrin coastal bryophyte vegetation – 100 years later in the footsteps of the earlier bryologists***





## INTRODUCTORY LECTURE

### Potential of the climbing rose 'Casino' in urban environments: Towards to climate change


**Ocokoljić, M.[1], Petrov, Đ.[1], Galečić, N.[1], Skočajić, D.[1], Čukanović, J.[2], Kolarov, R.[2], Đorđević, S.[2]**

[1]Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia

[2]Department of Fruit Growing, Viticulture, Horticulture and Landscape Architecture, Faculty of Agriculture, University of Novi Sad, Square Dositej Obradović 8, 21000 Novi Sad, Serbia

* *djurdja.stojicic@sfb.bg.ac.rs*



The aim of this study was to analyse the impact of air temperature on the phenological flowering pattern of the 'Casino' cultivar at the age of 30, located in the garden of St. George's temple in Banovo Brdo, Belgrade. Daily phenological observations were conducted to evaluate damage caused by low temperatures and to define the phenological flowering pattern during the globally warmest year on record, 2024. Frost damage was not recorded, except for the interruption of flowering in December, without the shedding of open flowers and buds. It was observed that flowering began in January and, without interruption but with varying abundance, lasted until mid-December. The shortening of the abundant flowering interval correlated with high temperatures. The significance of the observed genotype was confirmed by a 100% rooting success rate of semi-hardwood cuttings taken in June and the complete opening of a single flower on all new plants in December of the same year, in a greenhouse. Based on the results, the identified genotype of the 'Casino' cultivar stands out for future breeding programmes, as no climbing rose taxa with yellow flowers and periodic flowering have been synthesised so far. The sustainability and the impact of high temperatures on the duration and abundance of flowering are evident, suggesting broader application possibilities, though without assurance of the stability of the flowering phenophase in the coming years. The conducted research highlights the genotype of the 'Casino' cultivar as a climbing rose with exceptional ornamental, ecological, and landscape attributes.



**Acknowledgements:** The authors are grateful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia for financial support of the University of Belgrade - Faculty of Forestry the scientific research work in 2025, the registration number 451-03-137/2025-03/200169.

- Саопштење са међународног скупа (М33 и М34)



ECOLOGICAL AND AESTHETIC CHARACTERISTICS OF TREES IN "BELGRADE WATERFRONT" PARKING LOTS

Mirjana Ocokoljić[*], Djurdja Petrov[1], Nevenka Galečić[1], Mitar Mindraq[1]
[1]University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[*]mirjana.ocokoljic@sfb.bg.ac.rs

**Abstract**

*Having in mind that public parking lots have important influence to road traffic and an element of green infrastructure in urban areas, the paper analyses the ecological and aesthetic characteristics of trees in "Belgrade Waterfront" parking lots. The results of this paper are the starting point for future planning, and are also important as a corrective factor for already green parking lots in "Belgrade Waterfront" and similar environmental conditions.*

**Keywords**: exotic plants, focal point, ecological functionality of the city

**INTRODUCTION**

According to the project of the Russian architect Grigory Pavlovich Kovalevsky in 1923, the area of future "Belgrade Waterfront" was included in the General Urban Plan for Belgrade under the name "Sava Amphitheatre" which included the construction of residential and commercial buildings in the areas near the railway station and along the Sava River [1]. The examined area is characterized by anthropogenic terrain, construction land formed by embankment but also by fluvial deposits of the Sava River and Mokroluški Stream [2]. "Belgrade Waterfront" is located on degraded chernozem in disarray [3]. Belgrade's climate is temperate continental. For the reference period from the year 1991 to 2020 the average annual air temperature is 13.2 °C, the average number of ice days during the year is 13.9, the average annual rainfall is 698.8 mm, the average annual relative humidity is 67.8%, the average number of days with snow cover during the year is 35.2, and the most frequent wind is Košava wind (SE).

Today's "Belgrade Waterfront" is a residential and commercial type settlement, in which 60% of the area is planned to be residential, 30% with commercial facilities and 10% under vegetation (45.584 m$^2$, of which 23.463 m$^2$ are park areas). The plan is to allocate 14,245 m$^2$ for parking spaces. According to the Spatial plan from November 2021, green areas were reduced by 20 to 25% [4].

Therefore, surveying inventory and analysis of the impact of trees in the historic centre of Belgrade, parking lots in "Belgrade Waterfront" on the transformation of the space and today's appearance of the city image have been performed. The aim is exploring the possibilities of improvement, enrichment, expansion and increasing green spaces as the most important elements for environmental functionality of the city.





ECOLOGICAL AND AESTHETIC CHARACTERISTICS OF TREES IN "BELGRADE WATERFRONT" PARKING LOTS

Mirjana Ocokoljić[*], Djurdja Petrov[1], Nevenka Galečić[1], Mitar Mindraq[1]
[1]University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[*]mirjana.ocokoljic@sfb.bg.ac.rs

**Abstract**

*Having in mind that public parking lots have important influence to road traffic and an element of green infrastructure in urban areas, the paper analyses the ecological and aesthetic characteristics of trees in "Belgrade Waterfront" parking lots. The results of this paper are the starting point for future planning, and are also important as a corrective factor for already green parking lots in "Belgrade Waterfront" and similar environmental conditions.*

**Keywords**: exotic plants, focal point, ecological functionality of the city

**INTRODUCTION**

According to the project of the Russian architect Grigory Pavlovich Kovalevsky in 1923, the area of future "Belgrade Waterfront" was included in the General Urban Plan for Belgrade under the name "Sava Amphitheatre" which included the construction of residential and commercial buildings in the areas near the railway station and along the Sava River [1]. The examined area is characterized by anthropogenic terrain, construction land formed by embankment but also by fluvial deposits of the Sava River and Mokroluški Stream [2]. "Belgrade Waterfront" is located on degraded chernozem in disarray [3]. Belgrade's climate is temperate continental. For the reference period from the year 1991 to 2020 the average annual air temperature is 13.2 °C, the average number of ice days during the year is 13.9, the average annual rainfall is 698.8 mm, the average annual relative humidity is 67.8%, the average number of days with snow cover during the year is 35.2, and the most frequent wind is Košava wind (SE).

Today's "Belgrade Waterfront" is a residential and commercial type settlement, in which 60% of the area is planned to be residential, 30% with commercial facilities and 10% under vegetation (45.584 m$^2$, of which 23.463 m$^2$ are park areas). The plan is to allocate 14,245 m$^2$ for parking spaces. According to the Spatial plan from November 2021, green areas were reduced by 20 to 25% [4].

Therefore, surveying inventory and analysis of the impact of trees in the historic centre of Belgrade, parking lots in "Belgrade Waterfront" on the transformation of the space and today's appearance of the city image have been performed. The aim is exploring the possibilities of improvement, enrichment, expansion and increasing green spaces as the most important elements for environmental functionality of the city.





STATE, FUNCTIONS AND PERSPECTIVES OF DENDROFLORA IN THE SCHOOLYARD OF THE MEDICAL SCHOOL IN BELGRADE

Mirjana Ocokoljić[*], Djurdja Petrov[1], Andreja Tutundžić[1], Dragana Skočajić[1], Smiljana Petrović[1]
[1]University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11000 Belgrade, SERBIA
[*]mirjana.ocokoljic@sfb.bg.ac.rs

**Abstract**

*Schoolyards are a special type of public green spaces, with a special purpose. It is very important that the environment in which students spend time is pleasant and healthy. In addition to improving environmental conditions, greenery and vegetation have a positive effect on mental and physical health. The choice of plant material for schoolyards is also very important due to the sanitary-hygienic and aesthetic functions that greenery provides. However, it is necessary that the schoolyard plants are chosen for educational reasons. Therefore, the bioecological analysis of woody plants in the area of the Medical School in Zvezdara was performed, because of the importance of the educational role of greenery. A total of 214 tree individuals and 2 groups of shrubs, of 36 woody taxa from the subclass Pinidae and subclass Magnoliidae, were recorded. The research confirmed the small diversity of the dendroflora in the area of the Medical School in Zvezdara, Belgrade, and the need to enrich the dendroflora of the schoolyard in order to be in the function of an outdoor classroom that activates all the senses.*

**Keywords**: landscape architecture, garden of educational institutions, education

**INTRODUCTION**

According to the Decision on the arrangement and maintenance of green and recreational areas [1], schoolyards are public green areas for special purposes. They must fulfil sanitary, engineering-technical, architectural-urbanistic, psychological, aesthetic and cultural-educational functions. Plants, especially dendroflora, are of great importance in terms of structure, shape and characteristics because they affect the microclimate (increase humidity and reduce temperature and wind speed), reduce air pollutants, protect soil from erosion, mitigate reflection, etc.

The urban role of the green infrastructure is especially emphasized in the structure and improvement of modern cities, where the right choice of plant material is very important [2,3]. Having in mind the above, the paper analyses the dendroflora of the schoolyard of the first medical school in the Balkans, founded in 1923 – the Medical School on the territory of the municipality of Zvezdara in Belgrade.

**MATERIAL AND METHOD**

In the schoolyard of the Medical School (44°80'41" north latitude and 20°49'57" east longitude), dendroflora was analysed using the method of bioecological analysis [4]. The aim





*TRACHYCARPUS FORTUNEI* (HOOK.) H. WENDL. IN THE CONDITIONS OF CHANGED TEMPERATE CONTINENTAL CLIMATE IN BELGRADE

Mirjana Ocokoljić[*], Djurdja Petrov[1]
[1]University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11000 Belgrade, SERBIA
[*]mirjana.ocokoljic@sfb.bg.ac.rs

**Abstract**

*The presence, survival and distribution of plant communities are dependent on various environmental factors-altitude, terrain, exposition, soil type but also climate conditions. Thermophilic plants require a mild climate, without low air temperatures. Due to climate change and suitable temperature conditions in Belgrade, it is increasingly possible to grow certain species of Mediterranean floral elements, which have shown exceptional adaptability. This paper presents the species of palm Trachycarpus fortunei (Hook.) H. Wendl. originally from Asia, which has been successfully growing in the municipality of Surčin grad in Belgrade for three years.*

**Keywords:** windmill palm, palms, exotic plants, cold-hardy

**INTRODUCTION**

Serbia has a very rich flora, due to its geographical position. The territory of Serbia is located at the borders of the Pontic-South Siberian, Central European and Mediterranean regions which makes Serbian vegetation particularly diverse. The prevailing climate in Serbia is moderately continental, but there are also influences of the Continental and Mediterranean climates. Exotic plants are often grown in the Belgrade climate, due to their decorative character and diversity. The dendroflora of Belgrade is enriched with the introduced woody species. In recent years, in the capital of Serbia, thermophilic woody species such as crape-myrtle, laurel, kiwi, loquat, chinaberry, southern magnolia, banana and others can be noticed more often [1–3]. Thus, three years ago, *Acoccoma* palm tree=windmill palm *Trachycarpus fortunei* (Hook.) H. Wendl, were planted in Belgrade. This species is native to China and Myanmar (the slopes of the Himalayas). In order to determine the adaptability of this new species in Belgrade, canopy condition, vitality and decorativeness of the recorded specimen of windmill palm were analysed.

**MATERIAL AND METHOD**

This paper analyzes the effects of climate change on the presence and adaptability of *Trachycarpus fortunei* (Hook.) H. Wendl. on the green area in Belgrade, in the conditions of changed, temperate continental climate. Climate conditions comparison was performed between the period from 2010 to 2021 (2022) and the thirty-year period from 1991 until 2020. The analysis of meteorological data is based on the data from the Republic Hydrometeorological Service of Serbia. Throughout the three-year period from 2019 to 2021,





Proceedings of the XIV International Scientific Agricultural Symposium "Agrosym 2023"

*SEASONAL VARIATIONS OF FLOWERING OF Amorpha fruticosa L. AS AN INDICATOR OF GLOBAL WARMING IN BLUE-GREEN INFRASTRUCTURE*

*Mirjana OCOKOLJIC, Danđa PETROV*, Dragan VUJČIĆ, Nevenka GALEČIĆ*

*University of Belgrade - Faculty of Forestry, Belgrade*
*Corresponding author: djurdja.petrov@sfb.bg.ac.rs

*Abstract*

*The research of blue-green infrastructure (BGI) is of utmost importance in the design of local landscapes with a mixture of human and natural pressures. The design refers to the set symbiosis linear communities, agricultural land, meadows and green areas interconnected by environmental corridors. BGI places a decisive role in protecting and enhancing biodiversity, as it can counteract fragmentation and build and strengthen relationships and interactions between isolated elements. The paper investigates the seasonal variations in the flowering phenophase of Amorpha fruticosa L. (indigo bush) acting as an element of the BGI of Belgrade between the main road M19 and the right bank of the Sava River from Ada Ciganlija to Ušće. It describes the phenomenon of indigo bush reblooming, with the first and repeated flowering being recorded and analyzed. Quantitative characteristics of its inflorescence and flowers differ in several ways. Reblooming is an ancestral trait but also an indicator of global warming. It has not yet been used in indigo bush breeding because it rarely occurs in blue-green infrastructure. The analysis of the spatial grid and seasonal variations of indigo bush flowering phenological patterns proved to have practical use in monitoring BGI performance and support to decision-making, management and landscape design.*

*Keywords: climatic factors, indigo bush, blue-green infrastructure, landscape design.*

*Introduction*

*Blue-green infrastructure is a system characterized by structure, function and changes (Zipperer, 2002). The interaction between social, environmental, economic and institutional spheres shapes the structure and functioning of BGI over time. These processes can equally transform spatial patterns and create different configurations of elements, corridors and matrices in a landscape mosaic. Furthermore, they strongly affect ecological processes (survival of populations, maintenance of biodiversity, ecosystem health, etc.) and the provision of ecosystem services (Sukopp, 2004). Nowadays, there are numerous examples of suburban BGIs that require policies aimed at preserving biodiversity. A strategy that can meet these needs implies the preservation and management of BGI, i.e. systems of green areas interwoven with corridors. In addition, a larger number of papers (Chadchkina, 1988; Ocokoljić et al., 2023, etc.) on the reblooming of woody plants encourages the need to analyze information on the flowering phenophase and the causes that lead to deviations from the usual flowering patterns. In many cases, local governments have successfully adopted programs based on the BGI approach to halt biodiversity loss and facilitate the reintroduction of specific plant and animal species under climate change conditions (Di-Pallotam di Niemalla, 2005).*

*Besides the aspects of the spatial analysis of the suburban BGI in Belgrade, the research aims include: (1) identification and state of Amorpha fruticosa L. in mosaic landscapes, (2) regeneration of green areas using indigo bush, (3) seasonal variations of its flowering under*





Proceedings of the XIV International Scientific Agricultural Symposium "Agrosym 2023"

EFFECTS OF CLIMATE PARAMETERS ON BLACKTHORN IN AGROFORESTRY ECOTONES AS GREEN ROAD INFRASTRUCTURE ELEMENTS

Mirjana OCOKOLJIC, Danđa PETROV*, Dragan VUJČIĆ, Nevenka GALEČIĆ

University of Belgrade - Faculty of Forestry, Belgrade
*Corresponding author: djurdja.petrov@sfb.bg.ac.rs

**Abstract**

Phenological flowering patterns of *Prunus spinosa* L. (blackthorn) are indicators of climate change and help us understand the impact of climate change on agroforestry ecotones as elements of green infrastructure along the Belgrade-Obrenovac roads on the right bank of the Sava River. We studied the response of the blackthorn flowering phenophase to climatic factors (temperature and precipitation) in the period from 2007 to 2023. The results confirm that: (1) the beginning of the growing season, which in the case of blackthorn coincides with the start of flowering, is affected by climate change: (2) the beginning, as well as the end of the flowering phenophase, significantly correlates with air temperature and precipitation and (3) the abrupt step of flowering in April 2023 was caused by a sudden drop in air temperature and heavy snowfall. The response of blackthorn phenological flowering patterns to climate change in the study area also confirms that the greater the accumulation of heat, the smaller the negative effect of daily temperatures on the beginning of flowering. The obtained results are a basis for studying neosynanthic phenological shifts as responses to climate change in agroforestry ecotones that are elements of green road infrastructure. They are also a valuable contribution to the research in the field of landscape ecology and landscape architecture, setting out landscape design guidelines to form place identity, and pointing to the necessity of introducing the values of the physiognomic landscape composition into the land use policy.

**Keywords:** *climatic factors, flowering period, agroforestry ecotones, landscape design, landscape ecology.*

**Introduction**

Ecotones are found in most biomes where they regulate the movement of organisms and the flow of matter and energy and have a significant impact on the dynamics of populations and communities (Fagan et al., 1999). They are often known as "zones of tension", sensitive to climate change or other external factors. It is a challenging task to investigate why and how ecotones change over time and what the changes imply for other ecological attributes or functions. Answers to these questions are fundamental for predicting future vegetation changes of both local and regional scales (Hufkens et al., 2009). Therefore, the research focuses on climate parameters (temperature and precipitation) that define the formation of agroforestry ecotones, along with relief, hydrology and soil (Verstraete et al., 2010). Harmonious planning of agroforestry landscapes has an increasingly important role in achieving social satisfaction arising from environmental quality in suburban and rural areas (Antić, 2004). It is also a way to create a unique identity of green road infrastructure.
The study aims to determine the impact of climate change on the phenological patterns of flowering and development of *Prunus spinosa* L. (blackthorn) as the operationalization of the landscape design of agroforestry ecotones. The research deals with blackthorn because in landscape architecture it is known as a species native to Serbia that achieves good vitality in both lower altitudes (along canals and field roads) and altitudes up to 1500m (the Balkan Mountains). It typically has a well-developed root system, which makes it a valuable bio-melioritive species. It is also an ornamental species that attracts animals, especially birds

EcoTER

## *Chaenomeles × superba* 'PINK LADY' IN DESIGNING PRIVATE GARDENS IN CONDITIONS OF CLIMATE CHANGE

**Djurdja Petrov[1*], Mirjana Ocokoljić[2], Nevenka Galečić[1], Dejan Skočajić[2], Isidora Simović[2]**

[1]University of Belgrade-Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[2]BioSense Institute: University of Novi Sad, Dr Zorana Đinđića 1, 21000 Novi Sad, SERBIA

[*]djurdja.stosicic@sfb.bg.ac.rs

**Abstract**

*By evaluating the design of 16 private gardens, in the suburban zone of Belgrade, in Umčarska, this research provided recommendations for the use of certain landscape elements and species with Pink Flowering Quince for design in reconstruction in conditions of a changed temperate-continental climate. The effect of climatic variables on phenological patterns of flowering was determined through accumulated cold hours, phenological patterns, and their correlations. The results indicate a significant influence of climatic variables on plantphases and their duration. Genotype ( ) is presented for multiplication, as it stands out with the longest flowering period. The research confirmed that landscape design is not successful without high-quality plant material such as Chaenomeles × superba 'Pink Lady'; as well as that when choosing plants, ecological characteristics should be evaluated, and those that ensure the sustainability of the landscape should be selected.*

**Keywords**: Pink Flowering Quince, landscape design, seasonality, phenological observations.

### INTRODUCTION

In the context of climate change but also in relation to the challenges of designing private gardens, ornamental vegetation can be singled out as a factor for improving the conditions, quality, and aesthetics of urban and suburban spaces that can provide a living environment [1] of good quality. In light of the growing interest in the impact of climate change on life cycles and phenological patterns and the processes that control them, the phenophases of leafing, flowering, fruiting, color changes, and leaf fall, as well as the arrival and departure of migratory birds have been intensively studied [2–5]. Studying plants' phenological patterns provides information on plant growth and development patterns, as well as environmental influences and selective pressures on flowering and fruiting [6]. Research on phenological patterns at conditions of a temperate-continental climate indicates the dominant influence of seasonal factors: temperature and moisture regime [5-7]. The importance of phenology and phenological patterns lies in their effectiveness as a tool for monitoring the impact of climate on plants and animals [8]. Phenological events are important for biodiversity and ecology, i.e. assessing the impact of mismatches in the timing of phenological events on species interactions and community patterns, as well as for landscape design.

The study aims to determine the impact of the suburban environment, under conditions of climate change on the phenological patterns of flowering and the development of





EcoTER

## APPLICATION OF SPECIES OF THE GENUS *Parthenocissus* L. IN URBAN GREEN INFRASTRUCTURE – STATE AND PERSPECTIVES

**Djurdja Petrov[1*], Mirjana Ocokoljić[2], Nevenka Galečić[1], Dejan Skočajić[2]**

[1]University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[*]djurdja.stosicic@sfb.bg.ac.rs

**Abstract**

*This study focuses on selected aspects of the spatial analysis of green infrastructure in Banovo brdo, Belgrade, with the aim of implementing species from the genus Parthenocissus L. on green roofs, walls and rain gardens. Through the analysis of urban green infrastructure, public and private green areas in the compact urban environment. Parthenocissus quinquefolia (L.) Planch. and Parthenocissus tricuspidata (Siebold & Zucc.) Planch. were selected. To highlight the visual perception of the mentioned species: autumn foliage color changes in combination with climatic elements were recorded by phenological observations. Research confirmed the greater presence of Virginia Creeper (73%), but also the identical adaptability of both species in changed climatic conditions. The analyzed specimens of Virginia Creeper were 10 to 15 years old, and the specimens of Japanese Creeper were 15 years old. The invasive nature of both species was recorded in both public and private green areas. The results confirm that both species are suitable for innovative strategies and that they can be used to preserve selected spatial elements with adequate maintenance. Based on the analyses, for the operationalization of landscape design, recommendations were formulated for strengthening the connectivity of the green infrastructure network and implementing new elements with both species in the urban fabric where the number and size of green areas are insufficient.*

**Keywords**: green infrastructure, Virginia Creeper, Japanese Creeper, landscape design.

### INTRODUCTION

The formation of green infrastructure network is a holistic approach to connecting natural and artificially formed green areas in the city, which provides a wide range of ecosystem services: improving the quality of life, health and well-being, recreation, access to nature, attracting businesses, tourism and other visitors, maintaining soil quality and adapting to climate change. Elements of green infrastructure have physical, psychological, emotional and socio-economic benefits for individuals and society [1]. According to the study by Kluchovski and Patrucco [2], a comparative analysis of cognitive sciences and ecological landscape design confirmed that the environment has a positive effect on cognitive functions. Green infrastructure elements are very important, especially implementation of plant material which mitigates environmental problems and the effects of heat islands in urban areas [3]. Therefore, it is necessary to complement gray infrastructure with green, in order to obtain a synergistic effect, namely to reach urban sustainability by implementing green infrastructure [4]. Green infrastructure is not just an alternative description for conventional open spaces but a network that includes parks, open spaces, playgrounds, forests, but also street trees, green plots and private gardens. Likewise, it includes green roofs and walls [5]. The range of benefits



EcoTER

## SECOND FLOWERING OF *Philadelphus coronarius* L. IN GREEN-BLUE INFRASTRUCTURE OF BELGRADE

**Djurdja Petrov[1*], Mirjana Ocokoljić[2], Nevenka Galečić[1], Dejan Skočajić[2], Isidora Simović[2]**

[1]University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[2]University of Novi Sad, BioSense Institute, Dr Z. Đinđića 1, 21000 Novi Sad, SERBIA
[*]djurdja.stosicic@sfb.bg.ac.rs

**Abstract**

*The study focuses on the analyses of the elements of blue-green infrastructure (BGI) of Belgrade in the Gazela Park and the part of the Topčider Park along the Topčider River. The distance of the Sava River from these green spaces is 137 m and 1793 m respectively. During autumn and the beginning of winter 2022/2023 phenological observations of repeated flowering of European mock-orange, which has a favorable effect on ambient values, were noted in three parts. The phenological patterns of the second flowering and the morphological characteristics of the flowers were analyzed. Research has confirmed greater visual impact and longer duration of flowering in Topčider Park. The evaluation of the spatial structure of green areas provided guidelines for alternatives in the landscape design of BGI elements that would contribute to the increase in the value of ecosystem services.*

**Keywords**: European mock-orange, blue-green infrastructure, second flowering, landscape design.

### INTRODUCTION

Blue-green infrastructure (BGI) is a concept that determines the way of living in cities and improves its quality, especially in conditions of climate change. Solutions based on green and blue infrastructure are the basis of the BGI concept. BGI includes natural (rivers, ponds, wetlands) and designed elements (rain gardens, absorbent wells, artificial ponds, underground systems), which provide ecological, landscape, economic, social, and environmental benefits [1]. The term infrastructure in BGI indicates that the role of natural processes (which include vegetation and water features) is essential in providing diverse ecosystem services to urban residents. It should be noted that the proper functioning of plant elements depends on water resources, and thus vegetation determines the activity of local hydrological processes [1].

In stabilizing and improving the ecological conditions of BGI, flowering decorative shrubs, among which *Philadelphus coronarius* L. (*P. coronarius*) stands out as one of the most commonly cultivated species in Serbia [2], have a special role. Such abundantly blooming species have a significant place in landscape design for the formation of aesthetically attractive spaces with a beneficial effect on the psychology and emotional state of users. However, the conditions of the urban environment are aggressive for plants and can affect the reduction of their ornamentality [2]. With global warming, plants adapt or are suppressed, which significantly affects the functioning of ecosystems and ecological interactions in BGI.



INTERNATIONAL SCIENTIFIC AND PROFESSIONAL CONFERENCE POLITEHNIKA 2023 Belgrade, 15th December 2023.

## IMPACT OF URBAN HEAT ISLAND ON BUTTERFLY-BUSH (*BUDDLEJA DAVIDII* FRANCH.)

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Djurdja Petrov[2], Faculty of Forestry, University of Belgrade*

**Abstract**: *Urban vegetation serves multiple functions beyond aesthetics, including a pivotal role in shaping the microclimate of modern cities. The ongoing climate change and extreme temperature variations affect the growth and development of plants. As a result, investigating the adaptive potential of plant species to temperature variations within urban environments is gaining critical importance. While researchers worldwide have delved into the influence of biotic and abiotic factors on plants, the variability of plant organisms within urban ecosystems remains unexplored. Therefore, this paper seeks to assess the impact of the urban heat island (UHI) within a humid continental climate (Belgrade, Serbia) on Buddleja davidii Franch. A comparative analysis of interpolated temperatures sourced from meteorological stations in urban, sub-urban and rural zones for all four seasons was undertaken. The causal relationship was confirmed: not only the influence of vegetation on temperatures but also the impact of UHI on the presence and sustenance of vegetation. Namely, a substantial increase in temperature affects the seasonal changes of the butterfly-bush, particularly during extreme climatic events. The obtained results provide an essential foundation for planning and design of urban landscapes that should be adapted to the changed dynamics to ensure the ecosystem services provided by urban shrubs.*

**Keywords**: Urban Heat Island, Urban Meteorology, Climate Change, Benefits of Plants, Urban Shrubs

### 1. INTRODUCTION

While investigating the urban climate of 19[th] century London, Howard [1] became the pioneer in analysing the Urban Heat Island (UHI) effect. These "heat islands" remain relatively stable over time creating warm air domes above buildings, roads, and other impermeable surfaces. These surfaces enhance the absorption of short-wave radiation, reduce energy loss through the emission of long-wave radiation, and diminish evapotranspiration compared to the natural land cover of the surrounding rural areas. Thermal homogeneity can be disrupted as altered by the presence of green and water surfaces, as noted by Walker et al. [2].

Although urban areas constitute a small portion of local and global ecological systems, their impact on these ecosystems is considerable. Conversely, urban vegetation plays a crucial role in mitigating local temperatures through shading and transpiration. Furthermore, it offers valuable ecosystem services, including carbon sequestration and the provision of habitats for various flora and fauna [3]. Given that phenology, specifically the annual cycle of leafing, leaf development, and senescence, is tightly regulated by temperature in ectotherm ecosystems, extensive research efforts are directed towards analysing the effects of climate change on these ecosystems [4].

UHI effects have the potential to alter the seasonal vegetation changes in urban areas, particularly affecting exotic and ornamental shrubs [5]. Therefore, our study examines the impact of UHI on the spatial complexity of butterfly bush phenology. We achieved this by recording phenological patterns

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] djurdja.stosicic@sfb.bg.ac.rs



INTERNATIONAL SCIENTIFIC AND PROFESSIONAL CONFERENCE POLITEHNIKA 2023 Belgrade, 15th December 2023.

## EFFECTS OF URBANISATION ON *SYMPHORICARPOS ORBICULATUS* MOENCH IN THE GREEN INFRASTRUCTURE OF BELGRADE

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Djurdja Petrov[2], Faculty of Forestry, University of Belgrade*
*Dragan Vujičić[3], Faculty of Forestry, University of Belgrade*

**Abstract:** *Despite the well-documented intra-urban variability of Urban Heat Island (UHI) effects, little is known regarding the spatial and temporal variability in coralberry's response to UHI. The beginning and conclusion of the growing season were determined using hourly and daily climate data sourced from the Republic Hydrometeorological Service of Serbia (RHMS). This study deals with the impact of urbanisation on coralberry phenology in Belgrade from 2007 to 2023. Among various components of green infrastructure, we analysed urban parks and a city cemetery. Urban parks exhibited a less pronounced change in the duration of their growing seasons, owing to the interaction between the UHI and the cooling effect within parks. These research findings address two crucial gaps in urban phenological studies: the influence of urban composition on phenology and the role of micrometeorological observations in shaping coralberry phenological patterns. Furthermore, they shed light on shifts in coralberry's phenological patterns under the influence of urbanisation, a matter of significance due to its impact on biodiversity, ecosystem services, and implications of land use, management, restoration, and landscape planning and design.*

**Keywords**: Urban Ecology, Temperature, Urban Green Spaces, Phenology, Sustainability

### 1. INTRODUCTION

The conversion of natural and agricultural land into urban areas is on the rise every year. Projections for urbanisation in 2030 indicate that it will reach 81% of the total population, compared to 1980, when it stood at just 44% and 2014, when it increased to 54%. This rapid urbanisation, driven by the high demand for land use change, has detrimental effects on the environment, particularly on the urban climate, giving rise to Urban Heat Islands (UHIs) that increase temperatures within urban centers [2]. However, green spaces or green infrastructure (GI) can help ameliorate these adverse impacts by reducing both the maximum temperatures and temperature fluctuations in cities. Previous research primarily relied on on-site observations and focused on assessing air temperatures to quantify the cooling effects of specific structures and types of green spaces. It's worth noting that the degree of cooling is affected by the type, structure, and size of green spaces. For instance, diverse types and compositions of green spaces in urban areas tend to have more pronounced cooling effects than green spaces with simple, less intricate structures [3]. However, the effect of UHIs on specific plant species, particularly shrubs, continues to pose a challenge. To address the gaps in the existing research literature, this study aims to identify and classify heat-resistant coralberry individuals within GI in the context of intensive urbanisation in Belgrade. Furthermore, it aims to analyse how UHI affects coralberry plants growing in various types and structures of green areas located within the UHI zone of Belgrade, with varying degrees of urbanisation. The findings of this research will

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] djurdja.stosicic@sfb.bg.ac.rs
[3] dragan.vujicic@sfb.bg.ac.rs



Proceedings of the XV International Scientific Agricultural Symposium "Agrosym 2024"

## THE INFLUENCE OF AIR TEMPERATURE TRENDS ON CHERRY PLUM (*PRUNUS CERASIFERA* EHRH) IN THE BLUE-GREEN INFRASTRUCTURE

Mirjana OCOKOLJIC[1], Đurđa PETROV[1]*, Nevenka GALEČIĆ[1], Dejan SKOCAJIC[2], Dragana VUJICIĆ[2], Isidora SIMOVIĆ[2]

[1]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
[2]BioSense Institute, University of Novi Sad, Novi Sad, Serbia
*Corresponding author: djurdja.stosicic@sfb.bg.ac.rs

**Abstract**

Air temperature variability and trends within the blue-green infrastructure (BGI) of the northwestern subzahvat zone of Belgrade, specifically within the municipality of Čukarica, were examined across various temporal scales. The study focused on seasonal fluctuations in the flowering phenophase of *Prunus cerasifera* Ehrh (Cherry Plum), between the second-order road P107 and the main road M19 to the settlement of Petrača. The study analysed the relationship between the flowering phenophase of Cherry Plum and air temperature, a key climatic factor, from 2007 to 2024. Findings indicate that the onset of the flowering phenophase was influenced by climate fluctuations, with significant correlations observed between flowering patterns and air temperature. It was confirmed that (a) as cumulative chill hours (CH) increase, temperatures during the flowering period decrease, (b) as the number of days from full flowering (FF) to end of flowering (EF) increases, the flowering phenophase lengthens, (c) as air temperatures from FF to EF increase, temperatures during flowering increase, (d) as temperatures from BF to FF increase, the number of days from FF to EF decreases, and (e) lower temperatures from bud break to BF imply lower temperatures from BF to FF. Our research establishes a framework for understanding how Cherry Plum responds to complex environmental conditions, considering factors such as stress memory and acclimation. The analysis of variation in Cherry Plum flowering phenology proves valuable for BGI management and landscape design within the study area, characterized by a mosaic of forest communities, agricultural areas, meadows, and interconnected environmental corridors.

**Keywords:** *Prunus cerasifera Ehrh., blue-green infrastructure, landscape design, blooming period, climate change.*

### Introduction

Climate change is accelerating, leading to a surge of adverse effects on ecosystems, particularly the intensification of air temperature rise (WMO, 2021), with the fragmentation of BGI further contributing to alterations in climate patterns (Soja, 2018). Research findings indicate a trend of rising air temperatures since the latter half of the nineteenth century, with the periods of most intense warming observed between 1920 and 1944 and after 1975, particularly in the northern hemisphere, where the rate of warming has been reported to be twice that of the southern hemisphere (Barnett & Jungclaus, 2020). The influence of air temperature on vegetation manifests prominently through alterations in phenological patterns (Ocokoljić et al., 2023; Petrov et al., 2024), prompting research to examine these effects on vegetation. (Mădăraşteal et al., 2018). Studying the relationship between phenological indicators and meteorological parameters, specifically air temperature, is imperative for gaining deeper insights into the relationship between climate change and phenology trends (Menzel-Delmotte et al., 2021).

# GREEN INFRASTRUCTURE: IMPLEMENTATION OF WINTERSWEET IN LANDSCAPE DESIGN AND ENHANCEMENT OF ECOSYSTEM SERVICES

Mirjana OCOKOLJIĆ[1], Đurđa PETROV[1*], Nevenka GALEČIĆ[1], Dejan SKOČAJIĆ[1], Dragan VUJIČIĆ[1], Isidora SIMOVIĆ[1]

[1]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
[2]BioSense Institute, University of Novi Sad, Novi Sad, Serbia
*Corresponding author: djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

Green infrastructure (GI) represents a strategic network of green spaces meticulously designed to safeguard and enrich biodiversity while offering essential ecosystem services to human communities. While GI is embraced as a pivotal concept by urban policy-makers, there remains a limited understanding of the varying values and benefits of distinct types of green spaces and their synergistic relationships. Thus, this paper aims to illuminate the significance of Wintersweet as an integral component of Belgrade urban green infrastructure (UGI). The study delves into the interaction of climate and biodiversity, bridging the various aspects of fundamental vegetation science through a specific case study spanning 18 consecutive years (2007-2024) amidst climate change conditions. To assess changes in flowering patterns, the flowering phenology within the municipality of Čukarica was monitored and noted. A total of 1,620 phenological observations during autumn, winter, and spring were used to determine the stages and other key flowering events that regulate pollination, fruiting and use in GI. The findings affirm that winter flowers during the colder months not only ensure visual continuity but also serve as a manifestation of climate change through phenological alterations. The research outcomes yield novel insights and avenues for assessing the adaptability of Wintersweet amidst climate change. It is underscored that winter flowers not only contribute to vibrant visual displays during the colder months but also enrich biodiversity, while offering significant ecosystem services to honey-bearing plants.

**Key words:** *Chimonanthus praecox* (L.) Link, *ecosystem services, biodiversity, climate change, landscape design.*

## Introduction

Urban green infrastructure (UGI) is advocated as a method to address significant urban ecological and societal challenges, such as climate change adaptation (Schwarz et al., 2011). It encompasses a range of green spaces, including designed green areas, segments of natural landscapes, suburban agricultural land, and abandoned fields undergoing vegetative succession. The designing of UGI components must be based on the principles of urban dynamics, with special consideration given to the aspects of gray infrastructure. As proposed by Scharfe et al. (2010), IPCC (2014) and Ocokoljic et al. (2025), planning and designing of UGI contribute to biodiversity conservation and enhance cities' resilience to climate change. Moreover, the planning and design of UGI foster the growth of the green economy and hold great potential for transitioning towards sustainable and resilient urban development, achieved through the application of appropriate plant materials (Scharfe et al., 2010).
Hence, our study explores Wintersweet as adaptable, fast-growing deciduous plant shrub that was introduced to Europe from the mountainous regions and gorges of northern China (Ocokoljic & Petrov, 2022). It is an important aromatic and honey-bearing plant and one of the species dating back to the Tertiary period (Zhao et al., 2010). Wintersweet has a



XV International Conference Ecological Trade & Environmental Research
18-21 June 2024, Hotel Kopaonik, Kopaonik, Serbia
www.eco-ther.bg.ac.rs

# EFFECTIVENESS OF *Photinia × fraseri* 'RED ROBIN' IN THE URBAN LANDSCAPE: TOWARDS OF CLIMATE CHANGE

**Mirjana Ocokoljić[1], Djurdja Petrov[1*], Nevenka Galečić[1], Dejan Skočajić[1], Dragan Vujičić[1], Jelena Čukanović[2], Isidora Simović[2]**

[1]University of Belgrade – Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[2]University of Novi Sad – Faculty of Agriculture, Dositeja Obradovića Square 8, 21000 Novi Sad, SERBIA
[3]BioSense Institute, University of Novi Sad, Dr Zorana Djindjića 1, 21000 Novi Sad, SERBIA
*djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*The paper explores the effectiveness of Photinia × fraseri 'Red Robin' in the urban environments of Belgrade, particularly in light of a modified temperate-continental climate. The research focuses on assessing how urban design and climate change affect the phenological events of Red Robin Christmas Berry across four locations in Belgrade. By analyzing climatic variables such as accumulated cold hours and their correlations with phenological patterns of flowering, the study unveils the substantial impact of insolation, air temperature, and urban layout on these phenophases. The findings underscore the significance of site selection in optimizing the delivery of ecosystem services.*

**Keywords**: Red Robin Christmas Berry, landscape urban design, air temperature, insolation, phenological observations.

## INTRODUCTION

Rapid urbanization disrupts the balance in the urban environment [1]. For landscape urban design, plants hold paramount importance for both visual appeal and practical functionality because they affect ecosystem services with seasonal, aesthetic, economic and functional characteristics [2], and they have a pivotal role in human health [1]. The utilization of non-native woody plants enhances the urban landscape's value but poses a significant challenge due to the impacts of climate change. Therefore, it is very important that plants in the urban landscape can adapt to climatic conditions, and taxa with high climatic plasticity, such as *Photinia × fraseri* 'Red Robin', stand out in particular [3]. Red Robin Christmas Berry, an impressive evergreen cultivar with striking red young leaves transitioning to green mature leaves, serves as an attraction for bees during flowering phenophase and for birds (such as woodpeckers and thrushes) during fruiting phenophase, as its fruits persist until the subsequent vegetation period. Furthermore, all stages of its phenology contribute to its ornamental value [4]. This highlights the significance of phenological patterns in evaluating the efficacy of aligning Red Robin Christmas Berry's phenological events with landscape urban design objectives.



XV International Conference Ecological Trade & Environmental Research
18-21 June 2024, Hotel Kopaonik, Kopaonik, Serbia
www.eco-ther.bg.ac.rs

# *Chaenomeles japonica* (Thunb.) Lindl. ex Spach IN THE DESIGN OF URBAN PARKS: LEARNING FROM NATURE

**Mirjana Ocokoljić[1], Djurdja Petrov[1*], Nevenka Galečić[1], Dejan Skočajić[1], Dragan Vujičić[1], Jelena Čukanović[2], Isidora Simović[3]**

[1]University of Belgrade – Faculty of Forestry, 1 Kneza Višeslava Street, 11030 Belgrade, SERBIA
[2]University of Novi Sad – Faculty of Agriculture, 8 Dositeja Obradovića Square, 21000 Novi Sad, SERBIA
[3]BioSense Institute, University of Novi Sad, 1 Dr Zorana Djindjića Street, 21000 Novi Sad, SERBIA
*djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*The research investigates the changes in the phenological dynamics of Chaenomeles japonica (Thunb.) Lindl. ex Spach under the influence of climate factors in Kamičkovačka Varoš, Belgrade. Our findings affirm the significant impact of air temperature and precipitation on phenological phases and their duration. The year emerges as a significant factor, notably in 2024, the growing season commenced with leafing in January, followed by flowering 29 days later. The duration of flowering in 2024 was reduced by 54 days compared to 2023, resulting in a diminished visual appeal. Male genotypes were identified, with male flowers observed across all specimens. The study underscores key phenological events to highlight climate's impact on the urban phenology of Japanese Quince, with the aim of design operationalization or urban park reconstruction.*

**Keywords**: Japanese Quince, urban environments, phenological duration, landscape design, climate change.

## INTRODUCTION

Urban shrubbery holds aesthetic, socio-cultural, ecological, and economic values crucial for enhancing sustainability and quality of life in urban environments [1–4]. Within this context, urban parks and green spaces with woody plants play a pivotal role in cities' adaptation to climate change [5]. However, to fulfill their intended ecosystem services, shrubs must be healthy, vigorous, and in good condition. The average lifespan of urban shrubs is brief, sometimes as short as a mere decade [6]. Ocokoljić *et al.* [7] attribute this shortened lifespan to differences in environmental conditions between urban settings and natural habitats. The 21st-century cities have been significantly altered by the effects of phenomena such as urban heat islands (UHI), restricted space for root system expansion, impervious surfaces, and poor soil quality. Thus, fostering conditions suitable for the growth and sustainable development of urban dendroflora emerges as a pressing imperative [7]. An initial step involves identifying suitable species and genotypes tailored to European urban parks, particularly in anticipation of projected rises in air temperatures and prolonged drought periods as forecasted by the World Meteorological Organization (WMO) [8]. In the face of



XV International Conference Ecological Trade & Environmental Research
18-21 June 2024, Hotel Kopaonik, Kopaonik, Serbia
www.eco-ther.bg.ac.rs

# *Parthenocissus Quinquefolia* L.: PHENOMONITORING IN BLUE-GREEN INFRASTRUCTURE OF BELGRADE AND NOVI SAD

**Mirjana Ocokoljić[1], Jelena Čukanović[2], Djurdja Petrov[1*], Nevenka Galečić[1], Dejan Skočajić[1], Dragan Vujičić[1], Isidora Simović[3]**

[1]University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA
[2]University of Novi Sad, Faculty of Agriculture, 8 Dositeja Obradovića Square, 21000 Novi Sad, SERBIA
[3]BioSense Institute, University of Novi Sad, 1 Dr Zorana Djindjica Street, 21000 Novi Sad, SERBIA
*djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*The study examines the proposition that variations in climatic factors impact the phenological patterns of Virginia creeper within blue-green infrastructure (BGI) situated in urban areas adjacent to major rivers. Key events of phenophase were documented alongside climatic variables as part of the phenological observations. The findings of the investigation validate the species' suitability for innovative strategies, suggesting that, with appropriate maintenance measures, it can contribute to the preservation of vertical greening systems within the urban landscape. Research analyses show that Parthenocissus quinquefolia L. demonstrates adaptability in the BGI of Belgrade and Novi Sad, even amidst the conditions of climate change. Recommendations have been formulated to strengthen BGI by the introduction of novel natural solutions involving Virginia creeper to mitigate climate-related risks while revitalizing ecosystems. The integration of nature-inspired elements such as rain gardens, green roofs, and permeable pavements is proposed as part of a solution.*

**Keywords:** blue-green infrastructure, Virginia Creeper, urban environment, landscape design, adaptability.

## INTRODUCTION

Blue-green infrastructure (BGI) integrates various measures aimed at enhancing water management and urban landscapes to improve the resilience against climate change. BGI plays a pivotal role in reinstating natural water balance structures within cities by capturing rainwater and expanding permeable surfaces. The infrastructure where plants and water interact is crucial for provision of ecosystem services in urban environments. Namely, plant function is dependent on the water resources, with vegetation exerting a significant influence on local hydrological processes [1]. A comprehensive review of literature [2,3] identifies rain gardens, green roofs, permeable sidewalks, and vertical greening systems as highly effective components of BGI. According to the European Commission [4], tailored solutions designed to mitigate stressors are most effective. Given the unique technical composition of each BGI element, there is no universal BGI solution. Therefore, this study focuses on recording the phenological patterns and key events of Virginia Creeper within the BGI of Belgrade and Novi Sad under the influence of climate change. The objectives are: 1) to assess the conditions



ACCHE
Annual Conference on Challenges of Contemporary Higher Education
Kopaonik, Serbia, 03. – 07.2.2025

# CHAENOMELES JAPONICA (THUNB.) LINDL. – FRUIT CROP IN THE CONTEXT OF CLIMATE CHANGE: CULTURAL AND ECOSYSTEM SERVICES

*Djurdja Petrov[1*], Jelena Čukanović[2], Bojanka Kosovac[3], Nevenka Galečić[1], Dejan Skočajić[1], Dragan Vujičić[1], Mirjana Ocokoljić[1]*

Abstract: *Chaenomeles japonica* (Thunb.) Lindl. has gained attention over the past decade as a new fruit crop.The research was based on the hypothesis that there are genotypes adapted to climate change, producing high-quality fruits that provide both cultural and ecosystem services, while also being significant for commercial production. Therefore, in this study, the biochemical composition and antioxidant capacity of fresh fruit juicy parts were analysed in the genotype level using an official protocol with two analytical grade reagents: ethanol and distilled water. The results highlight ethanol as a more efficient solvent for extracting bioactive compounds, enhancing their potential for neutralizing free radicals. Additionally, the findings confirm significant concentrations of phenolic compounds, tannins, flavonoids, anthocyanins, and vitamin C, as well as antioxidant activity. These results could have important implications for the practical use value of the selected genotype, demonstrating its sustainability under climate change conditions.

Key words: Japanese Quince, bioactive compounds, antioxidant activity, selection, semi-urban ecosystems

## I. INTRODUCTION

Under the conditions of intense climate change, scientific institutions face the research task of developing resilient genotypes with desirable traits, through individual selection and breeding programs [1]. When organising this process, it is particularly important to determine the key biological characteristics of non-traditional plants found in semi-urban territories [2,3]. In this context, taxa of the genus *Chaenomeles* Lindl. (Rosaceae) have been promising since the 18th century, when they were introduced into European gardens [4], particularly the domesticated *Chaenomeles japonica* (Thunb.) Lindl.

From an ecological perspective, Japanese Quince is significant in the function of windbreaks and crop protection belts, as well as serving as a natural barrier in agroforestry ecotones and agricultural land [5]. Given its sustainability on low-quality soils and resistance to diseases [3], as well as its resilience under climate change conditions [6], Japanese Quince is an attractive ornamental and fruit-bearing species that is not destroyed during fruit harvesting, making it a renewable resource. In terms of biochemical composition, the fruits of Japanese Quince are rich in vitamins and biologically active substances. According to Zhang et al. [7], fresh fruits exercise higher levels of vitamin C than the published values for apples, pears, peaches, lemons, and other fruits, highlighting its potential since vitamin C has antiscorbutic effect and helps metabolic transformations and boosts immunity [8]. Numerous experimental studies have confirmed the antioxidant, antimicrobial, anti-inflammatory, cytotoxic, and anti-metastatic potential of *Ch. japonica* fruits [9-11].

Considering that, to our knowledge, the content of bioactive compounds and antioxidant activity in the fruits of Japanese Quince at the genotype level is still less understood, the main objectives of the research are: conservation of in situ sustainable genotypes in the semi-urban zone of Belgrade, and investigation of the content of total phenols, tannins, anthocyanins, flavonoids, vitamin C, and antioxidant properties of fresh fruit extracts, in order to determine the significance of cultural and ecosystem services.

[1]University of Belgrade – Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, Serbia
[2] University of Novi Sad – Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia
*Correspondence: djurdja.stojcic@sfb.bg.ac.rs



ACCHE
Annual Conference on Challenges of Contemporary Higher Education
Kopaonik, Serbia, 03. – 07.2.2025

# EVALUATION OF THE UTILISATION POTENTIAL OF *FICUS CARICA* L. UNDER CONDITIONS OF CLIMATIC CHALLENGES: STATE AND PERSPECTIVES

*Đurđa Petrov[1*], Mirjana Ocokoljić[1], Nenadić Galečić[1], Dragana Đorđević[1], Jesus Garnicioni Granada[2], Jelena Čukanović[3], Isidora Simović[3]*

Abstract: The research was conducted to evaluate the practical potential and sustainability of *Ficus carica* L. in Belgrade, considering that climate change scenarios predict an temperatures as the primary stress factors. Through an integrative approach in the phenological fruiting patterns of figs over three consecutive years, the study confirmed the sustainability of the selected genotype and the potential for productive understanding of phenological changes under climatic challenges. The results also provide insights into the fruit morphology of figs and the species' ecology, highlighting the necessity for in situ care increases. Particularly emphasized is the need for a 91.4% excess reduction at the end of the vegetation period, with a recommendation for the sustainable utilization of the resulting biomass to extract bioactive compounds, followed by the use of the residues in the production of wood base panels (particleboard). The study presents figs as a multipurpose plantation crop in Serbia.

Key words: Fig, Landscape architecture, Horticulture, Fruit growing, Wood industry, Sustainability, Climate change

## I. INTRODUCTION

Due to climate challenges, many plant species have expanded and shifted their distribution as they have evolved and successfully acclimatised to new regions where they were previously unable to grow [1]. In Serbia, since the late 20th century, exotic species belonging to the Mediterranean floristic element have increasingly been utilised, benefiting from the conditions of a Mediterranean climate [2,3]. One such species is *Ficus carica* L., which has been recorded as part of the green infrastructure in Belgrade.

*Ficus carica* L. belongs to the family Moraceae Gaudich., with a native range extending from the eastern Mediterranean to Central Asia and Afghanistan [4]. According to fossil records, it has been cultivated for 11,000 years, with its domestication beginning in the early Neolithic period [5]. Fig is a highly valued fruit species, with fruits rich in vitamins, minerals, and bioactive compounds possessing a high antioxidant capacity [6] (Smolka et al., 2022).

In landscape architecture practice, figs stand out as living sculptures when pruned in private gardens and open spaces and can also be used for vertical greening. They are particularly attractive as graceful solitary trees, contributing to landscape aesthetics throughout the year with their canopy texture and the distinctive architecture of smooth branches and trunks [2].

In recent times, interest in Fig cultivation has increased due to their taste, nutritional value, biological efficiency, and the economic and medicinal significance of their fruits. Given this, and considering the lack of morphological and phenological studies in Serbia, the aim of this research is to determine the morphological characteristics of Fig fruits, the phenological response of fruit ripening to climatic challenges, the potential for regeneration, and new ways of utilising biomass after pruning of Fig in Belgrade.

[1]University of Belgrade – Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, Serbia, [2]University of Novi Sad – Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia, [3]BioSense Institute – University of Novi Sad, 1 Dr Zorana Đinđića, 21000 Novi Sad, Serbia.
*Correspondence: djurdja.stojcic@sfb.bg.ac.rs

## THE IMPACT OF HARVEST TIME ON THE CONTENT OF POLYPHENOLIC COMPOUNDS AND ANTIOXIDANT CAPACITY OF FRUITS OF *Chaenomeles japonica* (Thunb.) Lindl. ex Spach

Mirjana OCOKOLJIĆ[1], Jelena ĆUKANOVIĆ[2], Radmila KOLAROV[2], Djurdja PETROV[1*], Nevenka GALEČIĆ[1], Dejan SKOČAJIĆ[1], Isidora SIMOVIĆ[3]

[1]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
[2]University of Novi Sad - Faculty of Agriculture, Novi Sad, Serbia
[3]Institute for Biological Research "Siniša Stanković" - National Institute of Republic of Serbia, University of Belgrade, Belgrade, Serbia
*Corresponding author: djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*Japanese quince is a medicinal and edible plant with a long history of use, yet the optimal harvest time has not been clearly defined. This study aimed to determine the appropriate harvest times for various uses of Japanese quince fruits by examining the stability of the biochemical composition and antioxidant capacity as the juicy parts of fresh fruits, at the genotype level. Ethanol and distilled water were used as analytical-grade reagents according to the official protocols. Spectrophotometric methods were employed to determine total phenols, tannins, anthocyanins, flavonoids, and the antioxidant capacity of fresh fruit extracts collected in September, November, and December 2024. The results suggest that ethanol more efficiently extracts bioactive components and enhances their potential to neutralise free radicals. The quantities of phenols, tannins, anthocyanins, and the antioxidant test by DPPH with ethanol favour harvesting immediately after ripening in September, while flavonoids and antioxidant tests by FRAP and ABTS favour November, according to the Tukey test results. However, the Mann-Kendall and Sen's slope tests indicate that the differences in polyphenolic compound content and antioxidant tests are not significant, meaning that harvest time is not decisive for the same solvent. Additionally, they confirm the significant content of polyphenolic compounds and antioxidant capacity in all harvest times, making fruits of the selected genotype a promising raw material. The results can be used as quality descriptors when making decisions about potential industrial applications and also imply the necessity for in situ conservation measures.*

**Key words:** *Japanese quince, bioactive compounds, solvent, prospective raw material, selection.*

### Introduction

*Chaenomeles japonica* (Thunb.) Lindl. ex Spach is one of the oldest cultivated plants, used in Chinese medicine over 3000 years ago (Flora of China, 2017). Since the beginning of the 21st century, it has been researched and cultivated as a fruit crop in Latvia, Lithuania, Estonia, Finland, Sweden, and Poland, according to Rumpunen (2002). It is considered a valuable species due to its high annual yield, and is adaptive and sustainable under climate change conditions (Ocokoljić and Petrov, 2022; Petrov et al., 2024). It is also a fruit species with fruits of high firmness, which is maintained during storage (Turko et al., 2010). There is no specific index for assessing fruit maturity; harvesting is done once the typical yellow colour and a pleasant aroma are obtained.

The fruits of Japanese quince are a source of valuable nutrients: organic acids, pectin substances, aromatic compounds, vitamin C, phosphorus, and more (Rumpunen, 2002). Therefore, they are a valuable raw material for processing in the food industry, and are also used as an additive in fruit preservation to improve processing, flavour, and properties with potential health benefits for the human population (Nowicka-Oblizajska et al., 2011). The fruits





## THE IMPACT OF LOCAL ADAPTATION ON THE PHENOLOGICAL PATTERNS OF FLOWERING IN *Buddleja davidii* 'PINK DELIGHT' IN KARABORDEV PARK, BELGRADE (SERBIA)

Mirjana OCOKOLJIĆ[1], Nevenka GALEČIĆ[1], Dejan SKOČAJIĆ[1], Jelena ĆUKANOVIĆ[2], Radmila KOLAROV[2], Dragana VUJIČIĆ[1], Djurdja PETROV[1*]

[1]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
[2]University of Novi Sad - Faculty of Agriculture, Novi Sad, Serbia
*Corresponding author: djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*Plant adaptation to location is an important factor in achieving sustainable urban parks aimed at preserving biodiversity and ensuring ecosystem services, as well as places with significant social, biological, and aesthetic values. Given that knowledge of biodiversity is crucial for both in situ and ex situ conservation, this study examines the impact of local adaptation on the flowering of *Buddleja davidii* 'Pink Delight' with the goal of selecting taxa adapted to the environmental conditions in the centre of Belgrade. By applying the Mann-Kendall, Sen's slope, and Spearman Rank tests, correlations between phenological observations and climatic elements were quantified, and statistical significance was determined for the period 2007-2024. Our findings confirm a long flowering phenophase, averaging 124 days, indicating an earlier start (15.9 days) and earlier full bloom (15 days), as well as a significantly shorter period from the beginning to full bloom (5-6 days) compared to the 63 days reported in the PhiNaView database in Gent for the Northern Hemisphere. The results confirm that a certain amount of heat is necessary for the flowering of 'Pink Delight'. Eighteen years of observations show local adaptation, also in terms of the floral scent composition, as the inflorescences of 'Pink Delight' were visited by a broader spectrum of insects. The study also highlights the positive role of 'Pink Delight' in the perception of non-invasive exotics in sustainably designed urban parks, countering the belief that locally adapted non-invasive exotics are dangerous or incompatible with concepts of urban sustainability in green spaces.*

**Key words:** *Urban Environment, Air Temperature, Day of Year, Growing Degree Days, Sustainable Landscape Design.*

### Introduction

A comparative review by Pyšek and Richardson (2007) suggests that plant growth and phenological patterns of flowering are key traits for designers when selecting non-native species and their lower taxa for landscape architectural compositions. In this context, *Buddleja davidii* 'Pink Delight' is one of 300 cultivars that differ in habit, flower colour, and inflorescence length, as well as leaf shape and colour (Kellomaki, 1976). These cultivars were introduced from Asia to Europe in the 1890s for ornamental purposes (Ocokoljić & Petrov, 2022). Like the species itself, 'Pink Delight' can tolerate a wide range of soil types (Webb et al., 1988; Ocokoljić & Petrov, 2022). Furthermore, like the species, it has naturalized in temperate and sub-Mediterranean zones across most European countries (Tutin, 1972), which confirms that climatic conditions are the primary driver of natural selection (Kawasaki & Ebert, 2004), influencing plant distribution (Woodward & Williams, 1987). Climatic limitations on distribution and their overcoming through local adaptation could be of particular significance for the further use and potential invasiveness of the investigated cultivar of Butterfly Bush.





## A STUDY ON THE FLOWERING CHARACTERISTICS OF CHAENOMELES × SUPERBA 'PINK LADY'

Mirjana OCOKOLJIĆ[1], Djurdja PETROV[1*], Nevenka GALEČIĆ[1], Dejan SKOČAJIĆ[1], Sara ĐORĐEVIĆ[2], Radmila KOLAROV[2], Jelena ĆUKANOVIĆ[2]

[1]Faculty of Forestry, University of Belgrade, Belgrade, Serbia
[2]University of Novi Sad - Faculty of Agriculture, Novi Sad, Serbia
*Corresponding author: djurdja.stojcic@sfb.bg.ac.rs

**Abstract**

*The subject of this study is a cultivar of the genus Chaenomeles* Lidl., whose taxa were cultivated in European gardens at the end of the 18th century. The focus is on the 'Pink Lady' cultivar (Pink Flowering Quince) due to its widespread presence in private gardens in the south-western suburban area of Belgrade. The flowering period of the ornamental quince 'Pink Lady' is the most important factor for its application in green spaces under the conditions of a modified temperate-continental climate. The assessment of flowering characteristics of the Pink Flowering Quince was conducted at two locations in the settlement of Ostružnica, during the period from 2022 to 2025. Differences in the phenological flowering patterns were recorded using the extended BBCH coding system. In addition, accumulated chilling hours were determined, monitored from 1 November, until the onset of bud break. The results indicate a significant influence of air temperature on elements of the phenological flowering pattern (07BBCH, 60BBCH, 65BBCH, and 69BBCH) and their duration. Through the application of ANOVA testing and correlation analysis, genotypes with the longest flowering period were identified and are recommended for propagation and broader application. The findings confirm their understanding the flowering traits of 'Pink Lady' is essential for the management and operationalization of landscape design. Specifically, the results clearly show that successful landscape design requires high-quality plant material that ensures ecological sustainability. These findings also provide a platform for further studies on the mechanisms of flowering and bud dormancy in the Pink Flowering Quince.*

**Key words:** *Pink Flowering Quince blossom, Phenological observations, Chilling requirement, Climate change, Landscape design.*

### Introduction

The conservation of ornamental and medicinal local genotypes has been a focus of interest in recent decades, as their study enables the identification of plant taxa with the aim of preserving and enhancing the biodiversity of local flora (Kikindonov et al., 2017; Petrov et al., 2024; Petrov et al., 2025). In light of intensifying climate change, plants that are highly resistant to temperature fluctuations and drought are of particular importance, among which are species, hybrids, and lower taxa of the genus *Chaenomeles* Lindl. (Ocokoljić & Petrov, 2022). One such plant is *Chaenomeles* × *superba* (Frahm.) Rehder, which has been cultivated for centuries in Japan, Korea, and China as an important source of food, medicinal compounds, and for the ornamental value of its flowering phenophase (Tutkiewicz et al., 2020). Accordingly, the subject of this study is *Ch.* × *superba*, specifically the cultivar 'Pink Lady' (Pink Flowering Quince), which is widely used in the design of private gardens in the south-western suburban zone of Belgrade, Serbia. It is very important to identify suitable taxa for the cultivation of ornamental plants such as the Pink Flowering Quince, which can contribute to improving the quality of the living environment as well as enhancing ornamental value. Successful cultivation



## Variability of morphological characteristics of *Rosa rugosa* Thunb. populations under different light conditions in urban environment

Jelena Ćukanović[1*], Mirjana Ljubojević[1], Sara Đorđević[2], Radmila Kolarov[1], Magdalena Piotr Dervar[3], Djurdja Petrov[3], Mirjana Ocokoljić[3]

[1]Faculty of Agriculture University of Novi Sad, Novi Sad, Serbia

[2]Faculty of Forestry University of Belgrade, Belgrade, Serbia

*jelena.cukanovic@pol.ans.ac.rs

*Rosa rugosa* Thunb., a shrub species from the genus *Rosa* L. and the family *Rosaceae* Juss., is native to eastern Asia and southeastern Siberia. Introduced to Europe in the 19th century for ornamental purposes, it is now widely used for urban greening due to its high adaptability to urban environment, drought and heat tolerance, and high resistance to pests and diseases. This study examines the impact of different light conditions—full sunlight, partial shade, and shade—on the biological characteristics of *Rosa rugosa* Thunb. secondary populations in urban environments and the morphological characteristics of fruits. The studied *Rosa rugosa* Thunb. groups are located on a linear planting on the landscaped part of a large riverbank, along the quay in Novi Sad, Serbia extending east-west, with varying light exposures. Biometrical analysis identifies a total of 145 individuals: 116 in full shade, 15 in partial shade, and 14 in full sunlight. The growth type was uniform across all investigated groups, classified as a shrub with a semi-upright growth habit. Plant height ranged from 0.5 m (full sunlight) to 0.8 m (partial shade). No damage or diseases were observed, and vitality and decorative scores of the investigated plants reached maximum values. The plants were consistently positioned just 0.5 meters from the nearest paved surface, a proximity typically considered extremely close and potentially harmful to plant health. However, no notable deviations were observed in the typical growth patterns, flowering (including timing, abundance, and duration), or fruiting, indicating that *Rosa rugosa* is a remarkably resilient species, able to tolerate the conditions associated with proximity to paved surfaces and roads. Distance from the bicycle path ranged from 0.5 up to 3 meters, contributing to the quality of recreational green spaces and positively impacting user's well-being.

The average values of the measured morphological parameters of the fruits were 3.5 g for fruit weight, 1.55 cm for fruit length, 2.17 cm for fruit width, 1.11 cm for length of the fruit's pericle, while the average sepal length was recorded at 1.57 cm. The values of the number of achenes at the population level range from 31 to 126. The measured morphometric parameters for individual fruits show that the values for achenes length and width ranged from 0.2 to 0.7 cm and from 0.1 to 0.5 cm, respectively. The highest variability was shown in the parameters for fruit weight, length of the fruit's pericle, sepal length, number of individual fruits and weight of achenes. The fruit parameters indicated that variations in light, including shade, partial shade, and full sun exposure, affect morphology. Based on the results obtained, the use of *R. rugosa* seedlings in urban environments is recommended, particularly in various categories of green spaces for linear planting and under different light conditions such asfull sunlight; partial shade, and shade. This species plays a crucial role in enhancing climate resilience within urban settings.

**Keywords:** Rugosa rosa, fruit parameters, resilience, adaptability, sun exposure





## THE INFLUENCE OF LIGHT AND AIR TEMPERATURE ON THE VISUAL PERCEPTION OF *PHOTINIA* × *FRASERI* 'RED ROBIN' IN THE PARTERRE COMPOSITION OF SAVSKI SQUARE IN BELGRADE

*Nevenka Galečić[1], Faculty of Forestry, University of Belgrade*
*Djurdja Petrov[1*], Faculty of Forestry, University of Belgrade*
*Dejan Skočajić[1], Faculty of Forestry, University of Belgrade*
*Jelena Ćukanović[2], Faculty of Agriculture, University of Novi Sad*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Radmila Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *This research is dedicated to analysing the linear structure of Photinia × fraseri 'Red Robin' as one of the visual elements of Savski Square in Belgrade. Using an integrative approach to phenological and climatic factors over two consecutive, climatologically distinct years, the influence of light and air temperature on the phenology and morphometric characteristics of the inflorescences in early spring was assessed. Descriptive statistics, the Spearman Rank correlation, Tukey's test, and one-way ANOVA were used to quantify the investigated parameters. The results confirm that Photinia 'Red Robin' is both adaptive and sustainable, and that during the period of shoot growth and flowering it contributes significantly to the visual identity of the space. Seasonal changes in its linear structure within the parterre design of the square reflect periodicity, flexibility, and diversity, along with a high adaptability to contemporary trends and the physical environment.*

**Keywords:** Photinia fraseri Red Robin', Aesthetics, Spatial perception, Climate change, Urban open space, Hedge, Growth Performance, Flowering

### 1. INTRODUCTION

Starting from the premise that the physical structure of a city consists of built elements, spaces, surroundings, and units integrated into the urban system [1], and that visual perception is a subjective representation of objective reality, visual resources and effects play a dominant role in the identification of the built environment [2], particularly under the conditions of climate change [3]. Belgrade, like many European cities, was developed over different historical periods, each marked by characteristic architectural styles that influence the quality and visual perception of urban spaces [4]. The visual quality of urban spaces can be explained through geographical and morphological micro- and macro-elements, which are especially important in confined areas such as urban squares [5]. Perception and preference related to the landscape compositions of squares are closely linked to their restorative qualities. Individuals experience sensory perceptions in different environments that shape their preferences and, consequently, influence their psychological and physiological well-being [6]. Research in Europe has shown that squares, as urban open spaces, positively impact

* nevenka.galecic@sfb.bg.ac.rs
* djurdja.stojcic@sfb.bg.ac.rs, corresponding author
* dejan.skocajic@sfb.bg.ac.rs
* jelena.cukanovic@pol.ans.ac.rs
* radmila.kolarov@pol.ans.ac.rs
* sara.djordjevic@pol.edu.rs
* mirjana.ocokoljic@sfb.bg.ac.rs





## SECONDARY FLOWERING AND FRUITING OF *LABURNUM ANAGYROIDES* MEDIK. AND THEIR IMPORTANCE IN URBAN LANDSCAPE DESIGN

*Djurdja Petrov[1*], Faculty of Forestry, University of Belgrade*
*Nevenka Galečić[1], Faculty of Forestry, University of Belgrade*
*Dejan Skočajić[1], Faculty of Forestry, University of Belgrade*
*Dragan Vujičić[1], Faculty of Forestry, University of Belgrade*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *Woody plants and their phenology represent a significant element in the design of green spaces, as they perform various crucial ecosystem services. This study analysed the abundance of flowering, morphometric characteristics of inflorescences, flowers and fruits, as well as phenological patterns of secondary flowering of the Common laburnum in the Arboretum of the Faculty of Forestry in Belgrade, recorded in 2023 and 2024. The research highlighted the significant visual impact and the unusually long duration of repeated flowering, which is atypical for this species at the end of autumn and the beginning of winter. Altered climatic parameters, especially air temperature, as well as the genotype of the analysed individuals, triggered repeated flowering and fruiting after the end of the growing season. Due to its ornamental value, resilience, and adaptability, Common laburnum is recommended for widespread use in urban design, particularly given its wide range of ecological, landscape and social benefits.*

**Keywords:** common laburnum, phenology, climate change, ecosystem services, landscape design

### 1. INTRODUCTION

Flowering ornamental woody plants play a special role in landscape architecture and urban design. They contribute to the aesthetics of spaces and create a pleasant environment due to their therapeutic benefits, positively impacting human population physical and mental health, while also serving as urban habitats [1-4]. Among the most ornamental are taxa with large, attractive inflorescences, which enhance the visual perception in landscape design. One such species is *Laburnum anagyroides* Medik. the Common laburnum (*Leguminosae*), notable for its golden-yellow pendulous racemes. Besides their decorative value, these species are highly important for ecosystem services such as mitigating extreme weather events, regulating climate and air quality, purifying water, and providing habitat and food for birds and mammals. Common laburnum belongs to the family *Fabaceae* Lindl. (genus *Laburnum* Fabr.), whose species have distinctive papilionaceous flowers that attract a large number of pollinators, making their ecological role crucial for maintaining balance. Although Common laburnum flowers do not produce nectar, they are an important source of pollen for insects in spring [5]. It is also a valuable melliferous species, with its pollen detected in honey [6], and insects feed on

* djurdja.stojcic@sfb.bg.ac.rs, corresponding author
* nevenka.galecic@sfb.bg.ac.rs
* dejan.skocajic@sfb.bg.ac.rs
* jelena.cukanovic@pol.ans.ac.rs
* dragan.vujicic@sfb.bg.ac.rs
* sara.djordjevic@pol.edu.rs
* mirjana.ocokoljic@sfb.bg.ac.rs

International Scientific and Professional Conference
Politehnika 2025

## *AMORPHA FRUTICOSA* L. IN THE ALLUVIAL HABITATS OF BELGRADE AND NOVI SAD: MORPHOLOGICAL AND PHENOLOGICAL CHARACTERISTICS OF INFLORESCENCES, FLOWERS, AND FLOWERING IN THE CONTEXT OF ECOSYSTEM SERVICES

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Dejan Sknljić[1], Faculty of Forestry, University of Belgrade*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Djurdja Petrov[1], Faculty of Forestry, University of Belgrade*

**Abstract**: Ecosystem services are often underestimated because they fall outside the scope of market economies, yet without them, ecology and the environment would become unbalanced. This study highlights the role of *Amorpha fruticosa* L. in preserving ecosystem services within urban alluvial habitats. The research examined variations in the morphometric characteristics of inflorescences, flowers, and the flowering phenophase of the Indigo Bush in Belgrade and Novi Sad over two consecutive years with differing climatic conditions. Quantitative traits, in both years and at both locations, differed from previous studies, showing longer inflorescences and a greater number of stamens. The higher number of stamens per flower, along with strong positive correlations indicating that an increase in inflorescence length is associated with an increased number of flowers, is of particular importance, as stamens are a rich source of nectar and a vital food resource for bees. An integrative approach combining phenological observations of flowering, air temperatures, and precipitation confirmed that this species is adaptive and suitable for anamorese strategies. With appropriate maintenance measures, it supports the preservation of benefits for insects, birds, and the human population in the urban landscape.
**Keywords:** Indigo Bush, phenological monitoring, sustainability, climate changes, landscape design

### 1. INTRODUCTION

Plant compositions in alluvial habitats under temperate-continental climate conditions are influenced by ecological factors, primarily the frequency, duration, and timing of flooding [1]. One of the most aggressive invaders of these vulnerable ecosystems is *Amorpha fruticosa* L. (Indigo Bush) — a morphyte species that is rapidly spreading in many countries and cities of Southeast Europe, particularly in moist habitats including riverbanks [2]. Despite its impact on various ecosystem levels, Indigo Bush also has positive effects in the habitats it occupies [3].
In addition to its bioaminoactive value and role in invasion control [4], studies by Kozulanova et al. [5] confirm that Indigo Bush contains phytocompounds such as amorphin, which are used in the

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] jelena.cukanovic@polj.uns.ac.rs
[3] sara.djordjevic@polj.edu.rs
[4] nevenka.gulesic@sfb.bg.ac.rs
[5] dejan.sknljic@sfb.bg.ac.rs
[6] radenka.kolarov@polj.uns.ac.rs
[7] djurdja.vracar@sfb.bg.ac.rs , corresponding author



International Scientific and Professional Conference
Politehnika 2025

## ADAPTATION OF FLOWERING PHENOLOGY AND FLOWER LONGEVITY OF *PHILADELPHUS CORONARIUS* L. IN LANDSCAPE DESIGN UNDER CLIMATE CHANGE CONDITIONS

*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Djurdja Petrov[2,*], Faculty of Forestry, University of Belgrade*
*Dejan Sknljić[1], Faculty of Forestry, University of Belgrade*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *The aim of this research is to assess the impact of climate change on the flowering of Philadelphus coronarius L. in the period from 2007 to 2023, in the south-western peri-urban zone of Belgrade. The evaluation included an assessment of the onset of flowering, full flowering, and the end of flowering across 19 phenological patterns, as well as the daily flowering abundance. The results confirmed a trend towards earlier onset of full flowering, while the start and end of flowering fluctuated in accordance with changes in climatic parameters. A comparative analysis identified the optimal daily maximum and minimum temperatures for peak (20.9°C and 11.1°C) and abundant (21.9°C and 12.0°C) flowering. Regression analysis confirmed that flowering abundance decreases when daily minimum temperatures exceed the optimal range. In conclusion, flowering of Ph coronarius is stable and resilient, highlighting the species as an important ornamental flowering plant for landscape design and ecosystem services.*
**Keywords:** Mock Orange, phenological flowering patterns, sustainable peri-urban ecosystems, springtime temperature and precipitation, landscape design

### 1. INTRODUCTION

As a vital component of urban and peri-urban green spaces, plants offer both aesthetic and functional benefits to human populations. Being living materials, plants undergo changes in colour, texture, shape, and size over time, contributing to landscape dynamics, particularly through seasonal colour transitions [1]. Therefore, understanding the functional traits of plant taxa is crucial when selecting species for landscape design, which may be based on aesthetic and social factors, disease resistance, and—especially importantly—anticipated climate change [2]-[4]. Plant functional traits can be classified as morphological-anatomical or physiological, and it has been confirmed that these traits are influenced by climate [5]. To address the risks associated with climate change in landscape design, it is necessary to apply resilient taxa that can withstand future variations in air temperature and precipitation patterns. However, the knowledge of climate sensitivity and trait plasticity is still limited or unknown for many taxa, particularly for shrub species such as *Philadelphus coronarius* L.

[1] nevenka.gulesic@sfb.bg.ac.rs
[2] djurdja.petrov@sfb.bg.ac.rs, corresponding author
[3] dejan.sknljic@sfb.bg.ac.rs
[4] jelena.cukanovic@polj.uns.ac.rs
[5] radenka.kolarov@polj.uns.ac.rs
[6] sara.djordjevic@polj.edu.rs
[7] mirjana.ocokoljic@sfb.bg.ac.rs



International Scientific and Professional Conference
Politehnika 2025

## VIBURNUM TINUS L.- MEDITERRANEAN FLORAL ELEMENT IN THE URBAN AND SUBURBAN LANDSCAPE OF BELGRADE

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Dejan Sknljić[1], Faculty of Forestry, University of Belgrade*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Djurdja Petrov[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *There is currently a lack of quantitative assessments of stress tolerance in plant species from the Mediterranean floristic element under temperate-continental climate conditions. Such assessments could contribute to nature-based solutions for mitigating the effects of urban heat islands (UHI). Urban areas face multiple ecological challenges that interact with climate change, including the intensification of the UHI effect. The aim of this study was to evaluate shifts in the flowering phenophase of Laurustinus (Viburnum tinus L.) at three sites in Belgrade, based on the compilation of climatic and phenological observations. The results confirmed statistically significant differences in the day of year values, but no significant differences in the accumulated growing degree days across phenological pattern elements between locations. This confirms a causal relationship between vegetation development and air temperature and the UHI effect. In conclusion, the findings highlight the importance of these results in the context of expected global warming and the prediction of species tolerance. Research into flowering phenological patterns in urban and suburban landscapes holds both theoretical and practical relevance. Specifically, the results provide a valuable foundation for landscape planning and design that must adapt to changing dynamics in order to ensure the continued provision of ecosystem services.*
**Keywords:** Laurustinus, UHI, flower phenophases, acclimatization, landscape design

### 1. INTRODUCTION

The expansion of urban centres has led to the development of a distinct warming pattern, with a tendency for temperatures to rise more sharply in comparison to suburban and rural areas. This phenomenon is known as the Urban Heat Island (UHI) effect [1,2]. UHI is recognised as a global issue that threatens the functioning of urban ecosystems, public health, and urban planning [3]. The UHI effect is influenced by climatic conditions as well as environmental characteristics such as the materials used in construction, the degree of urbanisation, traffic levels, and vegetation cover [4]. A critical factor in UHI development is the lack of vegetation during heatwaves, as well as the heat absorbed by buildings and released from anthropogenic sources [5]. UHI has the potential to alter seasonal vegetation patterns, particularly in exotic and ornamental shrubs [6]. Therefore, this study

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] nevenka.gulesic@sfb.bg.ac.rs
[3] dejan.sknljic@sfb.bg.ac.rs
[4] jelena.cukanovic@polj.uns.ac.rs
[5] sara.djordjevic@polj.edu.rs
[6] radenka.kolarov@polj.uns.ac.rs
[7] djurdja.vracar@sfb.bg.ac.rs , corresponding author

International Scientific and Professional Conference
Politehnika 2025

## MORPHOLOGICAL AND BIOCHEMICAL CHARACTERISTICS OF THE FRUITS OF MALUS HUPEHENSIS VAR. PINYENSIS N.G.JIANG IN BELGRADE

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Dejan Sknljić[1], Faculty of Forestry, University of Belgrade*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Djurdja Petrov[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *Using an integrative approach, the morphological and biochemical characteristics of fruits from three Malus hupehensis var. pinyensis Jiang trees were analysed. The trees are located in the pedestrian zone of the Stari Grad municipality, on Obilićev venac, in Belgrade. The variability of the fruit morphometric characteristics was statistically significant and confirmed visual observations that, with an increase in pedicel length, both fruit length and width decrease across all trees. The second part of the research was based on the hypothesis that there are taxa with high-quality fruits that provide ecosystem services. Therefore, the biochemical composition and antioxidant capacity were determined from the fleshy parts of fresh fruits. The results highlight ethanol as a solvent that more effectively extracts and enhances the potential of bioactive components. In conclusion, Ten Crabapples are emphasised as valuable in landscape design due to their ornamental appeal, urobiogical role and fruits with high added value.*
**Keywords:** Tea Crabapple, sustainability, bioactive compounds, antioxidant activity, comparative evaluation, urban ecosystems, landscape design

### 1. INTRODUCTION

The genus Malus Mill. comprises approximately 36 species and 4 hybrids (some sources report up to 70), classified as low-growing, deciduous trees or shrubs within the family Rosaceae Juss. [1]. According to Greaves and Husband [2], many species and hybrids—Malus baccata (L.) Borkh., Malus prunifolia (Willd.) Borkh., Malus sieversii (Ledeb.) Malus sylvestris (L.) Mill., Malus praecox (Pall.) Borkh., Malus domestica (Borkh.), and Malus × domestica × Malus sieversii are capable of hybridisation, enabling the synthesis of a broad range of hybrid material with promising potential for application under changing climatic conditions. Malus taxa exhibit a wide ranges of adaptive traits; they can tolerate air temperatures as low as -40 °C [3], withstand drought [4], and grow in various soil types- although shallow and sandy soils are considered less suitable [5].
The introduction and conservation of apple (Malus) taxa in urban environments is a relevant topic not only in modern pomology but also in landscape architecture. In addition to their evident utilitarian value primarily in fruit production [6] certain species and lower taxa from the group of ornamental

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] radenka.kolarov@polj.uns.ac.rs
[3] jelena.cukanovic@polj.uns.ac.rs
[4] nevenka.gulesic@sfb.bg.ac.rs
[5] dejan.sknljic@sfb.bg.ac.rs
[6] sara.djordjevic@polj.edu.rs
[7] djurdja.vracar@sfb.bg.ac.rs



International Scientific and Professional Conference
Politehnika 2025

## *PUNICA GRANATUM* L. IN GARDEN DESIGN IN SERBIA

*Djurdja Petrov[1,*], Faculty of Forestry, University of Belgrade*
*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Dejan Sknljić[1], Faculty of Forestry, University of Belgrade*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Dragan Vujčić[1], Faculty of Forestry, University of Belgrade*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*

**Abstract**: *Due to altered climatic conditions, warm thermophilic taxa—Mediterranean floral elements—have been introduced into Serbia, among them the utilitarian and ornamental species Punica granatum L. accordingly, this study investigates Pomegranate individuals in two private gardens in Serbia, located in Belgrade and Zagarica. The research analysed the dendrometric characteristics of the plants, the morphological traits of the fruits and the phenology of flowering and fruiting during the period 2022–2024. Based on data collected over three consecutive years, descriptive statistics were used to determine fruit yield and fruit mass. An important finding is that the key elements of the fruiting phenological pattern were identical to those observed in plants grown under Mediterranean climate conditions. The study confirmed the good vitality, adaptability, and sustainability of Pomegranate, which opens up the possibility of incorporating it as a fruit-bearing species in garden design under the altered temperate continental climate conditions in Serbia.*
**Keywords:** Pomegranate, phenology, fruiting, adaptability, climate change

### 1. INTRODUCTION

Based on their distribution areas, plants with similar ranges are grouped into specific phytogeographical elements. *Punica granatum* L. (*P.granatum*) - Pomegranate is a species that belongs to the Mediterranean floral element, and in Serbia, for several decades, ornamental Pomegranate cultivars have been used as exotic plants in landscape architectural compositions [1]. In the wild, it grows from northwestern Turkey to western and northern Pakistan, where it has long been regarded as the "king" among fruit species due to the distinctive shape of its calyx lobes, which form a "crown" as the fruit ripens [2]. Pomegranate is a highly important fruit and medicinal species that has a positive impact on human health [3]. However, its significance extends beyond pomology and medicine; it also holds considerable value in landscape architecture due to its ornamental flowers. In addition to its utilitarian properties, the visual appeal of Pomegranate must be emphasised—its attractive habit evokes a tropical atmosphere: while its flowering phenophase draws pollinators, adding a sense of vibrancy to green spaces. The striking fruits further enhance visual harmony, transforming landscapes into vivid oases. Moreover, the fact that the fruits are edible makes landscape compositions both ornamental and functional.

[1] djurdja.vracar@sfb.bg.ac.rs, corresponding author
[2] nevenka.gulesic@sfb.bg.ac.rs
[3] dejan.sknljic@sfb.bg.ac.rs
[4] jelena.cukanovic@polj.uns.ac.rs
[5] dragan.vujcic@sfb.bg.ac.rs
[6] radenka.kolarov@polj.uns.ac.rs
[7] mirjana.ocokoljic@sfb.bg.ac.rs



International Scientific and Professional Conference
Politehnika 2025

## ORNAMENTAL CHERRY TREES IN THE OPEN URBAN SPACES IN FRONT OF THE TEMPLE OF SAINT SAVA IN BELGRADE: IDENTIFICATION AND SIGNIFICANCE

*Mirjana Ocokoljić[1], Faculty of Forestry, University of Belgrade*
*Nevenka Gulešić[1], Faculty of Forestry, University of Belgrade*
*Jelena Cukanović[2], Faculty of Agriculture, University of Novi Sad*
*Sara Đorđević[2], Faculty of Agriculture, University of Novi Sad*
*Radenka Kolarov[2], Faculty of Agriculture, University of Novi Sad*
*Djurdja Petrov[1,*], Faculty of Forestry, University of Belgrade*

**Abstract**: *The aim of this paper is to identify the significance of ornamental cherry trees as components of the open spaces in front of the Temple of Saint Sava in Belgrade. Given that their application in landscape design is limited by a short flowering period, the influence of air temperature and precipitation on the phenological flowering patterns and seasonality of the ornamental cherry cultivars 'Kanzan' and 'Kiku-Shidare Zakura' was analysed. Circular statistics were used to investigate the spatio-temporal phenological changes and quantify relevant parameters. Both cultivars exhibited strong flowering seasonality, occurring during the early spring (two climatically distinct years. The study confirmed the seasonal dynamics of phenology as a valid criterion for assessing the ecological quality of open urban spaces. It also highlights the need for a holistic approach in green integration and the strategic placement of ornamental cherry trees in order to preserve the visual identity of the space.*
**Keywords:** 'Kiku-Shidare Zakura', 'Kanzan', phenology, chilling hours accumulation, seasonality, aesthetic appeal, landscape design

### 1. INTRODUCTION

The Oriental cherry and its lower taxa belong to the Rosaceae family and are classified as flowering ornamental trees, widely used in green spaces around the world [1]. According to Wybe [2], a large number of cultivars have been identified, which are classified into five groups based on crown architecture: (1) columnar, (2) spindle-shaped, (3) funnel-shaped, (4) umbrella-shaped, and (5) weeping. The form of the flower is also highlighted as a second important element for cultivar identification, particularly since this study focused on two cultivars that differ in both habitus and flower morphology. Both cultivars are of the 'Plena' type, characterised by numerous petal-like structures, often referred to as "chrysanthemum-type flowers" [1]. Although flower colour is important, it was not used in this study, in line with Wybe's [2] assertion that flower colour is rarely used for identification purposes, as it can vary between trees of the same cultivar, and even within a single tree. In temperate continental climate conditions, ornamental cherry cultivars have a short flowering period at the beginning of spring, which fluctuates under the influence of climatic factors, particularly air temperature and precipitation [3]. On the other hand, the timing of phenological events

[1] mirjana.ocokoljic@sfb.bg.ac.rs
[2] nevenka.gulesic@sfb.bg.ac.rs
[3] jelena.cukanovic@polj.uns.ac.rs
[4] sara.djordjevic@polj.edu.rs
[5] djurdja.vracar@sfb.bg.ac.rs, *corresponding author

## ORAL PRESENTATIONS

### *Trachelospermum jasminoides* (Lindl.) Lem. in pergola design: An experimental study in Belgrade

**Ocokoljić, M.[1], Petrov, D.[1], Galečić, N.[1], Skočajić, D.[1], Čukanović, J.[2], Vujičić, D.[1], Simović, I.[2]**

[1]Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia

[2]Department of Fruit Growing, Viticulture, Horticulture and Landscape Architecture, Faculty of Agriculture, University of Novi Sad, Square Dositej Obradović 8, 21000 Novi Sad, Serbia

[3]Botanical Institute, University of Novi Sad, Dr Zorana Đinđića 1, 21000 Novi Sad, Serbia

* djordja.stojicic@sfb.bg.ac.rs

The paper analyzes the potential applications of Star Jasmine, a climbing plant from the subtropical biome, in pergola design in Belgrade, considering the growing interest in the phenomenon of urban heat islands as a result of increased urbanization, improper planning, and design. In order to understand this phenomenon, the integration of meteorological components into the design process and the appropriate selection of plants in landscape design is encouraged. Therefore, comprehensive analyses of climatic parameters, phenological, and morphological characteristics during the period from 2013 to 2024 confirmed the adaptability of the species on a pergola in a private garden in the Čukarica district of Belgrade. It is particularly notable that Star Jasmine, at the age of two, tolerated severe frosts in a protected position from the dominant cold northwestern and southeastern winds. The morphometric characteristics of the leaves were within the expected range, while the dimensions of the flowers exceeded the values cited in the literature for Star Jasmine in the Northern Hemisphere. For the first time, the number of flowers in the inflorescences and the number of petals in the flowers were determined. The obtained results are significant considering that Star Jasmine is an evergreen species with a fine texture, has a long flowering phenophase, and that there are only few woody climbing plants with such characteristics in Belgrade. Further research is necessary to define guidelines for pergola design, in the context of climate change. In urban environments ornamental climbing plants provide year-round value and require minimal maintenance.

**Acknowledgements:** The authors are grateful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia for financial support of the University





### *Indigofera heterantha* Wall. ex Brandis – a new exotic species in Serbia

**Ocokoljić, M.[1], Petrov, D.[1], Galečić, N.[1], Skočajić, D.[1], Čukanović, J.[2], Vujičić, D.[1], Simović, I.[3]**

[1]Department of Landscape Architecture and Horticulture, Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia

[2]Department of Fruit Growing, Viticulture, Horticulture and Landscape Architecture, Faculty of Agriculture, University of Novi Sad, Square Dositej Obradović 8, 21000 Novi Sad, Serbia

[3]Botanical Institute, University of Novi Sad, Dr Zorana Đinđića 1, 21000 Novi Sad, Serbia

* djordja.stojicic@sfb.bg.ac.rs

The paper describes the differential characteristics of *Indigofera heterantha* Wall. ex Brandis, as a location in Belgrade, for which, to our knowledge, there is no prior experience or data available in Serbia. The collected data on the quantitative properties of leaves, inflorescences, flowers, and fruits were processed through biometric analyses. Since the Indigo Himalayan is located as close proximity, an integrative approach using phenological patterns and climatic predictors allowed for comparison and drawing conclusions about this yet unrecorded exotic species in the flora of Serbia. During the summer year of 2024, new growth and leafing were observed in September and October, and the flowering phenophase was extended until November. Based on the results, the Indigo Himalayan stands out as an adaptive, fast-growing shrub species in the altered moderately continental climatic conditions of Serbia, confirming that alien species tolerate these fluctuations. Therefore, it is proposed that indigenous and sustainable alien plants should be used in the design of urban semi-natural and new open spaces. This study serves as a starting point for further research aimed at better understanding the state of diversity in urban dendroflora and the role of Indigo Himalayan in landscape design. Species diversity plays a key role in providing ecosystem services and stability, and urban microclimatic can support a high diversity of shrub dendroflora.

**Acknowledgements:** The authors are grateful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia for financial support of the University of Belgrade - Faculty of Forestry the scientific research work in 2023, the registration number 451-03-137/2023-03/200169



TER'26

Original Research

**CHALLENGES, LIMITATIONS AND KNOWLEDGE GAPS CONCERNING ALLOCHTHONOUS TREES IN URBAN ENVIRONMENTS: WINGED ELM**

DOI: 10.19177/ReSTRI.2026.SI

**Radenka Kolarov[1,*], Djordja Petrov[2,3], Nevenka Galečić[2,*], Dejan Skočajić[2,3], Jelena Čukanović[2,3], Sara Đurđević[2,3], Mirjana Ocokoljić[2,3]**

[1] University of Novi Sad, Faculty of Agriculture, Trg Dositeja 8, 21000 Novi Sad, SERBIA

[2] University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA

[*] https://orcid.org/0000-0003-2978-7618 [*] https://orcid.org/0000-0001-5287-2741

[*] https://orcid.org/0000-0003-2773-4583 [*] https://orcid.org/0000-0002-7870-5228

[*] https://orcid.org/0000-0003-3327-1403 [*] https://orcid.org/0000-0002-4999-8433

[*] https://orcid.org/0000-0002-9171-2833

**Abstract**

*Favorable ecosystem conditions and diverse socio-economic developments over the centuries have contributed to the unprecedented transatlantic introduction of allochthonous trees, leading to their presence in cultivated Europeans landscapes. For this reason, a systematic recommendation approach was applied to the municipality of New Belgrade during 2024, where the species Ulmus alata Michx. was identified, according to the authors' knowledge, this is the only recorded finding of the species in Serbia, consequently local space users were interviewed. Considering the need for holistic perspectives in sustainable urban development, as well as the integration of urban, suburban and rural spatial concepts at both local and regional levels, all phenological changes of Winged elm were recorded during 2025. An evaluation of phenological events and a morphometric analysis of leaves were carried out. A mass occurrence of leaf aphid galls was documented, together with the absence of flowering and fruiting phenophases. The results indicate that, alongside formal, technical and conceptual requirements, it is essential to take into account the potential benefits and risks arising from ecological challenges.*

**Keywords:** Ulmus alata Michx, assisted migration, dendron, Ericsonia alata, landscape-suitable elms.

**ACKNOWLEDGEMENT**

*The authors are grateful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia for financial support according to the contract with registration No. 451-03-66/2026-03/200169, 451-03-36/2026-03/200177 and 451-03-102/2026-03/200177.*

**REFERENCES**

[1] Alpert, P., Bone, E., Holzapfel, C. Plant Ecol. Evol. 2008; 1, 52–66

* djordja.stojicic@sfb.bg.ac.rs



TER'26

Original Research

**THE INFLUENCE OF THE URBAN HEAT ISLAND ON *Aesculo × grandiflora* (BOVELLI EX ANDRÉ) HERDER EX TASA**

DOI: 10.19177/ReSTRI.2026.SI

**Radenka Kolarov[1,*], Djordja Petrov[2,3], Nevenka Galečić[2,*], Dejan Skočajić[2,3], Jelena Čukanović[2,3], Sara Đurđević[2,3], Mirjana Ocokoljić[2,3]**

[1] University of Novi Sad, Faculty of Agriculture, Trg Dositeja 8, 21000 Novi Sad, SERBIA

[2] University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA

[*] https://orcid.org/0000-0003-2978-7618 [*] https://orcid.org/0000-0001-5287-2741

[*] https://orcid.org/0000-0003-2773-4583 [*] https://orcid.org/0000-0002-7870-5228

[*] https://orcid.org/0000-0003-3327-1403 [*] https://orcid.org/0000-0002-4999-8433

[*] https://orcid.org/0000-0002-9171-2833

**Abstract**

*The effects of urban heat islands (UHI) are an increasing challenge for urban environments with most studies focusing on trees, yet there is a lack of explorations regarding how urbanization and UHI affect shrub species. This study addresses that gap by investigating the cultivars 'Lutz Variant' and 'Startler' of the hortt. American hybrid Aesculo × grandiflora (Bovelli ex André) Herder. The research was conducted using a cascading design approach at the lifetime scale-tree development within the UHI zone of the Majdi Forest municipality in Belgrade, over the period 2019–2025. The effects of UHI on the temporal coexistence of growth-cycle elements and flowering abundance were analyzed through interactions between air temperature and flowering abundance using Spearman rank correlations and linear regression. The results indicate warmer and more convoluted with daily maximum and minimum temperatures, as well as day length, which influences plant phenophases. The findings highlight Silver-Abelia as suitable for urban conservation and ecosystem services under UHI conditions, supplying the optimization of urban management, restoration planning, and design strategies.*

**Keywords:** urban expansion, outdoor ornamental plants, air temperature, resilience, ecosystem services.

**INTRODUCTION**

Urban heat islands (UHIs) are caused by urban structures, such as land-absorbing materials, anthropogenic heat emissions, and decreased infrared radiation, which result in higher air temperatures in urban areas compared to neighboring peri-urban and rural regions [1,2]. The UHI phenomenon is also closely linked to climate change and rapid urban development, leading to negative impacts on air quality due to pollutant accumulation as well as rapid fluctuations in temperature and precipitation patterns. Jointly increasing the risk of extreme weather events [3]. These interconnected effects highlight the need for

* djordja.stojicic@sfb.bg.ac.rs



TER'26

Original Research

***Pyracantha angustifolia* (Franch.) C.K.Schneid. A NEW EXOTIC SPECIES IN THE DENDROFLORA OF BELGRADE**

DOI: 10.19177/ReSTRI.2026.SI

**Radenka Kolarov[1,*], Djordja Petrov[2,3], Nevenka Galečić[2,*], Dejan Skočajić[2,3], Jelena Čukanović[2,3], Sara Đurđević[2,3], Mirjana Ocokoljić[2,3]**

[1] University of Novi Sad, Faculty of Agriculture, Trg Dositeja 8, 21000 Novi Sad, SERBIA

[2] University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, SERBIA

[*] https://orcid.org/0000-0003-2978-7618 [*] https://orcid.org/0000-0001-5287-2741

[*] https://orcid.org/0000-0003-2773-4583 [*] https://orcid.org/0000-0002-7870-5228

[*] https://orcid.org/0000-0003-3327-1403 [*] https://orcid.org/0000-0002-4999-8433

[*] https://orcid.org/0000-0002-9171-2833

**Abstract**

*The study examines the condition and visual characteristics of Pyracantha angustifolia (Franch.) C.K. Schneid., a newly recorded taxon in the dendroflora of Belgrade. The recorded stem has been present at the study site for 10 years, demonstrating remarkable vitality as well as excellent aesthetic qualities. Morphometric traits of the evergreen leaves, flowers, and fruits were analyzed, along with flowering and fruiting abundance, which contribute to the attractiveness of plant species in the urban landscape, where this taxon plays an important role as a border element in landscape architectural compositions. The dimensions of the analyzed morphological characteristics of P. angustifolia fell within the ranges reported in the literature for its natural habitat. These results are important for the continued monitoring of P. angustifolia as the species has shown invasive tendencies in some countries, which could threaten local biodiversity if left unmanaged. Moreover, the study highlights the significance of this taxon for bird feeding and habitat provision, particularly for house sparrows, whose populations are negatively affected by excessive urbanization.*

**Keywords:** nonnative hardiness, introduction, morphology, visual characteristics, landscape design.

**INTRODUCTION**

The plant world is highly diverse, and in design there is often a focus on using new and more attractive taxa. As a result, urban dendroflora is very dynamic and rich in introduced species. Green spaces are designed to fulfill various ecosystem functions, but the visual aspect is often decisive, leading to the introduction of exotic species into urban landscapes for their aesthetic benefits as well as benefits to the human population [1]. Historically, in landscape architecture, ornamental plants with pronounced decorative traits were the most common choice for designing and greening urban areas [2,3]. Exotic species were once a symbol of prestige, with evergreen taxa dominating due to their year-round visual impact [3]. The

* djordja.stojicic@sfb.bg.ac.rs





## sciforum-169482: Urban microclimatic influence on flowering phenology and floral traits of *Chaenomeles x superba* 'Pink Lady'

Lidija Milić, Sonja Ivetić, Lazar Ferenc, Ivan Đurđevac, Đorđe Ferenc, Milana Cvetković, Jelena Čukanović

* Faculty of Agricultural, University of Novi Sad, Novi Sad, Serbia
* Faculty of Forestry, University of Belgrade, Belgrade, Serbia

Urban microclimatic heterogeneity shapes plant phenology, morphology, and reproductive expression, relevant for planning and management of sustainable urban green spaces. This study examines how contrasting urban settings influence flowering dynamics and floral morphological traits of *Chaenomeles x superba* 'Pink Lady' in Novi Sad, Serbia. The research was conducted from 1 January to 8 April 2025 across a representative street and a park environment, differing in degrees of thermal insolation, solar radiation, and environmental softening typical of urban landscapes. Flowering phenology was monitored through field observations using the BBCH scale, recording the beginning of flowering (BBCH 60), more than 10% of flowers open, full flowering (BBCH 65), more than 50% of flowers open), and the end of flowering (BBCH 69, more than 90% of flowers faded). Monitoring was conducted every second day until the beginning of flowering and daily until the end of flowering. Floral morphology was assessed during peak flowering by analyzing 50 flowers from each analyzed individual. Measurements included sepal and petal length, flower diameter, number of petals, stamens and pistils, and the number of fertile carpels. Data were analyzed using descriptive statistics and comparative statistical tests. The results reveal clear differences in flowering dynamics between urban contexts (street-like and park-like settings). Flowers in more exposed urban areas exhibited an earlier onset of flowering, a faster progression to full bloom, and a shorter overall flowering period, whereas plants in sheltered green environments showed prolonged flowering and more gradual phenological transitions. Floral morphological traits also varied between environments, with flowers in park-like settings displaying larger dimensions and more pronounced floral organs, while several traits remained consistent across settings. The study demonstrates that urban microclimatic conditions strongly shape flowering dynamics and reproductive traits of ornamental plants, emphasizing the importance of microclimate-sensitive species selection for sustainable and resilient urban green spaces.

© 2026 by the author(s). Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).





## sciforum-172229: Assessment of the impact of air temperature variations on the duration and abundance of flowering of *Abelia x grandiflora* 'Little Richard' in the context of urban planning and design

Đorđe Lazar Petrov, Nevenka Galečić, Dejan Lj. Skočajić, Jelena Čukanović, Radmila Kostov, Sara Đurđević, Mirjana Ocokoljić

University of Belgrade - Faculty of Forestry
Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia
Faculty of Agriculture, University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

Variations in temperature have the potential to either enhance or disrupt ecological systems, yet little is known about how the plasticity of Grossi Abelia, under conditions of localized climate change, can facilitate urban planning and design. Therefore, this study focuses on changes in the duration and abundance of flowering of Abelia × grandiflora 'Little Richard' in Lap Lopad Park in Belgrade during the period 2020–2025. Observations were carried out using the extended BBCH scale, with recorded dates converted into day-of-year values. The accumulated heat sum for flowering onset, full flowering, and end of flowering was determined based on daily maximum and minimum air temperatures. Flowering abundance was evaluated using a 0–5 scale, where 0 indicates the absence of flowering and 5 indicates maximum flowering. The study employed descriptive statistics, the Spearman rank test, the Mann–Kendall trend test in conjunction with Sen's slope test, and regression analysis. The results confirm that air temperature influences both the duration and abundance of flowering. The year factor proved to be significant, with 2024, identified as the globally warmest year, exhibiting the longest flowering phenophase, while flowering abundance varied depending on daily maximum and minimum air temperatures. The distribution of flowering abundance and shifts in phenological patterns suggest that the responses of Grossi Abelia represent adaptations to local conditions. This study also provides a framework for modelling the potential effects of temperature changes on the dynamics and abundance of flowering on both local and global scales. The research highlights key events in flowering patterns in order to emphasise the influence of air temperatures on changes in the urban phenology of grossi Abelia, with the aim of supporting the overconformation of urban planning and park design.

© 2026 by the author(s). Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

**Прилог 5.** Радови из категорије М50 (М51 и М52).



BIOLOGICA NYSSANA
13 (1) September 2022: 41-46
DOI: 10.5281/zenodo.7117571
19th Symposium on the Flora of Southeastern Serbia and Neighboring Regions

Original Article

## Dendrometric analyses and determining biological characteristics of needles for the purpose of conservation and directed utilization of the spruce in southeastern Serbia


Djurdja Petrov
Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11000 Belgrade, Serbia
djurdja.stojicic@sfb.bg.ac.rs (corresponding author)

Mirjana Ocokoljić
Faculty of Forestry, University of Belgrade, Kneza Višeslava 1, 11000 Belgrade, Serbia



Received: July 21, 2021
Revised: September 16, 2022
Accepted: September 21, 2022



*Abstract:*

This paper analyzes the morphological and dendrometric characteristics of three 97 years old European spruce trees, on Cemernik mountain, in the municipality of Crna Trava, where European spruce is not autochthonous. The examined parameters were compared with 5 test European spruce trees, aged about 50 years, which are grown in the population, within a radius of 100 m, in identical environmental conditions. The results of this study confirm the excellent vitality of hundred-year-old trees at the researched location, which can be brought into direct correlation with the current climate changes. The selected trees have confirmed the best combinatorial ability, which is why they stand out as a good base for selection and production of planting material for establishing purpose culture, afforestation, application in landscape architecture, and also for timber production. The research confirmed that the analyzed hundred-year-old spruce trees are in excellent condition and high decorative value, with a crown formed from the ground, which is why they are proposed for protection as a natural monument of botanical character.



*Key words:*
European spruce, Crna Trava, vitality, selection, genetic potential, conservation



*Apstrakt:*

**Dendrometrijska analiza i utvrđivanje biološkihsvojstava četina smrče u cilju konzervacije i usmerenog korišćenja vrste u jugoistočnoj Srbiji**

U radu su analizirane morfološke i dendrometrijske karakteristike tri stabla smrče starosti 97 godina, na Cemerniku, na teritoriji opštine Crna Trava na kojoj smrča nije autohtona. Istraživanu parametri su poređena sa pet test stabala smrče, starosti oko 50 godina, odgajenih u populaciji, u radijusu od 100 m, u identičnim uslovima. Dobijeni rezultati potvrđuju odličnu vitalnost stogodišnjih stabala na istraživanoj lokaciji što se može dovesti u direktnu korelaciju sa aktuelnim klimatskim promenama. Selektovana stabla potvrdila su kombinatorno sposobnost zbog čega se izdvajaju kao polazna za oplemenjivanje i proizvodnju sadnog materijala, za podizanje namenskih kultura, poluuljšivanje, pejzažnoarhitektonsku primenu, ali i dobijanje drvne mase. Istraživanje je potvrdilo da su analizirana stogodišnja stabla smrče odličnog stanja i dekorativnosti, sa formiranom krošnjom od samog tla, zbog čega se predlažu za zaštitu kao spomenik prirode botaničkog karaktera.



*Ključne reči:*
smrča, Crna Trava, vitalnost, selekcija, genetski potencijal, konzervacija


### Introduction

*Picea* A. Dietr. is a genus of evergreen coniferous trees in the family of Pinaceae Spreng. ex F. Rudolphi. It comprises 37 spruce species (POWO, 2022), one of which is European or Norway spruce - *Picea abies* (L.) H. Karst. Besides European spruce, other autochthonous and allochthonous spruce species are also found in Serbia. They include *Picea omorika* (Pancic) Purk., *Picea orientalis* (L.) Peterm., *Picea purgens* Engelm., *Picea laxa* (Münchh.) Sarg., *Picea engelmannii* Parry ex Engelm. and *Picea sitchensis* (Bong.) Carrière. (Jovanović, 1970; Schmidt-Vogt, 1974; Matović & Vujković, 1994; Skroppa, 2003; Galović, 2015; Cvjetićanin et al., 2016). The natural range of European spruce distribution


© 2022 Petrov & Ocokoljić. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially under the same license as the original.






sciendo

Contemporary Agriculture, Vol. 73, No. 3-4 (2024): 165-171
DOI: https://doi.org/10.2478/contagri-2024-0020
UDC: 712.24

Original scientific paper

## *PRUNUS SPINOSA* L. IN PERI-URBAN ENVIRONMENTS UNDER CLIMATE CHANGE CONDITIONS: VULNERABILITY AND ADAPTABILITY


JELENA ČUKANOVIĆ[1], DJURDJA PETROV[1], SARA ĐORĐEVIĆ[1]*, NEVENKA GALEČIĆ[2], DEJAN SKOČAJIĆ[2], DRAGAN VUJIČIĆ[2], MIRJANA OCOKOLJIĆ[2]

[1]University of Novi Sad, Faculty of Agriculture, Novi Sad, Serbia
[2]University of Belgrade, Faculty of Forestry, Belgrade, Serbia
*Corresponding author: sara.djordjevic@polj.edu.rs



ISSN 2466-4774
https://www.contagri.info/

OPEN ACCESS

Submitted: 09.10.2024.
Reviewed: 28.10.2024.
Accepted: 30.10.2024.



*SUMMARY*

*This study aims to analyze the impact of climatic variables on the fruiting of blackthorn (Prunus spinosa L.), a species which serves as both a food source and a habitat, offering birds shelter and providing other species with refuge from predators. Accordingly, blackthorn fruiting was recorded through field research in the peri-urban green infrastructure of Belgrade over 18 consecutive years. Urban edges are often the sites of expanding artificial surfaces, habitat fragmentation, and complex land-use transitions, including agricultural intensification and abandonment, which collectively increase pressures on residual semi-natural ecosystems. The integration of floristic sampling, phenological observations, landscape measures, and climatic variables allowed for an exploration of landscapes where blackthorn is successfully incorporated into semi-natural ecosystem remnants within a peri-urban context. The results obtained indicate that the phenological patterns of blackthorn, in response to climate change, demonstrate both adaptability and vulnerability to extreme climatic events during the flowering phase. In 2024, flowering began 6 days earlier than the earliest recorded start date and 43 days earlier than the latest start recorded over the previous 17 years. Regarding the fruiting (phonological) pattern, the average fruit maturation period was 288 days, while in 2024 it occurred 61 days earlier. The statistical significance of earlier fruit maturation and reduced accumulated heat requirements for fruit ripening was confirmed, revealing that as temperatures rise, key phenological events occur earlier with reduced heat accumulation, indicating a dependency on climatic parameters. Understanding the mechanism of phenological patterns is crucial for promoting effective environmental management practices and biodiversity conservation. The study also contributes to the potential application of its findings in designing green spaces in other peri-urban regions, supporting the sustainable development of complex peripheral landscapes by integrating blackthorn into green infrastructure planning.*



*Key words:*
*landscape architecture, blackthorn, green infrastructure, phenological patterns, climate change*


**Abbreviations:**
RP – fruit ripening; DOY – day of the year; GDD – growing degree days; BF – flowering beginning; FF – full flowering; EF – end of flowering

### INTRODUCTION

There is a long-standing tradition of observing phenological events in Europe. When recorded over several decades, such observations serve as a valuable resource for studying global climate change (Schwartz, 2003). Temporal shifts in phenological patterns and key events have been documented for many taxa and communities (Visser & Both, 2005; Ocokoljić et al., 2023). The studies by Chmielewski & Rötzer (2002) and Schlegr et al. (2069) have established that spring phenological events are occurring earlier, while autumn events are delayed across Europe.




© 2024 Author(s). This is an open access article licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 3.0 License (https://creativecommons.org/licenses/by-nc-nd/3.0/)




Voćarstvo, 58, 219–220 (2024), 15–22
*Journal of Pomology, 58, 219–220 (2024), 15–22*
https://doi.org/10.18485/pomology.2024.58.219_220.2

UDC: 634.14:631.547.4
Originalni naučni rad
*Original scientific paper*

## Japanska dunja u urbanoj sredini: mehanizmi fenoloških odgovora u funkciji očuvanja usluga ekosistema i selekcije


**Đurđa Petrov[1*], Jelena Čukanović[2], Radenka Kolarov[2], Nevenka Galečić[1], Dejan Skočajić[1], Dragan Vujičić[1], Mirjana Ocokoljić[1]**

[1]*Univerzitet u Beogradu, Šumarski fakultet, Kneza Višeslava 1, 11030 Beograd, Republika Srbija*
[*]*E-mail: djurdja.stojicic@sfb.bg.ac.rs*
[2]*Univerzitet u Novom Sadu, Poljoprivredni fakultet, Trg Dositeja Obradovića 8, 21000 Novi Sad, Republika Srbija*



*Primljeno: 25. oktobra 2024. godine; prihvaćeno: 01. novembra 2024. godine*



**Rezime.** Komparativnom analizom akumulisanih hladnih sati, suma toplote i dana u godini su ključne fenološke događaje, i klimatskih varijabli, tokom 18 uzastopnih godina na Novom Beogradu, potvrđen je uticaj temperature vazduha pre i za vreme fenofaza, kao i padavina. Evidentiran je raniji početak i kasniji završetak vegetacionog perioda. Nalaženje doprinose boljem razumevanju mehanizama fenoloških odgovora japanske dunje, čiji su plodovi profitabilni. Rezultati su korisna platforma za razumevanje mogućih promena u strukturi urbanih cenoza i međusobnih odnosa u cilju definisanja principa održivog dizajna koji podržava estetiku pejzaža, očuvanje životne sredine i staništa za ptice i životinje, a doprinose i razvoju mera prilagođavanja ove vrste voćaka u uslovima klimatskih promena. Takođe, preko plastičnosti u fenološkim odgovorima na sušu i visoke temperature, potvrđena je prilagodljivost japanske dunje na individualnom nivou, što utiče na selekciju i očuvanje usluga urbanih ekosistema.



**Ključne reči:** fenološki obrasci, *BBCH* skala, urbani ekosistemi, klimatske promene, adaptivnost


### Uvod

U uslovima klimatskih promena procenjuje se da će visoke temperature vazduha uz promene padavina povećati dužinu i učestalost suše u Evropi (WMO, 2021). S obzirom da su drvenaste biljke u urbanim sredinama važan alat za ublažavanje i prilagođavanje klimatskim promenama i očuvanje usluga ekosistema, postoji potreba za identifikacijom otpornih taksona na ekstremne klimatske događaje kao što su dugotrajne *sušе* (Arnson, 2012; Rahman et al., 2017). Međutim, razumevanje i predviđanje ovih promena je i dalje izazov. U kontekstu klimatskih promena ukrasne drveraste biljke su jedan od faktora koji može da poboljša kvalitet životne sredine kao i estetiku urbanog pejzaža, a može da obezbedi i pogodnije okruženje za ljude (Radutoiu & Stefanescu, 2017). Takođe, treba uzeti u obzir da su gradovi složena pojava čija fizička dimenzija može da promeni lokalnu klimu. Najpoznatiji klimatski fenomen generisan konzistentnošću urbane sredine su urbana toplotna ostrva koja posebno utiču na temperaturu vazduha u odnosu na okolna područja





BIOLOGICA NYSSANA
16 (1) June 2025: 93-104
DOI: 10.46793/BiolNyss.16.1.30O
15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions

Original Article

## The impact of climatic parameters in Belgrade on the Indigo Himalayan species from the subtropical biome


Mirjana Ocokoljić
University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11000 Beograd, Serbia

Djurdja Petrov
University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11000 Beograd, Serbia
djurdja.stojicic@sfb.bg.ac.rs (corresponding author)

Nevenka Galečić
University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11000 Beograd, Serbia

Dragana Skočajić
University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11000 Beograd, Serbia

Jelena Čukanović
University of Novi Sad - Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

Dragan Vujičić
University of Belgrade - Faculty of Forestry, Kneza Višeslava 1, 11000 Beograd, Serbia

Isidora Simović
BioSense Institute, University of Novi Sad, 1 Dr Zorana Đinđića, 21000 Novi Sad, Serbia



*Abstract:*

Understanding the impact of climatic parameters on vegetation is significant for understanding the potential of urban green spaces, which play a crucial role in the ecological protection of cities and adaptation to climate change, particularly in regulating ecosystem services. In future climatic conditions, exotic species must be taken into account for ecosystem preservation. Therefore, for the first time, this study documents the differential attributes and phenology of *Indigofera heterantha* Wall. ex Brandis on Belgrade, thus increasing the floral diversity of Serbia. Through an integrative approach combining phenological and climatic data with biometric characteristics, indicators for the management and sustainability of Indigo Himalayan were identified, based on research conducted in 2024. The findings contribute to understanding urban biodiversity and strategies for adapting new exotics in Belgrade. However, further research is necessary to predict the impact of climate change on Indigo Himalayan.



*Key words:*
floristic list, exotic vegetation, biodiversity, phenology, morphology, landscape architecture, urban green spaces



*Apstrakt:*

**Efekti klimatskih promena u Beogradu na vrstu Indigo Himalayan iz suptropskog bioma**

Poznavanje uticaja klimatskih parametara na vegetaciju je značajno za razumevanje potencijala urbanih zelenih površina koje imaju ključnu ulogu u ekološkoj zaštiti gradova i prilagođavanju klimatskim promenama, posebno u regulisanju usluga ekosistema. U budućim klimatskim uslovima u cilju očuvanja ekosistema moraju se uzeti u obzir egzotične vrste. Stoga su u radu prvi put dokumentovani diferencijalni atributi i fenologija *Indigofera heterantha* Wall. ex Brandis u Beogradu, čime se povećan diverzitet flore Srbije. Integrativnim pristupom fenološkim i klimatskim podacima i biometrijskim osobinama, na osnovu istraživanja sprovedenih tokom 2024. godine, utvrđeni su pokazatelji za upravljanje i održivost Indigo Himalayan. Nalazi doprinose razumevanju urbanog biodiverziteta i strategija adaptacije nove egzote u Beogradu. Ipak, neophodna su dalja istraživanja za predviđanje uticaja klimatskih promena na Indigo Himalayan.



*Ključne reči:*
floristički spisak, egzotična vegetacija, biodiverzitet, fenologija, morfologija, pejzažna arhitektura



*Received: May 30, 2025*
*Revised: June 19, 2025*
*Accepted: June 19, 2025*


### Introduction

Studies of floristic diversity help assess the plant wealth and potential values of a specific region and create floristic lists (Shaheen et al., 2016). Life forms are indicators of micro and macroclimates, which result from plant adaptations, and understanding their phenology is the most reliable bioindicator, as well as a source of knowledge about periodic biological events influenced by environmental conditions (Ziter et al., 2019; Čukanović et al., 2024). Changes in the spring phenological key events of woody plants have been documented in research (Bertin, 2008; Petrov et al., 2024) and are more consistent in direction and magnitude than changes in summer and autumn phenophases (Zheng et al., 2016; Ocokoljić et al., 2023). Zheng et al. (2016) and Ocokoljić et al. (2023) analysed the bud burst, first flowering, full flowering, end of flowering, formation of the first leaf, full leafing, re-flowering, the beginning of leaf colour change, autumn colouration, the beginning of leaf fall, and the end of leaf fall in nine and twelve


© 2025 Ocokoljić et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially under the same license as the original.

**Прилог 6.** Радови из категорије М60 (М63 и М64).





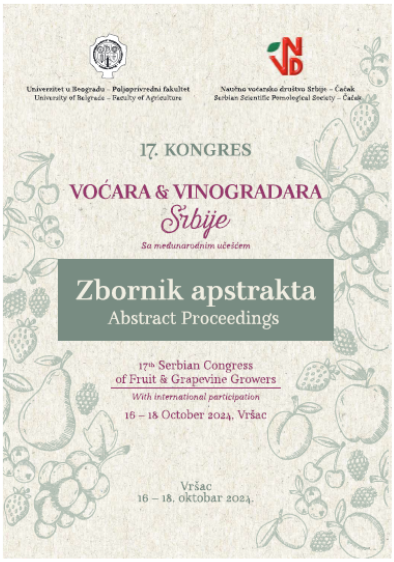











*Izdavač:*
Univerzitet u Beogradu
Poljoprivredni fakultet, Beograd

*Za izdavača*
Prof. dr Vladan Bogdanović, v.d. dekana

*Glavni i odgovorni urednik*
Dr Aleksa Lipovac, docent

*Urednik*
Prof. dr Dejan Đurović

*Tehnički urednik*
Prof. dr Dejan Đurović

*Štampa*
RIŽA doo
Jug Bogdanova 80, 36000 Kraljevo

**ISBN 978-86-7834-443-5**

*Tiraž*
250 primeraka

Odlukom Predsednika Odbora za izdavačku delatnost – Glavnog i odgovornog urednika Poljoprivrednog fakulteta Univerziteta u Beogradu 02.10.2024. godine, br. 251/27, odobreno je izdavanje i štampanje Zbornika apstrakata 17. Kongresa voćara i vinogradara Srbije sa međunarodnim učešćem.

Zabranjeno preštampavanje i fotokopiranje. Sva prava zadržava izdavač.

Organizaciju Kongresa pomogli:
Ministarstvo nauke, tehnološkog razvoja i inovacija Republike Srbije.
Projekat „Jačanje otpornosti sektora poljoprivrede na elementarne nepogode", koji finansira Evropska unija, a realizuje Organizacija za hranu i poljoprivredu Ujedinjenih nacija (FAO), uz podršku Ministarstva poljoprivrede, šumarstva i vodoprivrede Republike Srbije.

Zabranjeno preštampavanje i fotokopiranje. Sva prava zadržava izdavač.

Vršac, 2024.

UNIVERZITET U BEOGRADU
POLJOPRIVREDNI FAKULTET
Institut za hortikulturu

NAUČNO VOĆARSKO DRUŠTVO SRBIJE
ČAČAK

**17.**
**KONGRES VOĆARA I VINOGRADARA SRBIJE**
**SA MEĐUNARODNIM UČEŠĆEM**

17th SERBIAN CONGRESS OF FRUIT AND GRAPEVINE PRODUCERS
WITH INTERNATIONAL PARTICIPATION

**ZBORNIK APSTRAKATA**

ABSTRACT PROCEEDINGS

Vršac, Srbija
16. oktobar–18. oktobar 2024. godine



## UTICAJ KLIMATSKIH PROMENA NA PLODONOŠENJE I FUNKCIONALNOST TRNJINE U ZELENOJ INFRASTRUKTURI

***Đurđa Petrov*[1*], *Jelena Čukanović*[2], *Radenka Kolarov*[2], *Nevenka Galetić*[2], *Dejan Skočajić*[2], *Dragan Vujičić*[2], *Mirjana Ocokoljić*[2]**

*[1]Univerzitet u Beogradu – Šumarski fakultet, Kneza Višeslava 1, 11030 Beograd, [2]Univerzitet u Novom Sadu – Poljoprivredni fakultet, Trg Dositeja Obradovića 8, 21000 Novi Sad*

*[*]djurdja.stojicic@sfb.bg.ac.rs*

Višegodišnji monitoring je izvor podataka koji dokumentuje i omogućava bolje razumevanje uticaja klimatskih promena i ekstrema na dugoročne promene fenologije trnjine u suburbanoj zelenoj infrastrukturi Beograda što ima i šire ekološke posledice. Stoga je analiziran odgovor fenofaze plodonošenja trnjine na klimatske elemente u periodu 2007-2024. Rezultati potvrđuju da je: (1) plodonošenje u direktnoj korelaciji sa fenofazom cvetanja; (2) početak, ali i kraj fenofaze plodonošenja je u značajnoj korelaciji sa temperaturom vazduha, insolacijom i padavinama; (3) izostanak plodonošenja usloviјen je ekstremnim klimatskim događajima u aprilu mesecu i (4) rano dozrevanje plodova uslovljeno je visokim temperaturama tokom vegetacionog perioda, jakom insolacijom i sušom. Odgovor fenoloških obrazaca plodonošenja trnjine na klimatske promene, u istraživanom području, potvrđuje da što je veća akumulacija toplote veći je efekat dnevnih temperatura na početak plodonošenja. Rezultati istraživanja su polazna osnova za proučavanje promena fenoloških obrazaca plodonošenja trnjine kao odgovora na klimatske promene u suburbanoj zelenoj infrastrukturi. Takođe, su značajni i za istraživanja u voćarstvu, hortikulturi, pejzažnoj arhitekturi i definisanje smernica za pejzažni dizajn u cilju unošenja vrednosti fitocenotske kompozicije predela i promovisanje trnjine kao vrste budućnosti. Naša studija naglašava da optimizovano upravljanje po fenološkim obrascima trnjine može doprineti maksimalnom funkcionisanju i opstanku vrste u uslovima klimatskih promena.

**Ključne reči:** *Prunus spinosa* L., klimatske promene, fenologija, adaptivnost, otpornost

**Zahvalnica:** Autori se zahvaljuju Ministarstvu nauke, tehnološkog razvoja i inovacija Republike Srbije za finansiranje naučnih istraživanja Univerziteta u Beogradu – Šumarskog fakulteta u 2024, br. 451-03-65/2024-03/200169.

II/P9

## THE IMPACT OF CLIMATE CHANGE ON FRUITING AND FUNCTIONALITY OF BLACKTHORN IN GREEN INFRASTRUCTURE

***Djurdja Petrov*[1,*], *Jelena Čukanović*[2], *Radenka Kolarov*[2], *Nevenka Galečić*[2], *Dejan Skočajić*[2], *Dragan Vujičić*[2], *Mirjana Ocokoljić*[2]**

[1]*University of Belgrade - Faculty of Forestry, 1 Kneza Višeslava Street, 11030 Belgrade,*
[2]*University of Novi Sad - Faculty of Agriculture, 8 Dositeja Obradovića Square, 21000 Novi Sad,*

[*]*djurdja.stojicic@sfb.bg.ac.rs*

Long-term monitoring provides invaluable data that documents and deepens our understanding of how climate change and extreme weather events affect the phenology of blackthorn within Belgrade's suburban green infrastructure, with broader ecological implications. This study specifically analyzed the response of blackthorn's fruiting phenophases to climatic factors over the period from 2007 to 2024. The findings confirmed that: (1) fruiting was directly correlated with the flowering phase; (2) the timing of both the start and end of fruiting was strongly linked to air temperature, sunlight exposure, and precipitation levels; (3) fruiting failure was driven by extreme climatic events in April; and (4) early fruit ripening was associated with high temperatures during the growing season, intense sunlight, and drought conditions. The response of blackthorn's phenological patterns to climate change in the study area underscores that increased heat accumulation intensifies the effect of daily temperatures on the onset of fruiting. These results offer an important foundation for understanding changes in blackthorn's fruiting patterns as a response to climate change within suburban green spaces. Additionally, these findings are significant for research in fruit growing, horticulture, landscape architecture, and for defining guidelines in landscape design aimed at introducing value of the physiognomic composition of the landscape and promoting blackthorn as a species of the future. Our study emphasizes that optimized management based on the phenological patterns of blackthorn can contribute to the species' maximum functioning and survival under climate change conditions.

**Keywords:** *Prunus spinosa* L., climate change, phenology, adaptability, resilience

**Acknowledgement:** The authors are grateful to the Ministry of Minister of Science, Technological Development and Innovation of the Republic of Serbia for financial support of the University of Belgrade – Faculty of Forestry the scientific research work in 2024, the registration number 451-03-65/2024-03/200169.





II/P10

## VIŠESTRUKI FENOLOŠKI ODGOVORI *Chaenomeles japonica* (Thunb.) Lindl. ex Spach NA KLIMATSKE PROMENE U URBANOJ SREDINI

***Đurđa Petrov*[1,*], *Jelena Čukanović*[2], *Radenka Kolarov*[2], *Nevenka Galečić*[2], *Dejan Skočajić*[2], *Dragan Vujičić*[2], *Mirjana Ocokoljić*[2]**

[1]*Univerzitet u Beogradu - Šumarski fakultet, Kneza Višeslava 1, 11030 Beograd,* [2]*Univerzitet u Novom Sadu - Poljoprivredni fakultet, Trg Dositeja Obradovića 8, 21000 Novi Sad*

[*]*djurdja.stojicic@sfb.bg.ac.rs*

Analizirani su fenološki podaci za japansku dunju tokom 18 uzastopnih godina u blokovskom zelenilu, na levoj obali Save, na Novom Beogradu i odgovarajući meteorološki podaci za referentni (1991–2020) i period istraživanja. Evrđena je komparacija datuma nastupanja ključnih fenofaza (09 BBCH), pojave prvih otvorenih cvetova (60 BBCH), kraja cvetanja (69 BBCH) i pojave zrelih plodova (89 BBCH) u periodu 2007–2024. Fenološki obrasci cvetanja i plodonošenja su se potvrdili kao značajni biološki pokazatelji klimatskih promena. Odnosno potvrđen je uticaj temperatura vazduha pre i za vreme fenofaza, kao i padavina i insolacije. Evidentiran je raniji početak i kasniji završetak vegetacionog perioda. Izdvojena je 2024. godina tokom koje je zabeležen početak vegetacionog perioda odnosno cvetanja u februaru koje se kontinuirano nastavilo i tokom narednih 6 meseci. Takođe, je dozrevanje plodova počelo 90 dana ranije, a početak lišopada krajem jula. Zabeležene su i ošegotine na plodovima. Naši nalazi doprinose boljem razumevanju fenoloških odgovora u okviru da su plodovi japanske dunje pouzdani i korisne su u proizvodnji džemova, sirupa, aroma i likera. Rezultati su korisna platforma za razumevanje mogućih promena u strukturi urbanih cenoza i međuvrsnih odnosa u cilju definisanja principa održivog dizajna koji podržava estetiku pejzaža, očuvanje životne sredine i staništa za ptice i životinje, a doprinoće i razvoju mera prilagođavanja ove voćarske vrste u svetlu aktuelnih i očekivanih klimatskih promena.

**Ključne reči:** fenologija, BBCH skala, blokovsko zelenilo, temperature vazduha, padavine, insolacija

**Zahvalnica:** Autori se zahvaljuju Ministarstvu nauke, tehnološkog razvoja i inovacija Republike Srbije za finansiranje naučnih istraživanja Univerziteta u Beogradu – Šumarskog fakulteta u 2024, br. 451-03-65/2024-03/200169.





II/P10

## MULTIPLE PHENOLOGICAL RESPONSES OF *Chaenomeles japonica* (Thunb.) Lindl. ex Spach TO CLIMATE CHANGE IN AN URBAN ENVIRONMENT

***Djurdja Petrov*[1,*], *Jelena Čukanović*[2], *Radenka Kolarov*[2], *Nevenka Galečić*[2], *Dejan Skočajić*[2], *Dragan Vujičić*[2], *Mirjana Ocokoljić*[2]**

[1]*University of Belgrade - Faculty of Forestry, 1 Kneza Višeslava Street, 11030 Belgrade,*
[2]*University of Novi Sad - Faculty of Agriculture, 8 Dositeja Obradovića Square, 21000 Novi Sad*

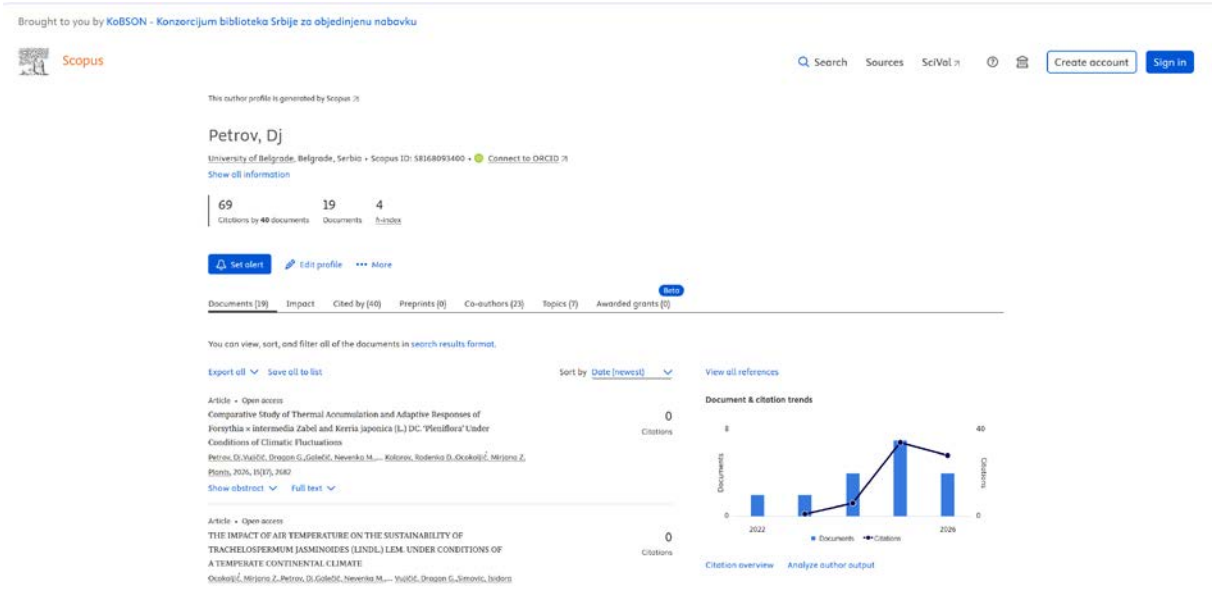
[*]*djurdja.stojicic@sfb.bg.ac.rs*

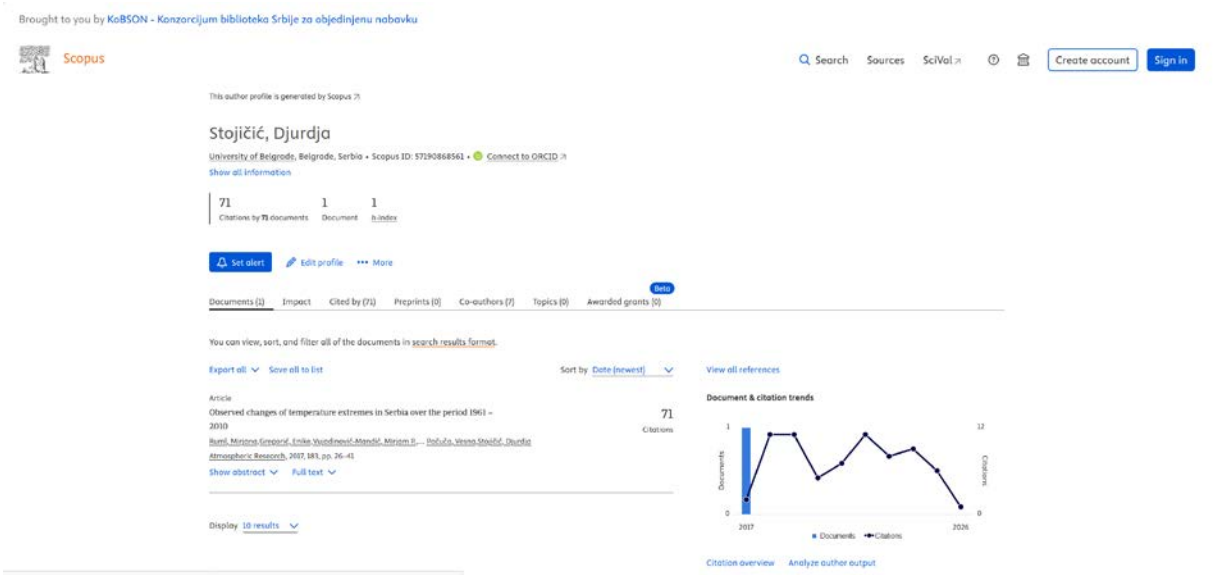
Phenological data for Japanese quince were analysed over 18 consecutive years in city block greenery, located on the left bank of the Sava River in New Belgrade, along with corresponding meteorological data for the reference period (1991–2020) and the study period. A comparison was made between the dates of bud burst (09 BBCH), the appearance of the first open flowers (60 BBCH), the end of flowering (69 BBCH), and the appearance of ripe fruit (89 BBCH) during the 2007–2024 period. The phenological patterns of flowering and fruiting were confirmed as significant biological indicators of climate change. In other words, the influence of air temperatures before and during the phenophases, as well as precipitation and solar radiation, was confirmed. An earlier start and a later end of the growing season were recorded. The year 2024 stood out, with the start of the growing season, i.e., flowering, recorded in February which continuously continued over the next six months. Additionally, fruit ripening began 90 days earlier, and leaf fall started at the end of July. Fruit scorch was also recorded. Our findings contribute to a better understanding of phenological responses, given that the fruit of the Japanese quince is profitable and used in the production of jams, syrups, flavors, and liqueurs. The results provide a useful platform for understanding potential changes in the structure of urban ecosystems and interspecies relationships, aiming to define principles of sustainable design that support landscape aesthetics, environmental conservation, and habitats for birds and animals. Furthermore, they will aid in developing adaptation measures for this fruit species in light of current and anticipated climate change.

**Keywords:** phenology, BBCH scale, block greenery, air temperature, precipitation, solar radiation

**Acknowledgement:** The authors are grateful to the Ministry of Minister of Science, Technological Development and Innovation of the Republic of Serbia for financial support of the University of Belgrade – Faculty of Forestry the scientific research work in 2024, the registration number 451-03-65/2024-03/200169.

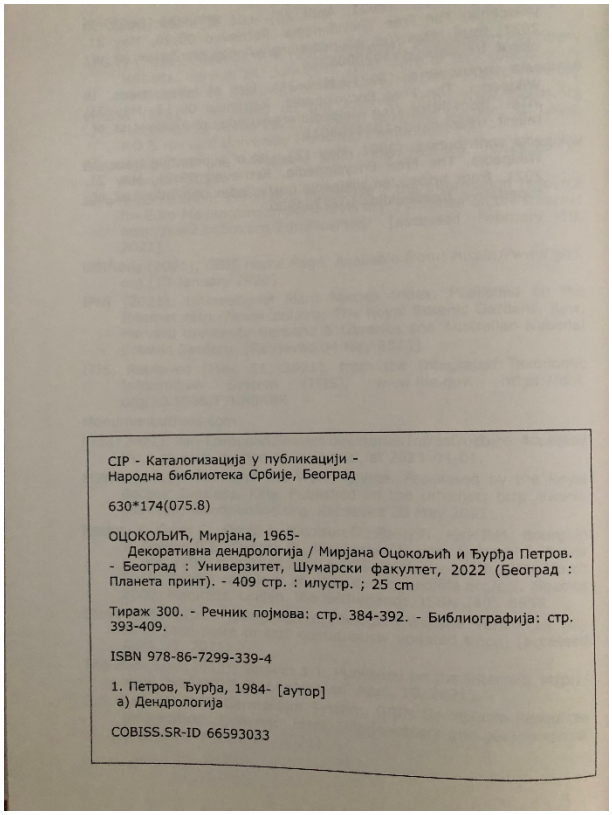
**Прилог 7**. Цитираност радова (без аутоцитата) према SCOPUS-у, на дан 7.10.2026. године.



**Прилог 8.** Одобрен уџбеник за ужу научну област за коју се бира.



CIP - Каталогизација у публикацији -
Народна библиотека Србије, Београд

630*174(075.8)

ОЦОКОЉИЋ, Мирјана, 1965-
Декоративна дендрологија / Мирјана Оцокољић и Ђурђа Петров. - Београд : Универзитет, Шумарски факултет, 2022 (Београд : Планета принт). - 409 стр. : илустр. ; 25 cm

Тираж 300. - Речник појмова: стр. 384-392. - Библиографија: стр. 393-409.

ISBN 978-86-7299-339-4

1. Петров, Ђурђа, 1984- [аутор]
а) Дендрологија

COBISS.SR-ID 66593033

Универзитет у Београду - Шумарски факултет
Кнеза Вишеслава 1, 11030 Београд, Република Србија

1920 2020

University of Belgrade - Faculty of Forestry
1 Kneza Višeslava Street , 11030 Belgrade, R Serbia

Број: 01-2/142
Датум: 15. јул 2026. године

На основу члана 58. Статута Универзитета у Београду – Шумарског факултета бр. 01-2511/1 од 8. марта 2024. године, а у вези чл. 5, 7. и 11. Правилника о уџбеницима бр. 1-2904/1 од 27. марта 2008. године, а на Предлог Већа одсека за пејзажну архитектуру и хортикултуру бр. ДК-6754/1 од 6. јула 2026. године, Наставно-научно веће Факултета, на седници одржаној 15. јула 2026. године, доноси

**О Д Л У К У**

Усваја се рецензија рукописа под насловом: „**Орнаментални таксони дрвенастих биљака**", аутора др Мирјане Оцокољић, редовног професора и др Ђурђе Петров, ванредног професора.

Одлуку доставити: Комисији за издавачку делатност, ауторима, декану, писарници.

ПРЕДСЕДНИК
НАСТАВНО-НАУЧНОГ ВЕЋА
Проф. др Бранко Стајић

+381 11 3053990 office@sfb.bg.ac.rs www.sfb.bg.ac.rs

**Прилог 9.** Руководилац или сарадник у реализацији пројеката.



Београд
www.beograd.rs

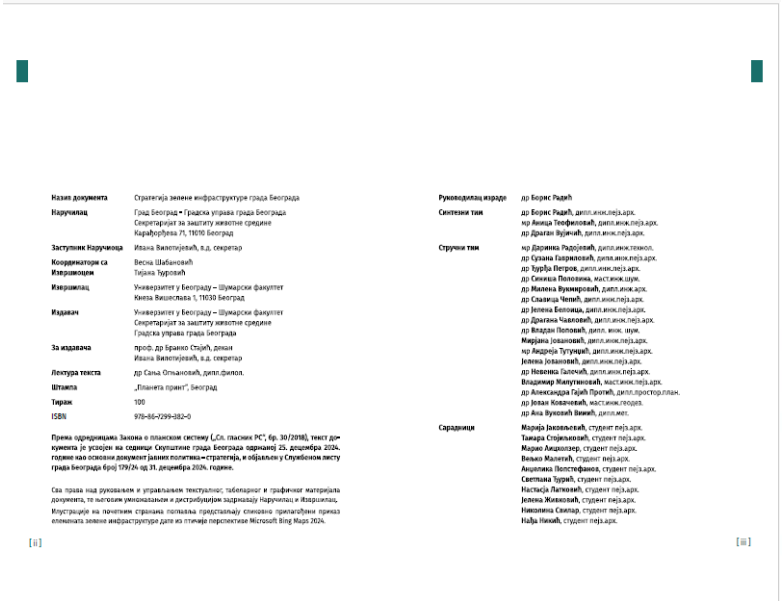
Универзитет у Београду
ШУМАРСКИ ФАКУЛТЕТ

Универзитет у Београду – Шумарски факултет
Град Београд – Градска управа
Секретаријат за заштиту животне средине

Стратегија зелене инфраструктуре
града Београда

Стратегија
зелене
инфраструктуре
града Београда

Град Београд, 2025. године




| | |
|---|---|
| **Назив документа** | Стратегија зелене инфраструктуре града Београда |
| **Наручилац** | Град Београд – Градска управа града Београда<br>Секретаријат за заштиту животне средине<br>Карађорђева 71, 11010 Београд |
| **Заступник Наручиоца** | Ивана Вилотијевић, в.д. секретар |
| **Координатори са Извршиоцем** | Весна Шабановић<br>Тијана Ђуровић |
| **Извршилац** | Универзитет у Београду – Шумарски факултет<br>Кнеза Вишеслава 1, 11030 Београд |
| **Издавач** | Универзитет у Београду – Шумарски факултет<br>Секретаријат за заштиту животне средине<br>Градска управа града Београда |
| **За издавача** | проф. др Бранко Стајић, декан<br>Ивана Вилотијевић, в.д. секретар |
| **Лектура текста** | др Сања Огњановић, дипл.филол. |
| **Штампа** | „Планета принт", Београд |
| **Тираж** | 100 |
| **ISBN** | 978-86-7299-382-0 |

**Пренос одредницама Закона о планском систему („Сл. гласник РС", бр. 30/2018), текст документа је усвојен на седници Скупштине града Београда одржаној 25. децембра 2024. године као основни документ јавних политика–стратегија, и објављен у Службеном листу града Београда број 199/24 од 31. децембра 2024. године.**

Сва права над руковањем и управљањем текстуалног, табеларног и графичког материјала документа, те његовим умножавањем и дистрибуцијом задржавају Наручилац и Извршилац. Илустрације на почетним странама попавља представљају сликовно прилагођени приказ елемената зелене инфраструктуре дате из отвореног перспективе Microsoft Bing Maps 2024.

| | |
|---|---|
| **Руководилац израде** | др Борис Радић |
| **Синтезни тим** | др Борис Радић, дипл.инж.пејз.арх.<br>мр Аница Теофиловић, дипл.инж.пејз.арх.<br>др Драган Вујичић, дипл.инж.пејз.арх. |
| **Стручни тим** | мр Даринка Радојевић, дипл.инж.технол.<br>др Сузана Гавриловић, дипл.инж.пејз.арх.<br>др Ђурђа Петров, дипл.инж.пејз.арх.<br>др Синиша Поповина, мастер.инж.шум.<br>др Милена Вукмировић, дипл.инж.арх.<br>др Славица Четић, дипл.инж.пејз.арх.<br>др Јелена Белошић, дипл.инж.пејз.арх.<br>др Драгана Чавловић, дипл.инж.пејз.арх.<br>др Владан Поповић, дипл. инж. шум.<br>Мирјана Јовановић, дипл.инж.пејз.арх.<br>мр Андреја Тутурић, дипл.инж.пејз.арх.<br>Јелена Јовановић, дипл.инж.пејз.арх.<br>др Невенка Галовић, дипл.инж.пејз.арх.<br>Владимир Жикутковић, мастер.инж.пејз.арх.<br>др Александра Гајић Протић, дипл.просторлан.<br>др Јелан Ковачевић, мастер.инж.геодез.<br>др Ана Вуковић Вимић, дипл.мет. |
| **Сарадници** | Марија Јаковљевић, студент пејз.арх.<br>Тамара Стојковић, студент пејз.арх.<br>Марко Аћимовић, студент пејз.арх.<br>Вељко Малетић, студент пејз.арх.<br>Анђелика Полстефанов, студент пејз.арх.<br>Светлана Турић, студент пејз.арх.<br>Настасија Литковић, студент пејз.арх.<br>Јелена Живковић, студент пејз.арх.<br>Никшина Свилар, студент пејз.арх.<br>Нађа Нинић, студент пејз.арх. |









ISSN 0350-4727

Београд
www.beograd.rs

СЛУЖБЕНИ ЛИСТ
ГРАДА БЕОГРАДА

Година LXVIII Број 179 — 31. децембар 2024. године — Цена 290 динара


Скупштина града Београда, на седници одржаној 25. децембра 2024. године, на основу члана 16. Закона о планском систему Републике Србије („Службени гласник РС", број 30/18), члана 12. став 1. тачка 6. Закона о главном граду („Службени гласник РС" бр. 129/07 и 83/14 – др. закон, 101/16 – др. закон, 37/19 и 111/21 – др. закон) и члана 31. став 1. тачка 7. Статута Града Београда („Службени лист Града Београда", бр. 39/08, 6/10, 23/13, „Службени гласник РС", број 7/16 – одлука УС и „Службени лист Града Београда", број 66/18), доноси је

## СТРАТЕГИЈУ
### ЗЕЛЕНЕ ИНФРАСТРУКТУРЕ ГРАДА БЕОГРАДА

#### 1. УВОД

##### 1.1. О стратегији

Стратегија зелене инфраструктуре града Београда за период од 2025. до 2032. године (у даљем тексту: стратегија) представља документ јавне политике у области зелене инфраструктуре, који обухвата административно-територијалну целину града Београда. Стратегијом су утврђени циљеви и мере за очување и унапређење елемената зелене инфраструктуре који комплетирају планирана, пројектована, изграђена и одржавана. Стратегија садржана је кроз структурне, оперативне и институционалне аспекте зелене инфраструктуре као и важећу средњу кроз остварености сервиса екосистема. Стратегија је израђена у складу са постојећим стратешким, регулаторним и планским документима, као и ставовима и приоритетима релевантним за ову област и има сврху да, поред осталог, кроз предузете за привлачење финансијских средстава из фондова Европске уније и других међународних извора као би се обезбедила адекватна институционална и оперативна мрежа, као и ресурси за спровођење планираних мера. Као саставни део стратегије израђен је Акциони план за спровођење стратегије за период од 2025. до 2027. године, који садржи активности, одговорне за сваку меру са одређеним износом и извором финансирања стратегије. Циљеви стратегије укључују унапређење регулаторног и институционалног оквира за очување и развој зелене инфраструктуре града Београда, израду пројеката и имплементацију пилотних пројеката на одређеним локацијама, као и јачање и доношење више локалних пројеката. Интегрисањем принципа зелене инфраструктуре у урбане планове и обликовање карактера предела Београда успостављена је ефикасан систем пројектовања, изградње, одржања и одржавања зелене инфраструктуре, што ће створити предуслове за распрострањеније, репрезентативније и одрживо зелену инфраструктуру. Ефикасно укључивање информисања и унапређења нових подела ће нико свести о зеленој инфраструктури као природном, културном и амбијенталном добру града Београда. Кодеће, као продуктима за постизање планираног напретка, биће потребно јачање капацитета институција и унапређење система финансирања зелене инфраструктуре.

Стратегија је израђена на предлог Секретаријата за заштиту животне средине (у даљем тексту: Секретаријат), у складу са Законом о планском систему Републике Србије („Службени гласник РС" број 30/18). Законом о планирању и изградњи („Службени гласник РС", бр. 72/09, 81/09 – испр., 64/10 – одлука УС, 24/11, 121/12, 42/13 – одлука УС, 50/13 – одлука УС, 98/13 – одлука УС, 132/14, 145/14, 83/18, 31/19, 37/19 – др. закон, 9/20, 52/21 и 62/23), Законом о заштити животне средине („Службени гласник РС", бр. 135/04, 36/09, 36/09 – др. закон, 72/09 – др. закон, 43/11 – одлука УС, 14/16, 76/18, 95/18 – др. закон, 95/18 – др. закон и 94/24 – др. закон) и другим релевантним секторским законима. Закон о планирању и изградњи прописује зелену инфраструктуру као стратешки планирану мрежу функционално повезаних природних и природи блиских елемената, чије се пројектовање, подизање, коришћење и одржавање спроводи из више њених циљ се обезбеђују економске, еколошке и друштвене користи кроз природна, биодиверзитетски заснована решења. У Закону о заштити животне средине утврђено је да су зелене површине у насељеним местима и предели са обликом простором и урбанистичко планирања у надлежности јединица локалне самоуправе, односно њихових органа, начин одређивања, одржавања, обнова и вођења евиденција о њима. У Закону о комуналним делатностима („Службени гласник РС", бр. 88/11, 104/16, 95/18 и 94/24) утврђено је да је одржавање јавних зелених површина комунална делатност у надлежности јединица локалне самоуправе. У документима јавних политика града Београда препознат је значај зелене инфраструктуре, пошавши у Програму заштите животне средине, где је као један од приоритетних циљева приказивата зелена инфраструктура, као и у Акционом плану адаптације на климатске промене са предлозом решења, где се зелена инфраструктура издваја као приоритетна мера прилагођавања на климатске промене. Паки говорили регулацију система зелених површина Београда је дефинисао планска основ за имплементацију зелене инфраструктуре у границама Генералног плана града.

Имајући у виду наведено, као и све већи значај и неопходност присуства зелене инфраструктуре у урбаном простору, посебно са аспекта прилагођавања на климатске промене, сложеност утицаја људских активности, промењене природних услова, уједначене урбане биодиверзитета и слично, Секретаријат сматра да проблематика зелене инфраструктуре треба приступити с пажњом, мултидисциплинарно и интегрално, односно да се у оквиру посебни документа

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Бр. ДК-16124/1
30.12.2024
11030 БЕОГРАД, Кнеза Вишеслава 1

**УНИВЕРЗИТЕТ У БЕОГРАДУ**
**ШУМАРСКИ ФАКУЛТЕТ**

# ПЕЈЗАЖНОАРХИТЕКТОНСКА СТУДИЈА ПРОСТОРА КОМПЛЕКСА АСТРОНОМСКЕ ОПСЕРВАТОРИЈЕ У БЕОГРАДУ

Руководилац израде пројекта

др Дејан Скочајић, доцент

декан Шумарског факултета

др Бранко Стајић, ред. проф.

---

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Бр. ДК-16124/2
30.12.2024
11030 БЕОГРАД, Кнеза Вишеслава 1

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Кнеза Вишеслава 1
Београд, Република Србија

**Предмет:** Решење о именовању руководиоца пројекта „Пејзажноархитектонска студија простора комплекса Астрономске опсерваторије у Београду"

На основу понуде Универзитета у Београду – Шумарског факултета (ДК-15396/1 од 20.12.2023. године) склопљен је Уговор између Астронмске опсерваторије у Београду коју заступа Лука Ч. Поповић (927/1 од 26.12. 2023. године) и Универзитета у Београду Шумарског факултет из Београда кога заступа декан проф. др Бранко Стајић (01-15712/1 од 27.12.2023. године).

Предмет Уговора је израда пројекта под називом „Пејзажноархитектонска студија простора комплекса Астрономске опсерваторије у Београду" и за руководиоца се одређује др **Дејан Скочајић** који је у звању доцента запослен на Универзитету у Београду, Шумарском факултету.

декан Шумарског факултета

др **Бранко Стајић**, редовни професор

---

Потврда о учешћу на изради пројекта Шумарског факултета:

**ПЕЈЗАЖНОАРХИТЕКТОНСКА СТУДИЈА ПРОСТОРА КОМПЛЕКСА АСТРОНОМСКЕ ОПСЕРВАТОРИЈЕ У БЕОГРАДУ**

*Инвеститор: Астрономска опсерваторија у Београду*

**Руководилац израде пројекта:**

др Дејан Скочајић, дипл.инж.пејз.арх.

**Радни тим:**

др Дејан Скочајић, дипл.инж.пејз.арх.
др Нађа Фолић, дипл.инж.арх.
Весна Мијатовић, дипл.археолог
др Мирјана Оцокољић, дипл.инж.пејз.арх.
др Борис Радић, дипл.инж.пејз.арх.
др Милена Вукмировић, дипл.инж.арх.
др Сузана Гавриловић, дипл.инж.пејз.арх.
др. Невена Васиљевић, дипл.инж.пејз.арх.
др Драгана Скочајић, дипл.инж.пејз.арх.
др Драгана Чавловић, дипл.инж.пејз.арх.
др Ђурђа Петров, дипл.инж.пејз.арх.
Владимир Милутиновић, маст.пејз.арх.
Смиљана Петровић, студент пејз.арх.
Наташа Ђурић, маст.инж.пејз.арх.
Данијела Спарић, маст.инж.пејз.арх.
др. Драган Вујичић, дипл.инж.пејз.арх.
др Невенка Галечић, дипл.инж.пејз.арх.
мр Андреја Тутунџић, дипл.инж.пејз.арх.
Бобан Тошић, дипл.инж.пејз.арх.
Кристина Ђорђевић, маст.пејз.арх.

Универзитет у Београду
**ШУМАРСКИ ФАКУЛТЕТ**

Кнеза Вишеслава 1
11030 Београд,
T +381 11 3053 990
F +381 11 2545 485
www.sfb.bg.ac.rs

Основан 1920.

---

University of Belgrade
**FACULTY OF FORESTRY**

Kneza Višeslava 1
11030 Belgrade,
T +381 11 3053 990
F +381 11 2545 485
www.sfb.bg.ac.rs

Established in 1920.

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Бр. 02-431/1
14-10-2021 год.
11030 БЕОГРАД, Кнеза Вишеслава 1

**Управи факултета**

**Управи „Арборетум Шумарског факултета“**

**Предмет:** Извештај о реализованим пројектним активностима

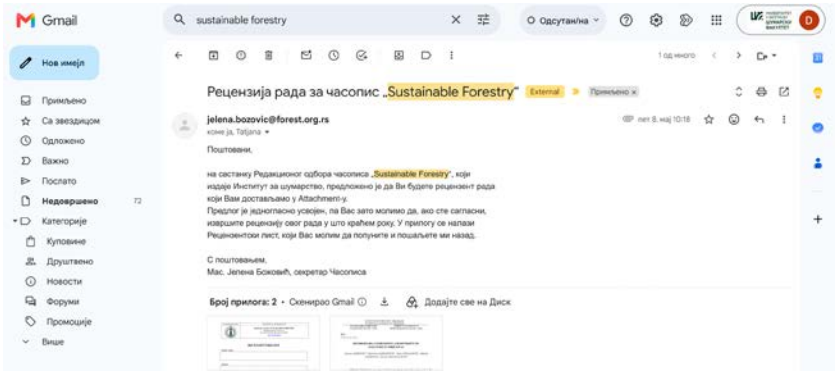
У складу са Одлуком о образовању комисије 01-7570/2 достављамо вам извештај са резултатима реализације пројекта **Биоеколошка основа и анализа постојећег зеленила са катастром стабала у зони проширења „Арборетума Шумарског факултета- I фаза“.**

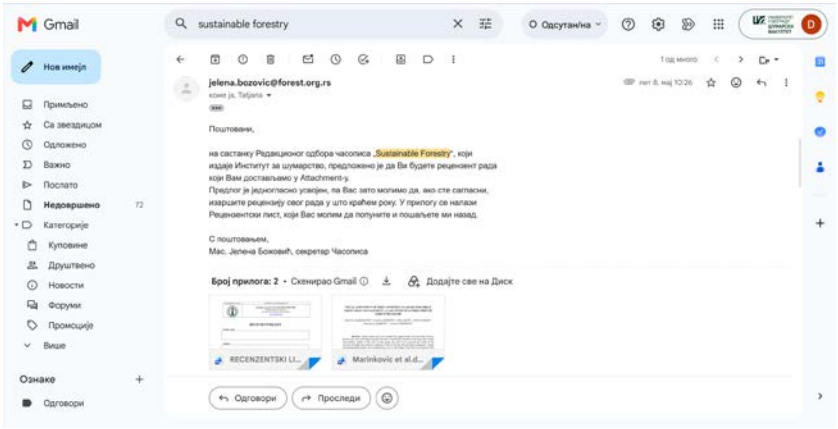
Проф. др Марко Перовић

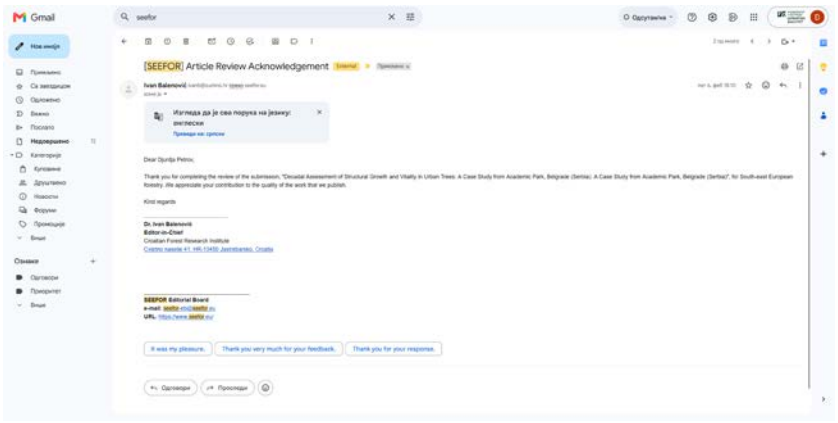
др Ђурђа Петров
ванредни професор

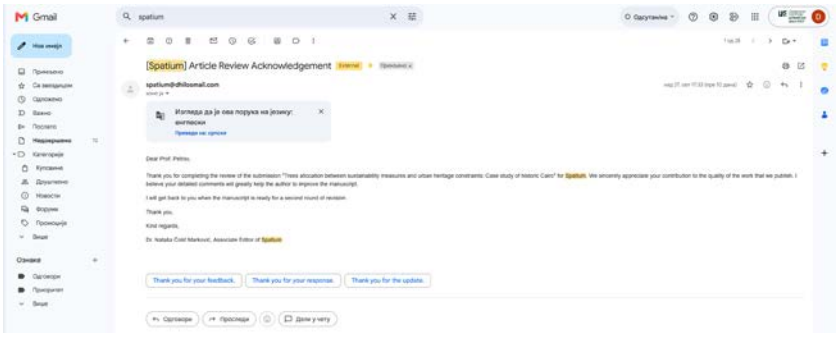
др Марко Казимировић
асистент са докторатом

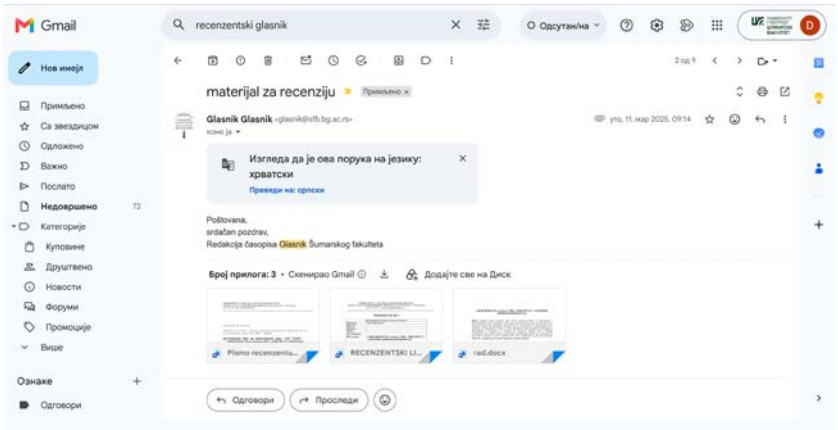
**Прилог 10.** Рецензије научних публикација у часописима после избора у звање ванредни професор.

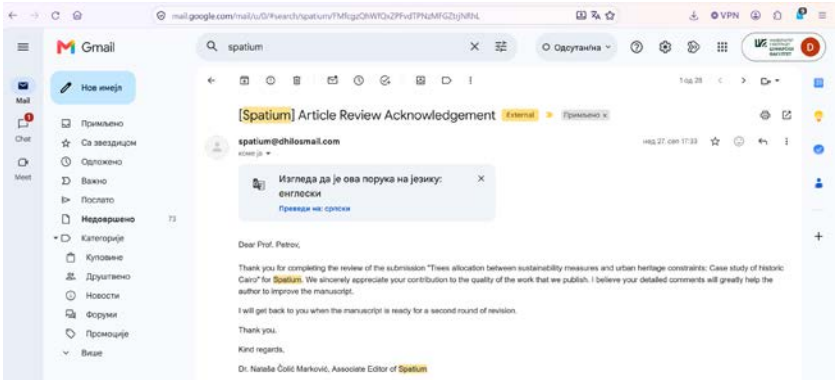


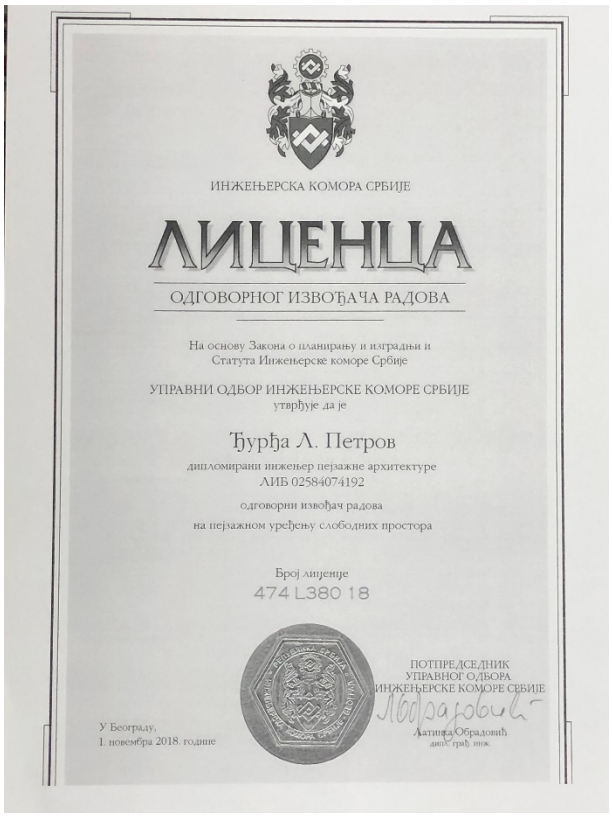




Gmail
spatium
[Spatium] Article Review Acknowledgement
spatium@dhilosmail.com
Изгледа да је ова порука на језику: енглески
Преведи на: српски
Dear Prof. Petrov,
Thank you for completing the review of the submission "Trees allocation between sustainability measures and urban heritage constraints: Case study of historic Cairo" for Spatium. We sincerely appreciate your contribution to the quality of the work that we publish. I believe your detailed comments will greatly help the author to improve the manuscript.
I will get back to you when the manuscript is ready for a second round of revision.
Thank you.
Kind regards,
Dr. Nataša Ćolić Marković, Associate Editor of Spatium
Thank you for your feedback.
Thank you for your response.
Thank you for the update.
Одговори
Проследи


Gmail
recenzentski glasnik
Нов имејл
Примљено
Са звездицом
Одложено
Важно
Послато
Недовршено
Категорије
Куповине
Друштвено
Новости
Форуми
Промоције
Више
Ознаке
Одговори
materијал za recenziju
Glasnik Glasnik
Изгледа да је ова порука на језику: хрватски
Преведи на: српски
Poštovana,
srdačan pozdrav,
Redakcija časopisa Glasnik Šumarskog fakulteta
Број прилога: 3
Додајте све на Диск
Pismo recenzentu...
RECENZENTSKI LI...
rad.docx
Одговори
Проследи


Gmail
spatium
Нов имејл
[Spatium] Article Review Acknowledgement
spatium@dhilosmail.com
Изгледа да је ова порука на језику: енглески
Преведи на: српски
Dear Prof. Petrov,
Thank you for completing the review of the submission "Trees allocation between sustainability measures and urban heritage constraints: Case study of historic Cairo" for Spatium. We sincerely appreciate your contribution to the quality of the work that we publish. I believe your detailed comments will greatly help the author to improve the manuscript.
I will get back to you when the manuscript is ready for a second round of revision.
Thank you.
Kind regards,
Dr. Nataša Ćolić Marković, Associate Editor of Spatium

**Прилог 11.** Стручна усавршавања.



ИНЖЕЊЕРСКА КОМОРА СРБИЈЕ

ЛИЦЕНЦА

ОДГОВОРНОГ ИЗВОЂАЧА РАДОВА

На основу Закона о планирању и изградњи и Статута Инжењерске коморе Србије

УПРАВНИ ОДБОР ИНЖЕЊЕРСКЕ КОМОРЕ СРБИЈЕ утврђује да је

Ђурђа Л. Петров

дипломирани инжењер пејзажне архитектуре
ЛИБ 02584074192

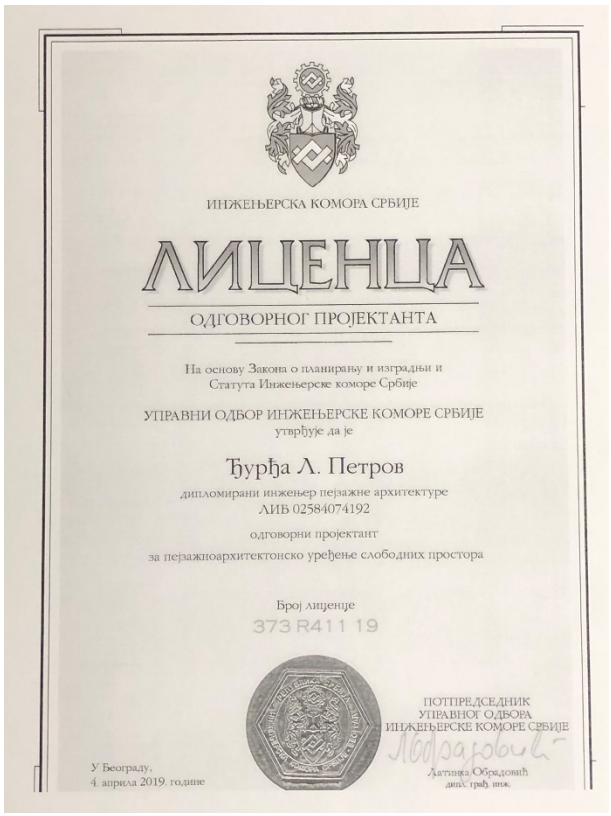
одговорни извођач радова

на пејзажном уређењу слободних простора

Број лиценце
474 L380 18

ПОТПРЕДСЕДНИК УПРАВНОГ ОДБОРА ИНЖЕЊЕРСКЕ КОМОРЕ СРБИЈЕ
Латинка Обрадовић
дипл. грађ. инж.

У Београду,
1. новембра 2018. године



ИНЖЕЊЕРСКА КОМОРА СРБИЈЕ

ЛИЦЕНЦА

ОДГОВОРНОГ ПРОЈЕКТАНТА

На основу Закона о планирању и изградњи и Статута Инжењерске коморе Србије

УПРАВНИ ОДБОР ИНЖЕЊЕРСКЕ КОМОРЕ СРБИЈЕ утврђује да је

Ђурђа Л. Петров

дипломирани инжењер пејзажне архитектуре
ЛИБ 02584074192

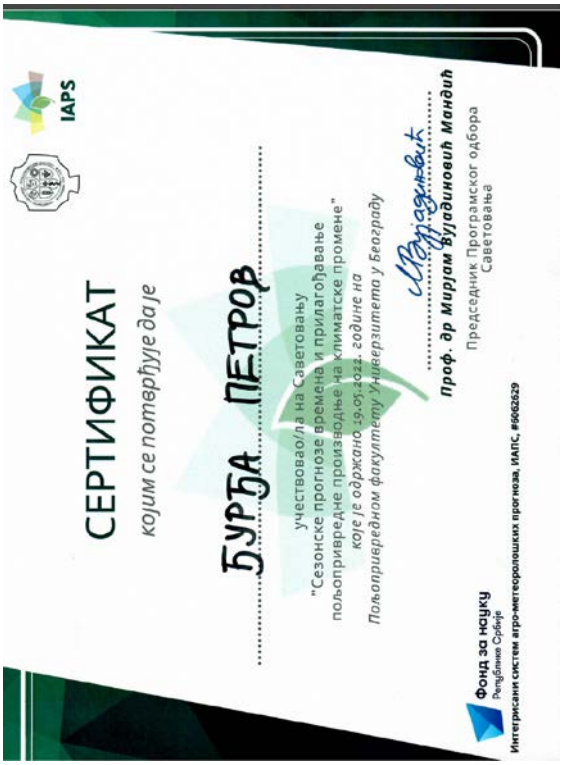
одговорни пројектант

за пејзажноархитектонско уређење слободних простора

Број лиценце
373 R411 19

ПОТПРЕДСЕДНИК УПРАВНОГ ОДБОРА ИНЖЕЊЕРСКЕ КОМОРЕ СРБИЈЕ
Латинка Обрадовић
дипл. грађ. инж.

У Београду,
4. априла 2019. године



IAPS

СЕРТИФИКАТ

који се потврђује да је

Ђурђа Петров

учествовала на Саветовању
"Сезонске прогнозе времена и прилагођавање пољопривредне производње на климатске промене"
које је одржано 19.05.2022. године на
Пољопривредном факултету Универзитета у Београду

Проф. др Мирјам Вујадиновић Манојић
Председник Програмског одбора Саветовања

Фонд за НЦУКУ
Републике Србије
Интегрисани систем агро-метеоролошких прогноза, ИАПС, #6062629



Arboricultural ASSOCIATION
trees.org.uk

WEBINAR

This Certificate is awarded to

Djurdja Petrov

for participating in the following Arboricultural Association online webinar:

European Tree Standards and the Dangers of Tree Planting

DATE: 11/01/2023
CPD HOURS: 1.5 Hours

Signed

Signed

Arboricultural Association
The Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire GL10 3QL
T: 01242 522152 | E: training@trees.org.uk | W: www.trees.org.uk

Arboricultural ASSOCIATION

**WEBINAR**

This *Certificate* is awarded to

**Djurdja Petrov**

for participating in the following Arboricultural Association online webinar:

Thinking Arbs with Ted Green and friends - TREETIME

DATE: 23/11/2023
AA CPD HOURS: 1.5

Signed Michaela Ryan, Chair, Arboricultural Association

Signed John Parker, Chief Executive Officer

Arboricultural Association
The Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire GL10 3DL

Arboricultural ASSOCIATION

**WEBINAR**

This *Certificate* is awarded to

**Djurdja Petrov**

for participating in the following Arboricultural Association online webinar:

**Trees & The Law**

DATE: 08/02/2023
AA CPD HOURS: 1.5 Hours
CEU - ID: UI-23-007

Signed Michaela Ryan, Chair, Arboricultural Association

Signed John Parker, Chief Executive Officer

Arboricultural Association
The Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire GL10 3DL

**Прилог 12.** Учесник на стручним или научним скуповима националног или међународног нивоа.















**Прилог 13.** Председник или члан органа управљања, стручног органа, помоћних стручних органа или комисија на факултету или универзитету у земљи или иностранству.



УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Број: 01-2/162
Датум: 29.9.2021.
БЕОГРАД

На основу чл. 58. и 60. став 1. тачка 1. Статута Универзитета у Београду-Шумарског факултета бр. 01-1/36 од 14.3.2019. год, а у складу са предлогом Већа одсека за шумарство бр. 06-10169/1 од 27.9.2021. год, Већа одсека за технологије дрвета бр. 07-10096/1 од 24.9.2021. год, Већа одсека за пејзажну архитектуру и хортикултуру бр. 08-9945/1 од 23.9.2021. год. и Већа одсека за еколошки инжењеринг у заштити земљишних и водних ресурса бр. 09-9825/1 од 21.9.2021. год, Наставно-научно веће Факултета на електронској седници одржаној 28-29. септембра 2021. год, доноси следећу

ОДЛУКУ

Образује се Комисија за наставу за школске 2021/2022, 2022/2023. и 2023/2024. годину коју чине руководиоци основних студија и то:

1. Др Драган Гачић, редовни професор;
2. Др Марија Вуркозић, ванредни професор;
3. Др Вурђа Петров, доцент;
4. Др Мирјана Тодосијевић, ванредни професор.

Одлуку доставити: члановима Комисије, продекану за наставу, Служби за наставу и студентска питања, декану, писарници.

Председник
Наставно-научног већа
Проф. др РАТКО РИСТИЋ

---

Универзитет у Београду - Шумарски факултет
Ниша Бијанкинова 1, 11030 Београд, Република Србија
University of Belgrade - Faculty of Forestry
1 Kraza Vilenkova Street, 11030 Belgrade, R Serbia



Број: 01-2/135
Датум: 25. септембар 2024. године

На основу чл. 58. и 60. став 1. тачка 1. Статута Универзитета у Београду-Шумарског факултета бр. 01-2511/1 од 8. марта 2024. године, а у складу са предлогом Већа одсека за шумарство и заштиту природе бр. 06-7809/1 од 4. јула 2024. године, Већа одсека за технологије дрвета бр. 07-7834/1 од 4. јула 2024. године, Већа одсека за пејзажну архитектуру и хортикултуру бр. 08-10795/1 од 19. септембра 2024. године и Већа одсека за еколошки инжењеринг у заштити земљишних и водних ресурса бр. 09-9881/2 од 16. септембра 2024. године, Наставно-научно веће Факултета на седници одржаној 25. септембра 2024. године, доноси следећу

ОДЛУКУ

Образује се Комисија за наставу за школске 2024/2025, 2025/2026. и 2026/2027. годину коју чине руководиоци основних студија и то:

1. др Драган Гачић, редовни професор;
2. др Мандан Фургула, ванредни професор;
3. др Вурђа Петров, ванредни професор;
4. др Тајана Вулевић, ванредни професор.

Одлуку доставити: члановима Комисије, продекану за наставу, Служби за наставу и студентска питања, декану, писарници.

ПРЕДСЕДНИК
НАСТАВНО-НАУЧНОГ ВЕЋА
Проф. др Бранко Стајић



---

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
Број: 01-542/1
Датум: 21. јануар 2026. године
БЕОГРАД

На основу члана 43. Статута Универзитета у Београду – Шумарског факултета бр. 01-2511/1 од 8. марта 2024. године, а у складу са предлогом Већа одсека за шумарство и заштиту природе бр. 06-12244/2 од 15. децембра 2025. године, Већа одсека за технологије дрвета бр. 07-12768/1 од 16. децембра 2025. године, Већа одсека за пејзажну архитектуру и хортикултуру бр. 08-12439/2 од 16. децембра 2025. године и Већа одсека за еколошки инжењеринг у заштити земљишних и водних ресурса бр. 09-483/1 од 20. јануара 2026. године, декан Факултета доноси следећу

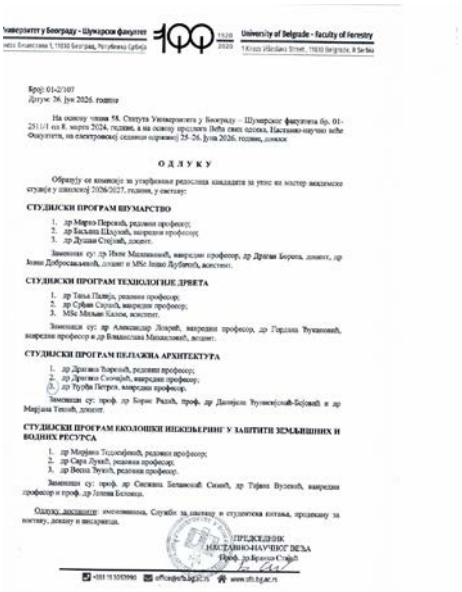
ОДЛУКУ

Образује се **Комисија за родну равноправност**, у саставу:

1. др Владан Ивсић, редовни професор;
2. др Владислава Михаиловић, доцент;
3. др Вурђа Петров, ванредни професор;
4. др Александар Анђелковић, доцент.

Одлуку доставити: продекану за науку и међународну сарадњу, именованима, декану, писарници.

ДЕКАН
Проф. др Бранко Стајић



---

Универзитет у Београду - Шумарски факултет
Ниша Бијанкинова 1, 11030 Београд, Република Србија
University of Belgrade - Faculty of Forestry
1 Kraza Vilenkova Street, 11030 Belgrade, R Serbia

Број: 01-2/107
Датум: 26. јун 2026. године

На основу члана 58. Статута Универзитета у Београду – Шумарског факултета бр. 01-2511/1 од 8. марта 2024. године, а на основу предлога Већа свих одсека, Наставно-научно веће Факултета, на електронској седници одржаној 25-26. јуна 2026. године, доноси

ОДЛУКУ

Образују се комисије за утврђивање редоследа кандидата за утис на мастер академске студије у школској 2026/2027. години, у саставу:

**СТУДИЈСКИ ПРОГРАМ ШУМАРСТВО**

1. др Марко Перовић, редовни професор;
2. др Бисљана Шљукић, ванредни професор;
3. др Душан Стојанић, доцент.

Заменици су: др Иван Милановић, ванредни професор, др Драган Борота, доцент, др Јована Добросављевић, доцент и МSc Јелко Дубовић, асистент.

**СТУДИЈСКИ ПРОГРАМ ТЕХНОЛОГИЈЕ ДРВЕТА**

1. др Тања Пазијс, редовни професор;
2. др Срђан Сауић, ванредни професор;
3. МSc Михаил Калем, асистент.

Заменици су: др Александар Лозрић, ванредни професор, др Гордана Вукановић, ванредни професор и др Владислава Михаиловић, доцент.

**СТУДИЈСКИ ПРОГРАМ ПЕЈЗАЖНА АРХИТЕКТУРА**

1. др Драгана Ђорђевић, редовни професор;
2. др Драгана Скочајић, ванредни професор;
3. др Вурђа Петров, ванредни професор.

Заменици су: проф. др Борис Радић, проф. др Данијела Вулисијевић-Бојовић и др Мирјана Тешић, доцент.

**СТУДИЈСКИ ПРОГРАМ ЕКОЛОШКИ ИНЖЕЊЕРИНГ У ЗАШТИТИ ЗЕМЉИШНИХ И ВОДНИХ РЕСУРСА**

1. др Мирјана Тодосијевић, редовни професор;
2. др Сара Лукић, редовни професор;
3. др Весна Вукић, редовни професор.

Заменици су: проф. др Снежана Белановић Симић, др Тајана Вулевић, ванредни професор и проф. др Јелена Беловица.

Одлуку доставити: именованима, Служби за наставу и студентска питања, продекану за наставу, декану и писарници.

ПРЕДСЕДНИК
НАСТАВНО-НАУЧНОГ ВЕЋА
Проф. др Бранко Стајић

+381 11 3053990 office@sfb.bg.ac.rs www.sfb.bg.ac.rs

**Прилог 14.** Домаће или међународне награде и признања у развоју образовања или науке.




XI MEĐUNARODNI SALON PEJZAŽNE ARHITEKTURE 2025. – selektovani radovi
11TH INTERNATIONAL LANDSCAPE ARCHITECTURE EXHIBITION – selected projects



XI MEĐUNARODNI SALON PEJZAŽNE ARHITEKTURE 2025. – selektovani radovi
The 11TH INTERNATIONAL LANDSCAPE ARCHITECTURE EXHIBITION – selected projects

(12th of June - 27th of June 2025)

REALIZOVANI PROJEKTI/
IMPLEMENTED LANDSCAPE ARCHITECTUAL DESIGN

| | RAD / Name of the project | Institution | Autori / Authors | |
|---|---|---|---|---|
| 01 | Nejbliže zaseli prostora<br>Notes of New Spaces | Landscape Factory Studio | Anica Anđić, Dejan Rajin, Miša Kisilić | |



| | | | | |
|---|---|---|---|---|
| 07 | Veliki gradski park u Kotoru<br>Large city park in Kotor | Tim autora u sastavu sa studijom EMPORIKI iz Kotora | Ivi Žeželja Čanović, pejzažni arhitekta<br>Dorđe Jovana Mašanović, arhitekta<br>Ivi Marija Novaković, konzervator<br>N. Nikolić Novaković, arhitekta | |
| 08 | Универзитетски клинички центар Србије<br>The University Clinical Center of Serbia | Ауторски тим:<br>Odeljenje/ekipa:<br>Milena Bogić<br>Стојана Ушћумлић<br>Ивана Миленић - руко.<br>Милан Јаковљевић - пејзаж. архитекта:<br>Пејзаж. пројек. | Марија Богић, руко.<br>Весна Недељко-Пребиловић, руко.<br>Бојана Јовановић, руко.<br>Ирена Вајагић, руко.<br>Александар Живић, руко. | |

NEREALIZOVANI PROJEKTI/
NON-IMPLEMENTED LANDSCAPE ARCHITECTURAL DESIGN

| | RAD / Name of the project | Institution | Autori / Authors | |
|---|---|---|---|---|
| 01 | Концептуално решење зоолошког врта у оквиру забавно-рекреативног парка на Ада Циганлији<br>The Conceptual Design of the Zoo within the Amusement and Recreational Park on Ada Ciganlija | FOUR+, PATAM Архитекти и ИА | Ана Радивојевић, Весна Живковић, Анастасија Ранковић, Александра Чворовић, Ања Пурковић<br>Мишо Ђорђевић (ПУРАМ Архитекти), ПИПС УРБАН АТЛАНСА (Јелена Трајић), Радош Дукарић, Никола Лаловић, Арсен Косовац, Арања Кличковић, Војислав Бобић, Ања Клинковић, Дамјан Чворовић | |
| 02 | Концептуално урбано-архитектонско решење центра за пријем животиња са CITES листе и зоолошког врта са пратећом контакт-зоном у Борковцу<br>The conceptual urban-architectural solution of the center for the acceptance of CITES-listed animals and the ZOO with the associated contact zone in Berkovac | FOUR+ | Ана Радивојевић, Весна Живковић, Анастасија Ранковић, Александра Чворовић, Ања Пурковић, Ања Марјанац, Александра Врачевић, Ања Пурковић, Вељковић Марковановић<br>Пејзажна дизајн: Јелена Чворовић<br>Архитектура „ИЗОМ": | |



| | | | | |
|---|---|---|---|---|
| | | | Немања Одаџић, Лазар Савовић, Алексеј Шилтон, Дарја Силјева, Ана Зељковић<br>ШО високоградња: Андреј Сарић Весковић (руко.), Алексеј Одинов<br>Пејзажна архитектура: Алексеј Одинов<br>Развита „Култура сјећа"<br>Просторе конзервирао – архитекта: Душан Јовановић<br>Архитектонски биро „Ш Пројект" | |
| 03 | Акропољ културе – између зеленог и плавог<br>Acropolis of Culture – between the Green and the Blue | Пејзажни / У Одељењу за: Културна добра Авала Старо ПТС Државни идентификациони архив Србије - Архитектонски архив Србије - Институт за археологију у Београду Основа(ч)ица, конкурс: Државни архивисти Београда | Милош Стојковић Ненић, маст. инж. арх.; Вељко Вучковић, инж. арх.; Стефана Ранић, инж. арх.; Сара Трибусић, инж. арх.; Вељко Пејић, инж. арх.; Никола Пећарић, инж. арх.; Ивана Ђорђевић, инж. пејзажне архитектуре и сарадници: Андреја Богдановић, маст. биолошке (екологије) – пејзажне архитектуре и картографије) | |
| 04 | Пејзажно уређење стамбеног комплекса „Ковилина"<br>Landscape design of the „Kovilina" residential complex | Ковилин доо | Renato Lokotić, Tamara Jakšić | |
| 05 | Парк на површинама у Кеновцу<br>НУП за изградњу зелене површине површинама у Кеновцу<br>New park at Kikinda wet field area<br>Preliminary design for the Green area in the Kikinda wet field zone | ЈП „Кеновци" | Јелена Пантовић, дипломирани пејзажни архитекта<br>Мандрет Радовановић, дипломирани | |

| | | | | |
|---|---|---|---|---|
| 06 | Урбани црквени комплекс у Горњем Палилиманима<br>Design of the church building complex in Gornji Palilimani | SAA/TA &KPO | Весна Марјановић-Стубленић, [illegible] | |
| 07 | Baghdad Avenue | Inbite International | Richard Kleinig, Daniel Nefedi, Wejdie Rukhieri | |
| 08 | Пројекат партерног уређења Калемегдавског парка у Подгорици<br>Landscape design project od Kraljičnje park in Podgorica | Tim autora | Dorotyllevana Ražanović, arhitekta<br>Ivi Zejina Čurović, pejzažni arhitekta<br>Veljko Čurović, student arhitekture<br>Tara Terlia, student arhitekture)<br>Dunja Krgović, student arhitekture | |

**STUDIJE – ISTRAŽIVANJA / STUDIES AND RESEARCH**

| | RAD / Name of the project | Institution | Autori / Authors | |
|---|---|---|---|---|
| 01 | Уградњене наративе: Implikacije<br>Embedded Narratives: Implications | Универзитет у Новом Сад ■ Грађевински факултет Суботица | Др Милена Дрењанин Грађевинарство | |
| 02 | Стратегија зелене инфраструктуре града Београда<br>Green Infrastructure Strategy of the City of Belgrade | Универзитет у Београду – Шумарски факултет | Vesna Nenić, Aleksa Tomašević, Đorđe Đukanović, Dragana Vasiljević, Ljubiša Tešanović, Sofija Tanjga, Cetinja Tucakova, Rosana Bjelanović, Snežana Vasić, Jelena Ivanova Vasiljević, Dragan Ivanović, Hajdana Jovanović, Andjela Ivanković, Jelena Tanović, Aleksandar Vasiljević, Aleksandra Tgalo Đorđić, Jasna Krstanović, Ana Đorđić Đukić | |



| | | | | |
|---|---|---|---|---|
| 03 | Три точке...?<br>Three dots...? | / | Јована Стаменић, аутор<br>Јована Стаменић, narrator | |

**PUBLIKACIJE/PUBLICATIONS**

| | RAD / Name of the project | Institution | Autori / Authors | |
|---|---|---|---|---|
| 01 | Зелена инфраструктура у урбанистичком планирању – препоруке за унапређење планирања, спровођење и одржавање зелене инфраструктуре у Београду<br>Green Infrastructure in Urban Planning - Recommendations for Improvement of Planning, Implementation and Maintenance of the Green Infrastructure in Belgrade | Институт за урбано знаменје / Архитектонски пројекат | Славица Чекић, Милена Марковић, Оливера Стојић, Ана Анђелић, Иван Симић, Ана Шобајић, Александра Вучићевић, Иван Павловић | |
| 02 | Смернице за дизајн отворених простора града за жене деце и породице<br>Handbook for Children- and Family-Friendly Design of Open Urban Spaces | UNDP у Србији [уредник] | др Ерменгилд Антонић, дипл. инжењер;<br>Никола Митровић, Радник, истраживач-сарадник;<br>Ана Шобајић, Радник, истраживач-сарадник;<br>др Владимир Ковић, Радник, Радник, директор | |
| 03 | Принципи озелењавања школских дворишта са анализом прописаних и прописа из региона<br>Principles of Schoolyard Greening with an Analysis of Regional Regulations and Practices | Центар за истраживање и урбане студије – UEVC | Катарина Самуровић, Ана Симић, Јелена Крклешански | |



**STUDENTSKI RADOVI / STUDENT PROJECTS**

| | RAD / Name of the project | Institution | Autori / Authors | |
|---|---|---|---|---|
| 01 | Пејзажи нових навика<br>LANDSCAPES OF NEW HABITS | Архитектонски факултет Универзитета у Београду | Лука Мојсиловић | |
| 02 | Bringbacktheliver: Reintegration of a segment of Ilisos river to the urban landscape of Athens | School of Architecture, Aristotle University of Thessaloniki<br>Master Urbanistic Athina | Legaki Marie-Elena ,<br>Papatheodorou Christina,<br>Xenopoulou Eleni | |
| 03 | Nature's Sanctuary - Fourth Nature as a Living Landscape in the Ruins of Carmelite Monastery | Cracow University of Technology, Faculty of Architecture, Landscape Architecture, Professor: Urszula Myczek, Krakow | Katarzyna Jamiół | |
| 04 | La vie de l'eau - river renaturation and project of a climate shelter | Cracow University of Technology, Faculty of Architecture, Architecture, Professors: Urszula Myczek-Dobiński, Łukasz Stojek | Katarzyna Jamiół | |
| 05 | A PSYCHOGEOGRAPHIC MAP. URBAN CITY CENTRE OF XANTHI. From The Central Square To Averof Loggia | Democritus University Of Thrace Department Of Architecture School Of Engineering Undergraduate Studies Programme 2020-2025 Course: Urban Design II Tutors: Professor P. Kosmas N.I. Korkovas | Konstantinos Arvanitas<br>Theodoros Koufos<br>Alexandros Mantzagios<br>Dimosthenes Chatzigalias | |
| 06 | REVITALIZACIJA ISTORIJSKOG VRTA Aristotelovog Univerziteta u Solunu, Grčka<br>Revitalization of a Historic Garden of Aristotel University of Thessaloniki, Greece | Aristotle University of Thessaloniki ( auth) Department of architecture, School of engineering, Department of agriculture, School of agriculture, forestry and natural environment | Ksenije Kostic Kollaxo | |

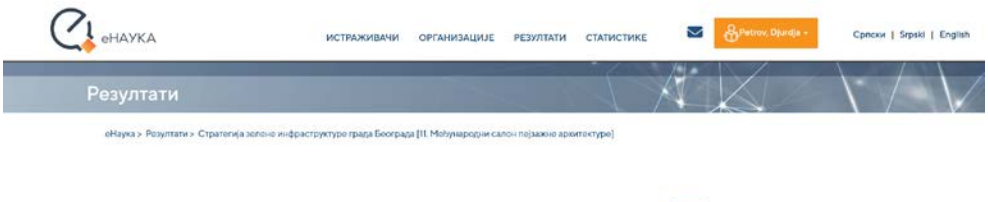


| | | | | |
|---|---|---|---|---|
| 07 | The DITh – Metropolitan Park | Aristotle University of Thessaloniki ( auth) Department of architecture, School of engineering, Department of agriculture, School of agriculture, forestry and natural environment | Ksenije Kostic Kollaxo, Rigeria Taipidi | |
| 08 | Сузна кедрда<br>Weeping hedera | Универзитет у Београду, Архитектонски факултет | Лазар Вагић | |
| 09 | Sustainable hempcrete production | Università IUAV di Venezia, Integrated design lab – Sustainable Urban Design and Performance, prof. – Luca Velo, Luigi [illegible], Andrea [illegible] | Јаћимовић Бобонић, Јелена Антонић | |
| 10 | BEE CITY | Универзитет у Београду, Архитектонски факултет | Александра Живковић, Немања Зељковић и Лазар Вагић | |
| 11 | Кнедле тек и Sluškolaj<br>Slovenski mundelout | NMBU ■ Norwegian University of Life Sciences | Vukašin Mišić | |
| 12 | Што остаје када одеш?<br>What remains when we're gone? | Универзитет у Београду Шумарски факултет | Немања Ракић | |
| 13 | LD104 Landscape Planning and Design of Suburban, Rural and Natural Landscapes | School of Architecture, School of Agriculture, Aristotle University of Thessaloniki, Greece | Athanasiadou Pejaidopoulou | |
| 14 | Инсталација "Кукавичје гнездо"<br>Installation „Cuckoo's nest" | Универзитет у Новом Саду, Пољопривредни факултет, Катедра за пејзажну архитектуру и хортикултуру | Алфреда Илић, Катарина Алексић, Андрија Мајић, Алфреда Пауновић Рајић, Софија Вуковац, Нина Васиљев, Немања Николић, Младенка Младенов | |
| 15 | Инсталација „Систем 2.0"<br>Installation „System 2.0" | Универзитет у Новом Саду, Пољопривредни факултет, Катедра за пејзажну архитектуру и хортикултуру | Алфреда Пауновић Рајић, Катарина Алексић, Катарина Терзовић, Нина Вилимов, Андрија Илић, Алфреда Илић, Младенка Младенова, Немања Николић | |

| | | | | |
|---|---|---|---|---|
| 16 | Станица 16<br>THE STATION 16 | Универзитет у Новом Саду, Пољопривредни факултет, Катедра за пејзажну архитектуру и одржавање | Жана Вапирача, Наташа Јовић, Анђела Пауновић Радић, Никола Николић, Предраг Пајдаковић | |
| 17<br>18 | Реконструкција Железничког парка у Новом Саду<br>Reconstruction of the Railway Park in Novi Sad<br>Градски еден- студенски град<br>Urban Eden - Student City | Пољопривредни факултет у Новом Саду<br>Архитектонски факултет Универзитет у Београду | Урош Сенић, Милица Грбић, Марина Огњановић<br>Петр Ченчић | |
| 19 | „Нити стварности"<br>"Threads of Reality" | Шумарски факултет, Универзитет у Београду | Јелена Живковић, Наташа Јовић | |
| 20 | „Невидљива патња"<br>„Пиперски" | Swedish University of Agricultural Sciences (SLU) Универзитет у Београду Шумарски факултет | Јелена Живковић | |
| 21 | СЛИКА ЈЕДНОГ ГРАДА?<br>Image of the City? | Универзитет у Београду Шумарски факултет | Марија Пешикан | |
| 22 | Пејзаж у чину порицања-тиха структура одсуства<br>Landscape in an Act of Denial – The Silent Structure of Absence | Универзитет у Београду Шумарски факултет | Марија Пешикан | |
| 23 | Solomon in 4D Light-full Park | School of Fine Arts/University of Ioannina/Greece | Georgina Kaftzeridi | |

**Awards:**

| | | |
|---|---|---|
| | GRAND PRIX | 1 |
| | Award "Aleksander Krstić" | 1 |
| | Plakete / Awards | 9 |
| | Pohvala / A commendation | 3 |



**34. МЕЂУНАРОДНИ САЛОН УРБАНИЗМА**

**ИЗВЕШТАЈ ЖИРИЈА**

**ЗРЕЊАНИН, 2025.**

Састав Жирија утврђен је од стране Савета Салона урбанизма:

- Драгана Метикош, Зрењанин, председница;
- др Дарко Полић, Нови Сад, заменик председнице;
- др Милена Динић Бранковић, Ниш, чланица;
- др Ана Никовић, Београд, чланица;
- Гордана Недељковић, Крушевац, чланица;
- др Душица Трпчевска Анђелковић, Скопље, Република С. Македонија, чланица.

Дана 5-6.11.2025. године, Жири је извршио увид у 126 приспела рада, претходно потврђена од селекционе комисије:

| БР. | КАТЕГОРИЈА | БР. РАДОВА |
|---|---|---|
| 1. | РЕГИОНАЛНИ ПРОСТОРНИ ПЛАНОВИ, ПРОСТОРНИ ПЛАНОВИ ПОДРУЧЈА ПОСЕБНЕ НАМЕНЕ И СТРАТЕГИЈА ОДРЖИВОГ УРБАНОГ РАЗВОЈА | 5 |
| 2. | ПРОСТОРНИ ПЛАНОВИ ГРАДОВА И ОПШТИНА | 3 |
| 3. | ГЕНЕРАЛНИ УРБАНИСТИЧКИ ПЛАНОВИ И ПЛАНОВИ ГЕНЕРАЛНЕ РЕГУЛАЦИЈЕ | 14 |
| 4. | ПЛАНОВИ ДЕТАЉНЕ РЕГУЛАЦИЈЕ | 15 |
| 5. | УРБАНИСТИЧКИ ПРОЈЕКТИ И РЕАЛИЗАЦИЈЕ | 20 |
| 6. | КОНКУРСИ | 4 |
| 7. | ИСТРАЖИВАЊА, СТУДИЈЕ И ПРОЈЕКТИ ИЗ ОБЛАСТИ ПРОСТОРНОГ И УРБАНИСТИЧКОГ ПЛАНИРАЊА | 11 |
| 8. | ИСТРАЖИВАЊА, СТУДИЈЕ И ПРОЈЕКТИ ИЗ ОБЛАСТИ: ЗАШТИТЕ ПРИРОДЕ, ЗАШТИТЕ ПРЕДЕЛА, ЗАШТИТЕ ЖИВОТНЕ СРЕДИНЕ И ПЕЈЗАЖНЕ АРХИТЕКТУРЕ | 7 |
| 9. | ДИГИТАЛНЕ ТЕХНИКЕ, ДИЗАЈН И ПРОДУКЦИЈА У УРБАНИЗМУ И АРХИТЕКТУРИ; МЕДИЈСКА ПРЕЗЕНТАЦИЈА УРБАНИЗМА И АРХИТЕКТУРЕ | 3 |
| 10. | ПУБЛИКАЦИЈЕ | 12 |
| 11. | НЕОСТВАРЕНИ УРБАНИСТИЧКИ СНОВИ | 2 |
| 12. | СТУДЕНТСКИ РАДОВИ | 30 |
| | **УКУПНО** | **126** |

НАПОМЕНЕ:

- За радове у категорији бр. 6 "Конкурси". Предлажемо да се на наредним салонима урбанизма ови радови не оцењују – да се излажу ван конкуренције/ревијално.
- Жири слично сматра и за категорију бр. 11 "Неостварени урбанистички снови" и предлаже да се на наредним салонима урбанизма ови радови не оцењују – да се излажу ван конкуренције.
- Жири предлаже да за категорију бр. 10 "Публикације", у наредним салонима урбанизма, аутори доставе рецензије пријављених радова или унапред припреме сажетак.

Борјан Бранков, др Сања Симоновић Алфиревић, Мирјана Ненић, др Божидар Манић, др Ана Никовић, др Јелена Живановић Миљковић, др Никола Крунић, Јасмина Крунић, Ива Локас, др Марина Ненковић-Ризнић, др Милена Милинковић, др Јасна Петрић, Оливера Радоичић, Бранислава Симић, Данијела Срнић, Лазар Томовић, Маја Христов; Градска управа града Шапца: Дејан Вујић и радни тим, **Институт за архитектуру и урбанизам Србије - ИАУС, и Градска управа града Шапца**

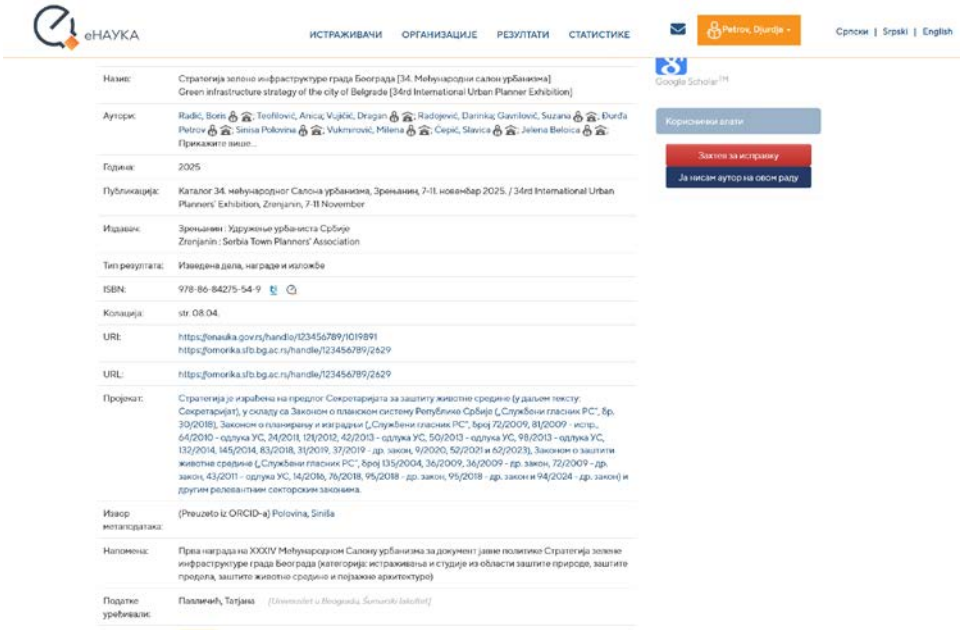
- **Студија: Економски развој за Просторни план Републике Северне Македоније (2021 -2040)**, АПП: Руководилац: доц. д- р Душица Трпчевска Анђелковић, м-р Весна Мирчевска Димишкоска, Срђан Дурлевић, м-р Дарија Двојаковска, ЕФ: Руководилац: проф. д -р Пеце Недановски и радни тим, **Агенција за планирање простора – Скопје, УКИМ, Економски факултет, Скопје**

**У КАТЕГОРИЈИ 8. ИСТРАЖИВАЊА И СТУДИЈЕ ИЗ ОБЛАСТИ ЗАШТИТЕ ПРИРОДЕ, ЗАШТИТЕ ПРЕДЕЛА, ЗАШТИТЕ ЖИВОТНЕ СРЕДИНЕ И ПЕЈЗАЖНЕ АРХИТЕКТУРЕ**

**Две равноправне I награде додељују се радовима:**

- **Стратегија зелене инфраструктуре града Београда**, Борис Радић, Аница Теофиловић, Драган Вујичић, Даринка Радојевић, Сузана Гавриловић, Ђурђа Петров, Синиша Половина, Милена Вукмировић, Славица Чепић, Јелена Белоица, Драгана Чавловић, Владан Поповић, Мирјана





УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
ПРИМЉЕНО: 19-10-2020

| Орг. јед. | Број | Прилог | Вредност |
|---|---|---|---|
| 02- | 166/5 | | |


Образац 4

# Изјава о изворности

Име и презиме кандидата др Ђурђа Петров

Сагласно члану 26. став 3. Кодекса професиналне етике Универзитета у Београду,

**ИЗЈАВЉУЈЕМ**

- да је сваки мој рад и достигнуће, изворни резултат мог интелектуалног рада и да тај рад не садржи никакве изворе, осим оних који су наведени у раду,
- да нисам кршио/ла ауторска права и користио/ла интелектуалну својину других лица.

**Потпис аутора**

У Београду, 27.9.2026.

Ђурђа Петров

УНИВЕРЗИТЕТ У БЕОГРАДУ
ШУМАРСКИ ФАКУЛТЕТ
ПРИМЉЕНО: 19. 10. 2026

| Орг. јед. | Број | Прилог | Вредност |
|---|---|---|---|
| 02- | 116/4 | | |


**Образац 4 В**

## В) ГРУПАЦИЈА ТЕХНИЧКО-ТЕХНОЛОШКИХ НАУКА

### С А Ж Е Т А К
### РЕФЕРАТА КОМИСИЈЕ О ПРИЈАВЉЕНИМ КАНДИДАТИМА
### ЗА ИЗБОР У ЗВАЊЕ

### I - О КОНКУРСУ

Назив факултета: Универзитет у Београду – Шумарски факултет
Ужа научна, односно уметничка област: Пејзажна архитектура и хортикултура
Број кандидата који се бирају: 1
Број пријављених кандидата: 1
Имена пријављених кандидата:
1. Ђурђа Л. Петров

### II - О КАНДИДАТИМА

#### 1) - Основни биографски подаци

- Име, средње име и презиме: Ђурђа, Лазар, Петров
- Датум и место рођења: 19. фебруар 1984. године, Београд (Савски венац)
- Установа где је запослен: Универзитет у Београду – Шумарски факултет
- Звање/радно место: ванредни професор / наставник
- Научна, односно уметничка област: Пејзажна архитектура и хортикултура

#### 2) - Стручна биографија, дипломе и звања

*Основне студије:*
- Назив установе: Универзитет у Београду – Шумарски факултет
- Место и година завршетка: Београд, 2008. године

*Докторат:*
- Назив установе: Универзитет у Београду – Шумарски факултет
- Место и година одбране: Београд, 2014.
- Наслов дисертације: Утицај фактора спољашње средине на цветање дрвенастих врста из пододељка Magnoliophyta у Београду
- Ужа научна, односно уметничка област: Пејзажна архитектура и хортикултура

*Досадашњи избори у наставна и научна звања:*
-8. фебруар 2022. – ванредни професор
-26. новембар 2014. – доцент
- 5. јул 2011. – асистент
- 1. фебруар 2011. – истраживач-приправник

**3) Испуњени услови за избор у звање редовног професора**

**ОБАВЕЗНИ УСЛОВИ:**

| | *(заокружити испуњен услов за звање у које се бира)* | **оцена / број година радног искуства** |
|---|---|---|
| 1 | Приступно предавање из области за коју се бира, позитивно оцењено од стране високошколске установе | |
| (2) | Позитивна оцена педагошког рада у студентским анкетама током целокупног претходног изборног периода | Просечна оцена у периоду од 2021. до 2026. године је 4.81. |
| (3) | Искуство у педагошком раду са студентима | 20 године искуства у раду са студентима (демонстратор, истраживачко, сарадничко и наставничко звање) |

| | *(заокружити испуњен услов за звање у које се бира)* | **Број менторства / учешћа у комисији и др.** |
|---|---|---|
| (4) | Резултати у развоју научнонаставног подмлатка | Као ментор учествовала је у оцени и одбрани 1 дипломског рада и 7 мастер радова; Учешће у Комисији за избор једног сарадника у настави за ужу научну област пејзажна архитектура и хортикултура (бр . 01-11969/1 до 29.12 .2015.) |
| (5) | Учешће у комисији за одбрану три завршна рада на академским специјалистичким, мастер или докторским студијама | Учествовање у 14 комисија за израду и одбрану мастер радова и 15 дипломских радова |

| | *(заокружити испуњен услов за звање у које се бира)* | **Број радова, сапштења, цитата и др** | **Навести часописе, скупове, књиге и друго** |
|---|---|---|---|
| 6 | Објављен један рада из категорије М21; М22 или М23 из научне области за коју се бира | | |
| 7 | Саопштена два рада на научном или стручном скупу (категорије М31-М34 и М61-М64). | | |
| 8 | Објављена два рада из категорије М21, М22 или М23 од првог избора у звање доцента из научне области за коју се бира | | |
| 9 | Саопштена три рада на међународним | | |

| | | | |
|---|---|---|---|
| | или домаћим научним скуповима (категорије М31-М34 и М61-М64) од избора у претходно звање из научне области за коју се бира. | | |
| 10 | Оригинално стручно остварење или руковођење или учешће у пројекту | | |
| 11 | Одобрен и објављен уџбеник за ужу област за коју се бира, монографија, практикум или збирка задатака (са ISBN бројем) | | |
| 12 | Објављен један рад из категорије М21, М22 или М23 у периоду од последњег избора из научне области за коју се бира. *(за поновни избор ванр. проф)* | | |
| 13 | Саопштена три рада на међународним или домаћим научним скуповима (категорије М31-М34 и М61-М64) у периоду од последњег избора из научне области за коју се бира. *(за поновни избор ванр. проф)* | | |
| 14 | Објављена два рада из категорије М21, М22 или М23 од првог избора у звање ванредног професора из научне области за коју се бира. | 18 | 1. Ocokoljić, M, **Petrov, Dj**, Galečić, N, Skočajić, D, Košanin, O, Simović, I. (2023): Phenological Flowering Patterns of Woody Plants in the Function of Landscape Design: Case Study Belgrade. Land 12 (3): 706. https://doi.org/10.3390/land12030706<br>2. Čukanović, J., Ljubojević, M., Djordjević, S., Narandžić, T., **Petrov, Dj,** Ocokoljić, M. (2024): The Impact of Climate Variability on the Blooming of Fraxinus ornus 'Globosa' as a Component of Novi Sad's (Serbia) Green Infrastructure. Sustainability, 16(19):8404. https://doi.org/10.3390/su16198404<br>3. Čukanović, J., Đorđević, S., **Petrov, D.**, Ocokoljić, M., Kolarov, R., Čurčić, M., & Ljubojević, M. (2025). The Sustainability of Rosa rugosa Thunb. Under Climate Change Conditions: A Study of Morphological Variability in Urban Areas. Horticulturae, 11(6), 684. https://doi.org/10.3390/horticulturae11060684<br>4. Ljubojević, M., Čukanović, J., Đorđević, S., **Petrov, D.**, Galečić, N., Skočajić, D., & Ocokoljić, M. (2025). Characterizing the Flowering Phenology of Rosa rugosa Thunb. as an Ecosystem Service in the Context of Climate Change in Kupinovo (Vojvodina), Serbia. Plants, 14(12), 1875. https://doi.org/10.3390/plants14121875<br>5. Galečić, N., **Petrov, Dj.**, Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S., Ocokoljić, M. (2026): Diversity, Growth Parameters, and Ecosystem Services of Urban Trees Under Climate-Change Conditions: A Case Study of Topčider Park. Forests 2026, 17(1), 114; https://doi.org/10.3390/f17010114<br>6. Skočajić, D., **Petrov, D.**, Galečić, N., Čukanović, J., Kolarov, R., Đorđević, S., & Ocokoljić, M. (2026). Adaptability and Resilience of Chaenomeles japonica (Thunb.) Lindl. ex Spach (Rosaceae) in Urban Landscape Design. Horticulturae, 12(3), 396. https://doi.org/10.3390/horticulturae12030396<br>7. **Petrov, D.**, Vujičić, D., Galečić, N., Skočajić, D., |

| | | | | |
|---|---|---|---|---|
| | | | | Čukanović, J., Kolarov, R., & Ocokoljić, M. (2026). Comparative Study of Thermal Accumulation and Adaptive Responses of Forsythia × intermedia Zabel and Kerria japonica (L.) DC. 'Pleniflora' Under Conditions of Climatic Fluctuations. Plants, 15(17), 2682. https://doi.org/10.3390/plants15172682 |
| | | | 8. | Petrov, D., Ocokoljić, M., Galečić, N., Skočajić, D., Simović, I. (2024): Adaptability of Prunus cerasifera Ehrh. to Climate Changes in Multifunctional Landscape. Atmosphere 15, 335. https://doi.org/10.3390/atmos15030335 |
| | | | 9. | Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., & Petrov, D. (2025). Flowering Patterns of Cornus mas L. in the Landscape Phenology of Roadside Green Infrastructure Under Climate Change Conditions in Serbia. Sustainability, 17(12), 5334. https://doi.org/10.3390/su17125334 |
| | | | 10. | Đorđević, S., Tóth, A., Kuczman, G., Čukanović, J., Ljubojević, M., Ocokoljić, M., Petrov, D., & Orlović, S. (2025). Biodiversity, Heritage and Ecosystem Service Potential of Woody Taxa in Scattered Built Environments of Traditional Agricultural Landscapes. Sustainability, 17(21), 9865. https://doi.org/10.3390/su17219865 |
| | | | 11. | Ocokoljić, M., Petrov, Dj, Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Simović, I. (2026). The impact of air temperature on the sustainability of Trachelospermum jasminoides (Lindl.) Lem. under conditions of a temperate continental climate. Pak. J. Bot., 58(7): DOI: http://dx.doi.org/10.30848/PJB2026-7(6) |
| | | | 12. | Ocokoljić, M., **Petrov, Dj.,** Galečić, N. (2022): Medial−vegetative proliferation of European larch Larix decidua Mill. cones. Sylwan 166 (9): 603−610, DOI: https://doi.org/10.26202/sylwan.2022069, Journal homepage: https://sylwan−journal.pl, Available online: 25 January 2023, ISSN: 0039-7660, Poland. |
| | | | 13. | **Petrov, Dj**.,Ocokoljić, M. (2023): Picea abies (L.) H. Karst. leaf temperature as an indicator of species resilience: a case study of the Čemernik mountains in Southeast Europe. Applied Ecology and Environmental Research 21(3):2031-2054. http://www.aloki.hu, ISSN 1589 1623 (Print), ISSN1785 0037 (Online) DOI: http://dx.doi.org/10.15666/aeer/2103_20312054, © 2023, ALÖKI Kft., Budapest, Hungary |
| | | | 14. | Ocokoljić, M., **Petrov, Dj**., Galečić, N., Skočajić, D., Šišaković, N., Simović, I. (2024): The study of Jasminum nudiflorum Lindl. in urban green infrastructure in conditions of climate change in Belgrade, Serbia. Applied ecology and environmental research, 22(5):4779-4805. https://aloki.hu/pdf/2205_47794805.pdf |
| | | | 15. | Ocokoljić, M., **Petrov, Dj**., Košanin, O., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): Phenological patterns of Fraxinus ornus L. flowering in the context of ecosystem services preservation in urban forests: a case study of Košutnjak, Belgrade, Serbia. Sylwan 168 (11): 801-821, DOI: https://doi.org/10.26202/sylwan.2024047 |
| | | | 16. | **Petrov, Dj.,** Ocokoljić, M., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2025): Variability in needle transverse anatomy of Picea abies (l.) H. Karst.: a case study from Čemernik mountain, Serbia. Applied Ecology and |

| | | | |
|---|---|---|---|
| | | | Environmental Research 23(2): 3785-3804. http://dx.doi.org/10.15666/aeer/2302_37853804<br>17. Ocokoljić, M., Čukanović, J., **Petrov, Dj.**, Kolarov, R., Đorđević, S., Skočajić, D.M., Galečić, N., Skočajić, D.Lj. (2025): Mahonia aquifolium (Pursh) Nutt.: varieties globosa and tears in the urban dendroflora under climate changes. Applied Ecology And Environmental Research 23(4):8251-8273. http://dx.doi.org/10.15666/aeer/2304_82518273<br>18. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., **Petrov, Dj**. 2025. The influence of air temperature and precipitation on the flowering and sustainability of Acer pseudoplatanus L. in the Zvezdara Urban Forest (Belgrade, Serbia). Sylwan 169 (9): 669–687, September 2025. https://doi.org/10.26202/sylwan.2025050 |
| 15 | Цитираност од 10 хетеро цитата | | цитираност 140, h-index 4, на основу базе података Scopus; |
| 16 | Саопштено пет радова на међународним или домаћим скуповима (категорије М31-М34 и М61-М64) од којих један мора да буде пленарно предавање или предавање по позиву на међународном или домаћем научном скупу од избора у претходно звање из научне области за коју се бира | 43 рада (2 - М32, 30 - М33, 7- М34, 2- М63, 2- М64) | 1. Petrov, Dj. & Ocokoljic, M. (2022): Picea abies (L.) H. Karst. morphological characteristics variability in the climate change conditions on Čemernik mountain. Introductory lecture. 14th Symposium on the Flora of Southeastern Serbia and Neighboring Regions. Kladovo 26 to 29 June 2022. Book of abstracts. Department of Biology and Ecology, Faculty of Science and Mathematics, University of Niš, pp.195. ISBN 978-86-6275-140-9. http://www.sfses.com/archive/sfses14/Book-of-Apstracts.pdf<br>2. Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D. Lj., Čukanović, J., Vujičić, D., Simović, I. (2025): Trachelospermum jasminoides (Lindl.) Lem. in pergola design: An experimental study in Belgrade. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 174<br>3. Ocokoljić, M, Petrov, Dj, Galečić, N, Miodrag M. (2022): Ecological and aesthetic characteristics of trees in "Belgrade waterfront" parking lots. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 149-153, ISBN 978-86-6305-123-2, COBISS.SR-ID 69053705, University of Belgrade – Technical Faculty in Bor, Serbia.<br>4. Ocokoljić, M, Petrov, Dj, Tutundzić, A, Skočajić, D, Petrović, S. (2022): State, functions and perspectives of dendroflora in the schoolyard of the Medical School in Belgrade. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 154-158, ISBN 978-86-6305-123-2, COBISS.SR-ID 69053705, University of Belgrade – Technical Faculty in Bor, Serbia.<br>5. Ocokoljić, M, Petrov, Dj, (2022): Trachycarpus fortunei (hook.) H. Wendl. In the conditions of changed temperate continental climate in |

| | | | |
|---|---|---|---|
| | | | Belgrade. 29th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'22 (21-24.06.2022.), Proceedings pp. 159-163, ISBN 978-86-6305-123-2, 4COBISS.SR-ID 659053705, University of Belgrade – Technical Faculty in Bor, Serbia.<br>6. Petrov, Dj., Ocokoljić, M., Galečić, N., Skočajić, D., Simović, I.(2023): Chaenomeles × superba 'Pink Lady' in designing private gardens in conditions of climate change. 30th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 62-68, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.<br>7. Petrov, Dj., Ocokoljić, M., Galečić, N., Skočajić, D. (2023): Application of species of the genus Parthenocissus L. in urban green infrastructure – state and perspectives. 30th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 210-215, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.<br>8. Petrov, Dj., Ocokoljić, M., Galečić, N., Skočajić, D. Simović, I. (2023): Second flowering of Philadelphus coronarius L. in green-blue infrastructure of Belgrade. 30th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'23 (20-23.06.2023.), Proceedings pp. 216-221, ISBN 978-86-6305-137-9, COBISS.SR-ID 118723849, University of Belgrade – Technical Faculty in Bor, Serbia.<br>9. Ocokoljić, M., Petrov, Dj., Vujičić, D., Galečić, N. (2023): Seasonal variations of flowering of Amorpha fruticosa L. as an indicator of global warming in blue-green infrastructure. XIV International Scientific Agriculture Symposium "AGROSYM 2023", Book of proceedings, ISBN 978-99976-816-1-4 COBISS.RS-ID 139524097, Jahorina 5-8.10.2023. pp. 846-852. M33<br>10. Ocokoljić, M., Petrov, Dj., Vujičić, D., Galečić, N. (2023): Effects of climate parameters on blackthorn in agroforestry ecotones as green road infrastructure elements. XIV International Scientific Agriculture Symposium "AGROSYM 2023", Book of proceedings, ISBN 978-99976-816-1-4 COBISS.RS-ID 139524097, Jahorina 5-8.10.2023. pp. 853-858.<br>11. Ocokoljić, M., Petrov, Dj. (2023): Impact of urban heat island on butterfly-bush (Buddleja davidii Franch.). International scientific and professional conference "Politehnika 2023", Conference proceedings, ISBN 978-86-7498-110-8, COBISS.RS-ID 132801289, Belgrade 15.12.2023. pp. 100-105.<br>12. Ocokoljić, M., Petrov, Dj., Vujičić, D. (2023): Effects of urbanisation on Simphoricarpos orbiculatus Moench in the green infrastructure of |

| | | | |
|---|---|---|---|
| | | | Belgrade. International scientific and professional conference "Politehnika 2023", Conference proceedings, ISBN 978-86-7498-110-8, COBISS.RS-ID 132801289, Belgrade 15.12.2023. pp. 106-111.<br>13. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Chaenomeles japonica (Thunb.) Lindl. ex Spach in the design of urban parks: learning from nature. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 113-118, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.<br>14. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Effectiveness of Photinia × fraseri 'Red Robin' in the urban landscape: towords of climate change. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 106-112, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.<br>15. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2024): Parthenocissus quinqefolia L.: phenomonitoring in blue-green infrastructure of Belgrade and Novi Sad. 31th INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH AND ENVIRONMENTAL RESEARCH – EcoTER'24 (18-21.06.2024. Sokobanja Serbia), Proceedings pp. 119-125, ISBN 978-86-6305-152-2, COBISS.SR-ID 147002889, University of Belgrade – Technical Faculty in Bor, Serbia.<br>16. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): The influence of air temperature trends on cherry plum (Prunus cerasifera Ehrh) in the blue-green infrastructure. XV International Scientific Agriculture Symposium "AGROSYM 2024" Book of proceedings, ISBN ISBN 978-99976-816-8-3, COBISS.RS-ID 141807105, Jahorina 10-13 October 2024. pp. 1000-1006.<br>17. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): Green infrastructure: implementation of wintersweet in landscape design and enhancement of ecosystem services. XV International Scientific Agriculture Symposium "AGROSYM 2024" Book of proceedings, ISBN ISBN 978-99976-816-8-3, COBISS.RS-ID 141807105, Jahorina 10-13 October 2024. pp. 1007-1013.<br>18. Petrov, Dj., Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D. Vujičić, D., Ocokoljić, M. (2025): 17Chaenomeles japonica (Thunb.) Lindl. - fruit crop in the18 context of climate change: cultural and ecosystem servic19es. Book of Proceedings International Confere20nce ACCHE (Annual conference on Challenges of Contemporary Higher Education), p.327-331, Kopaonik, Serbia, 03. – 07.2.2025. |

| | | | |
|---|---|---|---|
| | | | https://acche.rs/ACCHE_2025/radovi/agriculture/47.pdf<br>19. Petrov, Dj., Ocokoljić, M., Galečić, N., Skočajić, D.M., Gavrilović Grmuša, I., Čukanović, J., Simović, I. (2025): Evaluation of the utilisation potential of Ficus carica L. under conditions of climatic challenges: state and perspectives, Book of Proceedings International Conference ACCHE (Annual conference on Challenges of Contemporary Higher Education), p.332-337, Kopaonik, Serbia, 03. – 07.2.2025. https://acche.rs/ACCHE_2025/radovi/agriculture/48.pdf<br>20. Ocokoljić, M., Čukanović, J., Kolarov, R., Petrov, Dj., Galečić, N., Skočajić, D., Simović, I. (2025): The impact of harvest time on the content of polyphenolic compounds and antioxidant capacity of fruits of Chaenomeles japonica (Thunb.) Lindl. ex Spach. XVI International Scientific Agriculture Symposium "AGROSYM 2025", Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 595-601.<br>21. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Kolarov, R., Vujičić, D., Petrov, Dj. (2025): The impact of local adaptation on the phenological patterns of flowering in Buddleja davidii 'Pink Delight' in Karađorđev park, Belgrade (Serbia). XVI International Scientific Agriculture Symposium "AGROSYM 2025", Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 602-608.<br>22. Ocokoljić, M., Galečić, N., Čukanović, J., Đorđević, S., Kolarov, R., Petrov, Dj. (2025): Ornamental cherry trees in the open urban spaces in front of the temple of Saint Sava in Belgrade: identification and significance. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 372-377.<br>23. Petrov, Dj., Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Kolarov, R., Ocokoljić, M. (2025): Punica granatum L. in garden design in Serbia. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 365-371.<br>24. Ocokoljić, M., Kolarov, R., Čukanović, J., Galečić, N., Skočajić, D., Đorđević, S., Petrov, Dj. (2025): Morphological and biochemical characteristics of the fruits of Malus hupehensis var. pinyensis N.G.Jiang in Belgrade. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 359-364.<br>25. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., Petrov, Dj. (2025): Viburnum tinus L.: mediterranean floral element in the urban and suburban landscape of Belgrade. International Scientific |

| | | | |
|---|---|---|---|
| | | | and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 353-358.<br>26. Galečić, N., Petrov, Dj., Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S., Ocokoljić, M. (2025): Adaptation of flowering phenology and flower longevity of Philadelphus coronarius L. in landscape design under climate change conditions. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 347-352.<br>27. Ocokoljić, M., Čukanović, J., Đorđević, S., Galečić, N., Skočajić, D., Kolarov, R., Petrov, Dj. (2025): Amorpha fruticosa L. in the alluvial habitats of Belgrade and Novi Sad: morphological and phenological characteristics of inflorescences, flowers, and flowering in the context of ecosystem services. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 341-346.<br>28. Petrov, Dj., Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Đorđević, S., Ocokoljić, M. (2025): Secondary flowering and fruiting of Laburnum anagyroides Medik. and their importance in urban landscape design. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 335-340.<br>29. Galečić, N., Petrov, Dj., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., Ocokoljić, M. (2025): The influence of light and air temperature on the visual perception of Photinia × fraseri 'Red Robin' in the parterre composition of Savski square in Belgrade. International Scientific and Professional Conference Politehnika 2025, Conference proceedings, ISBN-978-86-7498-146-7, COBISS.SR-ID 180602633, Belgrade 28.11.2025. pp. 329-334.<br>30. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Đorđević, S., Kolarov, R., Čukanović, J. (2025): A study on the flowering characteristics of Chaenomeles × superba 'Pink Lady'. XVI International Scientific Agriculture Symposium "AGROSYM 2025", Book of proceedings, ISBN 978-99976-070-5-8 COBISS.RS-ID 14353894, Jahorina 2-5.10.2025. pp. 609-614.<br>31. Kolarov, R., Petrov, Dj., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): THE INFLUENCE OF THE URBAN HEAT ISLAND ON Abelia × grandiflora (ROVELLI EX ANDRÉ) REHDER TAXA, DOI: 10.5937/EcoTER26085K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 85-92, https://scindeks- |

| | | | |
|---|---|---|---|
| | | | clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf<br>32. Kolarov, R., Petrov, Dj., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): Pyracantha angustifolia (Franch.) C.K.SCHNEID. A NEW EXOTIC SPECIES IN THE DENDROFLORA OF BELGRADE, DOI: 10.5937/EcoTER26093K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 93-99, https://scindeks-clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf<br>33. Kolarov, R., Ljubojević, M., Čukanović, J., Petrov, Đ., Galečić, N., Skočajić, D., Ocokoljić, M. (2025): Impact of Harvest Season and Solvent Selection on Bioactive Compound Profiles and Antioxidant Capacity of Prunus spinosa Fruits. Book of Abstract. The 2nd International Electronic Conference on Horticulturae, Online, (27-29.05.2025.) pp. 41-42) https://sciforum.net/paper/view/23001<br>34. Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D. Lj., Čukanović, J., Kolarov, R., Đorđević, S. (2025): Potential of the climbing rose 'Casino' in urban environments: Towards to climate change. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 173<br>35. Ocokoljić, M., Petrov, Đ., Galečić, N., Skočajić, D.M., Čukanović, J., Vujičić, D., Simović, I. (2025): Indigofera heterantha Wall. ex Brandis – a new exotic species in Serbia. Book of Abstract. 15th Symposium on the Flora of Southeastern Serbia and Neighboring Regions, Niš, (23-25.5.2025.) ISSN 978-86-6275-176-8 pp. 176<br>36. Jelena Čukanović, Mirjana Ljubojević, Sara Đorđević, Radenka Kolarov, Magdalena Pušić Devai, Djurdja Petrov, Mirjana Ocokoljić. Variability of morphological characteristics of Rosa rugosa Thunb. populations under different light conditions in urban environment. 15th CASEE Conference "Green transitions in agriculture, forestry, veterinary medicine and food systems under a changing climate", University of Novi Sad, Faculty of Agriculture, Serbia. 25th–27th June 2025.<br>37. Petrov, D.L.; Galečić, N.; Skočajić, D.L.; Čukanović, J.; Kolarov, R.; Đorđević, S.; Ocokoljić, M. Assessment of the impact of air temperature variations on the duration and abundance of flowering of Abelia × grandiflora 'Little Richard' in the context of urban planning and design, in Proceedings of the 1st International Online Conference on Urban Sciences, 20–22 May 2026, MDPI: Basel, Switzerland. https://sciforum.net/paper/view/30986<br>38. Marić, L.; Sentić, I.; Pavlović, L.; Đorđević, S.; Petrov, D.; Ocokoljić, M.; Čukanović, J. Urban microclimatic influence on flowering phenology and floral traits of Chaenomeles x superba 'Pink |

| | | | |
|---|---|---|---|
| | | | Lady', in Proceedings of the 1st International Online Conference on Urban Sciences, 20–22 May 2026, MDPI: Basel, Switzerland. https://sciforum.net/paper/view/30974<br>39. Kolarov, R., Petrov, Dj., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Ocokoljić, M. (2026): CHALLENGES, LIMITATIONS AND KNOWLEDGE GAPS CONCERNING ALLOCHTHONOUS TREES IN URBAN ENVIRONMENTS: WINGED ELM, DOI: 10.5937/EcoTER26083K, Proceedings, 32nd International conference Ecological truth & environmental research - EcoTER 26 ISBN: 978-86-6305-171-3, DOI zbornika: 10.5937//EcoTER26, Univerzitet u Beogradu, Tehnički fakultet u Boru, Sokobanja, 24.06.2026.-.26.06.2026. p 83-84 https://scindeks-clanci.ceon.rs/data/pdf/proc-0083/Zbornik_EcoTER%202026.pdf<br>40. Đurđević, K., Golubović Ćurguz, V., Skočajić, D., Petrov, Dj., Ocokoljić, M. (2025): ANALIZA PARAZITSKE I SAPROFITSKE MIKOFLORE NA DRVEĆU U PARKU GAVRILA PRINCIPA U BEOGRADU (ANALYSIS OF PARASITIC AND SAPROPHYTIC MYCOFLORA ON TREES IN GAVRILA PRINCIP PARK IN BELGRADE). 4. KONFERENCIJA SA MEĐUNARODNIM UČEŠĆEM "NAPREDNE TEHNOLOGIJE U OBRAZOVANJU I PRIVREDI". VISOKA TEHNIČKA ŠKOLA STRUKOVNIH STUDIJA U NOVOM SADU U saradnji sa Akademijom mašinskih nauka Srbije, Društvom za tehničku dijagnostiku Srbije, Adam institutom iz Smedereva i Edukativnim centrom iz Novog Sada; Vrnjačka Banja, Hotel „Kralj", 22. septembar 2025. – 23. septembar 2025./THE HIGHER EDUCATION TECHNICAL SCHOOL OF PROFESSIONAL STUDIES IN NOVI SAD in collaboration with the Academy of Mechanical Sciences of Serbia, Society for Technical Diagnostics of Serbia, Adam Institute from Smederevo and Educational center from Novi Sad. THE 4th CONFERENCE WITH INTERNATIONAL PARTICIPATION "ADVANCED TECHNOLOGIES IN EDUCATION AND INDUSTRY" Vrnjačka Banja, Hotel „Kralj", on 22. September 2025 – 23. September 2025. BOOK OF PROCEEDINGS ISBN-978-86-6211-152-4, p 520-524.<br>41. Đurđević, K., Golubović Ćurguz, V., Skočajić, D., Petrov, Dj., Ocokoljić, M. (2025): SASTAV I RAZNOVRSNOST DENDROFLORE U URBANOJ ZELENOJ INFRASTRUKTURI BEOGRADA (DENDROFLORA COMPOSITION AND DIVERSITY IN THE URBAN GREEN INFRASTRUCTURE OF BELGRADE). 4. KONFERENCIJA SA MEĐUNARODNIM UČEŠĆEM "NAPREDNE TEHNOLOGIJE U OBRAZOVANJU I PRIVREDI". VISOKA TEHNIČKA ŠKOLA STRUKOVNIH STUDIJA U NOVOM SADU U saradnji sa Akademijom mašinskih nauka Srbije, Društvom za tehničku dijagnostiku Srbije, Adam institutom iz Smedereva i Edukativnim centrom iz Novog Sada; Vrnjačka Banja, Hotel „Kralj", 22. |

| | | | |
|---|---|---|---|
| | | | septembar 2025. – 23. septembar 2025./THE HIGHER EDUCATION TECHNICAL SCHOOL OF PROFESSIONAL STUDIES IN NOVI SAD in collaboration with the Academy of Mechanical Sciences of Serbia, Society for Technical Diagnostics of Serbia, Adam Institute from Smederevo and Educational center from Novi Sad. THE 4th CONFERENCE WITH INTERNATIONAL PARTICIPATION "ADVANCED TECHNOLOGIES IN EDUCATION AND INDUSTRY" Vrnjačka Banja, Hotel „Kralj“, on 22. September 2025 – 23. September 2025. ZBORNIK RADOVA/BOOK OF PROCEEDINGS ISBN-978-86-6211-152-4, p 525-529.<br>42. Petrov, Dj., Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D., Vujičić, D., Ocokoljić, M (2024): The impact of climate change on fruiting and functionality of blackthorn in green infrastructure [Uticaj klimatskih promena na plodonošenje i funkcionalnost trnjine u zelenoj infrastrukturi]. 17th Serbian Congress of Fruit & Grapevine Growers, 16-18 October 2024, Vršac, University in Belgrade – Faculty of Agriculture, ISBN 978-86-7834-443-5, pp.120-121.<br>43. Petrov, Dj., Čukanović, J., Kolarov, R., Galečić, N., Skočajić, D., Vujičić, D., Ocokoljić, M (2024): Multiple phenological responses of Chaenomeles japonica (Trhunb.) Lindl. ex Spach to climate change in an urban environment [Višestruki fenološki odgovori Chaenomeles japonica (Trhunb.) Lindl. ex Spach na klimatske promene u urbanoj sredini]. 17th Serbian Congress of Fruit & Grapevine Growers, 16-18 October 2024, Vršac, University in Belgrade – Faculty of Agriculture, ISBN 978-86-7834-443-5, pp.122-123. |
| 17 | Књига из релевантне области, одобрен уџбеник за ужу област за коју се бира, поглавље у одобреном уџбенику за ужу област за коју се бира или превод иностраног уџбеника одобреног за ужу област за коју се бира, објављени у периоду од избора у наставничко звање | 2 | Оцокољић, М. и **Петров, Ђ**. (2022): Декоративна дендрологија. Универзитет у Београду - Шумарски факултет. ISBN 978-86-7299-339-4.<br>Оцокољић, М. и **Петров, Ђ.** (2026): Орнаментални таксони дрвенастих биљака. Универзитет у Београду - Шумарски факултет. Београд. ISBN 978-86-7299-401-8 |
| 18 | Број радова као услов за менторство у вођењу докт. дисерт. – (стандард 9 Правилника о стандардима...) | 20 радова на СЦИ листи у претходних 10 година (2017-2026.) | 1. Ocokoljić, M, Petrov, Dj, Galečić, N, Skočajić, D, Košanin, O, Simović, I. (2023): Phenological Flowering Patterns of Woody Plants in the Function of Landscape Design: Case Study Belgrade. Land 12 (3): 706. https://doi.org/10.3390/land12030706<br>2. Čukanović, J., Ljubojević, M., Djordjević, S., Narandžić, T., Petrov, Dj, Ocokoljić, M. (2024): The Impact of Climate Variability on the Blooming of Fraxinus ornus 'Globosa' as a Component of Novi Sad's (Serbia) Green Infrastructure. Sustainability, 16(19):8404. https://doi.org/10.3390/su16198404<br>3. Čukanović, J., Đorđević, S., Petrov, D., Ocokoljić, M., Kolarov, R., Čurčić, M., & Ljubojević, M. (2025). The Sustainability of Rosa rugosa Thunb. Under Climate Change Conditions: A Study of Morphological |

Variability in Urban Areas. Horticulturae, 11(6), 684. https://doi.org/10.3390/horticulturae11060684

4. Ljubojević, M., Čukanović, J., Đorđević, S., Petrov, D., Galečić, N., Skočajić, D., & Ocokoljić, M. (2025). Characterizing the Flowering Phenology of Rosa rugosa Thunb. as an Ecosystem Service in the Context of Climate Change in Kupinovo (Vojvodina), Serbia. Plants, 14(12), 1875. https://doi.org/10.3390/plants14121875
5. Galečić, N., Petrov, Dj., Skočajić, D., Čukanović, J., Kolarov, R., Đorđević, S., Ocokoljić, M. (2026): Diversity, Growth Parameters, and Ecosystem Services of Urban Trees Under Climate-Change Conditions: A Case Study of Topčider Park. Forests 2026, 17(1), 114; https://doi.org/10.3390/f17010114
6. Skočajić, D., Petrov, D., Galečić, N., Čukanović, J., Kolarov, R., Đorđević, S., & Ocokoljić, M. (2026). Adaptability and Resilience of Chaenomeles japonica (Thunb.) Lindl. ex Spach (Rosaceae) in Urban Landscape Design. Horticulturae, 12(3), 396. https://doi.org/10.3390/horticulturae12030396
7. Petrov, D., Vujičić, D., Galečić, N., Skočajić, D., Čukanović, J., Kolarov, R., & Ocokoljić, M. (2026). Comparative Study of Thermal Accumulation and Adaptive Responses of Forsythia × intermedia Zabel and Kerria japonica (L.) DC. 'Pleniflora' Under Conditions of Climatic Fluctuations. Plants, 15(17), 2682. https://doi.org/10.3390/plants15172682
8. Petrov, D., Ocokoljić, M., Galečić, N., Skočajić, D., Simović, I. (2024): Adaptability of Prunus cerasifera Ehrh. to Climate Changes in Multifunctional Landscape. Atmosphere 15, 335. https://doi.org/10.3390/atmos15030335
9. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., & Petrov, D. (2025). Flowering Patterns of Cornus mas L. in the Landscape Phenology of Roadside Green Infrastructure Under Climate Change Conditions in Serbia. Sustainability, 17(12), 5334. https://doi.org/10.3390/su17125334
10. Đorđević, S., Tóth, A., Kuczman, G., Čukanović, J., Ljubojević, M., Ocokoljić, M., Petrov, D., & Orlović, S. (2025). Biodiversity, Heritage and Ecosystem Service Potential of Woody Taxa in Scattered Built Environments of Traditional Agricultural Landscapes. Sustainability, 17(21), 9865. https://doi.org/10.3390/su17219865
11. Ocokoljić, M., Petrov, Dj, Galečić, N., Skočajić, D., Čukanović, J., Vujičić, D., Simović, I. (2026). The impact of air temperature on the sustainability of

Trachelospermum jasminoides (Lindl.) Lem. under conditions of a temperate continental climate. Pak. J. Bot., 58(7): DOI: http://dx.doi.org/10.30848/PJB2026-7(6)
12. Ocokoljić, M., Petrov, Dj., Galečić, N. (2022): Medial−vegetative proliferation of European larch Larix decidua Mill. cones. Sylwan 166 (9): 603−610, DOI: https://doi.org/10.26202/sylwan.2022069, Journal homepage: https://sylwan−journal.pl, Available online: 25 January 2023, ISSN: 0039-7660, Poland.
13. Petrov, Dj.,Ocokoljić, M. (2023): Picea abies (L.) H. Karst. leaf temperature as an indicator of species resilience: a case study of the Čemernik mountains in Southeast Europe. Applied Ecology and Environmental Research 21(3):2031-2054. http://www.aloki.hu, ISSN 1589 1623 (Print), ISSN1785 0037 (Online) DOI: http://dx.doi.org/10.15666/aeer/2103_20312054, © 2023, ALÖKI Kft., Budapest, Hungary
14. Ocokoljić, M., Petrov, Dj., Galečić, N., Skočajić, D., Šišaković, N., Simović, I. (2024): The study of Jasminum nudiflorum Lindl. in urban green infrastructure in conditions of climate change in Belgrade, Serbia. Applied ecology and environmental research, 22(5):4779-4805. https://aloki.hu/pdf/2205_47794805.pdf
15. Ocokoljić, M., Petrov, Dj., Košanin, O., Galečić, N., Skočajić, D., Vujičić, D., Simović, I. (2024): Phenological patterns of Fraxinus ornus L. flowering in the context of ecosystem services preservation in urban forests: a case study of Košutnjak, Belgrade, Serbia. Sylwan 168 (11): 801-821, DOI: https://doi.org/10.26202/sylwan.2024047
16. Petrov, Dj., Ocokoljić, M., Galečić, N., Skočajić, D., Vujičić, D., Čukanović, J., Simović, I. (2025): Variability in needle transverse anatomy of Picea abies (l.) H. Karst.: a case study from Čemernik mountain, Serbia. Applied Ecology and Environmental Research 23(2): 3785-3804. http://dx.doi.org/10.15666/aeer/2302_37853804
17. Ocokoljić, M., Čukanović, J., Petrov, Dj., Kolarov, R., Đorđević, S., Skočajić, D.M., Galečić, N., Skočajić, D.Lj. (2025): Mahonia aquifolium (Pursh) Nutt.: varieties globosa and tears in the urban dendroflora under climate changes. Applied Ecology And Environmental Research 23(4):8251-8273. http://dx.doi.org/10.15666/aeer/2304_82518273
18. Ocokoljić, M., Galečić, N., Skočajić, D., Čukanović, J., Đorđević, S., Kolarov, R., Petrov, Dj. 2025. The influence of air temperature and precipitation on the flowering and sustainability of Acer pseudoplatanus L. in the Zvezdara Urban Forest (Belgrade, Serbia). Sylwan 169 (9):

| | | | |
|---|---|---|---|
| | | | 669–687, September 2025.<br>19. Ruml, M, Gregorić, E, Vujadinović, M, Radovanović, S, Matović, G, Vuković, A, Počuča, V, Stojičić, Dj. (2017): Observed changes of temperature extremes in Serbia over the period 1961–2010, Atmospheric Research 183: p. 26–41, ISSN: 0169-8095 http://dx.doi.org/10.1016/j.atmosres.2016.08.013, Elsevier<br>20. Stojanović, N, Veselinović, M, Petrov, Đ, Petrović, J, Tešić, T, Lisica, A. (2019): The Impact Of Plant Cover And Dendrological Structure Of Roadside Green Spaces On Microclimate In The Urban Environment, Fresenius Environmental Bulletin, Volume 28, No 10/2019, p. 7609-7620, ISSN: 1018-4619 |

**ИЗБОРНИ УСЛОВИ:**

| *(изабрати 2 од 3 услова)* | *Заокружити ближе одреднице (најмање по једна из 2 изабрана услова)* |
|---|---|
| 1. Стручно-професионални допринос | 1. Председник или члан уређивачког одбора научног часописа или зборника радова у земљи или иностранству.<br>2. Председник или члан организационог одбора или учесник на стручним или научним скуповима националног или међународног нивоа.<br>3. Председник или члан у комисијама за израду завршних радова на академским специјалистичким, мастер и докторским студијама.<br>4. Аутор или коаутор елабората или студија.<br>5. Руководилац или сарадник у реализацији пројеката.<br>6. Иноватор, аутор или коаутор прихваћеног патента, техничког унапређења, експертиза, рецензија радова или пројеката.<br>7. Поседовање лиценце. |
| 2. Допринос академској и широј заједници | 1. Председник или члан органа управљања, стручног органа, помоћних стручних органа или комисија на факултету или универзитету у земљи или иностранству.<br>2. Члан стручног, законодавног или другог органа и комисија у широј друштвеној заједници.<br>3. Руковођење активностима од значаја за развој и углед факултета, односно Универзитета.<br>4. Руковођење или учешће у ваннаставним активностима студената.<br>5. Учешће у наставним активностима који не носе ЕСПБ бодове (перманентно образовање, курсеви у организацији професионалних удружења и институција или сл.).<br>6. Домаће или међународне награде и признања у развоју образовања или науке. |
| 3. Сарадња са другим високошколским, научноистраживачким установама, односно установама културе или уметности у земљи и иностранству | 1. Учешће у реализацији пројеката, студија или других научних остварења са другим високошколским или научноистраживачким установама у земљи или иностранству.<br>2. Радно ангажовање у настави или комисијама на другим високошколским или научноистраживачким установама у земљи или иностранству,<br>3. Руковођење или чланство у органима или професионалнм удружењима или организацијама националног или међународног нивоа.<br>4. Учешће у програмима размене наставника и студената.<br>5. Учешће у изради и спровођењу заједничких студијских програма.<br>6. Гостовања и предавања по позиву на универзитетима у земљи или иностранству. |

Кандидаткиња др Ђурђа Петров испуњава четири одреднице из изборног услова који се односи на стручно-професионални допринос. Учествовала је у већем броју комисија за оцену и одбрану мастер радова реализованих у оквиру мастер академских студија Пејзажна архитектура на Универзитету у Београду – Шумарском факултету (четрнаест чланстава у комисијама), као и дипломских радова (петнаест чланстава у комисијама). Такође је учествовала у четири пројекта науке Министарства просвете, науке и технолошког развоја. Када су у питању иновације, била је део пројектног тима у оквиру Изазова за иновативна решења пројекта „Локални развој отпоран на климатске промене" бр: DVEAPB37 „Зелени зидови у функцији смањења GHG" за период 2017-2021. које је финансирало Министарство заштите животне средине, у сарадњи са развојним програмом Уједињених Нација. Учествовала је у Пројекту реконструкције и ревитализације Арборетума Шумарског факултета у два пројекта 2022. и 2025. године. Као члан коауторског тима 2025. године учествовала је у изради Стратегије зелене инфраструктуре града Београда израђене на предлог Секретаријата за заштиту животне средине. Поседује две лиценце: Одговорног пројектанта (373) и Одговорног извођача радова (474).

Кандидаткиња др Ђурђа Петров испуњава три одреднице из изборног услова који се односи на допринос академској и широј заједници. Била је члан више организационих тела и комисија формираних на Универзитету у Београду – Шумарском факултету: заменик шефа Катедре за пејзажни инжењеринг, руководилац основних академских студија Одсека ПАиХ, секретар Одсека за пејзажну архитектуру и хортикултуру, члан Комисије за родну равноправност, члан Комисије за обезбеђење и унапређење квалитета Факултета, члан Комисије за рангирање кандидата за упис студената на мастер академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за рангирање кандидата - Централна комисија за упис студената на основне академске студије на Одсеку за пејзажну архитектуру и хортикултуру, члан Комисије за евалуацију педагошког рада наставника и сарадника, члан Наставно-научног већа Факултета, представник Одсека - координатор за уређење Арборетума. Кандидаткиња је као докторанд у јулу 2013. године учествовала у наставним активностима која се тичу перманентног образовања у оквиру CEEPUS летње школе: Designed landscape – Protection – Planning – Development, у Чешкој на Мендел Универзитету у Брну. Др Ђурђа Петров поседује признања и награде. У Шпанији је 2011. и 2012. године на II и III Међународном фестивалу вртова у Аљарису, са колегама освојила награде за пројекте „Dodola garden" и „Garden at the Edge of the World." На изложбама у Галерији науке и технике САНУ у Београду имала је изложена два рада, који су такође објављени у каталогу Салона пејзажне архитектуре: Стојичић, Ђ, Чавловић, Д, Милошевић, Б. (2011): „ Dodola Garden" Fashion in the Garden, IV Салон пејзажне архитектуре, Каталог COBISS.SR-ID 198692108, Удружење пејзажних архитеката Србије и Стојичић, Ђ. & Станојевић, М. (2013): „Garden at the Edge of the World", V Салон пејзажне архитектуре, Каталог COBISS.SR-ID 198692108, Удружење пејзажних архитеката Србије. Такође је била добитник Плакете VI Салона пејзажне архитектуре за рад: Dodola Garden, Fashion in the Garden, 2011, Београд. Коауторски тим, са којим је учествовала, добитник је Велике награде (Grand Prix) XI Међународног Салона пејзажне архитектуре за документ јавне политике Стратегија зелене инфраструктуре града Београда, публикован у Катлогу XI Међународног салона пејзажне архитектуре: Шта би било да нас нема (Српска академија наука и уметности, Галерија науке и технике) ISBN: 978-86-6184-080-7. Такође је коауторски тим са којим је заједно учествовала, добитник Прве награде на XXXIV Међународном Салону урбанизма за документ јавне политике Стратегија зелене инфраструктуре града Београда (категорија: истраживања и студије из области заштите природе, заштите предела, заштите животне средине и пејзажне архитектуре) на 34. Међународни салон урбанизма, публикован у Каталогу 34. међународног Салона урбанизма, Зрењанин, 7-11. новембар 2025. / 34rd International Urban Planners' Exhibition, Zrenjanin, 7-11 November.

Кандидаткиња др Ђурђа Петров испуњава три одреднице из изборног услова који се односи на сарадњу са другим високошколским, научноистраживачким установама, односно установама културе или уметности у земљи и иностранству. Године 2015. на Америчком универзитету у Бејруту у Либану на Одсеку за пејзажни дизајн и менаџмент екосистема, учествовала је у радионици „e-scape Transitional settlement", чија је тематика била решавање уређења, организације и дизајна простора избегличких кампова. Др Ђурђа Петров је члан четири професионална удружења: члан је Удружења пејзажних архитеката Србије, Удружење за пејзажну хортикултуру Србије (УПХС), Европског савета за арборикултуру (EAC – European Arboricultural Council) и Инжењерске коморе Србије (ИКС).

## III - ЗАКЉУЧНО МИШЉЕЊЕ И ПРЕДЛОГ КОМИСИЈЕ

На основу обавезујућих норматива који се односе на избор наставника у звању редовног професора као и изложених аргумената и чињеница о др Ђурђи Петров, Комисија констатује да кандидаткиња поседује богато и дугогодишње педагошко искуство у области образовања студената у оквирима студијског програма Пејзажна архитектура, као и да је остварила значајне научноистраживачке резултате у ужој научној области Пејзажна архитектура и хортикултура, те предлаже Изборном већу Универзитета у Београду – Шумарског факултета, да др Ђурђу Петров изабере у звање наставника – редовни професор за ужу научну област Пејзажна архитектура и хортикултура на Универзитету у Београду – Шумарском факултету.

Место и датум: Београд, 19.10.2026. године

ПОТПИСИ
ЧЛАНОВА КОМИСИЈЕ

Др Мирјана Оцокољић, редовни професор
Универзитет у Београду - Шумарски факултет

Др Ненад Ставретовић, редовни професор
Универзитет у Београду - Шумарски факултет

Др Јелена Чукановић, редовни професор
Универзитет у Новом Саду Пољопривредни факултет