

Abstract

Mapping of the foraging habitat areas of the Grey-headed, Black and Little Red Flying-foxes in New South Wales. The grey-headed flying-fox is listed as a threatened species under state and Commonwealth legislation. A key threatening process for the species is loss and degradation of foraging habitat. This project provides contemporary mapping of potential foraging habitat for all three species across New South Wales, expanding on previous foraging habitat mapping for the Grey-headed Flying-fox. Digital maps and databases from the previous project were updated and methods consistent with the previous project were then applied across inland zones. The state-wide native diet list for flying-foxes comprises 60 species in the blossom diet and 51 species in the fruit diet. Temporal and spatial flowering patterns and productivity of diet species are significant components of the assessment of foraging habitat. Species in the flower diet of flying-foxes were characterised using the productivity and reliability of flowering patterns and seasonal flowering phenology scored at bi-monthly intervals. Habitats were defined by the vegetation types described in vegetation classifications and spatial layers. Digital vegetation maps from across NSW were compiled and merged to create a single, seamless habitat map. Ultimately 39 vegetation mapping projects were included. The state map was divided into 19 regional datasets distributed across three zones to create a final product with practical file sizes. Numeric assessments of flowering characteristics were combined with estimates of plant densities in the vegetation data to score the quality of nectar-producing habitat. Data on flowering phenology was used to produce bi-monthly maps illustrating spatial and temporal variations in food resources. The accuracy and reliability of the habitat map is directly linked to the spatial accuracy and quality of floristic information and line work contained in the spatial layers and classifications available to the project. Every effort was made to use the best available data. Flying-fox records and data on diet and flowering characteristics become progressively sparse to the west, which introduces an unmeasured level of uncertainty to habitat assessments in these zones, particularly in the far west of the state. Insufficient data were available on the characteristics of fleshy fruits to allow comparisons to be drawn between species. Fruit-producing habitats were assessed by a separate method based on the species richness of diet plants. Broad spatial patterns of habitat quality illustrated in the map of total habitat scores are consistent with records of flying-fox distribution. Bi-monthly maps of nectar habitat illustrate the importance of coastal lowlands and ranges throughout the year, the near absence of productive habitat in the western zone and the relative productivity of small remnants of grassy woodlands in the central zone, particularly in colder bi-months. Summaries of seasonal habitat quality emphasise the paucity of foraging options during winter. These broad temporal and spatial patterns illustrated by the maps are consistent with the habitat requirements of various nectar-feeding birds, including species listed as threatened in NSW, and emphasise the potential utility of the maps for assessing habitats of other canopy-feeding nectarivores. It is hoped that the outputs of this project will guide the protection and restoration of flying-fox foraging habitat across the state.

Resource locator

[Data Quality Statement](#)

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for Flying-fox Foraging Habitat 2019

Function: download

[Download Package](#)

Name: Download Package

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data (Geodatabase format) 4.9GB

Function: download

[Download Package](#)

Name: Download Package

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data (Shapefile) 7.5GB

Function: download

[Report - Flying-fox Foraging Habitat Mapping NSW](#)

Name: Report - Flying-fox Foraging Habitat Mapping NSW

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Report describing the methodology and outputs of the project

Function: download

[Appendix 1 - Eby and Law \(2008\) Chapters 1-6](#)

Name: Appendix 1 - Eby and Law (2008) Chapters 1-6

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Appendix 1 to report

Function: download

[Appendix 2 - Preliminary validation of Eby and Law \(2008\)](#)

Name: Appendix 2 - Preliminary validation of Eby and Law (2008)

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Appendix 2 to report

Function: download

[Appendix 3 - Guide to spatial data](#)

Name: Appendix 3 - Guide to spatial data

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Appendix 3 to report

Function: download

[Appendix 4 - Lookup tables of habitat attributes](#)

Name: Appendix 4 - Lookup tables of habitat attributes

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Appendix 4 of Report

Function: download

Unique resource identifier

Code ff01266b-761c-48df-b8d2-5be957339ac7

Presentation form Map digital

Edition 1

Dataset language English

Metadata standard

Name ISO 19115

Edition 2016

Dataset URI <https://datasets.seed.nsw.gov.au/dataset/ff01266b-761c-48df-b8d2-5be957339ac7>

Purpose Legislative and Regulatory

Status Completed

Spatial representation

Type vector

Spatial reference systemCode
identifying the
spatial
reference
system 4283**Spatial
resolution** 25 m**Topic category**

Keyword set	
keyword value	FAUNA-Native
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16
Geographic location	
West bounding longitude	140.712891
East bounding longitude	153.544922
North bounding latitude	-37.579413
South bounding latitude	-27.916767
Vertical extent information	
Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
Temporal extent	
Begin position	2019-04-01
End position	N/A
Dataset reference date	
Resource maintenance	
Maintenance and update frequency	Unknown
Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
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Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Lineage To allow management actions for conserving flying-foxes to be incorporated into land use decisions, the New South Wales and Australian governments jointly funded the project Ranking the feeding habitats of grey-headed flying-foxes for conservation management (Eby and Law 2008). This work mapped foraging habitat within the range of the threatened grey-headed flying-fox. The current project, funded by the New South Wales government and administered by Local Government New South Wales, expands the 2008 resource to provide contemporary mapping of potential foraging habitat for all three species across New South Wales. Digital maps and databases from the Eby and Law (2008) study were updated and methods consistent with the 2008 project were then applied across inland zones. The state-wide native diet list for flying-foxes comprises 60 species in the blossom diet and 51 species in the fruit diet. Temporal and spatial flowering patterns and productivity of diet species are significant components of the assessment of foraging habitat. Species in the flower diet of flying-foxes were characterised using the productivity and reliability of flowering patterns and seasonal flowering phenology scored at bi-monthly intervals. Habitats were defined by the vegetation types described in vegetation classifications and spatial layers. Digital vegetation maps from across NSW were compiled and merged to create a single, seamless habitat map. Ultimately 39 vegetation mapping projects were included. The state map was divided into 19 regional datasets distributed across three zones to create a final product with practical file sizes. Numeric assessments of flowering characteristics were combined with estimates of plant densities in the vegetation data to score the quality of nectar-producing habitat. Data on flowering phenology was used to produce bi-monthly maps illustrating spatial and temporal variations in food resources. The accuracy and reliability of the habitat map is directly linked to the spatial accuracy and quality of floristic information and line work contained in the spatial layers and classifications available to the project. Every effort was made to use the best available data. Flying-fox records and data on diet and flowering characteristics become progressively sparse to the west, which introduces an unmeasured level of uncertainty to habitat assessments in these zones, particularly in the far west of the state. Insufficient data were available on the characteristics of fleshy fruits to allow comparisons to be drawn between species. Fruit-producing habitats were assessed by a separate method based on the species richness of diet plants. Broad spatial patterns of habitat quality illustrated in the map of total habitat scores are consistent with records of flying-fox distribution. Bi-monthly maps of nectar habitat illustrate the importance of coastal lowlands and ranges throughout the year, the near absence of productive habitat in the western zone and the relative productivity of small remnants of grassy woodlands in the central zone, particularly in colder bi-months. Summaries of seasonal habitat quality emphasise the paucity of foraging options during winter. These broad temporal and spatial patterns illustrated by the maps are consistent with the habitat requirements of various nectar-feeding birds, including species listed as threatened in NSW, and emphasise the potential utility of the maps for assessing habitats of other canopy-feeding nectarivores.

Limitations on public access

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

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