SUPPLEMENTARY INFORMATION

Table S1 Metadata information for publicly available datasets utilised in the fire frequency predictive modelling workflow. Datasets were given unique identifies in the code, denoted in the dataset name column, which tended to be different from the dataset publication name, denoted in the published dataset name column. For reproducibility, links have been provided, where possible, for direct dataset download or access to dataset repository pages.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Published dataset name** | **Dataset name** | **Publisher** | **Temporal coverage** | **Spatial resolution** | **Region** | **Source** |
| Australian Standard Geographical Classification (ASGC) Digital Boundaries – State and Territory ASGC | Aus | Australian Bureau of Statistics | 2011 | 10m | Australia | (Australian Bureau of Statistics 2011) |
| Protected areas of Queensland | protected\_land | Queensland Government | 2007-2022 | Not provided | Queensland | (Department of Environment and Science 2021) |
| Fire history – Queensland Parks and Wildlife Service | QPWS\_fire\_hist | Queensland Government | 1930-2023 | Not provided | Queensland | (Queensland Parks and Wildlife Service 2024) |
| Annual Fire Scars – Landsat, QLD DES algorithm, QLD coverage | Y1987-Y2016 | Terrestrial Ecosystem Research Network (TERN) | 1987-2016 | 30m | Queensland | (Collett 2021) |
| Sentinel-2 Fire Scars – QLD DES algorithm, QLD coverage | Y-2017-Y2022 | Terrestrial Ecosystem Research Network (TERN) | 2017-2022 | 10m | Queensland | (van den Berg 2021) |
| Topographic wetness index derived from 1” SRTM DEM-H | TWI | CSIRO | 2000 | 30m | Australia | (Gallant and Austin 2012) |
| Solar radiation – total incoming downward shortwave radiation on a horizontal surface | r87-r22 | Queensland Government | 1889-2023 | 5km | Queensland | (Jeffrey *et al.* 2001) |
| Landsat Foliage Projective Cover – Queensland 2014 | FPC14 | Queensland Government | 1998-2014 | 30m | Queensland | (Queensland Department of Environment 2020) |
| Statewide Landcover and Trees Study (SLATS) Sentinel-2-2018 Foliage Projective Cover | FPC18 | Queensland Government | 2018 | 30m | Queensland | (Queensland Department of Environment 2022) |
| Statewide Landcover and Trees Study (SLATS) Sentinel-2-2019 Foliage Projective Cover | FPC19 | Queensland Government | 2019 | 10m | Queensland | (Queensland Department of Environment 2024a) |
| Statewide Landcover and Trees Study (SLATS) Sentinel-2-2020 Foliage Projective Cover | FPC20 | Queensland Government | 2020 | 10m | Queensland | (Queensland Department of Environment 2024b) |
| Statewide Landcover and Trees Study (SLATS) Sentinel-2-2021 Foliage Projective Cover | FPC21 | Queensland Government | 2021 | 10m | Queensland | (Queensland Department of Environment 2024c) |
| Mean diurnal range (BIO2) 30 seconds | diurnal\_temp\_mean | WorldClim | 1970-2000 | 1km | Global | (Fick and Hijmans 2017) |
| Temperature seasonality (BIO4) 30 seconds | tempseason | WorldClim | 1970-2000 | 1km | Global | (Fick and Hijmans 2017) |
| Precipitation seasonality (BIO15) 30 seconds | precipseason | WorldClim | 1970-2000 | 1km | Global | (Fick and Hijmans 2017) |
| SRTM-derived 1 second Digital Elevation Model Version 1 – DEM | DEM | Australian Government | 2001-2015 | 30m | Australia | (Geoscience Australia 2011) |
| The Modelled-Value for Clay (%) at 0 to 0.05 metres; 0.05 to 0.15 metres; 0.15 to 0.3 metres; 0.3 to 0.6 metres; 0.6 to 1 metres; 1 to 2 metres | clay0to0.05, clay2, clay3, clay4, clay5, clay6 | Terrestrial Ecosystem Research Network (TERN) | 2021 | 90m | Australia | (CSIRO 2024) |
| Canal areas – Queensland | canal | Queensland Government | 2007-2024 | 2.5m | Queensland | (Department of Resources 2024a) |
| Lakes – Queensland | lake | Queensland Government | 2007-2024 | 20m | Queensland | (Department of Resources 2024b) |
| Pondage - Queensland | pond | Queensland Government | 2007-2024 | 20m | Queensland | (Department of Resources 2024c) |
| Reservoirs - Queensland | reservoir | Queensland Government | 2007-2024 | 20m | Queensland | (Department of Resources 2024d) |
| Watercourse areas – Queensland | watercourse | Queensland Government | 2007-2024 | 20m | Queensland | (Department of Resources 2024e) |
| Old Hidden Vale Nature Refuge | HV | Queensland Government | 2023 | Not provided | Queensland | (Department of Environment 2013d) |
| Bartopia Nature Refuge | Bartopia | Queensland Government | 2023 | Not provided | Queensland | (Department of Environment 2013a) |
| Bulimbah Nature Refuge | Bulimbah | Queensland Government | 2023 | Not provided | Queensland | (Department of Environment 2013b) |
| Gillies Ridge Nature Refuge | Gillies | Queensland Government | 2023 | Not provided | Queensland | (Department of Environment 2013c) |
| Remnant 2021 broad vegetation groups – Queensland | BVG | Queensland Government | 2017-2024 | 100m | Queensland | (Department of Environment 2024b) |
| Fire management guidelines – Regional ecosystems Queensland | RE\_fire | Queensland Government | 2024 | NA | Queensland | (Queensland Herbarium 2024) |
| Biodiversity status of 2021 remnant regional ecosystems - Queensland | RE | Queensland Government | 2007-2024 | 100m | Queensland | (Department of Environment 2024a) |

**References**

Australian Bureau of Statistics (2011) Australian Standard Geographical Classification (ASGC) Digital Boundaries - State and Terriorty ASGC. (Australian Bureau of Statistics: Australia). Viewed 11 November 2021, <<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1259.0.30.001July%202011?OpenDocument>>.

Collett, L. (2021) Annual Fire Scars - Landsat, QLD DES algorithm, QLD coverage (Dataset). Terrestrial Ecosystem Research Network (TERN)), accessed 2021-12-01: <<http://geonetwork.tern.org.au/geonetwork/srv/eng/catalog.search#/metadata/461074b3-5272-4e4e-886f-df26bd2426ad>, <https://portal.tern.org.au/annual-scars-landsat-qld-coverage>>.

CSIRO (2024) Soils and Landscape Grid of Australia – The Modelled-Value for Clay (%) (Dataset). (CSIRO, TERN Landscapes: Australia), accessed 12 April 2024: <<https://esoil.io/TERNLandscapes/Public/Pages/SLGA/GetData-COGSDataStore_SLGA.html>>.

Department of Environment, Science and Innovation (2013a) Bartopia Nature Refuge (Dataset). (Q. Government, Department of Environment, Science and Innovation: Queensland, Australia), accessed 8 May 2023: <<https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/nature-refuge-bartopia-nature-refuge/>>.

Department of Environment, Science and Innovation (2013b) Bulimbah Nature Refuge (Dataset). (Q. Government, Department of Environment, Science and Innovation: Queensland, Australia), accessed 8 May 2023: <<https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/nature-refuge-bulimbah-nature-refuge/>>.

Department of Environment, Science and Innovation (2013c) Gillies Ridge Nature Refuge (Dataset). (Q. Government, Department of Environment, Science and Innovation: Queensland, Australia), accessed 8 May 2023: <<https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/nature-refuge-gillies-ridge-nature-refuge/>>.

Department of Environment, Science and Innovation (2013d) Old Hidden Vale Nature Refuge (Dataset). (Q. Government, Department of Environment, Science and Innovation: Queensland, Australia), accessed 8 May 2023: <<https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/nature-refuge-old-hidden-vale-nature-refuge/>>.

Department of Environment, Science and Innovation (2024a) Biodiversity status of 2021 remnant regional ecosystems - Queensland (Dataset). (Q. Government, Queensland Spatial Catalogue: Queensland, Australia), accessed 8 January 2025: <<https://qldspatial.information.qld.gov.au>>.

Department of Environment, Science and Innovation (2024b) Remnant 2021 broad vegetation groups - Queensland (Dataset). (Q. Government, Queensland Spatial Catalogue: Queensland, Australia), accessed 8 January 2025: <<https://qldspatial.information.qld.gov.au>>.

Department of Environment and Science (2021) Protected areas of Queensland (Dataset). (Department of Environment and Science, Queensland Spatial Catalogue: Queensland, Australia), accessed <<https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid>={07E360E3-A191-4C24-9671-1471362F0B1B}>.

Department of Resources (2024a) Canal areas - Queensland (Dataset). (D. o. Resources, Queensland Spatial Catalogue: Queensland, Australia), accessed 1 May 2024: <<https://qldspatial.information.qld.gov.au>>.

Department of Resources (2024b) Lakes - Queensland (Dataset). (D. o. Resources, Queensland Spatial Catalogue: Queensland, Australia), accessed 1 May 2024: <<https://qldspatial.information.qld.gov.au>>.

Department of Resources (2024c) Pondage - Queensland (Dataset). (D. o. Resources, Queensland Spatial Catalogue: Queensland, Australia), accessed 1 May 2024: <<https://qldspatial.information.qld.gov.au>>.

Department of Resources (2024d) Reservoirs - Queensland (Dataset). (D. o. Resources, Queensland Spatial Catalogue: Queensland, Australia), accessed 1 May 2024: <<https://qldspatial.information.qld.gov.au>>.

Department of Resources (2024e) Watercourse areas - Queensland (Dataset). (D. o. Resources, Queensland Spatial Catalogue: Queensland, Australia), accessed 1 May 2024: <<https://qldspatial.information.qld.gov.au>>.

Fick, S. E. and Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. *International Journal of Climatology* **37**, 4302-4315. doi: <https://doi.org/10.1002/joc.5086>.

Gallant, J. and Austin, J. (2012) Topographic Wetness Index derived from 1" SRTM DEM-H. v2 (Dataset). (CSIRO, CSIRO: Australia), accessed 18 August 2023: <<https://doi.org/10.4225/08/57590B59A4A08>>.

Geoscience Australia (2011) SRTM-derived 1 Second Digital Elevation Models Version 1.0 (Dataset). (A. Government, Geoscience Australia: Australia), accessed 18 October 2023: <<https://elevation-direct-downloads.s3-ap-southeast-2.amazonaws.com/1sec-dem/69816.zip>>.

Jeffrey, S. J., Carter, J. O., Moodie, K. B., and Beswick, A. R. (2001). Using spatial interpolation to construct a comprehensive archive of Australian climate data. *Environmental Modelling & Software* **16**, 309-330. doi: <https://doi.org/10.1016/S1364-8152(01)00008-1>.

Queensland Department of Environment, T., Science and Innovation,, (2020) Landsat Foliage Projective Cover - Queensland 2014 (Dataset). (T. Queensland Department of Environment, Science and Innovation,, Queensland Spatial Catalogue: Brisbane, QLD, Australia), accessed 6 April 2023: <<https://www.data.qld.gov.au/dataset/landsat-foliage-projective-cover-queensland-2014>>.

Queensland Department of Environment, T., Science and Innovation,, (2022) Statewide Landcover and Trees Study (SLATS) Sentinel - 2 - 2018 Foliage Projective Cover (FPC) Queensland (Dataset). (T. Queensland Department of Environment, Science and Innovation, Queensland Spatial Catalogue: Brisbane, QLD, Australia), accessed 17 April 2024: <<https://www.data.qld.gov.au/dataset/statewide-landcover-and-trees-study-slats-sentinel-2-2018-foliage-projective-cover-fpc-queensland>>.

Queensland Department of Environment, T., Science and Innovation,, (2024a) Statewide Landcover and Trees Study (SLATS) Sentinel - 2 - 2019 Foliage Projective Cover (FPC) Queensland (Dataset). (T. Queensland Department of Environment, Science and Innovation, Queensland Spatial Catalogue: Brisbane, QLD, Australia), accessed 16 April 2024: <<https://www.data.qld.gov.au/dataset/statewide-landcover-and-trees-study-queensland-sentinel-2-series>>.

Queensland Department of Environment, T., Science and Innovation,, (2024b) Statewide Landcover and Trees Study (SLATS) Sentinel - 2 - 2020 Foliage Projective Cover (FPC) Queensland (Dataset). (T. Queensland Department of Environment, Science and Innovation, Queensland Spatial Catalogue: Brisbane, QLD, Australia), accessed 16 April 2024: <<https://www.data.qld.gov.au/dataset/statewide-landcover-and-trees-study-queensland-sentinel-2-series>>.

Queensland Department of Environment, T., Science and Innovation,, (2024c) Statewide Landcover and Trees Study (SLATS) Sentinel - 2 - 2021 Foliage Projective Cover (FPC) Queensland (Dataset). (T. Queensland Department of Environment, Science and Innovation, Queensland Spatial Catalogue: Brisbane, QLD, Australia), accessed 16 April 2024: <<https://www.data.qld.gov.au/dataset/statewide-landcover-and-trees-study-queensland-sentinel-2-series>>.

Queensland Herbarium (2024) Regional ecosystem fire management guidelines (Dataset). (Queensland Department of Environment, Science, and Innovation, Queensland Government: Brisbane, QLD, Australia), accessed 8 January 2025: <<https://www.qld.gov.au/__data/assets/file/0025/384046/fire-management-guidelines-v13.1.csv>>.

Queensland Parks and Wildlife Service (2024) Fire history - Queensland Parks and WIldlife Service (Dataset). (Q. P. a. W. Service, Queensland Spatial: Brisbane, Queensland, Australia), accessed <<https://www.data.qld.gov.au/dataset/fire-history-queensland-parks-and-wildlife-service>>.

van den Berg, D. (2021) Sentinel-2 fire scars - QLD DES algorithm, QLD coverage. (Terrestrial Ecosystem Research Network: Australia). Viewed 7th November 2024, <<https://portal.tern.org.au/metadata/TERN/7b6d2b84-cbf3-46e8-aa8c-c49352f9ffd5>>.