

JORDAN SPRINGS STAGE 2

Cumberland Plain Land Snail Management Plan

For:

J. Wyndham Prince

April 2019

Draft Report



**PO Box 2474
Carlingford Court 2118**

Report No. 19044RP1

The preparation of this report has been in accordance with the brief provided by the Client and has relied upon the data and results collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained within the report are based only on the aforementioned circumstances. The report has been prepared for use by the Client and no responsibility for its use by other parties is accepted by Cumberland Ecology.

Version	Date Issued	Amended by	Details
1	3/4/2019	VO	Draft issued to client

Approved by: David Robertson

Position: Director

Signed: _____

Date: 3 April, 2019

Table of Contents

1	INTRODUCTION	
1.1	Purpose	1.1
1.2	Background	1.1
	1.2.1 Location	1.1
	1.2.2 Proposed Development	1.2
	1.2.3 Conditions of Consent	1.2
1.3	Document Structure	1.3
2	SPECIES DESCRIPTION AND HABITAT VALUES IN THE SUBJECT SITE	
2.1	Species Information	2.1
	2.1.1 Conservation Status	2.1
	2.1.2 Species Description	2.1
	2.1.3 Regional Distribution and Habitat	2.2
2.2	Occurrence and Habitat in the Subject Site and Regional Park	2.2
3	MANAGEMENT MEASURES	
3.1	Preparation of Translocation Proposal	3.1
3.2	Pre-clearance Surveys	3.1
3.3	Translocation	3.2
3.4	Management Measures during Construction	3.2
3.5	Reporting	3.3

REFERENCES

List of Photographs

2.1	Cumberland Plain Land Snail Shell	2.2
-----	-----------------------------------	-----

List of Figures

1.1	Project Location	1.4
1.2	Location of the subject site	1.5
2.1	Potential habitat for the Cumberland Plain Land Snail in the subject site and locations of recorded shells	2.4
3.1	Suitable release sites for the Cumberland Plain Land Snail	3.4

Introduction

1.1 Purpose

Cumberland Ecology Pty Ltd. (Cumberland Ecology) has been commissioned by J. Wyndham Prince (the client) to prepare a Cumberland Plain Land Snail Management Plan for the Jordan Springs Stage 2 Development (the subject site) (see **Figure 1.1**).

The Cumberland Plain Land Snail is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* (BC Act), however it is not listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The species has been recorded within areas of mature and regenerating Cumberland Plain Woodland (CPW) to the east of the subject site and several empty shells have been recorded from the subject site. Accordingly, it is considered to have potential to occur within other patches of similar vegetation across the subject site.

The entirety of the subject site is proposed to be cleared for the proposed development, including areas of potential habitat for the Cumberland Plain Land Snail. This management plan has been prepared in accordance with the Draft Conditions of Consent for the project (see **Section 1.2.3**) to specify measures to minimise the potential impacts of the development on the Cumberland Plain Land Snail. This includes conducting pre-clearance surveys to identify any snails that may be present in the subject site, and their translocation into nearby areas of suitable habitat in the soon to be gazetted Wianamatta Regional Park (the Regional Park).

1.2 Background

1.2.1 Location

The subject site is located within Jordan Springs in the St Marys Property, Western Precinct, St Marys, within the Penrith City Council Local Government Area (LGA). The subject site is bounded by the Regional Park to the west and south and current development and developed areas to the north and east (see **Figure 1.1**).

1.2.2 Proposed Development

The subject site is located within the Jordan Springs master-planned community. The proposed development comprises Jordan Springs Retirement Village, including seniors living, aged care and residential development in the suburb of Jordan Springs.

The proposed development will result in the creation of approximately 31 residential lots, 51 villas, 131 apartments and a 144 bed aged care facility. Physical works proposed for the subject site include:

- Construction of buildings and roads;
- Bulk earthworks in grading of the lots and roads;
- Provision of associated infrastructure;
- Provision of landscaping; and
- Associated tree removal.

Additional ancillary works to be undertaken within the subject site include the creation of interim sediment and detention basins and culverts with relation to road infrastructure works. For the purposes of this management plan, it is assumed that the entirety of the subject site is proposed to be cleared for the proposed development.

Further details of the proposed development are provided in the Species Impact Statement (SIS) prepared for the project by Cumberland Ecology (2018).

1.2.3 Conditions of Consent

This Cumberland Plain Land Snail Management Plan has been prepared to provide guidelines for conservation and protection of the Cumberland Plain Land Snail and habitat within the subject site in order to satisfy the requirements of Condition 27 of the Jordan Springs Stage 2 Draft Development Consent. Condition 27 is reproduced verbatim below:

27: D Special Cumberland Plain Land Snail Management Plan

*Prior to the issue of Construction Certificate and disturbance of site, the applicant is to submit a detailed Cumberland Plain Land Snail Management Plan to Penrith City Council for review by the Senior Biodiversity Officer. The plan must be prepared by a qualified ecologist with a demonstrated knowledge of the biology of the Cumberland Plain Land Snail (*Meridolum corneovirens*). The Cumberland Plain Land Snail Management Plan is to contain the following:*

- The plan must be prepared in accordance with the NSW Biodiversity Conservation Act 2016, the NSW Saving our Species program, management: Site-managed species and Office of Environment and Heritage's Policy for the Translocation of Threatened Fauna in NSW (2001).*

*- Prior to any disturbance of the subject site, a targeted search for the Cumberland Plain Land Snail (*Meridolum corneovirens*) is to be conducted. Any Cumberland Plain Land Snails found during this process are to be relocated to a nearby site in the Wianamatta Regional Park approved by Council, and containing Cumberland Plain Woodland with appropriate habitat.*

- The plan must include provisions for pre-and during construction activities.

1.3 Document Structure

The structure of the remainder of this Cumberland Plain Land Snail Management Plan is as follows:

- Background information on the conservation status, species description and habitat requirements of the Cumberland Plain Land Snail (**Section 2.1**);
- Description and mapping of habitat present in the subject site for the Cumberland Plain Land Snail (**Section 2.2**);
- Preparation of a Translocation Proposal for approval by the NSW Office of Environment and Heritage (OEH) (**Section 3.1**);
- Specifications for targeted surveys that will be undertaken in the site for the Cumberland Plain Land Snail prior to clearing (**Section 3.2**);
- Translocation protocols for the capture and relocation of any live Cumberland Plain Land Snails recorded (**Section 3.3**);
- Identification of suitable release sites for approval by Council (**Section 3.3**);
- Measures to reduce the impacts of the proposed works on the Cumberland Plain Land Snail during construction (**Section 3.4**); and
- Reporting requirements (**Section 3.5**).



- Legend**
- Subject Site
 - Precinct Boundary
 - St Mary's Property Boundary
 - Regional Park

JORDON SPRINGS

Western Precinct

Central Precinct

Eastern Precinct

Image Source:
Image © Nearmap
(20/01/2018)



Coordinate System: MGA Zone 56 (GDA 94)

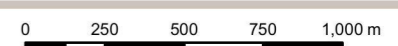


Figure 1.1. Location of the Project

I:\...1190441\Figures\RP1\20190403\Figure 1.1. Location of the Project



- Legend**
- Subject Site
 - St Marys Project Boundary
 - Regional Park

Image Source:
Image © NearMap 2018
Dated: 20/1/2018



Coordinate System: MGA Zone 56 (GDA 94)



Figure 1.2. Location of the subject site

Species Description and Habitat Values in the Subject Site

2.1 Species Information

2.1.1 Conservation Status

The Cumberland Plain Land Snail is listed as Endangered under the BC Act, however it is not listed under the EPBC Act.

In NSW, this species has been assigned to the “Landscape species” management stream under the Saving our Species (SoS) program (OEH 2019). This is because the Cumberland Plain Land Snail is distributed across relatively large areas and is subject to threatening processes that generally act at the landscape scale (e.g. habitat loss or degradation) rather than at distinct, definable locations (OEH 2019). The management objectives for this species as identified in the Species Action Statement is to ensure that the species is secure in the wild in NSW and that its NSW geographic range is extended or maintained (OEH 2019).

The preparation of this Cumberland Plain Land Snail Management Plan is considered to be consistent with the objective of the Species Action Statement as it will protect existing specimens of the species that occur in the subject site and will facilitate its ongoing persistence in the wild. The Regional Park is being managed for conservation in the long term, and any specimens of the Cumberland Plain Land Snail that are translocated to the Regional Park are considered likely to persist.

2.1.2 Species Description

The Cumberland Plain Land Snail (*Meridolum corneovirens*) has a shell with a diameter of between 25 - 30 mm. While this shell may be almost any shade of brown, it is always uniform in colour, and a green or yellow tinge may be present (OEH 2018).

The under-side of the shell, especially in living individuals, tends to have a glossy appearance and is semitransparent. The upper side of the shell has a coarse wrinkly appearance (see **Photograph 2.1**). In adult shells the edge of the aperture is reflected, forming a slight lip, which is typically white in colour (OEH 2018).



Photograph 2.1 Cumberland Plain Land Snail Shell

2.1.3 Regional Distribution and Habitat

The Cumberland Plain Land Snail lives in small areas on the Cumberland Plain west of Sydney, from Richmond and Windsor south to Picton and from Liverpool west to the Hawkesbury and Nepean Rivers at the base of the Blue Mountains. It is known from over 100 different locations, but not all are currently occupied, and they are usually isolated from each other as a result of land use patterns (OEH 2018).

The species primarily inhabits Cumberland Plain Woodland (CPW). This community is a grassy, open woodland with occasional dense patches of shrubs. It is also known from Shale Gravel Transition Forests, Castlereagh Swamp Woodlands and the margins of River-flat Eucalypt Forest (OEH 2018).

The Cumberland Plain Land Snail lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. It occasionally shelters under rubbish. During dry conditions it can dig several centimetres into soil to escape drought. Active at night, it is a fungus specialist (OEH 2018).

2.2 Occurrence and Habitat in the Subject Site and Regional Park

No live specimens of the Cumberland Plain Land Snail have been recorded from the subject site; however a total of ten (10) shells have been recorded within the regenerating and mature CPW in the central and south western parts of the subject site. These results indicate the presence of the species in the woodland of the subject site.

The Cumberland Plain Land Snail is present within most or all of the larger patches of CPW in the St Marys Property and is represented within the nearby Regional Park which contains more than 400 ha of potential habitat, including large areas of intact, mature CPW that provides optimum habitat for the species. Surveys of comparative CPW in the Regional Park indicate a significantly higher number of snails in mature CPW than in immature, regenerating examples of this community. Based on the assessments conducted in the Regional Park, potentially hundreds of thousands of snails occur in this area (Cumberland Ecology 2018).

The CPW vegetation on the subject site consists of a mix of mature woodland, young woodland in various stages of regeneration and derived native grassland. The majority of the subject site is considered to be unsuitable for the Cumberland Plain Land Snail, as there are large open or cleared areas, comprising derived native grassland. A total of approximately 3.16 ha of marginal potential habitat (in the form of mature and regenerating CPW) is present in the subject site.

The areas of potential habitat for the Cumberland Plain Land Snail in the subject site and the locations of the shells recorded from the subject site are shown in **Figure 2.1**.



Legend

- Subject Site
- Potential Habitat for Cumberland Plain Land Snail
- Cumberland Plain Land Snail Records

Image Source:
Image © NearMap 2018
Dated: 20/1/2018



Coordinate System: MGA Zone 56 (GDA 94)

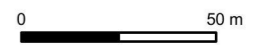


Figure 2.1. Potential habitat for the Cumberland Plain Land Snail in the subject site and locations of recorded shells

Management Measures

The following management measures are proposed to manage impacts to the Cumberland Plain Land Snail in the subject site:

- Preparation of a Translocation Proposal in compliance with the Policy for the Translocation of Threatened Fauna (NSW NPWS 2001);
- Pre-clearance surveys to identify and capture any live snails present in the subject site;
- Translocation of any live individuals to identified appropriate release sites in the Regional Park;
- Management measures during construction; and
- Reporting

Each of these components is described below in further detail.

3.1 Preparation of Translocation Proposal

This Cumberland Plain land Snail Management Plan includes details of the Translocation Proposal prepared in accordance with the Policy for the Translocation of Threatened Fauna in NSW (NSW NPWS 2001). The implementation of the policy in NSW is dependent on adequately prepared Translocation Proposals for which guidelines are provided in Appendix 2 of the policy.

All translocations of Cumberland Plain Land Snails from the subject site will be carried out in accordance with the Policy for the Translocation of Threatened Fauna in NSW (NSW NPWS 2001), as detailed in Section 3.3 below..

3.2 Pre-clearance Surveys

Pre-clearance surveys targeting the Cumberland Plain Land Snail will be conducted within a one week (seven days) period prior to clearance activities commencing. This measure will minimise the risk of the species recolonising the subject site between the time of the pre-clearance survey and commencement of clearance works.

Areas of potential habitat for the species will be identified and delineated using flagging tape or temporary fencing prior to any clearing activities. These areas are broadly shown in **Figure 2.1** and comprise patches of regenerating CPW and remnant trees in the subject site. These areas of habitat will be ground-truthed prior to the pre-clearance surveys and areas of potential habitat for the Cumberland Plain Land Snail will be further refined and defined.

Subsequently, the areas of potential habitat will be surveyed for the Cumberland Plain Land Snail. Surveys will comprise active searches for the Cumberland Plain land Snail, searching at the base of all mature trees that have leaf litter and ground debris. The leaf litter and debris around each tree will be disturbed carefully using a rake or the hands, down to the ground level. The litter will be searched carefully for the presence of any live snails or shells.

All empty shells or live snails will be collected and their location recorded using a hand held GPS unit. Any live snails will be placed in a cool container filled with moist leaf litter until translocation can take place (see **Section 3.3**). A photograph of all shells or live specimens will be taken for inclusion in the survey report (see **Section 3.5**).

3.3 Translocation

Any live Cumberland Plain Land Snails captured during the pre-clearance surveys will be translocated to areas of suitable habitat in the nearby Regional Park. Areas of suitable habitat for use as release sites are considered to comprise patches of intact, mature CPW in the Regional Park. Areas of habitat in the Regional Park suitable for use as release sites are identified in **Figure 3.1**.

Translocation of live Cumberland Plain Land Snails will be undertaken either in the early morning or in the late afternoon to avoid heat stress to the individuals. A suitable release site will be identified at the base of a mature tree in an area of intact, mature CPW in the Regional Park that contains plentiful leaf litter. A depression will be excavated in the leaf litter and the Cumberland Plain Land Snails will be removed from the holding container and placed carefully into the depression. Subsequently they will be covered to a minimum depth of 10 cm with leaf litter to provide a cool, shady place to acclimatise. One snail only will be placed in each depression.

The location of each release site will be recorded using a hand-held GPS unit for future reference and for inclusion in the report (see **Section 3.5**).

3.4 Management Measures during Construction

The majority of the measures to be undertaken in accordance with this management plan focus on the identification and relocation of any Cumberland Plain Land Snails that are present in the subject site prior to construction, to avoid impacts occurring to these individuals. Although it is unlikely that any additional snails will be recorded during the construction process, this section identifies the appropriate course of action in this eventuality.

If any shells or live individuals of the Cumberland Plain Land Snail are recorded during construction, then construction in the vicinity of the shells or individuals must cease, and an ecologist must be notified. The ecologist will conduct a site inspection of where the shells or live individuals were recorded to determine whether any additional live specimens are present. If there are, then they will be managed according to the protocols outlined in this management plan.

Construction will only recommence following the approval of the ecologist and when it has been determined that no further shells or live specimens are likely to be present in the construction area.

3.5 Reporting

A brief and concise report will be submitted to the Penrith City Council following the pre-clearance surveys and any translocation of Cumberland Plain Land Snails.

This report will be prepared by a qualified ecologist and will provide a record of the implementation of this plan. The report will include but not be limited to the following:

- Identification of Cumberland Plain Land Snail habitat in the subject site;
- Location of the pre-clearance surveys;
- Number and location of live snails recorded (if any);
- Number of location of empty shells recorded (if any);
- Photographs of each shell or live snail recorded;
- Location and photograph of the release site;
- Discussion of any problems encountered in implementing this plan; and
- Recommendation of any further actions if required.



Legend

- Subject Site
- Regional Park
- Release Sites

Image Source:
Image © NearMap 2018
Dated: 20/1/2018



Coordinate System: MGA Zone 56 (GDA 94)



Figure 3.1. Suitable release sites for the Cumberland Plain Land Snail

References

- Cumberland Ecology. 2018. Jordan Springs Residential Development; Species Impact Statement.
- NSW NPWS. 2001. Threatened Species Management Policy and Procedure Statement No 9: Policy for the translocation of threatened fauna in NSW. NSW National Parks and Wildlife Service.
- OEH. 2018. Cumberland Plain Land Snail - profile. Office of Environment and Heritage, Hurstville.
- OEH. 2019. Saving our Species Database: Cumberland Plain Land Snail (*Meridolum corneovirens*). Office of Environment and Heritage, NSW.