



Emys-R

ERASMUS Project "ROAD TO GREEN FUTURE "

No: 2022-1-LV01-KA210-SCH-000082391

"SUSTAINABILITY APPROACH TO COMBAT CLIMATE CHANGE"



Latgales Zoo activities in Emys-R Project: adoption of good practice examples of Latgales Zoo educators, new learning and teaching methods

2024.05.08



5/8/2024





EMYS-R: Latgales Zoo role



Dzīvnieku aizsardzības likums

18) **zooloģiskais dārzs** – pastāvīga vieta, kur savvaļas sugu dzīvnieki tiek turēti izstādīšanai publiskas apskatei septiņas vai vairāk dienas gadā, **sugu saglabāšanas, pavairošanas, reintrodukcijas, pētniecības un sabiedrības izglītošanas nolūkā.**

Ministru kabineta noteikumi Nr.1033
Pieņemti 2010.gada 9.novembrī (prot. Nr.59 10.§)
Prasības savvaļas sugu dzīvnieku turēšanai zooloģiskajā dārzā un prasības zooloģiskā dārza izveidošanai un reģistrācijai



Zinātne

4.3.1. **nodrošināt dzīvnieku sugām un informācijas apmaiņu attiecībā uz sugu saglabāšanu, pavairošanu, populāciju atjaunošanu vai sugu reintrodukciju;**

Dabas aizsardzība

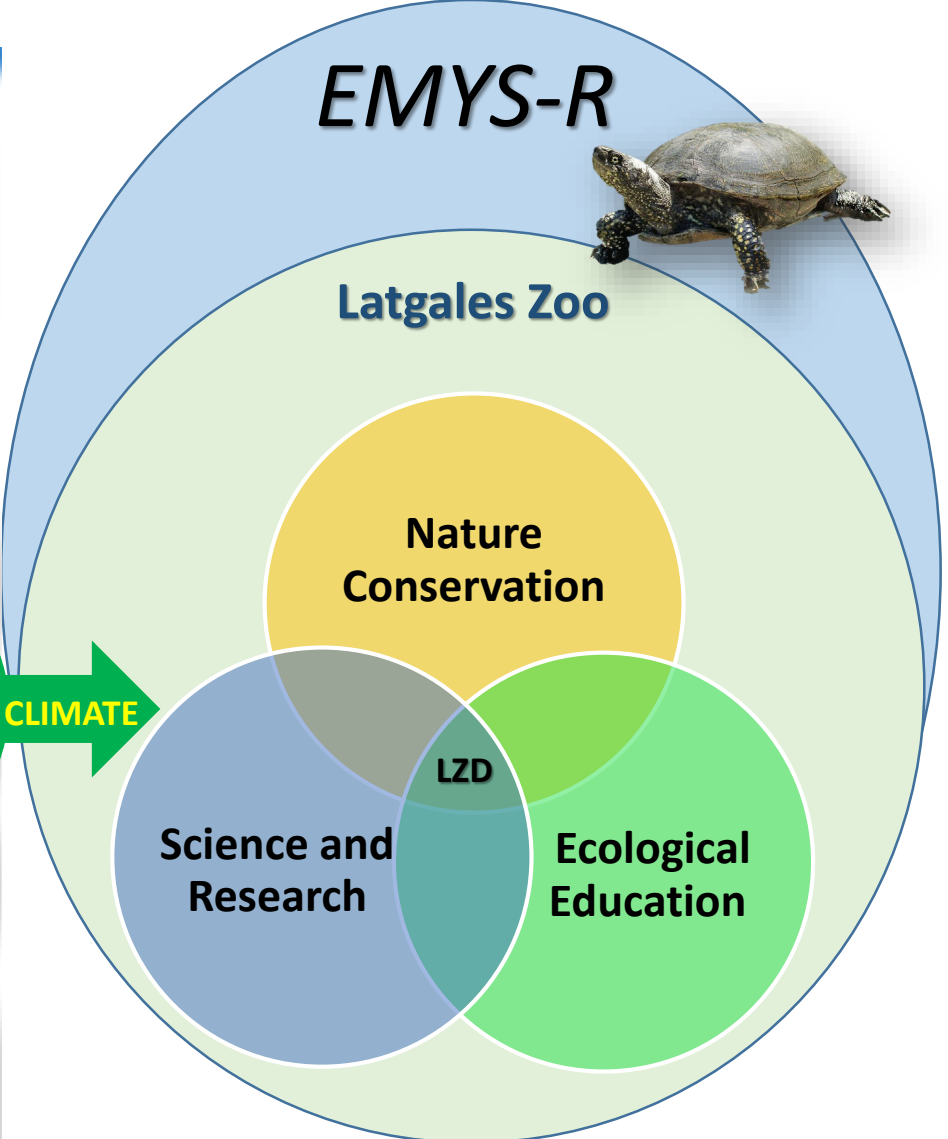
4.3.3. **piedalīšanās savvaļas dzīvnieku (paši apdraudēti dzīvnieku sugu) saglabāšanas un reintrodukcijas programmās un vairošanā nebrīvē;**

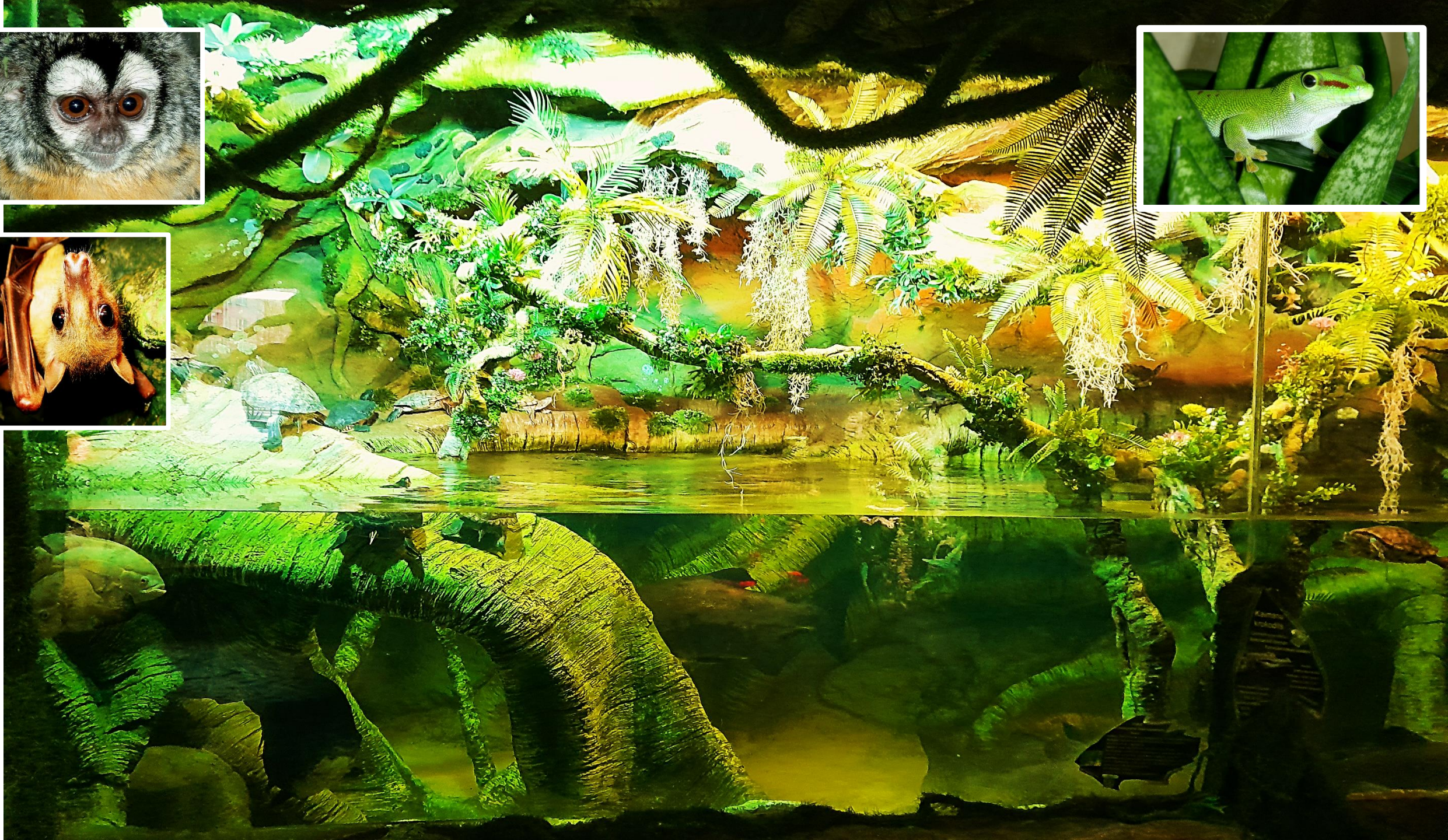
Ekoloģiskā audzināšana

4.3.4. **nodrošināt pasākumus, kas veicina sabiedrības vides izglītību un ekoloģiskās apziņas veidošanu, kā arī nodrošināt informāciju par savvaļas dzīvnieku sugām un to dabisko dzīvojamību;**

Latgales zoodārza nolikums

II. Iestādes darbības mērķis funkcijas, uzdevumi un tiesības
7. Iestādes darbības mērķis ir **sabiedrības izglītošana vides un ekoloģiskās kultūras jomā, faunas sugu eksponēšana, zookultūra, izpēte un dabas aizsardzība.**







LATGALES ZOO





LATGALES ZOO AND WETLAND BIODIVERSITY PARK



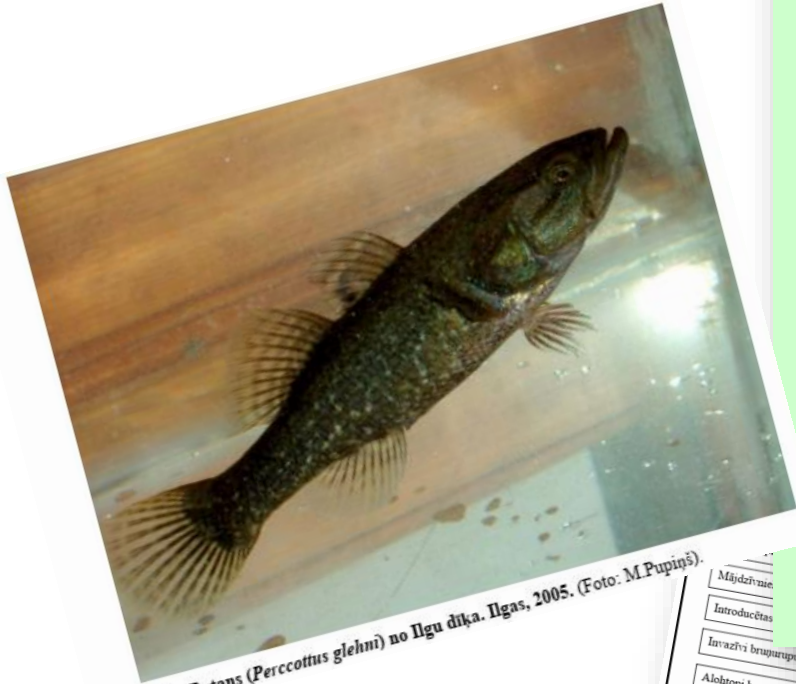


LATGALES ZOO AND WETLAND BIODIVERSITY PARK IN DAUGAVPILS:

- new citizen science and ecological education complex
- attractive zooculture animals in artificial jungle
- wild animals in natural historical Wetland park
- mobile application Wetland Ranger with Artificial Intellect, geolocation and Citizen Science (October 2024)



Eo and Invasive species



25.attēls. Rotans (*Perccottus glehni*) no Ilgu diķa. Ilgas, 2005. (Foto: M.Pupiņš).



MATERIĀLS TAPIS AR LATVIJAS VIDES AIZSARDZĪBAS FONDA FINANŠĻU ATBALSTU

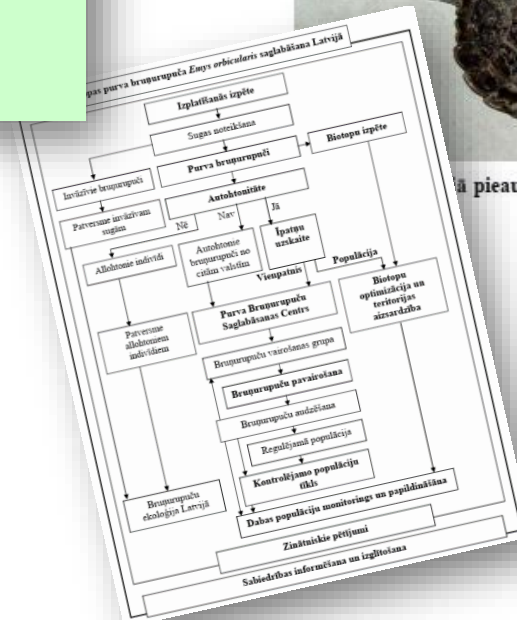
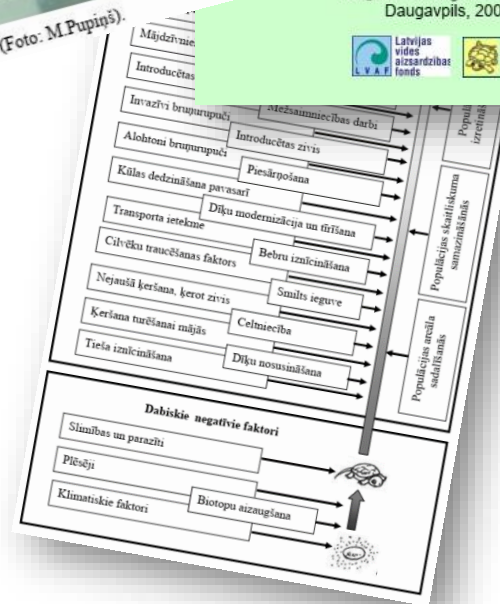
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Eiropas purva bruņurupuča *Emys orbicularis* (Linnaeus, 1758) sugas aizsardzības plāns Latvijā

Mihails Pupiņš, Aija Pupiņa
Latgales Ekoloģiskā Biedrība
Daugavpils, 2007



pieaugušie sarkanausu bruņurupuča īpatņi. Nītaure, 2006.





Scientific cooperation

Cooperation and co-authoring with scientists from Universities from **62 Eiropas, Amerikas, Āfrikas, Āzijas countries**: Afghanistan, Albania, Armenia, Bangladesh, Belgium, Bhutan, Bosnia & Herzegovina, Bulgaria, Cambodia, China, Croatia, Czech Republic, Denmark, Estonia, Ethiopia, France, Finland, Germany, Georgia, Greece, Hungary, Iceland, India, Indonesia, Iran, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Kuwait, Lao, Latvia, Lithuania, Malaysia, Maldives, Mexico, Mongolia, Montenegro, Nepal, North Makedonia, Norway, Philippines, **Poland**, Portugal, Romania, Serbia, Slovenia, Slovakia, Somaliland, South Korea, Spain, Sri Lanka, Tajikistan, Thailand, **Turkey**, Turkmenistan, Ukraine, United Kingdom, United States of America, Uzbekistan, Vietnam.



To the EMYS-R: Eo Projects in Latvia 1984–2022

1.Eo

Full title of the project: RESEARCH AND CONSERVATION OF *EMYS ORBICULARIS* IN LATVIA

Acronym: “Emys-Latvia”

Registration number: none

Status of the project: private background project

Territory of the project: the whole territory of Latvia, the project is being realized more actively in the south-eastern part of Latvia (all Latgale, old Selia, Daugavpils and Daugavpils novads, border zone with Belarus and Lithuania), where the authors and executives of the project live.

Project duration: 1984 – present – future

Source for funding: conservationists’ private funds

Project activities and main results: The main task of the background project Emys-Latvia is permanent implementation of small activities necessary for study and conservation of *Emys orbicularis* in Latvia that are not financially supported at the moment by other projects, as well as ensuring succession of such projects. Therefore, this private project includes basic activities on study and conservation of *Emys orbicularis* in Latvia that are not carried out by other projects at the moment, but that could not be interrupted between the projects and in years decades: 1)



Fig. 1. 1962 *Emys orbicularis* female, found in 1961 in Daugavpils (Photo: 1970)



Fig. 2. 1982 *Emys orbicularis* female, found in 1974 in Daugavpils. Being the 20 years in a zoo (Photo: 2007)

To the EMYS-R: Eo Projects in Latvia 1984–2022

1.Eo

2.Eo



Full title of the project: RESEARCH AND CONSERVATION OF *EMYS ORBICULARIS* IN LATVIA

Acronym: "Emys-Latvia"

Registration number: none

Status of the project: private background project

Territory of the project: the whole territory of Latvia, the project is being realized more actively in the south-eastern part of Latvia (all Latgale, old Selia, Daugavpils and Daugavpils novads, border zone with Belarus and Lithuania), where the authors and executives of the project live.

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Fig. 1. 1984. *Emys orbicularis* Gmel., found in 1984 in Daugavpils (Photo: 1998)



Fig. 2. 1987. *Emys orbicularis* Gmel., found in 1987 in Daugavpils. Being the 38 years in a pond (Photo: 2007)

Full title of the project: RESEARCH OF POND TURTLE (*EMYS ORBICULARIS* L.) ECOLOGY IN LATVIA [Latvijas purva bruņurupuča (*Emys orbicularis* L.) ekoloģijas izpēte]

Registration number: 1-08/470/2000

Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2001

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: In the course of the project the following actions took place: 1) establishing of basins for keeping of breeding group of *Emys orbicularis*, 2) field researches in the places of findings of *Emys orbicularis* in Latvia.

Consequently, it resulted in the following: 1) 23 biotopes of the places of findings in Latvia were described; 2) internal and external basins for breeding group were created; 3) some important peculiarities of ecology and needs of *Emys orbicularis* under their keeping in regulated conditions indoor and in natural climatic conditions of Latvia were studied (Pupinsh & Pupina 2005).



To the EMYS-R: Eo Projects in Latvia 1984–2022

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Fig. 1. *Emys orbicularis* Gaude, found in 1914 in Daugavpils (Photo: 1938)



Fig. 2. *Emys orbicularis* Gaude, found in 1914 in Daugavpils. Being the 78 years in a pond (Photo: 2017)



Full title of the project: RESEARCH OF POND TURTLE (*EMYS ORBICULARIS* L.) ECOLOGY IN LATVIA [Latvijas purva bruņurupuča (*Emys orbicularis* L.) ekoloģijas izpēte]

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Territory of the project: whole territory of Latvia

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2.Eo



Full title of the project/its part: DEVELOPMENT OF BROCHURE “LOOKING FOR POND TURTLE IN LATVIA” [Meklējam purva bruņurupci Latvijā]

Registration number: KK-12.2-5.3/25

Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2005

Source for funding: Latvian Environmental Protection Fund Administration

Conservation project responsible: Riga National Zoo

In the result of the project: 1) some new communications about findings of *Emys orbicularis* in Latvia were received from the target groups of residents; 2) the level of awareness of population of Latvia, especially target groups, about *Emys orbicularis* and about actions that one should take encountering it in nature was increased; 3) in general, attitude of residents towards *Emys orbicularis* became more positive; 4) population was taught how to act in cases of finding of exotic turtles in nature of Latvia. The effect will be resulted in next projects.



3.Eo

To the EMYS-R: Eo Projects in Latvia 1984–2022

1.Eo

Full title of the project: RESEARCH AND CONSERVATION OF *EMYS ORBICULARIS* IN LATVIA



Full title of the project: RESEARCH OF POND TURTLE (*EMYS ORBICULARIS* L.) ECOLOGY IN LATVIA [Latvijas purva bruņurupuča (*Emys orbicularis* L.) ekoloģijas izpēte]

Registration number: 1-08/470/2000
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Territory of the project: whole territory of Latvia
Project duration: 2001
Source for funding: Latvian Environmental Protection Fund Administration

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3.Eo



Full title of the project: RESEARCH AND CONSERVATION OF *EMYS ORBICULARIS*, *BOMBINA BOMBINA*, *DYTISCUS LATISSIMUS* IN LATVIA [Purva bruņurupuču, sarkanvēdera ugunskrupju, plato ūdensvaboļu ekoloģijas pētīšana un aizsardzība Latvijā]

Registration number: 1-08/30/2006
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2006
Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main target activities of the project were field expeditions to the places of findings of *Emys orbicularis*. As a result: 1) communications about findings of *Emys orbicularis* in Latvia were verified (Meeske et al. 2006); 2) some biotopes of *Emys orbicularis* in Latvia were investigated and described; 3) probable threats for *Emys orbicularis* in the investigated biotopes in Latvia were described; 4) technology of zooculture was developed (Pupins 2007b).



4.Eo



Fig. 1. *Emys orbicularis* Gaude, found in 1914 in Daugavpils (Photo: 1930)



Fig. 2. *Emys orbicularis* Gaude, found in 1914 in Daugavpils. Being for 78 years in zooculture (Photo: 1937)

To the EMYS-R: Eo Projects in Latvia 1984–2022

1.Eo

Full title of the project: RESEARCH AND CONSERVATION OF *EMYS ORBICULARIS* IN LATVIA

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Project duration: 1984 – present – future
Source for funding: conservationists' private funds

Project activities and main results: The main task of the background project Emys-Latvia is permanent implementation of small activities necessary for study and conservation of *Emys orbicularis* in Latvia that are not financially supported at the moment by other projects, as well as ensuring succession of such projects. Therefore, this private project includes basic activities on study and conservation of *Emys orbicularis* in Latvia that are not carried out by other projects at the moment, but that could not be interrupted between the projects and in years decades: 1)



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Fig. 2. 1987. *Emys orbicularis* Gaude, found in 1987 in Daugavpils. Being for 38 years in an enclosure (Photo: 1987)



Full title of the project: RESEARCH OF POND TURTLE (*EMYS ORBICULARIS* L.) ECOLOGY IN LATVIA [Latvijas purva bruņurupuča (*Emys orbicularis* L.) ekoloģijas izpēte]

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Territory of the project: whole territory of Latvia
Project duration: 2001
Source for funding: Latvian Environmental Protection Fund Administration

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4.Eo



European Union
European Structural and Investment Funds

Full title of the project: SUPPORT TO REALISATION OF DAUGAVPILS UNIVERSITY DOCTORAL STUDIES [Atbalsts Daugavpils Universitātes doktora studiju īstenošanai]

Registration number: 2004/003/VPD1/ESF/PIAA/04/NP/3.2.3.1./0003/0065
Status of the project: governmental structures of Latvia supported project
Territory of the project: Daugavpils University
Project duration: 2004-2007
Source for funding: European Structural Funds
Project responsible: Daugavpils University



5.Eo

To the EMYS-R: Eo Projects in Latvia 1984–2022

Full title of the project: DEVELOPMENT OF PLAN OF CONSERVATION OF POND TURTLES *EMYS ORBICULARIS* (L.) [Purva bruņurupuču *Emys orbicularis* (L.) Sugas aizsardzības plāna izstrādāšana]

Registration number: 1-08/663/2006

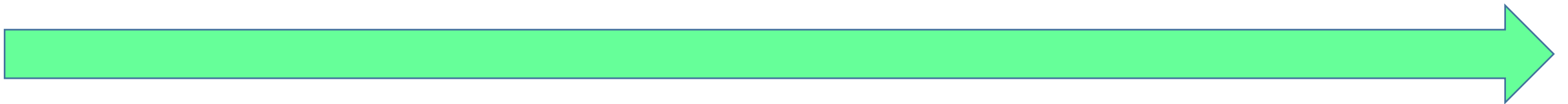
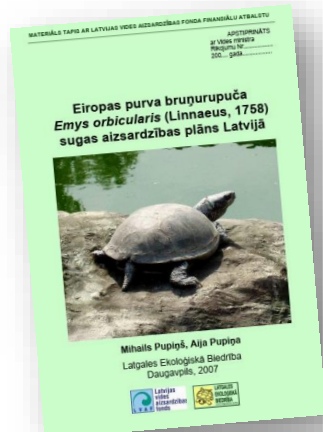
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main activities of the project were the following: 1) analysis and generalization of data about *Emys orbicularis* in Latvia (Pupins & Pupina 2008b); 2) development and discussion of the Plan on *Emys orbicularis* protection in Latvia. As a result of realization of the project: 1) the threats for *Emys orbicularis* in Latvia were analysed and ranged (Meeske & Pupins 2009); 2) concrete measures for conservation of *Emys orbicularis* in Latvia were proposed; 3) the Plan on *Emys orbicularis* protection in Latvia was developed, discussed, and officially accepted by the Ministry of Environment of Latvia and officially published by Nature conservation agency in a free access



To the EMYS-R: Eo Projects in Latvia 1984–2022



6Eo

Full title of the project: DEVELOPMENT OF PLAN OF CONSERVATION OF POND TURTLES *EMYS ORBICULARIS* (L.) [Purva bruņurupuču *Emys orbicularis* (L.) Sugas aizsardzības plāna izstrādāšana]

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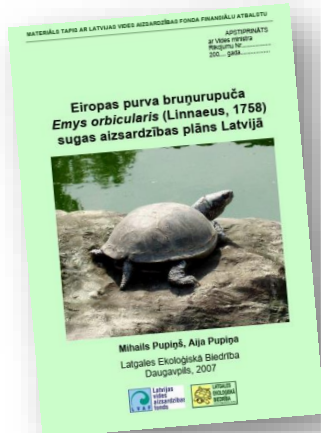
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Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

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7. Eo

Full title of the project: DEVELOPMENT AND PRINTING OF TWO BROCHURES ON FIRE-BELLIED TOADS, POND TURTLES AND ITS CONSERVATION IN LATVIA [Divu brošūru par sarkanvēdera ugunskrupjiem, purva bruņurupučiem un to aizsardzību Latvijā izveidošana un drukāšana]

Registration number: 1-08/185/2007

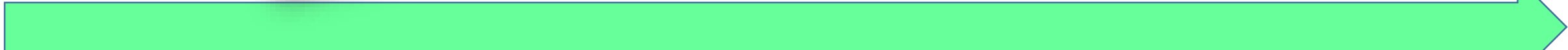
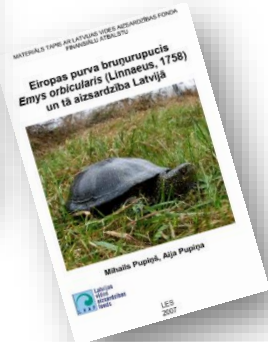
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main activities of the project were the following: 1) adaptation of the Plan on *Emys orbicularis* protection for the population of Latvia; 2) development of simple and intelligible arrangements for population, especially landowners, on conservation of *Emys orbicularis* in Latvia; 3) writing and publishing of a brochure on the issue. As a result of realization of the project: 1) a brochure about condition and the Plan on *Emys orbicularis* protection in Latvia was developed (Pupiniņš & Pupīna 2007a); 2) the brochure was distributed among population of Latvia and libraries, as well as published in free access in the Internet.



To the EMYS-R: Eo Projects in Latvia 1984–2022



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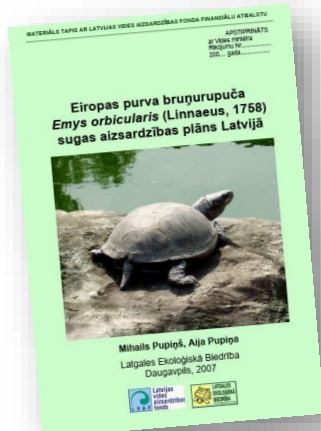
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8.Eo

Interreg Europe



Full title of the project: DEVELOPMENT OF BUSINESS (SMALL TRADING) AS AN ELEMENT OF FORMING OF CITY ENVIRONMENT [Uzņēmējdarbības (mazumtirzniecības) attīstība kā pilsētvidi veidojošs elements]

Registration number: 1-08/663/2006

Status of the project: governmental structures of Latvia and local authorities supported project

Territory of the project: Daugavpils

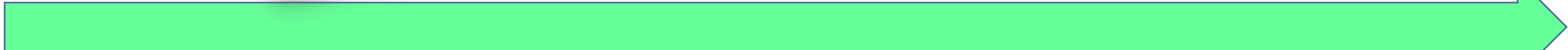
Project duration: 2008

Source for funding: European commission program INTERREG III B, Daugavpils city council

Project responsible: Daugavpils city council

Involved target specialists: Krivina Daina (head of development department of the Daugavpils city); Ivo Folkmanis (sculptor)

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To the EMYS-R: Eo Projects in Latvia 1984–2022



6.Eo

Full title of the project: **DEVELOPMENT OF PLAN OF CONSERVATION OF POND TURTLES *EMYS ORBICULARIS* (L.)** [Purva bruņurupuču *Emys orbicularis* (L.) Sugas aizsardzības plāna izstrādāšana]

Registration number: 1-08/663/2006

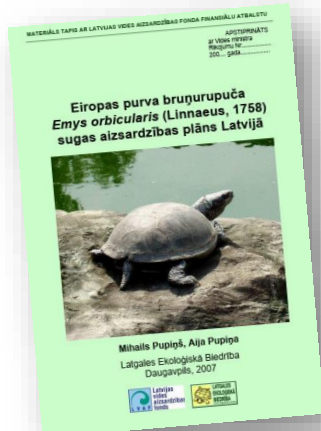
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main activities of the project were the following: 1) analysis and generalization of data about *Emys orbicularis* in Latvia (Pupins & Pupina 2008b); 2) development and discussion of the Plan on *Emys orbicularis* protection in Latvia. As a result of realization of the project: 1) the threats for *Emys orbicularis* in Latvia were analysed and ranged (Meeske & Pupins 2009); 2) concrete measures for conservation of *Emys orbicularis* in Latvia were proposed; 3) the Plan on *Emys orbicularis* protection in Latvia was developed, discussed, and officially accepted by the Ministry of Environment of Latvia and officially published by Nature conservation agency in a free access



7. Eo

Full title of the project: **DEVELOPMENT AND PRINTING OF TWO BROCHURES ON FIRE-BELLIED TOADS, POND TURTLES AND ITS CONSERVATION IN LATVIA** [Divu brošūru par sarkanvēdera ugunskrupjiem, purva bruņurupučiem un to aizsardzību Latvijā izveidošana un drukāšana]

Registration number: 1-08/185/2007

Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main activities of the project were the following: 1) adaptation of the Plan on *Emys orbicularis* protection for the population of Latvia; 2) development of simple and intelligible arrangements for population, especially landowners, on conservation of *Emys orbicularis* in Latvia; 3) writing and publishing of a brochure on the issue. As a result of realization of the project: 1) a brochure about condition and the Plan on *Emys orbicularis* protection in Latvia was developed (Pupins & Pupina 2007a); 2) the brochure was distributed among population of Latvia and libraries, as well as published in free access in the Internet.



Interreg Europe



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Project duration: 2008

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9.Eo

Full title of the project: **LIFE+ PROJECT "CONSERVATION OF RARE REPTILES AND AMPHIBIANS IN LATVIA"** [Retu rāpuļu un abinieku aizsardzība Latvijā]

Acronym: LIFE-HerpetoLatvia

Registration number: LIFE09NAT/LV/000239

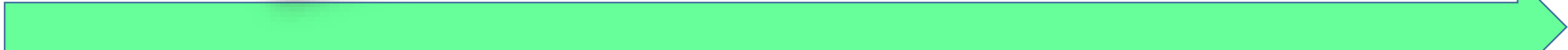
Status of the project: European commission supported project

Territory of the project: Silene Nature Park (Daugavpils novads, Latvia)

Project duration: 08.2010-08.2014

Source for funding: LIFE Programme of European Commission, Ministry of Environment, Daugavpils City Council, Nature conservation agency, Latgales Ecological Society

The project "Conservation of rare reptiles and amphibians in Latvia" (LIFE-HerpetoLatvia) was established with co-financing of European Commission and realized in 2010–2014. Project target goal on *Bombina orientalis* was to facilitate the enlargement of *Bombina orientalis* largest population Demene and to ensure *Bombina orientalis* long-time persistence in Latvia by combining in-situ, ex-situ methods, and legal protection improvement. As a result of the Project two new microreserves Natura 2000 territories (Katrīniski and Strauti) were created for conservation of *Bombina orientalis*. For the *B. orientalis* 27 ponds were created or restored in Demene (14 in Katrīniski and 13 in Strauti). More than 4 000 *Bombina orientalis* juveniles were raised in aquaculture and released for population Project LIFE-HerpetoLatvia LIFE09NAT/LV/000239 "Conservation of rare reptiles and amphibians in Latvia" was implemented in 2010–2014 in Latvia. One of three target species of the Projects is *Emys orbicularis*, and the target territory is Silene Nature Park, Territory Natura 2000. 17 ponds were restored in Silene Nature Park in four key sites (site areas – 6.3 ha; 15.4 ha; 15.4 ha; 0.5 ha) near Belaušian border. 42 *Emys orbicularis* were raised in aquaculture for 4–7 years and were released in restored ponds in 2014 in Silene Nature Park. After-LIFE activities of the Project LIFE-HerpetoLatvia provide *Agas* population monitoring and enforcement.



To the EMYS-R: Eo Projects in Latvia 1984–2022



6.Eo

Full title of the project: DEVELOPMENT OF PLAN OF CONSERVATION OF POND TURTLES *EMYS ORBICULARIS* (L.) [Purva bruņurupuču *Emys orbicularis* (L.) Sugas aizsardzības plāna izstrādāšana]

Registration number: 1-08/663/2006

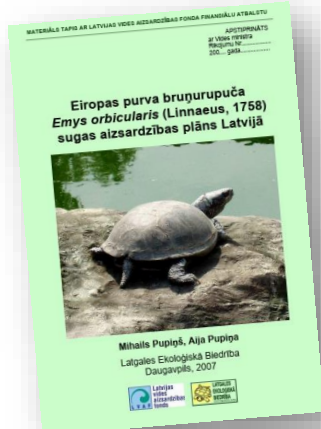
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

Source for funding: Latvian Environmental Protection Fund Administration

Project activities and main results: The main activities of the project were the following: 1) analysis and generalization of data about *Emys orbicularis* in Latvia (Pupins & Pupina 2008b); 2) development and discussion of the Plan on *Emys orbicularis* protection in Latvia. As a result of realization of the project: 1) the threats for *Emys orbicularis* in Latvia were analysed and ranged (Meeske & Pupins 2009); 2) concrete measures for conservation of *Emys orbicularis* in Latvia were proposed; 3) the Plan on *Emys orbicularis* protection in Latvia was developed, discussed, and officially accepted by the Ministry of Environment of Latvia and officially published by Nature conservation agency in a free access



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Registration number: 1-08/663/2006

Status of the project: governmental structures of Latvia and local authorities supported project

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Project duration: 2008

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Acronym: LIFE-HerpetoLatvia

Registration number: LIFE09NAT/LV/000239

Status of the project: European commission supported project

Territory of the project: Silene Nature Park (Daugavpils novads, Latvia)

Project duration: 08.2010-08.2014

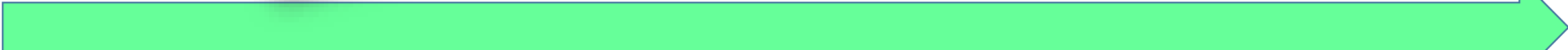
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10.Eo

Projekta nosaukums: „SIMTGADU LATVIJAS SIMTGADU DZĪVNIKS – LAIKA PASTNIEKS NES VĒSTULI DIVSIMTGADU LATVIJAI (LV100-EO-LV200)”.
Projekta laiks: 2017.- 2018.g.
Projekta Nr. 1-08/190/2017.



To the EMYS-R: Eo Projects in Latvia 1984–2022



6.Eo

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Registration number: 1-08/663/2006

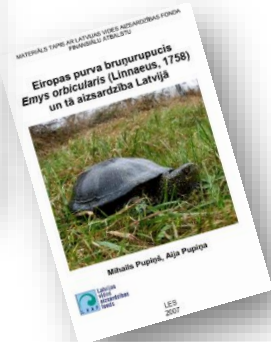
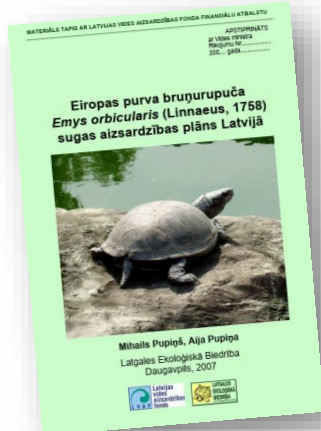
Status of the project: governmental structures of Latvia supported project

Territory of the project: whole territory of Latvia

Project duration: 2007

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Project duration: 2008

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Project responsible: Daugavpils city council

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Registration number: LIFE09NAT/LV/000239

Status of the project: European commission supported project

Territory of the project: Silene Nature Park (Daugavpils novads, Latvia)

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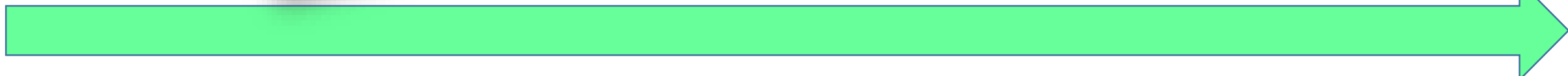
Projekta nosaukums: „SĪMTGADU LATVIJAS SĪMTGADU DZĪVNIKS – LAIKA PASTNIEKS NES VĒSTULI DIVSĪMTGADU LATVIJAI (LV100-EO-LV200)”.
Projekta laiks: 2017.- 2018.g.
Projekta Nr. 1-08/190/2017.



11.Eo

Projekta nosaukums: “APDRAUDĒTO ABINIEKU UN RĀPULU SUGU BIOTOPU APSAIMNIEKOŠANAS PASĀKUMU ĪSTENOŠANA DABAS LIEGUMOS „KARATERI” UN „ILGAS””.

Finansētājs: Latvijas Vides Aizsardzības Fonda administrācija.
Projekta laiks: 05.2018.-10.2019.g
Projekta reģistrācijas Nr. 1-08/263/2018. Mērķis: Sauszemes un saldūdens biotopu augstas prioritātes apsaimniekošanas pasākumu īstenošana smilšu krupim, ugunskrupim un purva bruņurupučiem saskaņā ar dabas liegumu „Karateri” un „Ilgas” dabas aizsardzības plāniem.



Project EMYS-R



Full title of the project: A SOCIO-ECOLOGICAL EVALUATION OF WETLANDS RESTORATION AND REINTRODUCTION PROGRAMS IN FAVOR OF THE EMBLEMATIC EUROPEAN POND TURTLE AND ASSOCIATED BIODIVERSITY: A PAN-EUROPEAN APPROACH (EMYS-R).

Proposal Nr. BiodivRestore-324.

Source for funding: BiodivRestore.

Partners: France (Coordinator), Germany, Poland.

Project duration: 2022.-2025.

Goal of the project: EMYS-R aims at 1) investigate the ecological processes improving wetland restoration and Emys reintroduction based on a) a focus on habitat recovery after restoration using biocenotic indices; b) a focus on Emys by monitoring reintroduced populations and their impact on other species using state-of-the-art biologging and eDNA. 2) assess tradeoffs and synergies between targets, benefits and policies, with a) an ecological focus on nontarget species (threatened amphibians and invasive crayfish); b) a socio-economic focus on value benefits of restoration, people's perception of restored nature, citizen science and deliberative processes involved in multi-stakeholder decision settings related to nature conservation. 3) ultimately produce guidelines for optimal wetland restoration protocols in favor of Emys reintroduction and people engagement in nature conservation based on a) our integrative approach, b) a review of past and current results, and c) a new model forecasting near future distribution and abundance of Emys at the European scale.

LV coordinator

- WP1. Task1.1. Wetland past ecological trajectories (DU)
- WP3. Task3.1. Non-target species assessment (DU)
- WP5. Task5.2. Forecasting long term success of EU funded projects (DU).

Public outreach LV

- LV stakeholders, DU students, visitors of Latgales Zoo, LV mass media

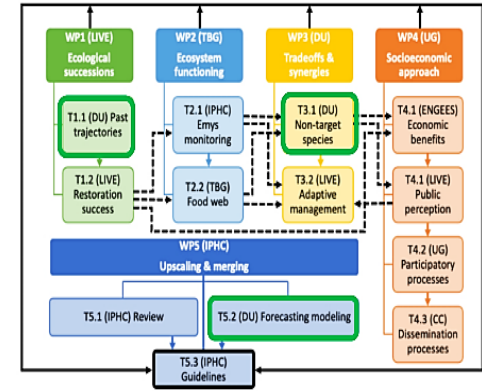


Figure 2. Fyke traps in the study: (a) prepared and used for catching; (b) deployed in a pond.

12,5.Eo

LATGALES ZOO/WETLAND BIODIVERSITY IT-GUIDE MOBILE APPLICATIONS AND QR-STANDS DEVELOPMENT

Project no. 1-08/74/2023. Financed by: State Regional Development Agency, in the administration of the Latvian Environmental Protection

Bordering the Latgale Zoo (LZ, Daugavpils) and in accordance with the Management Plan developed by Species and Habitats experts, the park "Latgale Wetland Biodiversity" (LMP) is being created, the main entrance of which is from the territory of the LZ, and which forms a unified environmental awareness promotion with the LZ. nature protection and ecological education complex "Latgales Zoo/Mitrāja Biodiversity" (LZ/MB). Excursions for zoo and park visitors, students, nature lovers, townspeople and tourists, and other target groups, thematic lessons for students and civics activities, etc. will take place here. events. In order to effectively and with modern technologies use the opportunities of the LZ/MB complex for the promotion of environmental awareness and ecological education of the target groups of society (students, tourists, nature lovers, city dwellers, people with limited opportunities, remote, etc.), to reduce the risks of nature protection to the biodiversity of the park's wetlands from possible adverse effects of visitors impacts (disturbance to birds during nesting; for planned releases of LMPs into nature for terrapins; amphibians during breeding; other sensitive species; risks of release of invasive species, etc.), The project proposes to develop LZ/MB IT-interactive environmental awareness and ecological education 4D environment of Latgale Mitrāja Biodiversity, which includes IT-MI guide geolocation interactive mobile application and a complex of 4 QR-stands with interactive environmental awareness-promoting, ecologically educational, civic science and nature protection content linked through geolocation with the real biodiversity of the Latgale wetland and integrated with Latvian and global ecological services (WikipediaLV, WikipediaEng, OZOLS, Youtube, Nature Protection Board website documents, etc.)





LATGALES ZOO AND WETLAND BIODIVERSITY PARK IN DAUGAVPILS:

- new citizen science and ecological education complex
- attractive zooculture animals in artificial jungle
- wild animals in natural historical Wetland park
- mobile application Wetland Ranger with Artificial Intellect, geolocation and Citizen Science (October 2024)



Thank you for your attention!



Amys-R



The research was partly funded by the BiodivERsA and Water JPI project "A socio-ecological evaluation of wetlands restoration and reintroduction programs in favor of the emblematic European pond turtle and associated biodiversity: a pan-European approach" and by the project "Ecological and socioeconomic thresholds as a basis for defining adaptive management triggers in Latvian pond aquaculture" (Izp-2021/1-0247). We thank project No. 16-00-F02201-000002 for providing laboratories for the research.