Nikolaos Tourvas MSc

Personal Information

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Greek (Native speaker), English (C2), German (B2)

Research Interests

Conservation genetics, Adaptation genomics

Education

01/2022-	***Signatures of genomic adaptation to drought in white oak forests** (Quercus spp.)* PhD, Aristotle University of Thessaloniki (AUTh), Greece Supervisor: Prof. Phil Aravanopoulos
11/2018-03/2022	**MSc in Genetics and Plant Breeding**, AUTh, Greece Thesis: *Molecular genetic diversity of wild olive populations and comparison with cultivar genetic profiles* Supervisors: Prof. Phil Aravanopoulos, Prof. Alexios Polidoros
10/2012-04/2018	**Integrated Master in Forestry and Natural Environment**, AUTh, Greece Thesis: *Comparative analysis of molecular genetic diversity among adult and regeneration fir populations within the framework of genetic monitoring* Supervisor: Prof. Phil Aravanopoulos

Employment

05/2018-	***Laboratory of Forest Genetics and Tree Breeding (AUTh)*** • Soil meta-barcoding sampling, Intro-to-bioinformatics lecturer in short course. Horizon Europe funded project: Biodiversity Genomic Europe (BGE) • Sampling and genetic hybridization analysis of wild *Prunus* trees. Horizon Europe funded project: FRUITDIV (9 months) • Mapping adaptation of *Pinus nigra* to atmospheric pollution (sampling, genomic and epi-genomic analysis). Nationally (HFRI) funded project: GENALERT - (9 months) • Mapping drought adaptation of white oaks in Europe (sampling, genetic/genomic analysis). Biodiversa(national funds) project: ACORN (9 months) • Genetic monitoring of European forests (sampling, genetic analysis). LIFE programme/nationally co-funded project: LIFEGENMON (28 months) • Genetic research of the *Taxus baccata* population in Taxiarchis University Forest towards breeding for paclitaxel production (1.5 months) • Resilience and adaptation of forest social-ecological systems in the context of global change. ERA-Net FORESTERRA funded project:INFORMED (2 months) • Genetic characterization of wild and cultivated olives in Greece. Nationally funded

project: "Olive routes" (9.5months)
• Molecular identification of walnut cultivars (1 month)
• Genetic characterization of the Greek *Citrus* collection. Nationally funded project: GOCITRUS (7 months)
Supervisor: Prof. Phil Aravanopoulos

08/2021-12/2021   Genetic characterization of the Greek olive cultivar collection. Nationally funded project: "Olive routes".
Supervisor: Dr. Ioannis Ganopoulos

11/2019-04/2020   Genetic characterization of the Greek *Citrus* collection. Nationally funded project: GOCITRUS.
Supervisor: Dr. Vasilios Ziogas

Research output

Google Scholar stats (h index: 5, Total citations 110)

Publications in international peer-reviewed scientific journals

Tourvas N, Boutsika A, Michailidis M, Bazakos C, Mellidou I, Sarrou E, Polychroniadou C, Lyrou F, Kotina V-M, Xanthopoulou A, Molassiotis A, Ziogas V, Aravanopoulos F, Ganopoulos I (2024) Citrus Greek National Germplasm Collection: a genetic diversity survey using nuclear and chloroplast microsatellite markers. Genet Resour Crop Evol. https://doi.org/10.1007/s10722-024-02244-4

Lead author: performed all data analyses, wrote first draft.

Bazakos C, Michailidis M, **Tourvas N**, Alexiou KG, Mellidou I, Polychroniadou C, Boutsika A, Xanthopoulou A, Moysiadis T, Skodra C, Kollaros M, Glavakis E, Stournaras V, Karagiannis E, Aravanopoulos F, Molassiotis A, Tanou G, Ganopoulos I (2024) Genetic mosaic of the Mediterranean fig: comprehensive genomic insights from a gene bank collection. Physiol Plant 176:e14482. https://doi.org/10.1111/ppl.14482

Contributing author: performed cultivar fingerprinting prior to sequencing, genomic differentiation data analyses, writing/editing.

Avramidou E, Sarri E, Papadopoulou E-A, Petsoulas C, Tigka E, **Tourvas N**, Pratsinakis E, Ganopoulos I, Tani E, Aliferis KA (2024) Phenotypic, Genetic, and Metabolite Variability among Genotypes of *Vicia sativa* L. Appl Sci 14:9272. https://doi.org/10.3390/app14209272

Contributing author: performed genetic differentiation data analysis and figure production

Tourvas N, Ganopoulos I, Koubouris G, Kostelenos G, Manthos I, Bazakos C, Stournaras V, Molassiotis A, Aravanopoulos F (2023) Wild and cultivated olive tree genetic diversity in Greece: a diverse resource in danger of erosion. Front Genet 14.

Based on MSc thesis. Lead author: performed sampling, all molecular/data analyses, and wrote manuscript. For

https://doi.org/10.3389/fgene.2023.1298565

the purposes of this work, I created the R package PopGenUtils which provides wrappers for common tasks in msat data analysis. All analyses are reproducible via a Docker container.

Bazakos C, Alexiou KG, Ramos-Onsins S, Koubouris G, **Tourvas N**, Xanthopoulou A, Mellidou I, Moysiadis T, Vourlaki I, Metzidakis I, Sergentani C, Manolikaki I, Michailidis M, Pistikoudi A, Polidoros A, Kostelenos G, Aravanopoulos F, Molassiotis A, Ganopoulos I (2023) Whole genome scanning of a Mediterranean basin hotspot collection provides new insights into olive tree biodiversity and biology. Plant J 116:303–319. https://doi.org/10.1111/tpj.16270

Contributing author: DNA extraction and cultivar fingerprinting prior to sequencing. Contributed to relatedness/differentiation data analyses, manuscript writing/editing

Aravanopoulos FA, **Tourvas N**, Fotsinos S, Michailidou C, Antoniadi A (2023) Conservation Genetics of the Only Honeysuckle Azalea (*Rhododendron luteum*) Population Present in Greece. Forests 15:5. https://doi.org/10.3390/f15010005

Contributing author: supervised molecular analyses and performed all data analyses. Manuscript writing/editing

Kadoglidou K, Cook C, Boutsika A, Sarrou E, Mellidou I, Aidonidou C, Grigoriadis I, Angeli A, Martens S, Georgiadou V, Moysiadis T, Ralli P, Mylonas I, **Tourvas N**, Michailidis M, Kalivas A, Maloupa E, Ganopoulos I, Xanthopoulou A (2023) Evaluation of a dill (*Anethum graveolens* L.) gene bank germplasm collection using multivariate analysis of morphological traits, molecular genotyping and chemical composition to identify novel genotypes for plant breeding. PeerJ 11:e15043. https://doi.org/10.7717/peerj.15043

Contributing author: genetic differentiation data analyses, manuscript editing

Sarrou E, Doukidou L, Avramidou EV, Martens S, Angeli A, Stagiopoulou R, Fyllas NM, **Tourvas N**, Abraham E, Maloupa E (2022) Chemodiversity is closely linked to genetic and environmental diversity: Insights into the Endangered populations of the local endemic plant Sideritis euboea Heldr. of Evia Island (Greece). J Appl Res Med Aromat Plants 31:100426. https://doi.org/10.1016/j.jarmap.2022.100426

Contributing author: genetic differentiation data analyses, manuscript editing

Kadoglidou K, Irakli M, Boutsika A, Mellidou I, Maninis N, Sarrou E, Georgiadou V, **Tourvas N**, Krigas N, Moysiadis T (2022) Metabolomic fingerprinting and molecular characterization of the rock samphire

Contributing author: microsatellite scoring, genetic differentiation data

germplasm collection from the Balkan Botanic Garden of Kroussia, northern Greece. Plants 11:573. https://doi.org/10.3390/plants11040573	*analyses, manuscript editing*
El Chami MA, **Tourvas N**, Kazakis G, Kalaitzis P, Aravanopoulos FA (2021) Genetic Characterisation of Chestnut Cultivars in Crete. Forests 12:1659. https://doi.org/10.3390/f12121659	*Contributing author: data analyses, manuscript editing*
Boutsika A, Sarrou E, Cook CM, Mellidou I, Avramidou E, Angeli A, Martens S, Ralli P, Letsiou S, Selini A, Grigoriadis I, **Tourvas N**, Kadoglidou K, Kalivas A, Maloupa E, Xanthopoulou A, Ganopoulos I (2021) Evaluation of parsley (*Petroselinum crispum*) germplasm diversity from the Greek Gene Bank using morphological, molecular and metabolic markers. Ind Crops Prod 170:113767. https://doi.org/10.1016/j.indcrop.2021.113767	*Contributing author: genetic differentiation data analyses, initial critique, manuscript editing*
Ganopoulos I, **Tourvas N**, Xanthopoulou A, Aravanopoulos FA, Avramidou E, Zambounis A, Tsaftaris A, Madesis P, Sotiropoulos T, Koutinas N (2018) Phenotypic and molecular characterization of apple (Malus × domestica Borkh) genetic resources in Greece. Sci Agric 75:509–518. https://doi.org/10.1590/1678-992x-2016-0499	*Contributing author: performed all molecular analyses, manuscript editing*

Peer-reviewed books or book chapters

Bajc M, Aravanopoulos FA, Westergren M, Fussi B, Kavaliauskas D, Alizoti PG, Kiourtsis F, Kraigher H (eds) (2020) Manual for forest genetic monitoring. Slovenian Forestry Institute, Silva Slovenica Publishing Centre	*Contributing author in chapters 3, 4, 5, 6, 9.*
Aravanopoulos FA, Alizoti PG, Farsakoglou A-M, Malliarou E, Avramidou EV, **Tourvas N** (2019) State of Biodiversity and Forest Genetic Resources in Greece in Relation to Conservation. In: Šijačić-Nikolić M, Milovanović J, Nonić M (eds) Forests of Southeast Europe Under a Changing Climate. Springer International Publishing, Cham, pp 73–83	*Contributing author: writing/editing.*
Aravanopoulos FA, Alizoti PG, **Tourvas N**, Malliarou E, Avramidou EV, Korompoki I-V, Kotina V-M, Barbas E, Farsakoglou A-M (2019) Overview on Forest Genetic Monitoring (FGM) Including Case Studies on FGM for Two Species from Greece. In: Šijačić-Nikolić M, Milovanović	*Contributing author: writing/editing.*

J, Nonić M (eds) Forests of Southeast Europe Under a Changing
Climate. Springer International Publishing, Cham, pp 401–407

Conference talks and poster presentations

Tourvas Nikolaos, Ganopoulos Ioannis, Koubouris Georgios, Kostelenos Georgios, Manthos
Ioannis, Aravanopoulos F.A. (Phil) (2022) 'Genetic diversity of wild olives in Greece: a diverse
resource in danger of erosion' ECCB Conference 2022, 22-26 August, Prague, Czech Republic.

Jansen Simon, Acar Pelin, Aravanopoulos Filippos, Çiftçi Asiye, Değirmenci Funda, Özdemir
Duyar, Kürşad İdman, Özlem Mavi, Kansu Çiğdem, Kaya Zeki, Kleinschmit Jörg, Leigh Deborah
M, Lyrou Fani G, Rellstab Christian, Semizer-Cuming Devrim, **Tourvas Nikolaos**, Neophytou
Charalambos (2021) 'Is the grass always greener on the other side? Identifying seed sources for
oak forests in a changing climate' Genomics and Adaptation in Forest Ecosystems. EvolTree
Conference 2021, 14–17 September 2021, Birmensdorf, Switzerland. 10.16904/envidat.243

Tourvas N, Malliarou E, Westergren M, Fussi B, Bajc M, Kavaliauskas D, Barbas E, Alizoti
P, Kiourtsis F, Kraigher H, Aravanopoulos FA, (2020) Genetic monitoring in the hybridogenous
fir (Abies borisii-regis): Interpretation of the first temporal and intergenerational comparison
using SSR genetic markers. Forest science for future forests: forest genetic monitoring and
biodiversity in changing environments: LIFEGENMON final conference: 21 - 25 of September
2020, Ljubljana, Slovenia: Silva Slovenica, Gozdarski inštitut Slovenije. 10.20315/SFS.162
YouTube: https://www.youtube.com/watch?v=G10XtjA-XK0

Tourvas N, & Aravanopoulos FA (2019). Minimum Requirements for Genetic Monitoring: A
Proposed Workflow. Presented at the Hellenic Bioinformatics 12, Precision Medicine, Biodiversity
& Genome Biology, Heraklion, Greece.

Aravanopoulos F A, **Tourvas N**, Malliarou E, Avramidou E, Farsakoglou A M, Alizoti P G,
… Kraigher, H (2019, October 9). Interim Genetic Monitoring Application in the Presence of
Incidental Data: Theory and Application. Presented at the XXV IUFRO World Congress, Forest
Research and Cooperation for Sustainable Development, Curitiba, PR, Brazil.
10.4336/2019.pfb.39e201902043

Tourvas N and Aravanopoulos FA (2018) 'Genetic aspects of reforestation practices for the
maximization of forest ecosystem resilience', in International Conference Reforestation
Challenges. Belgrade, Serbia, p. 82.

Teaching Experience

Guest Lecturer

02/2025	Guest lecturer: Introduction to building reproducible pipelines in genomics research. Biodiversity Genomics Europe (BGE) Training course 7-9 February 2025, Thessaloniki, Greece
2023-24	Two guest lectures: (1) Genetic tools for natural ecosystem biomonitoring, (2) Indicators and Verifiers of Forest Genetic Monitoring in the MSc course "Monitoring & Bioeconomy of Natural Resources" School of Forestry AUTh, Greece.

Supervision of BSc students

Further Experience

Lab & IT skills

• DNA extraction, nucleic acid quantitation (nanodrop, qubit)
• PCR (multiplex, gradient, nested designs), qPCR-HRM
• Complete pipeline for Microsatellite Fragment analysis (ABI SeqStudio platform - GeneMapper)

• R programming (use of R notebooks for data analysis, multicore implementations, simple R packages e.g. PopGenUtils, plotting with ggplot2)
• Bash programming (co-wrote a pipeline in bash before I learnt snakemake(!) acorn_poolseq_pipeline, multi-core implementations with GNU parallel)
• High Performance Computing:
  - Task scheduling with slurm
  - Reproducible data analysis and software install with (1) Singularity/Apptainer - Docker containers or (2) conda environments. I maintain two containers with software for microsatellite pop. genetic analyses (forest_popgen) and for genomic pool-seq analyses (poolseq_tools)
  - Pipeline building with snakemake
• Linux use for local servers or desktops
• Version control management with git

Student in the short-term courses

02/2022	EVOLTREE Training school: Genomics of Environmental Adaptation. ETH Zurich, Switzerland, 7-11 February 2022
01/2020	COST G-BIKE Training School: ”Genomic tools for conservation: a practitioner's guide”, La Valletta (Malta), 20-22 January 2020
12/2016	”Concepts, Methods and Tools for an Integrated Approach of Resilience in Mediterranean Forests”, Zaragoza (Spain), 12-16 December 2016

Scholarships & Awards

04/2024-03/2025	PhD student scholarship. Special Account for Research Funds (ELKE-APTh) (Ranked 3rd out of ~30 competitors, 5000€).
10/2022	"Christidis" award for best oral presentation by a junior researcher at the 18th conference of the Hellenic Scientific Society for Plant Breeding (Volos, Greece). (12 competitors, 500€).

Public outreach

2014-2017	Volunteer guide in the Natural History Museum of Aristotle University of Thessaloniki. Supervisor: Dr. N. Paralikidis