Application for a

Department of
Environment, Climate Change and Water NSW

Section 91 Licence

to harm or pick a threatened species, population or ecological community*, or damage habitat under the *Threatened Species Conservation Act 1995.*

1. Applicant's Name ^: *(if additional persons require authorisation by this licence, please attach details of names and addresses)*	Michael Coulter General Manager Nambucca Shire Council	
2. Australian Business Number (ABN):	71 323 535 981	
3. Organisation name and position of applicant ^: *(if applicable)*	General Manager Nambucca Shire Council	
4. Postal address ^:	PO Box 177 Macksville NSW 2447	4. Telephone 6568 2555
5. Location of the action *(including grid reference and local government area and delineated on a map).*	The location is Lions Park at Bowraville in Nambucca Shire Council LGA at approx 30*38'53.35"S, 152*51'29.62"E. see attached map 1 The park runs parallel to Park Street and the northern end runs adjacent to George Street. The park is zoned Public Recreation under the Nambucca Shire Council LEP 1995 and is adjacent to Urban Residential (Village) and opposite the land is zoned Rural (Prime Flooding) which is cleared and used for grazing. The existing camp is situated parallel to Park Street between George and Bowra Streets.	
6. Full description of the action and its purpose *(e.g. environmental*	The proposed activity is to enhance the current highly modified weed infested riparian zone by removing all weed species from the riparian zone including mature Camphor laurels in Lions Park, Bowraville.	

* A threatened species, population or ecological community means a species, population or ecological community identified in Schedule 1, 1A or Schedule 2 of the *Threatened Species Conservation Act 1995.*

^The personal details of all Section 91 licences will be displayed in the register of Section 91 licences required under Section 104 of the *Threatened Species Conservation Act 1995.* See notes.

assessment, development, etc.)	There are several mature Camphor laurels that are compromising the riverbank and many saplings in the understorey. Camphor laurel (*Cinnamomum camphora*) is declared in NSW as a class C4 weed and declared a noxious weed in the Nambucca Shire Council area. Other weed species include broad leaf privet and Madera Vine along with many species of garden escapees. It is Councils aim to protect the riverbank and the biodiversity of the riparian zone by removing the weed species and returning the riparian vegetation into local native species with replanting and using the existing seed bank. There is currently several large Tallowood, Hard Quandong and Blue Gums that provide the overstorey and native woody shrubs and other weed species in the understorey. The work is being done as part of Management Strategy 1 & 8 (prioritised as high importance) and 21 (prioritised as low) in the Nambucca River Estuary Management Plan 2008. Management strategy 1 is to improve overall riverbank condition (including riparian habitats) on all major streams and waterways within the Nambucca Valley, which addresses bank erosion and stability and water quality. Management strategy 8 is to enhance the condition of habitats of high ecological and/or conservation value e.g., saltmarsh, wetlands, littoral rainforests, riparian zone and floodplain wetlands, which addresses land tenure and usage, habitat management and water quality, especially weed invasion. Management strategy 21 is to protect habitats of moderate or local ecological value (e.g. areas of native regrowth) which will address habitat management, that will provide wildlife refuge forming part of the wildlife corridor network linking upland and lowland vegetation communities. The weeding will be done chemically and mechanically with the mature Camphor trees to be felled by professional arborist in line with the Camphor Laurel Kit, and the waste taken away from the site. The stumps will be chemically treated to arrest coppicing. The established native species will be left intact and any areas needing adjunct vegetation, will be planted with local native species. To further support the river bank Lomandra will be planted along the work area to enhance the riparian habitat. There will be ongoing regeneration works to arrest any weed growth and to promote the planted natives. The Grey Headed Flying Fox camp is in the middle of Lions Park (as shown on the attached map 1) and there is one mature Camphor laurel (photos 22 & 23) that is compromising bank stability that is used by the returning flying foxes for their roost. The tree is very large and if it falls into the river will affect both navigation and increase the bank erosion. It is Councils plan to remove this tree before it poses a safety risk for both navigation and users of the park. In the immediate area there are several other roost trees including large Tallowood. The removal of the tree may affect the GHFF population as there may be less room to roost for the 2010/11 season. Photos 1-26, and Panoramas 1 & 2 show the camp and surrounding area of the proposed works, map 3 shows the photo locations.
7. Details of the area to be affected by the action *(in hectares)*.	The proposed work area is approx 3 ha and is weed infested riparian vegetation, consisting of native Tallowood, Hard Quandong, blue gums and weed species including Camphor laurel (CL), Board Leaf Privet & Madera vine. There are many saplings of CL in the under scrub and approximately 4 large mature trees that have to be removed.

	The work is being done as part of Management Strategy 1 & 8 (prioritised as high importance) and 21 (prioritised as low) in the Nambucca River Estuary Management Plan 2008. Management strategy 1 is to improve overall riverbank condition (including riparian habitats) on all major streams and waterways within the Nambucca Valley, which addresses bank erosion and stability and water quality. Management strategy 9 is to enhance the condition of habitats of high ecological and/or conservation value e.g., saltmarsh, wetlands, littoral rainforests, riparian zone and floodplain wetlands, which addresses land tenure and usage, habitat management and water quality, especially weed invasion. Management strategy 21 is to protect habitats of moderate or local ecological value (e.g. areas of native regrowth) which will address habitat management, that will provide wildlife refuge forming part of the wildlife corridor network linking upland and lowland vegetation communities.
8. Duration and timing of the action *(including staging, if any).*	It is hoped that the removal of the Camphor Laurels and other weed species will take under two weeks in late May and June, but not after September 2010. Revegetation will be instigated immediately and there will be ongoing weeding and nurturing of the native re-growth by bush regenerators set up by Nambucca Valley Landcare for several years.
9. Is the action to occur on land declared as critical habitat*? *(*	☐ Yes **X** No

10. Threatened species, populations or ecological communities to be harmed or picked.

Scientific name	Common name *(if known)*	Conservation status *(i.e. critically endangered, endangered or vulnerable)*	Details of no. of individual animals, or proportion and type of plant material *(*
Pteropus poliocephalus	Grey Headed Flying Fox	Vulnerable under the TSC and EPBC Acts	Adjacent colony was reported to have in excess of 10,000 Flying Foxes (grey and black) in the area in the last season 09/10
Pteropus alecto	Black Flying Fox	listed as protected under NPW Act 1974	

11. Species impact: *(please tick appropriate box)*	**X** Yes ☐ No	
a) For action proposed on land declared as critical habtat; or	An SIS is attached	n/a
b) For action proposed on land not declared as critical habitat.	Items 12 to 25 have been addressed	see below

N.B: Provision of a species impact statement is a statutory requirement of a licence application if the action is proposed on critical habitat.
The provision of information addressing items 12 to 17 is a statutory requirement of a licence application if the action proposed is <u>not</u> on land that is critical habitat. Information addressing any of the questions below must be attached to the application.

12. Describe the type and condition of habitats in and adjacent to the land to be affected by the action.	The habitat to be modified is approximately 0.5 ha of the 3 ha of severely modified riparian vegetation that is heavily weeded with Camphor Laurels (CL) adjacent to the FF colony (approx 1 ha) in the local Lions Park which is zoned open space in Councils LEP (see map 3 and associated photos 1 – 26 attached). Opposite is urban residential and a road separates the two. The FF colony is due north further upstream in Lions Park proper and is surrounded by a buffer of manicured grass and open space. There are tall Tallowood and mature CL's that provide the upper storey and the understory is a mix of CL's and other woody shrubs. The soil is brown duplex of moderate fertility that supports an open forest woodland thread of riparian zone. Trees are to 25 mts with a 15-25% projective foliage cover. Native flora species in Lions Park include: Tallowood (*Eucalyptus microcarys*), Flooded Gum (*Eucalyptus grandis*), Native Tamarind (*Diploglottsi australis*), Creek Sandpaper Fig (*Ficus coronata*), Yellow Laurel (*Cryptocarya bidwillii*), Hard Quandong (*Elaeocarpus obovatus*), Red Cedar (*Toona australis*), and Blue Gum (*Eucalyptus salignus*). There is only one mature CL inside the existing FF camp that will be removed this is used as the central roost tree, photos 22 & 23 on Map 3.
13. Provide details of any known records of a threatened species in the same or similar known habitats in the locality *(include reference sources).*	There is an existing Flying Fox (FF) camp (approx 1 ha) in proposed work area that is occupied during the breeding seasons by Grey Headed and Black FF. The FF roost there from September to April. The camp was totally deserted by late March this year. It has been noted by local residents that the camp can be populated by 10 000 FF during the peak season. The camp has been constantly occupied since 2001 and this year the FF have totally vacated the camp, leaving no scouts. There are no formal records of the dynamics and numbers of the colony since it was established. Although several of the local residents have been keeping their own records and are fairly familiar with the camp and have been consulted about the dynamics of the camp. Due to the fact that there have been no formal flora and fauna surveys conducted in Lions Park there are no other identified threatened flora or fauna in the area, although it is suggested by an EPBC Act Protected Matters Report (attached) generated for the grid reference above that there are 17 threatened species and 15 migratory species that may be present in the general area. These include; Regent Honeyeater, Swift Parrot, Australian Painted Snipe, Green and Golden Bell Frog, Booroolong Frog, Southern Barred Frog, Large Pied Bat, Spotted-tailed Quoll, Long Nose Poteroo, GHFF, Bellinger River Emydura, Hairy Joint Grass, Leafless Tongue-orchid, Red Boppel Nut, Clear Milkvine, Milky Silkpod and a quassia sp. Migratory birds include White-bellied Sea Eagle, White-throated Needletail, Rainbow Bee-eater, Black-faced Monarch, Speckled Monarch, Satin Flycatcher, Rufous Fantail, White Egret, Cattle Egret, Japanese Snipe, Painted Snipe and Fork Tailed Swift.
	There is an established camp within proposed work area. There is

14. Provide details of any known or potential habitat for a threatened species on the land to be affected by the action *(include reference sources).*	one larger CL in the camp area that will be targeted (photos 22 & 23). The attached Map 2 shows the existing camp and the overflow from the 2009/10 season and shows where the mature CL are planned to be removed.
15. Provide details of the amount of such habitat to be affected by the action proposed in relation to the known distribution of the species and its habitat in the locality.	It is proposed that the 3 ha area will be weeded which would equate to 0.5 ha of modified habitat, chemically and mechanically to remove all weed species. The mature CL (approx 4) will be felled by professional arborist due to the danger that a dying CL will pose to the safety of the park users and to the bank stability, and the waste taken away from the site. The stumps will be chemically treated to arrest coppicing. The immature CL's will be poisoned and left to die leaving an understorey to prevent too much light penetrating and blowing out the soils' seed bank. The established native species will be left intact and any areas needing adjunct vegetation, will be planted with local species. To further support the river bank Lomandra will be planted along the work area to enhance the riparian habitat. Due to the heavy weed infestation of the soil seed bank there will be ongoing maintenance by a bush regeneration group to weed and nurture the revegetation. It is not clear if there are other roost sites in the immediate area as Council is only alerted to any by public complaint, currently there is a new roost site (occupied since March 2010) approx 15 km SE of Bowraville along the banks of the Nambucca River at Macksville (opposite Kings Point), the other known camps and roost sites are in Bellingen and Coffs Harbour, it is not known if there are any in Kempsey Shire. Although there is similar habitat further up and downs stream of the current camp that may be suitable as a roosting site (Map 4)
16. Provide an assessment of the likely nature and intensity of the effect of the action on the lifecycle and habitat of the species.	The large Camphor laurel in the existing camp that is planned to be felled to ensure the continuing stabilisation of the bank. This camphor is a central roost tree in the camp. There may be a small impact to the returning FF and competition for roost space in the remaining native trees. Some of the usual population may find other roost sites and not return to Bowraville. It is noted there is now a new camp that has been populated since March 2010 along the Nambucca River at Macksville 15km SE of Bowraville, opposite Kings Point, this camp maybe a new camp and may provide extra roost areas in the event of an overflow. It is intended to provide native vegetation to replace the weed species. There will be a 0.5 ha change to the 3 ha of vegetation in Lions Park, this change will become less as the vegetation matures and the competitive weed species eradicated. Existing native vegetation both in the camp and adjacent areas provide roost areas presently. Although the residents thought the camp this season was at its peak the FF did not move into previous overflow areas downstream of the existing camp. The immature trees will be poisoned and will ensure some roost

	space in the lower storeys. There will be no fragmentation or isolation of any vegetation to ensure enough roost space for the next seasons.
17. Provide details of possible measures to avoid or ameliorate the effect of the action.	The timing of the proposed works May to August 2010 will correspond with the existing FF camp being vacant as the FF left late March 2010. Disturbance to the GHFF during the end of September 2010 through to March 2011 is to be avoided as this would disturb the colony and may cause the pregnant female to spontaneously abort. If the GHFF return early then all works will be arrested and will be completed in the following years camp vacation. There will be no native species targeted in the proposed plan, only the weed species. The weed species including the Camphor laurels are to be removed selectively from the area so there will be no adverse impacts on the native riparian vegetation. Immediate revegetation of the site is planned. The removal of weed vegetation will open up the canopy and expose the soil. The exposed soil will be vulnerable to erosion so Lomandra will be planted to stabilise the bank. Native species will replace the weed species. The open canopy will increase the sunlight and hence weed species within the soils seed bank will flourish. It is intended that a bush regeneration group be started in the area by the Nambucca Valley Landcare to regularly weed and nurture the area to prevent sediments reaching the river and weed regrowth. The removal of weeds will be done by trained professionals using control method guidelines for CL control from the North Coast Weed Advisory Committee. Council will issue DECCW Bush Regeneration Guidelines to all contractors involved in the project. In addition to replanting there will be the use of sediment fencing and aquatic booms to minimise the potential of sediments entering the Nambucca River from the start of the project until the revegetation has taken hold. If any species of threatened flora that is found will be properly identified, logged and reported to the appropriate authority. The species will be protected by a red tag on its trunk, or a barrier placed around it to protect it during works.

N.B: The Director General must determine whether the action proposed is likely to significantly affect threatened species, populations or ecological communities, or their habitats. To enable this assessment the Applicant is required to address items 18 to 25. Information addressing any of the questions below must be attached to the application.

18. In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population	No there is no risk of adverse effect or extinction on the FF's as the established FF camp will not be removed only weeded. The camp is currently vacant and the works will not have any impact on them. Although the works planned have the potential to further degrade the site, such as open the canopy and let light through and promote the soil seed bank flourishing (mainly weed sp.), there is a plan of maintenance that will ensure that weeding and nurturing of the revegetated site is maintained for the next few years until the area has recovered. Nambucca Valley Landcare will help in organising a

of the species is likely to be placed at risk of extinction.	Bushcare group to facilitate the maintenance regime. This revegetating with local native species will help in re-establishing the canopy and promote a healthy understorey free of weed species. The native species will help in bank stability and growth of a proper riparian zone which in turn will provide a local habitat. It is only the mature CL's that will be felled due to the heightened risk to park users, navigation of the Nambucca River and stability of the riverbank. The immature CL's will be poisoned and left to provide a canopy and roost until the native vegetation matures.
19. In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Nil
20. In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed: (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	There is no EEC that has been identified in the area. On the EPBC Act Protected Matters Report it states that there are no Threatened Ecological Communities in the general area.
21. In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action	(i) There will be limited habitat modification less than 0.2 ha in the actual FF camp but 0.5 ha over the whole park. It is only the weeds being removed from an already highly disturbed and modified site. The large Tallowood and eucalypts will be retained and will provide a roost area. Due to the low amount of projective foliage cover (approx 15-25%) removal of one CL in the FF Camp will not have a great effect on the vegetation in the upper storey. (ii) There will be no habitat fragmentation or isolation as the native

proposed, and (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	species will be retained. There will be some revegetation in areas that gaps appear but these gaps are not large enough to affect the FF. The native species will provide linkages along the riparian zone. (iii) there is Nil effect as the native species will not be touched. The one CL that provides a roost is at risk of falling into the river compromising river bank stability and posing a safety issue for park users. This CL is surrounded by several Tallowood and other eucalypts and will not leave the vegetation fragmented or the surrounding roost trees isolated.
22. Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	N/A as the proposed works will not occur on critical habitat
23. Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	In the Draft National Recovery Plan for the Grey Headed Flying-Fox *Pteropus poliocephalus* (DECCW 2009), Councils works proposal falls under objective 4 'to protect and enhance roosting habitat critical to the survival of the Grey-headed Flying Foxes'. By way of protecting the existing camp by removing weed species within the surrounding area to enhance the riparian zone vegetation.
24. Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	N/A as Council will not be removing native vegetation

Important information for the applicant

Processing times and fees

The *Threatened Species Conservation Act 1995* provides that the Director General must make a decision on the licence application within 120 days where a species impact statement (SIS) has been received. No timeframes have been set for those applications which do not require a SIS. The Director General will assess your application as soon as possible. You can assist this process by providing clear and concise information in your application.

Applicants may be charged a processing fee. The Director-General is required to advise prospective applicants of the maximum fee payable before the licence application is lodged. Therefore, prospective applicants should contact the DECCW prior to submitting a licence application .

A $30 licence application fee must accompany a licence application.

Protected fauna and protected native plants*

Licensing provisions for protected fauna and protected native plants are contained within the *National Parks and Wildlife Act 1974.* However, a Section 91 Licence may be extended to include protected fauna and protected native plants when these will be affected by the action.

If you are applying for a licence to cover both threatened and protected species please provide the information requested in Item 10 *and* a list of protected species and details of the number of individuals animals or proportion and type of plant material which are likely to be harmed or picked.

Request for additional information

The Director General may, after receiving the application, request additional information necessary for the determination of the licence application.

Species impact statement

Where the application is not accompanied by a SIS, the Director General may decide, following an initial assessment of your application, that the action proposed is likely to have a significant effect on threatened species, populations or ecological communities, or their habitats. In such cases, the *Threatened Species Conservation Act 1995* requires that the applicant submit a SIS. Following initial review of the application, the Director General will advise the applicant of the need to prepare a SIS.

Director General's requirements for a SIS

Prior to the preparation of a SIS, a request for Director General's requirements must be forwarded to the relevant DECCW Office. The SIS must be prepared in accordance with section 109 and 110 of the TSC Act and must comply with any requirements notified by the Director General of the Department of Environment, Climate Change and Water (NSW).

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* Protected fauna means fauna of a species not named in Schedule 11 of the *National Parks and Wildlife Act 1974.*
Protected native plant means a native plant of a species named in Schedule 13 of the *National Parks and Wildlife Service 1974.*

Disclosure of Personal Information in the Public Register of s91 Licences

The Public Register provides a list of licence applications and licences granted. A person about whom personal information is contained in a public register may request that the information is removed or not placed on the register as publicly available.

A full copy of licences granted is included on the DECCW website at
http://www.environment.nsw.gov.au/npws.nsf/content/s91_tsca_register
or in a hardcopy available from The Librarian, DECCW, 59 Goulburn St, Sydney.

Please contact the relevant DECCW Environment Protection and Regulation Division for more details. (Contact details are below.)

Certificates

If the Director General decides, following an assessment of your application, that the proposed action is not likely to significantly affect threatened species, populations or ecological communities, or their habitats, a Section 91 Licence is not required and the Director General must, as soon as practicable after making the determination, issue the applicant with a certificate to that effect.

N.B: An action that is not required to be licensed under the Threatened Species Conservation Act 1995, may require licensing under the National Parks and Wildlife Act 1974, if it is likely to affect protected fauna or protected native plants.

I confirm that the information contained in this application is correct. I hereby apply for a licence under the provisions of Section 91 of the *Threatened Species Conservation Act 1995.*

Applicant's name *(Please print)*	*Michael Coulter*
Applicant's Position & Organisation *(if relevant)* *(Please print)*	*General Manager* *Nambucca Shire Council*
Applicant's signature	
Date	6 May 2010

For more information or to lodge this form, contact the Environment Protection and Regulation unit in your nearest DECCW office:

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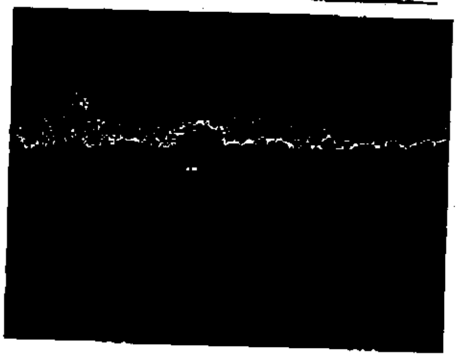
Department of Environment, Climate Change and Water (NSW)
PO Box A290, Sydney South NSW 1232
Phone: 9995 5000 (switch) Fax: 9995 5999
Email: info@environment.nsw.gov.au

2 MANAGEMENT STRATEGY 1 (HIGH)



Improve overall riverbank condition (including riparian habitats) on all major streams and waterways within the Nambucca Valley

Addresses Management Objectives

- BE- Bank Erosion and Sedimentation
- WQ – Water Quality

References

- For Estuarine Erosion, please refer to GECO Environmental (2005) 'Estuarine Geomorphology, Physical Condition and Mapping' report.
- For Freshwater Erosion, please refer to the Lyall Macoun (1999) '*Nambucca Valley River and Catchment Management Study*' series of reports.

Description

Work completed by Geco Environmental (2005) identified that most of the major reaches of the Nambucca River estuary are suffering from riverbank instability. In the upper reaches of the estuary, fluvial processes (i.e. floods) are believed to be the dominant processes driving channel change, while in the lower estuary wave action (from wind and boats) may also be a significant contributor. Bank stability can be affected by other human actions, such as clearing or damage of riverbank (i.e. riparian) vegetation, and uncontrolled cattle grazing and gravel extraction. These actions either limit the ability of the bank to remain stable against the impacts of wave action and floods flows, or lead to responses in the estuary bed which can cause further bank erosion and sedimentation.

The aim of this strategy is to focus protection efforts on those reaches in good condition through the removal of preventable threatening processes such as boat wash causing erosion, cattle grazing on banks, etc. This strategy also promotes rehabilitation activities in slightly degraded areas with a high likelihood of being returned to a good condition, as well as strategic reaches requiring reinforcement e.g. popular recreational boating and water sport areas.

The choice of appropriate protective or rehabilitative actions will depend on the specifics of the riverbank in question. In general, a variety of actions may be appropriate depending on the specific circumstances of the area in question, such as tree planting, riverbank fencing and/or rock revetment.

MANAGEMENT STRATEGY 1 (HIGH)

Actions	Responsibility	Specific Tasks and Resources	Timeframe	Cost	Potential Fund Sources
1.1 Seek devolved grant funding for a five year period to target protection and rehabilitation of riverbank sections throughout the estuary in accordance with recommendations of GECO Environmental (2005) (p33) namely: • Address estuarine erosion as detailed in Figure 2-1; • Address upstream erosion as detailed in Figure 2-2; • Protect and rehabilitate sites with high quality riparian vegetation (see Figure 2-3); and • Target serious invasive weeds e.g. Madeira vine in riparian areas (see Figure 2-4). In addition to these areas, there is also a need to provide bank protection works at locations susceptible to bank erosion within the estuary, which are also subject to higher levels of recreational boating and water sports. see Figure 2-5. From the above, the proposed actions should be documented in an estuarine Bank Management Plan with a minimum 5-year timeframe for investment. The Plan should identify priorities for action, types of works required, resources required, etc. and form a key resource document in this respect.	For Crown (public) lands, the responsibility lies with the Reserve or Trust holder For Private lands, the responsibility lies with the landholder. The Nambucca River Boating User Group will provide assistance for bank protection works in high use recreational boating and watersport areas. NSW Maritime may also be able to provide assistance in this regard.	For details on best practice riverbank restoration techniques for treatment of bank instabilities see GECO Environmental (2005) (pages 20 to 23). Other resources include the: • '*Riverbank restoration for the Nambucca River Estuary*' for vegetation • '*River Restoration Activities in the Nambucca Valley*' for physical bank treatments • 'A River Rehabilitation Manual for Australian Streams, Volume 1 and 2 (2000) http://www.lwa.gov.au/products_list.asp • River Restoration Manual, Dept of Water WA Government http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/RiverRestoration/ To implement works, it is recommended that local working groups such as Landcare and Rivercare be encouraged. Figure 2-5 identifies generally areas which are susceptible to bank erosion and which are subject to higher levels of recreational boating. Bank protection works should be designed to cater to expected use types and levels. Works should also integrate with other strategies, e.g. protection/improvement of the riparian zone, removal of weeds, etc. See also Strategy 19.1 for which proposes the preparation of engineering guidelines for bank design and works	The protection and rehabilitation of those areas currently in: • Good condition should occur in the short terms, i.e. 1 to 2 years. • Moderate condition should occur in the mid-term, i.e. 3 to 5 years. • Poor condition should occur in the longer term, i.e. >5 years.	The costs for protection and rehabilitation vary dramatically for the type of work being completed. A good range of costs for actions such as fencing, weeding, site preparation, rehabilitation, etc is provided in: http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/RiverRestoration/Content/DRAFT%204.pdf Local Landcare officers may be able to provide site-specific advice on this matter.	• Envirofund • NRCMA • DECC (Landcare) • Council's Environmental Levy
1.2 Raise public awareness in relation to riverbank management options (including riparian vegetation) and funding opportunities.	Council in consultation with and DECC and NRCMA and the Community Support Officer program.	There are many examples in the Shire (and in nearby Shires) of best practice riverbank management (including riparian land) management. A variety management approaches and outcomes should be demonstrated via a series of field days in conjunction with the respective landowners.	Field days should be held in the short term.	Minimal	• NRCMA • Council's Environmental Levy

Actions	Responsibility	Specific Tasks and Resources	Timeframe	Cost	Potential Fund Sources
1.3 Address knowledge gap in relation to sedimentation and shoaling within the estuary and its relationship with bank stability and erosion.	Council in conjunction with the following State Agencies: • NSW Maritime • Department of Lands • DECC • DPI Fisheries	The Estuary Management Study brief identified the need to complete assessments in relation to sedimentation and shoaling. However, this could not be addressed due to a lack of a current hydrosurvey. The following actions are required to address this knowledge gap: • Undertake hydrosurvey to establish extent of shoals and bars in estuary waterways. • Compare current hydrosurvey to previous hydrosurveys to establish changes to bank and bank profiles. • Identify the likely source(s) of sediment to the estuary and determine its role in river processes and ecology. • In conjunction with the Nambucca River Boating User Group, map areas that are problematic to navigation and examine potential management options. see also Strategy 14.1.	When hydrosurvey becomes available	DECC to fund hydrosurvey.	Funding for follow up studies to be determined by consultation with identified stakeholders.

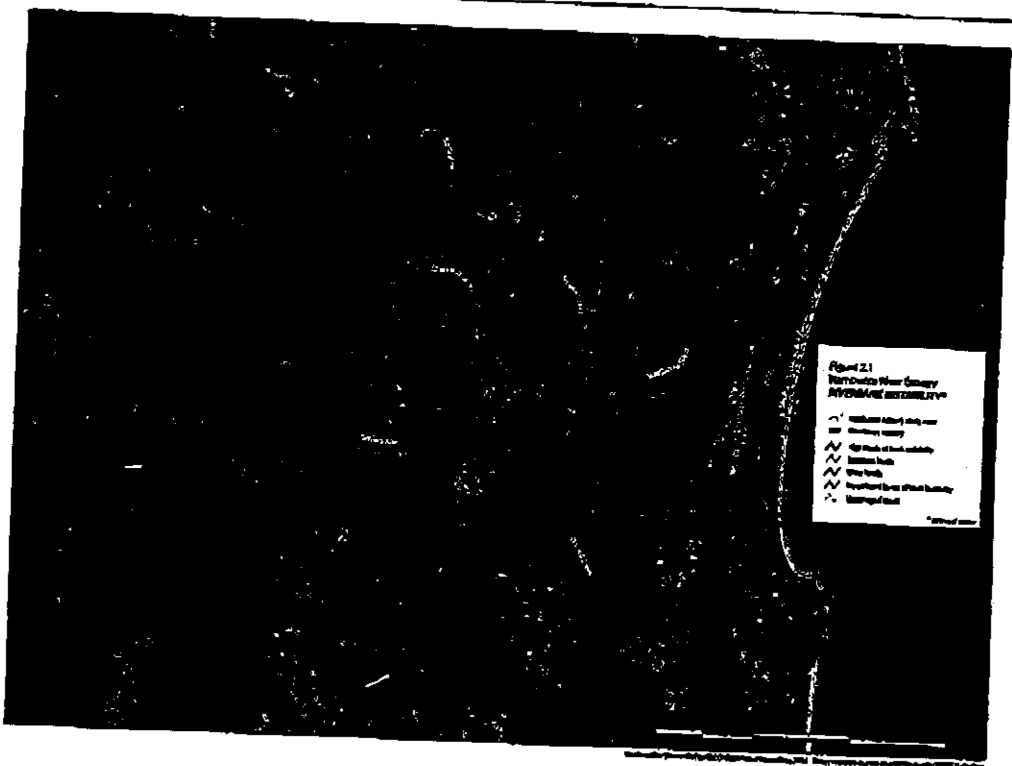


Figure 2-1 Riverbank instability in the estuary (GECO Environmental, 2005)

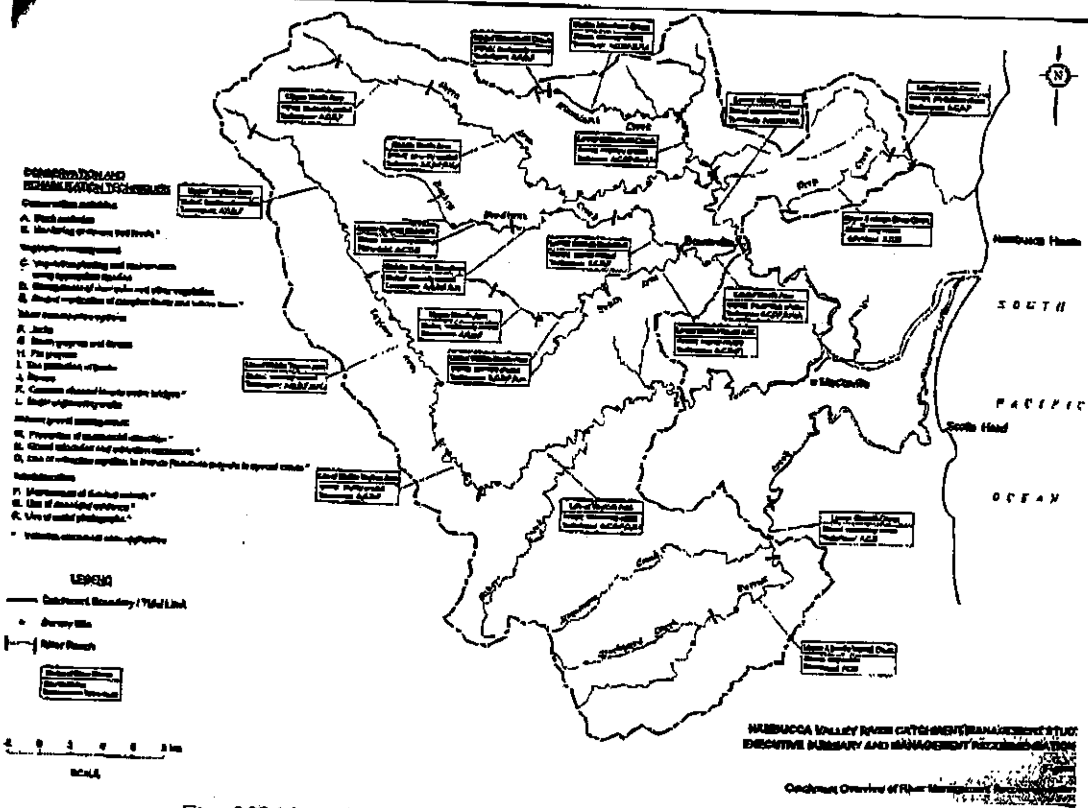


Figure 2-2Catchment Overview of River Management Recommendations (Lyall & Macoun, 1999)

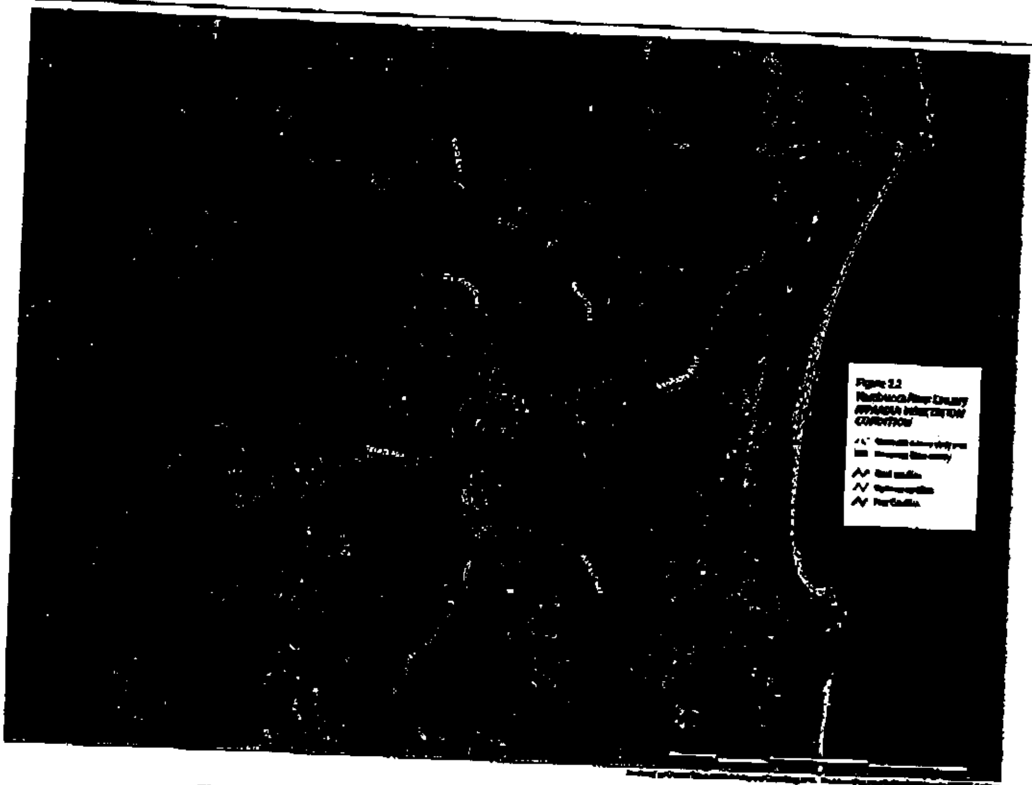
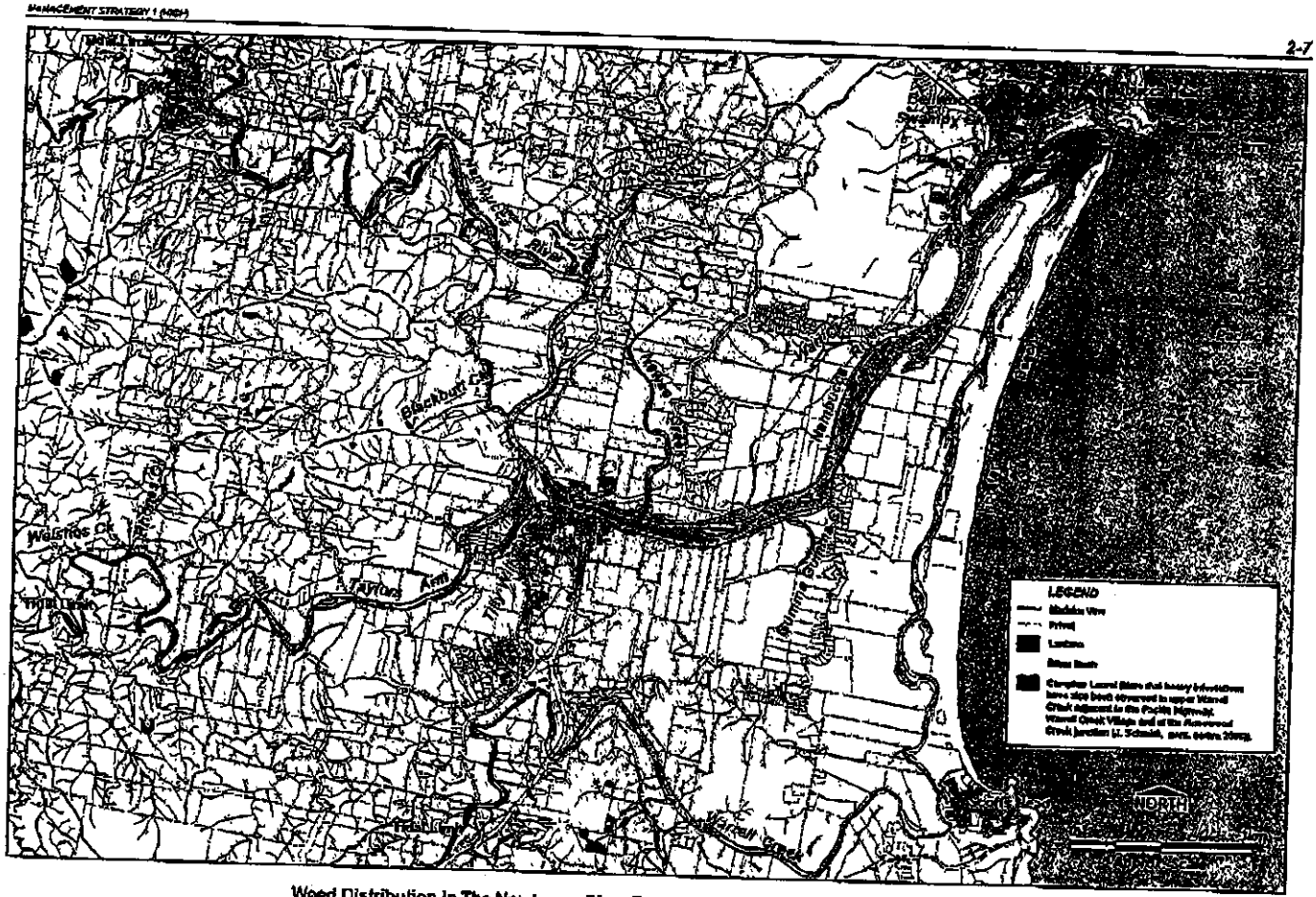


Figure 2-3 Riparian vegetation condition in the estuary (GECO Environmental, 2005)



Weed Distribution in The Nambucca River Estuary Catchment (Based on Kendall, 2003 and Telfer, 2004) Figure 2-4

9 MANAGEMENT STRATEGY 8 (HIGH)

Enhance condition of habitats of high ecological and/or conservation value e.g., saltmarsh, wetlands, littoral rainforests, riparian zone and floodplain wetlands

Addresses Management Objectives

- LTU – Land Tenure and Usage
- HM – Habitat Management
- WQ – Water Quality

References

- Section 10 of the Estuary Management Study
- Estuarine Geomorphology, Physical Condition and Mapping Report

Description

Large areas of remnant vegetation exist within the study area, which provide habitats of high ecological, and/or conservation value. Activities that threaten the integrity and viability of these habitats, include:

- *Weed Invasion.* The major impact of weeds is their displacement and replacement of native plant species and alteration of habitat values for native fauna. Weed control efforts should target newly introduced species which have the potential for environmental harm;
- *Soil disturbance* (stock impacts / erosion / pathogen introduction);
- *Poor water quality*;
- *Inappropriate fire regimes.* Although some vegetation communities in the Nambucca estuary catchment may be able to recover following fire, they may not benefit from it. Within the Nambucca estuary catchment, fire exclusion rather than use is the recommended management approach for most communities, but detailed site based assessments are required to identify the appropriate method and level of fire management; and
- *Drainage and exposure of acid sulphate soils.* Of most concern are the impacts of flood mitigation and drainage measures on floodplain wetlands.

MANAGEMENT STRATEGY 8 (HIGH)

Actions	Responsibility	Specific Tasks and Resources	Timeframe	Cost	Potential Fund Source
8.1 Rehabilitate habitats of high ecological value where degradation has occurred. Management priorities should be based on the area and condition of remnant vegetation and adjacent landuses. Actions include: • Development of GIS based mapping resources identifying degraded habitats of high value and priorities for action. • Development of appropriate plans to facilitate the process of rehabilitation and identification of suitable funding arrangements. • Development of appropriate record keeping techniques that allow for the identification of previous actions undertaken or planned within the catchment.	Council in conjunction with DECC	Figure 7-1 identifies high ecological value habitats within the study area. If degraded, the condition of these communities and habitats should be enhanced over time. Figure 2-3 shows riparian vegetation condition. Also, activities that threaten the integrity and viability of these existing habitats, e.g. weed invasion, soil disturbance, water quality/quantity (ASS/flooding), fire, stock trampling, should be eliminated or mitigated. Priorities for enhancement should be based on the area and condition of the vegetation remnants and adjacent landuses. To this end, previous data collected by Kendall and Kendall (2003), Council and others should be used to determine the current condition of these habitats within the community. Where data is unavailable, further work (i.e. groundtruthing) may be required to supplement existing information. When planning enhancement work, an initial site assessment should be used to determine the condition of the habitat to be rehabilitated, documenting the extent and composition of vegetation; fauna habitat features; site condition; adjacent land uses and impacting factors (weeds, fire, stock, etc). From this assessment appropriate remedial/rehabilitation strategies can be determined, e.g. planting species, densities, planting techniques and maintenance requirements, such as weed control, fencing for stock, etc.	This strategy should be initiated in the short term (i.e. over the next 1 to 2 years), but it is likely to take several years to complete.	GIS mapping identifying locations of high value habitats is available through DPI Fisheries, DECC, etc. Costs for groundtruthing of habitat condition and development of priorities (labour and reporting) are expected to be around $30K to $50K if this information is unavailable from other sources. Permission from landholders may be required to complete surveys. Rehabilitation plans for individual areas may cost around $5 to 10K each. Costs for habitat rehabilitation will be site specific and could potentially be very high depending on the total areas targeted and issues to be dealt with. Costs could be significantly offset through adoption of incentives for the long-term protection of high value habitats and riparian vegetation along the estuary.	Widespread rehabilitation may be better achieved through the provision of targeted financial and labour assistance to private landholders wanting to commit to long-term habitat management. Funding sources include: • NRCMA • State Government incentive based schemes. • Envirofund

MANAGEMENT STRATEGY 8 (HIGH)

Actions	Responsibility	Specific Tasks and Resources	Timeframe	Cost	Potential Fund Source
8.2 Development of a program of weed control within the estuary in conjunction with the North Coast Weed Advisory Committee. Figure 2-4 shows the location of known weeds in the estuary.	Council in conjunction with the North Coast Weed Advisory Committee	The program should be prioritised. A priority weed may be Madeira vine (a major environmental weed species), which is just starting to get a hold in the valley. For other major environmental weed species such as camphor laurel, small leaved privet, and bitou bush, targeted removal and control should also be undertaken in areas of otherwise good quality riparian vegetation It should be possible to seek assistance from the North Coast Weed Advisory Committee to develop a program of weed control within the estuary, see: http://www.northcoastweeds.org.au/ The Nambucca Heads Aboriginal Land Corporation's Green Teams could be supported in enacting the weed control programs.	This strategy should be initiated in the short term (i.e. over the next 1 to 2 years), but it is likely involve ongoing resources.	Costs for developing the weed strategy should be determined with the Weeds Advisory Committee. Costs for control will be related to type of weed and level of infestation. In first year, would expect: • $2K -$3K/ha low infestation • ~$10K/ha mod. infestation • ~$50K/ha sev. infestation There will be a need for follow up work in years after initial treatments, but costs should be less.	• NRCMA • State Government incentive based schemes.

22 MANAGEMENT STRATEGY 21 (LOW)

Protect habitats of moderate or local ecological value (eg areas of native regrowth)

Addresses Management Objectives

- HM – Habitat Management

References

- Section 10 of the Estuary Management Study

Description

Approximately 80% of the study area is privately owned and the remainder is constituted of a variety of Crown lands and State Forests. The regrowth communities of the study area provide potentially suitable habitat for a diverse range of flora and fauna species and may contribute to maintaining biodiversity values within the study area by providing wildlife refuge and forming part of the wildlife corridor network across the study area linking upland and lowland vegetation communities. Many of these sites occur on rural residential land and remain unprotected and prone to development pressure. The management priority for these habitats is to protect those that buffer significant ecological habitat or those that contribute to the wildlife network across the study area.

Actions	Responsibility	Specific Tasks and Resources	Timeframe	Cost	Potential Fund Source
21.1 Protect communities that buffer significant ecological habitat or those that contribute to the wildlife network across the study area, for example regrowth communities by inclusion of protection mechanism for these habitats within the Nambucca Shire Council's LEP and DCPs.	Council in conjunction with landowners, Department of Lands, DECC and the Department of Planning	This management strategy aims to protect those habitats of moderate or local ecological value. e.g. regrowth communities, particularly those that buffer endangered ecological communities, key habitats or contribute to the wildlife network across the study area. Buffer zones around these communities should be mapped using GIS tools and triggered as a result of proposed land use changes within the Shire. Protection could be afforded by use Environmental Planning Instruments in the LEP to extend over those areas. Sufficient (GIS based) mapping data exists to identify high value habitats and wildlife corridors throughout the study area. Details of recommended buffer distances to certain endangered ecological communities may be found at: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/cma_subregion_list.aspx?id=118 Other sources of information may include relevant State agencies such as DPI (Forests), DECC (Parks and Wildlife), State Environmental Planning Policies (SEPPs), etc.	Consider implementation as part of Council's ongoing LEP Review.	N/A	-

Note: Regrowth is defined as any native vegetation that has regrown since 1990 except where a Property Vegetation Plan specifies another date). Native vegetation is defined to include trees (including any sapling or shrub, or any scrub), understorey plants, groundcover (being any type of herbaceous vegetation) and plants occurring in a wetland, so long as the species existed in New South Wales before European settlement.

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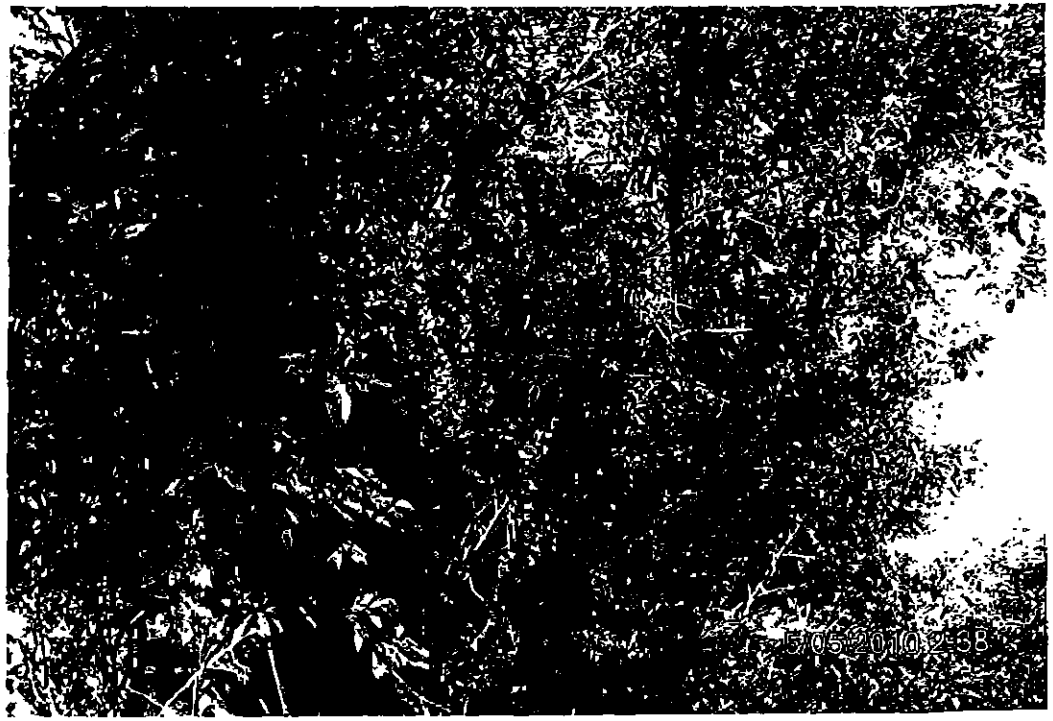
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Photo 20 Vegetation Along Park St

Photo 21 Vegetation along Park St


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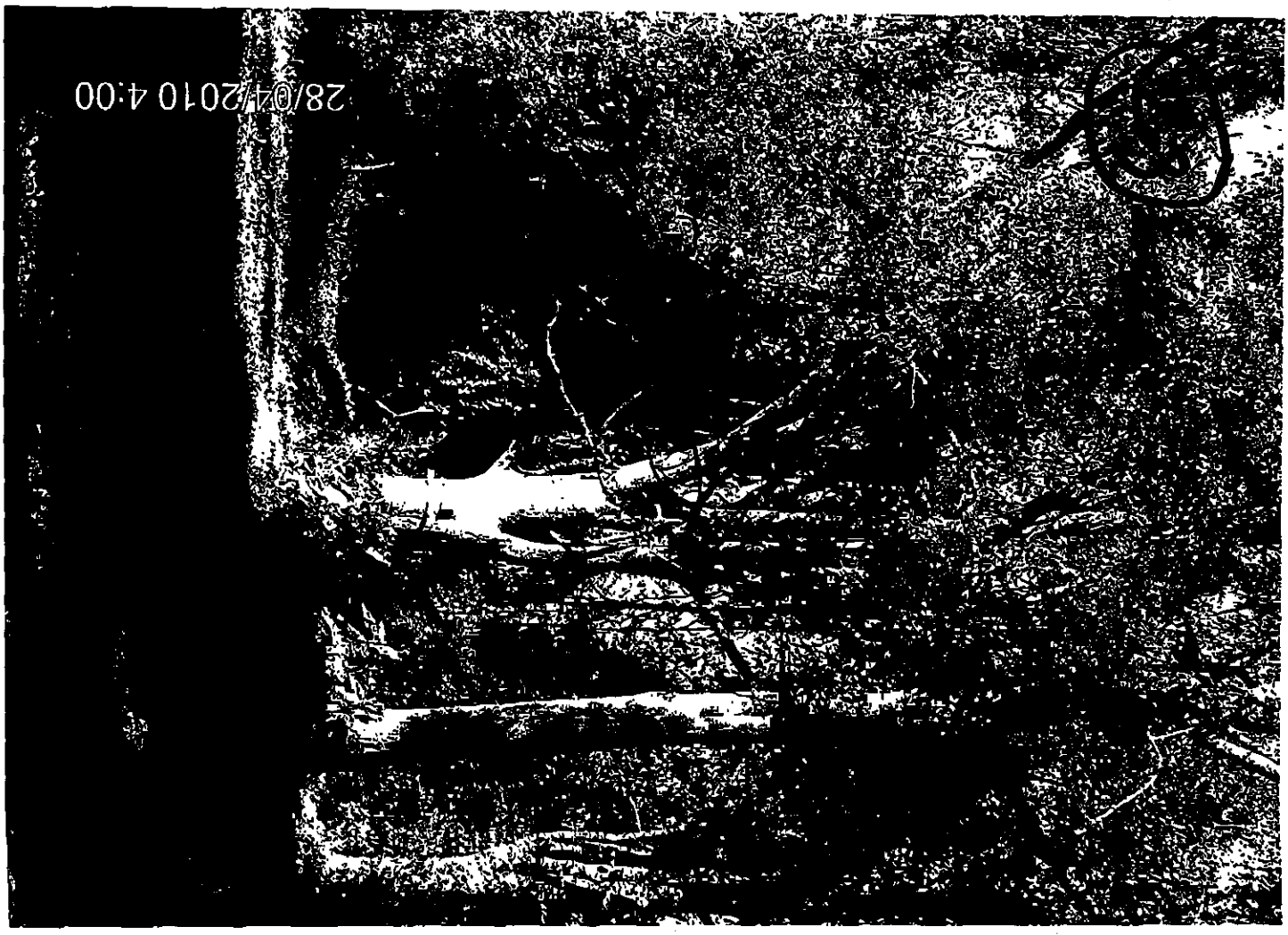
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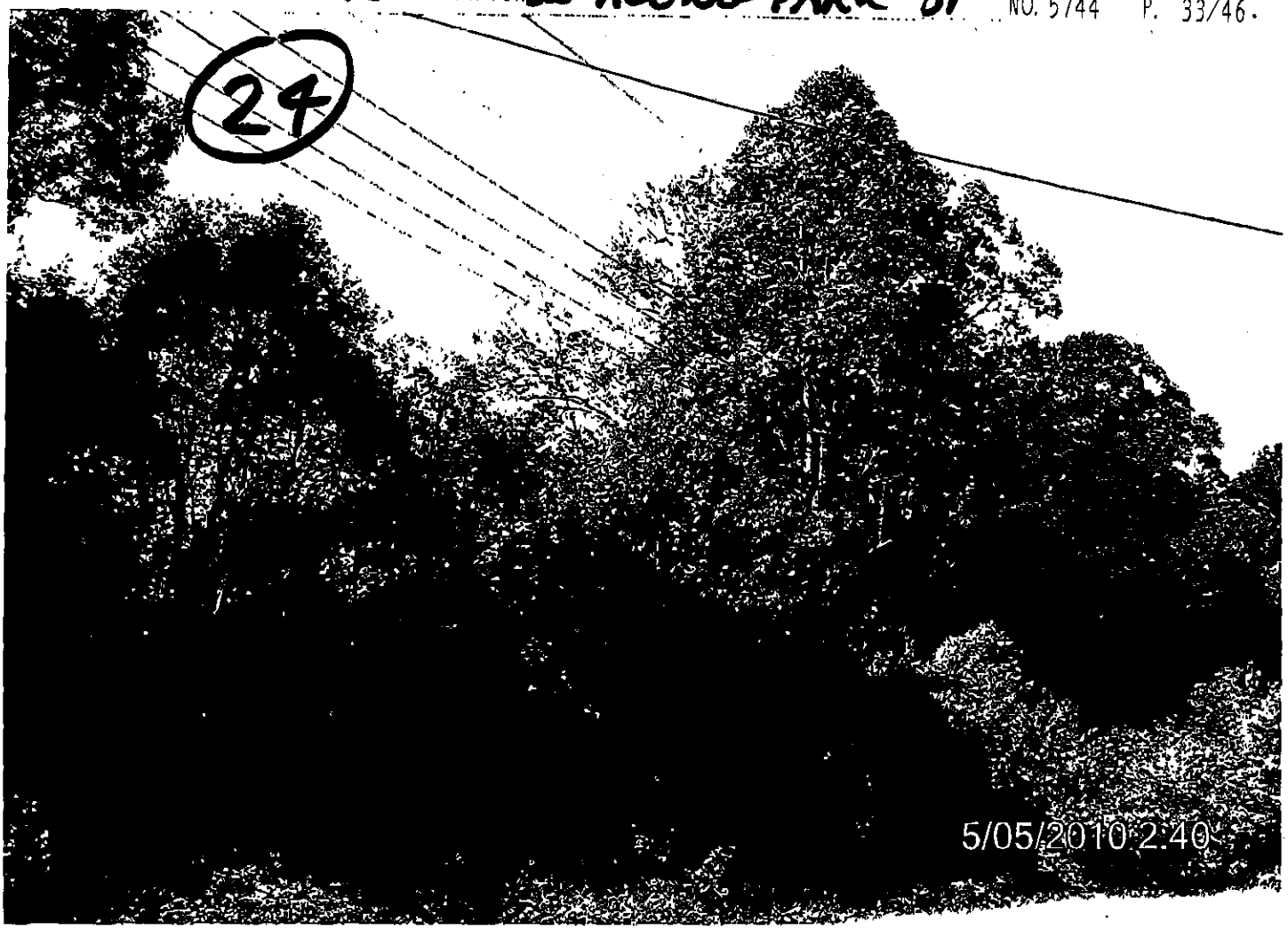
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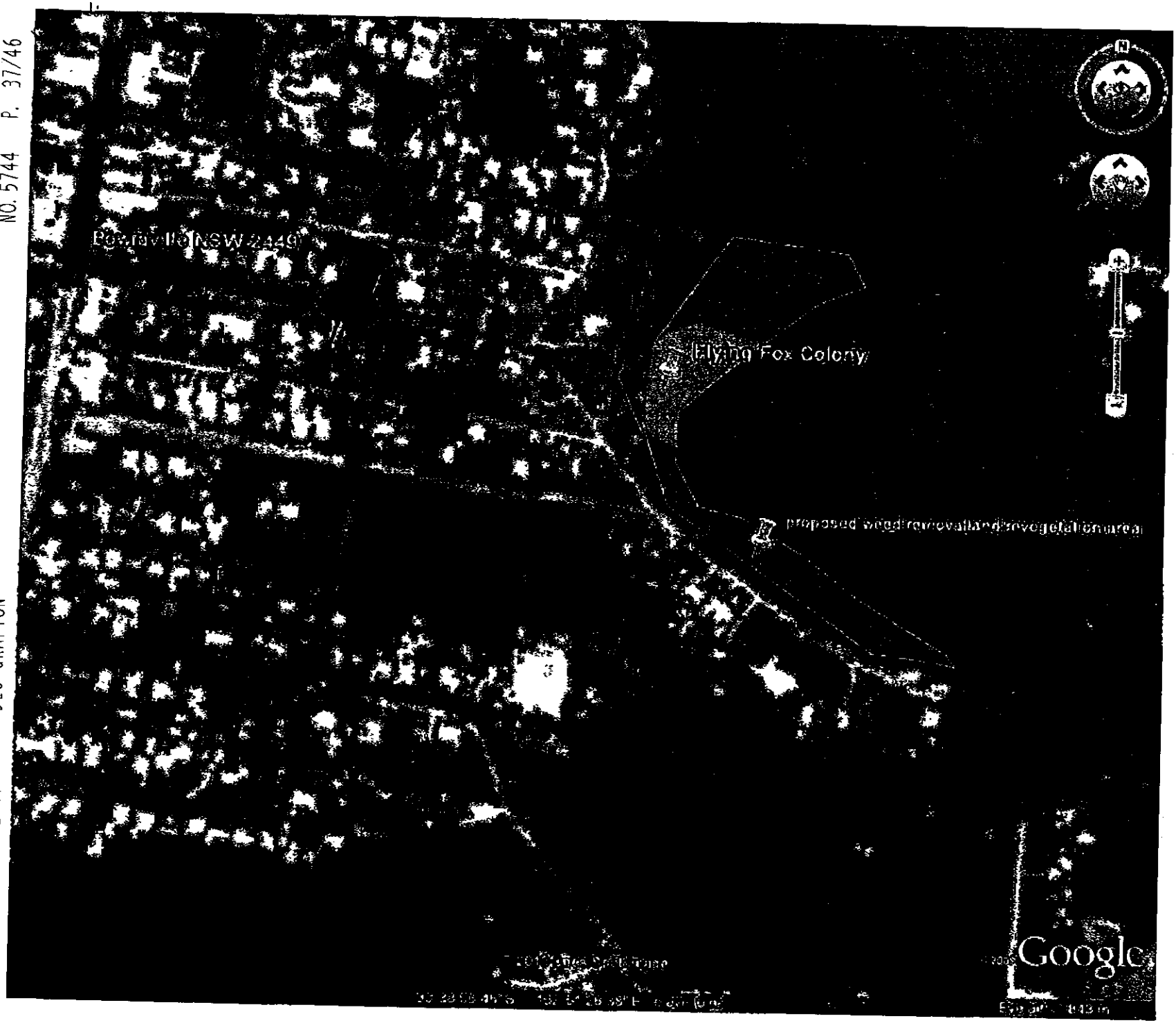
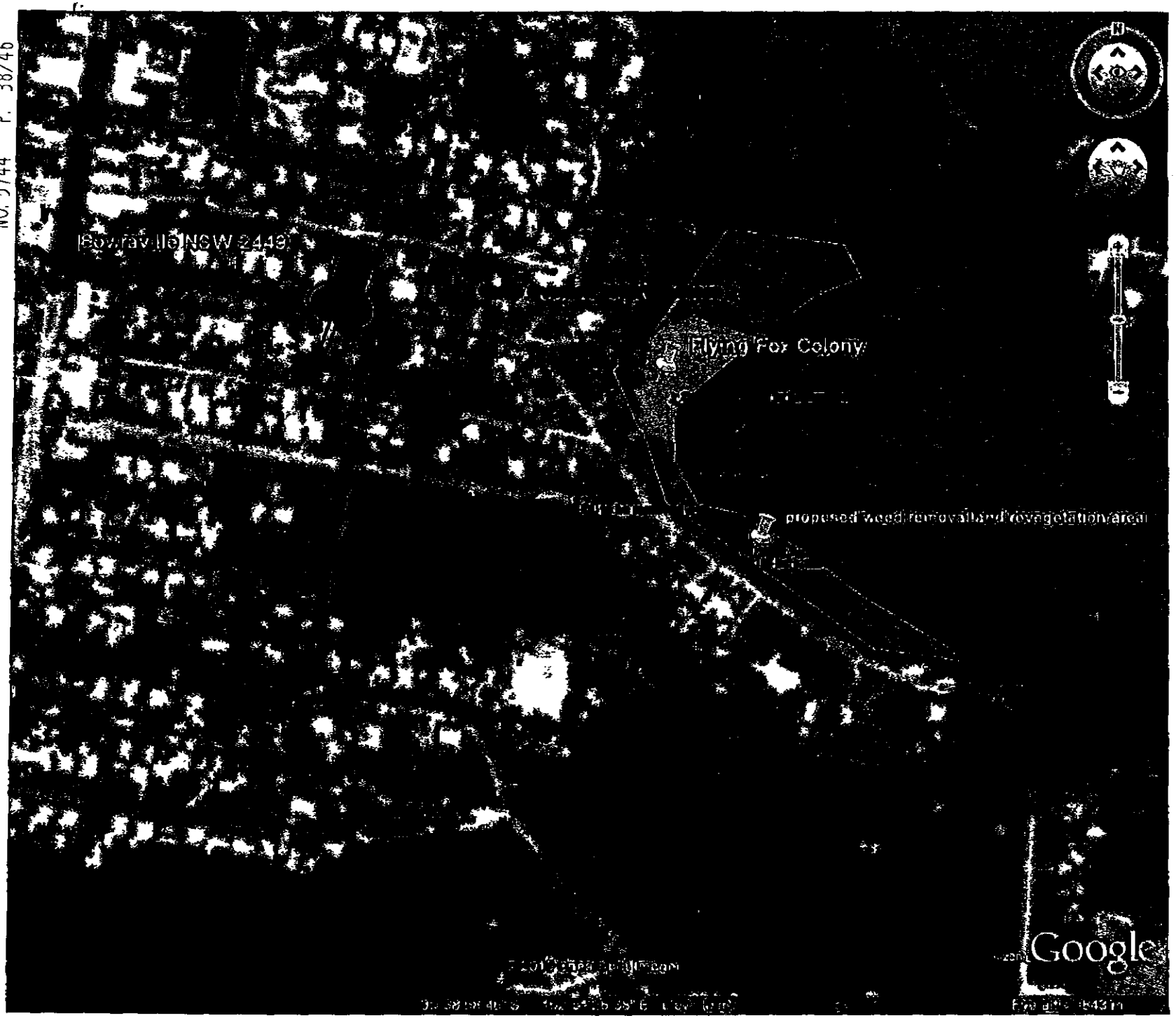
PANORAMA 1 Looking from Amenity Block into Camp

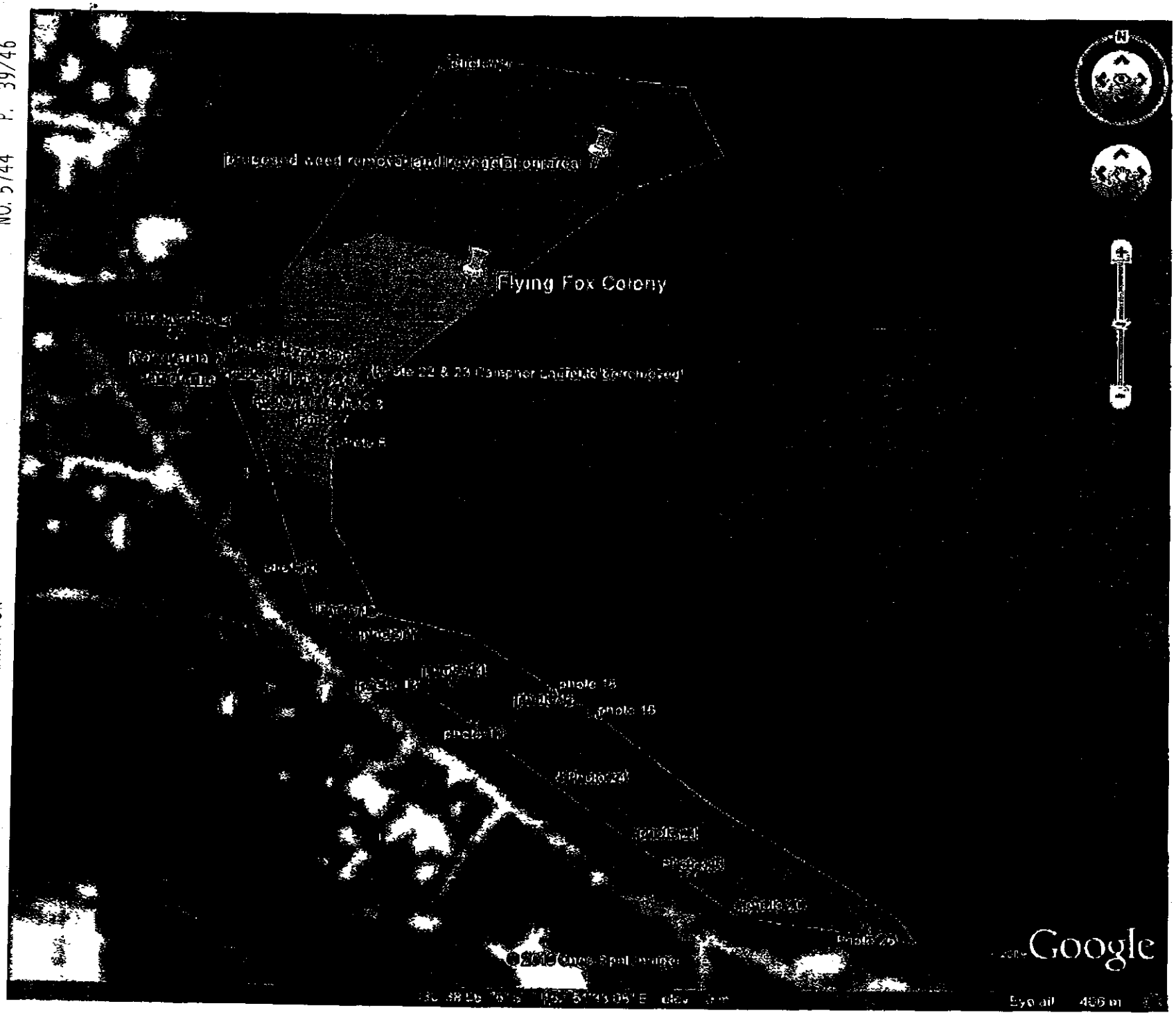
PANORAMA 2 of FF camp proper



Map 1 Location of Flying Fox camp and area of weed removal and revegetation

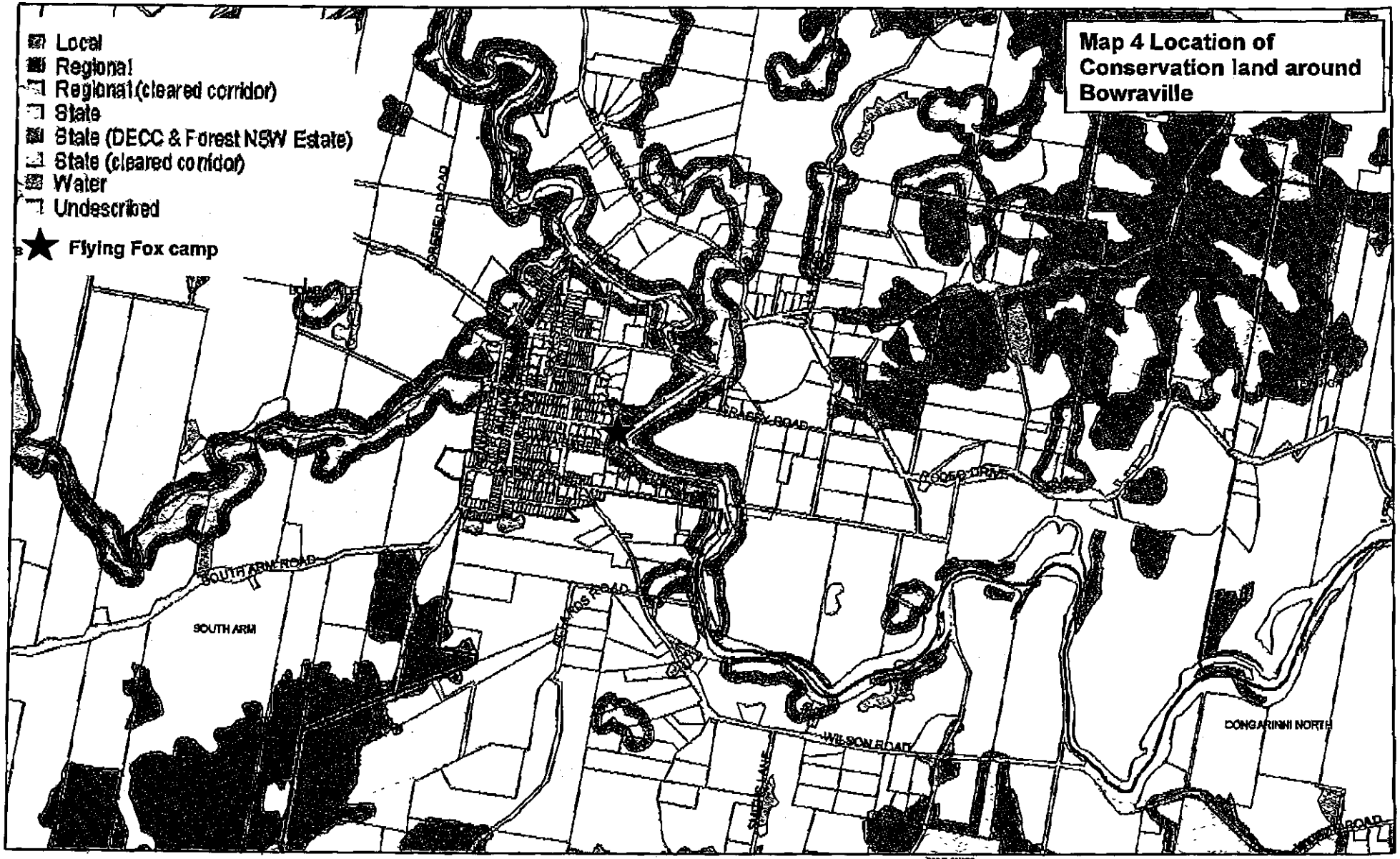


Map 2 Location of Flying Fox camp and 2009/10 overflow and targeted Camphor laurel to be felled and removed from site.



Map 3 Location of photo points

NAMBUCCA SHIRE COUNCIL



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Protected Matters Se... Too

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EPBC Act Protected Matters Report

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This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

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Buffer: 1 km

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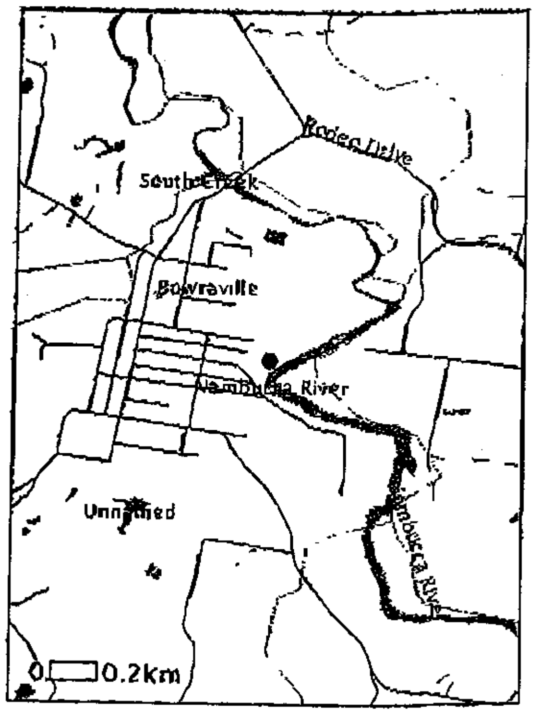

Report Contents: Summary
Details
- Matters of NES
- Other matters protected by the EPBC Act
- Extra Information

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	1

Arthraxon hispidus Hairy-joint Grass	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid	Vulnerable	Species or species habitat may occur within area
Hicksbeachia pinnatifolia Monkey Nut, Bopple Nut, Red Bopple, Red Bopple Nut, Red Nut, Beef Nut, Red Apple Nut, Red Boppel Nut, Ivory Silky Oak	Vulnerable	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine	Vulnerable	Species or species habitat likely to occur within area
Parsonsia dorrigoensis Milky Silkpod	Endangered	Species or species habitat likely to occur within area
Quassia sp. Moonee Creek (J.King s.n. 1949) NSW Herbarium	Endangered	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Migratory	Breeding may occur within area
Monarcha trivirgatus Spectacled Monarch	Migratory	Breeding likely to occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Breeding likely to occur within area
Rhipidura rufifrons Rufous Fantail	Migratory	Breeding may occur within area
Xanthomyza phrygia Regent Honeyeater	Migratory	Species or species habitat likely to occur within area
Migratory Wetland Species		
Birds		

Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
Monarcha trivirgatus Spectacled Monarch	Listed - overfly marine area	Breeding likely to occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
Rhipidura rufifrons Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area

Extra Information

Regional Forest Agreements [Dataset Information]
Note that all RFA areas including those still under consideration have been included.

Lower North East NSW RFA, New South Wales

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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Last updated: Thursday, 20-Nov-2008 14:17:56 EST

CAMPHOR LAUREL

kit

EVERYTHING YOU NEED TO KNOW ABOUT

CAMPHOR LAUREL AND ITS CONTROL

The S

Camphor Laurel Taskforce

Weed