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GENOME SEQUENCING

The complete Genome Sequence of *Glaucopsyche lygdamus palosverdesensis*, Palos Verdes Blue Butterfly

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Biodiversity Genomes

A complete genome assembly for the endangered *Glaucopsyche lygdamus palosverdesensis* (Palos Verdes Blue Butterfly) (Perkins and Emmel, 1977) is reported here. Illumina short-read sequencing was performed using tissue from a single deceased individual. It establishes an important genomics resource for research on critically endangered Lepidoptera and their captive-rearing while expanding a sparse repository of *Glaucopsyche* sp. genomes.

Methods

Tissue was collected from a whole female specimen from mating cross 3 in 2023 and was maintained in captivity as part of conservation breeding efforts conducted through The Endangered Butterfly Project at The Teaching Zoo at Moorpark College (Sprute et al. 2023). Captive rearing was performed under an agreement with the US Navy and US Fish and Wildlife at two locations: the Seal Beach Naval Weapons Station and the Teaching Zoo at Moorpark College. Permit numbers (FWS-1-6-96-F-09), its subsequent amendments (FWS-LA-4153.1; FWS-LA-4153.3; FWS-LA-4153.3), and the Biological Opinion for Routine Maintenance Operations, Defense Fuel Support Point, San Pedro, Los Angeles County, California (FWS-LA-08B0606-08F0704). It was then sent to Iridian Genomes for processing and sequencing. Letter of support from FWS is LOS-3761.

DNA extraction was performed using the Qiagen DNEasy genomic extraction kit using the standard process. Paired-end sequencing libraries were constructed using the Illumina TruSeq kit according to the manufacturer's instructions. The libraries were sequenced on an Illumina Hi-Seq platform in paired-end, 2 × 150bp format. The resulting fastq files were trimmed of adapter/primer sequences and low-quality regions with Trimmomatic v0.33 (Bolger et al. 2014). The trimmed sequence was assembled by SPAdes v3.15.4 (Bankevich et al. 2012) followed by a finishing step using Zanfona (Kieras et al. 2021).

Data availability

taxname	accession
Glaucopsyche lygdamus palosverdesensis	PRJNA1463104

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The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the U.S. Fish and Wildlife Service.

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