

Nikolaos Tourvas MSc

Personal Information

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Google scholar: CbSSjzQAAAAJ&hl	Greek (Native speaker), English (C2), German (B2)

Research Interests

Conservation genetics, Adaptation genomics

Education

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

Employment

05/2018-	<i>Laboratory of Forest Genetics and Tree Breeding (AUTH)</i> <ul style="list-style-type: none">• 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 <i>Prunus</i> trees. Horizon Europe funded project: FRUITDIV (9 months)• Mapping adaptation of <i>Pinus nigra</i> 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: LIFE GENMON (28 months)• Genetic research of the <i>Taxus baccata</i> 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
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	project: "Olive routes" (9.5months) <ul style="list-style-type: none">• Molecular identification of walnut cultivars (1 month)• Genetic characterization of the Greek <i>Citrus</i> 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 <i>Citrus</i> 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, Sergeantani 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 Filippou, Çiftçi Asiye, Değirmenci Funda, Özdemir Duyar, Kürşad İdman, Özlem Mavi, Kansu Çiğdem, Kaya Zeki, Kleinschmit Jörg, Leigh Deborah M, Lyrrou 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: LIFE GENMON 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

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| 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 (e.g. [BayPassAcorn](#))
- 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€).

Volunteer & Outreach

Reviewer:	Conservation Genetics (Springer)
2014-2017	Volunteer guide in the Natural History Museum of Aristotle University of Thessaloniki. Supervisor: Dr. N. Paralikidis