

APPENDIX 5 THREATENED SPECIES TABLES

Table 8.17 Threatened flora species located within the Georges River study area. * = recorded from 1960, ^ = recorded before 1960 (Source: DECCW 2009b; NSW Wildlife Atlas). ROTAP: Rare or Threatened Australian Plants.

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
Gosford Wattle <i>Acacia prominens</i>	Endangered Population in the Hurstville and Kogarah LGAs	<ul style="list-style-type: none"> - Occurs at a few sites along the railway line at Penshurst, at Carss Bush Park, Carss Park and there is an unconfirmed siting at Oatley Park, Oatley. - Grows in open situations on clayey or sandy soils 	<ul style="list-style-type: none"> - Habitat loss - Habitat isolation and fragmentation - Damage during site maintenance activities (including from the use of herbicides) - Competition from weeds 	Bankstown	Near Park (77/10853)*
Downy Wattle <i>Acacia pubescens</i>	Vulnerable/Vulnerable ROTAP: 3VCa	<ul style="list-style-type: none"> - Grows in open situations on clayey or sandy soils - Occurs in open woodland and forest, in a variety of plant communities, including Cooks River/ Castlereagh Ironbark Forest, Shale/ Gravel Transition Forest and Cumberland Plain Woodland <p>Known to occur within Castlereagh Ironbark Forest which occurs within the study area (CMA vegetation mapping project)</p>	<ul style="list-style-type: none"> - Habitat loss - Habitat degradation by weed invasion, mechanical damage, rubbish dumping, illegal track creation and inappropriate fire regime - Disease - Hybridisation 	Liverpool	Cherrybrook Park * Georges River foreshore Holsworthy Military Reserve*
				Fairfield	Chipping Norton foreshore * Prospect Creek foreshore*
				Bankstown	Vale of Ah Reserve * Deepwater Regional Park*

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
					Park 74/10845* Kelso Park* Near Reserve (85/12654)* Near Stuart Street Reserve* Near Park (77/10853)* Near Davies Reserve*
				Hurstville	Near Gannons Park*
Sunshine Wattle <i>Acacia terminalis</i> <i>subsp. terminalis</i>	Endangered/Endangered ROTAP: 2RCi	<ul style="list-style-type: none"> - Coastal scrub and dry sclerophyll woodland on sandy soils <p>The threatened subspecies has not been recorded within any of the vegetation communities that occur within the study area as part of the CMA vegetation mapping project.</p>	<ul style="list-style-type: none"> - Clearing, land development and habitat degradation by rubbish dumping, weed invasion and access by people - Greatest threat is habitat loss due to urban development - At some locations, inappropriate fire regimes may also threaten persistence - Potential for impacts from park management activities or recreational usage due to some plants occurring on the edge of walking tracks and roads 	Rockdale	Near Cook Park *

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
			<ul style="list-style-type: none"> - Potential for the sub-species to hybridise with horticultural cultivars 		
Small Pale Grass-lily <i>Caesia parviflora var. minor</i>	Endangered/ -	<ul style="list-style-type: none"> - Found in damp places in open forest on sandstone <p>Only has an outlying population in NSW (otherwise only in SE Australia and Tasmania), in Barcoongere State Forest, between Grafton and Coffs Harbour. Though the record within the study area is recent (2001).</p>	<ul style="list-style-type: none"> - Grazing of plants by domestic stock - Damage or destruction of habitat by timber harvesting and road-works - Destruction of plants following mis-identification as one of the more common varieties - Due to populations being small and localised there is a risk of local extinction 	Sutherland	Along foreshore of Sandy Point*
Hairy Geebung <i>Persoonia hirsuta</i>	Endangered/Endangered ROTAP: 3KCi	<ul style="list-style-type: none"> - in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone <p>This species has not been recorded within any of the vegetation communities that occur within the study area as part of the CMA vegetation mapping project.</p>	<ul style="list-style-type: none"> - Increased fire frequency due to burning for hazard reduction and other unnatural ignitions - Habitat loss by clearing due to urban and small rural lot development - The European Honey Bee (<i>Apis mellifera</i>) being a poor pollinator for this species and competing with native bees 	Liverpool	Near Pleasure Point Reserve *
				Hurstville	Oatley Park*
Nodding	Endangered/End	<ul style="list-style-type: none"> - Confined to aeolian and alluvial sediments 	<ul style="list-style-type: none"> - Habitat loss and fragmentation (as 	Liverpool	Williams Creek*

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
Geebung <i>Persoonia nutans</i>	angered ROTAP: 2ECi	and occurs in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland - Castlereagh Scribbly Gum Woodland occurs within the study area (CMA vegetation mapping project) Predicted habitat model includes study area as having potential habitat (Steller & Bryant 2004). The location of the record for this species is within this modeled habitat area.	a result of clearing for mining, and rural/residential development) - Inappropriate fire regimes, in particular frequent fire - Habitat degradation resulting from disturbance associated with unrestricted access to habitat		Near 55/9584* Holsworthy Military Reserve* Voyager Point* Near Pleasure Point Reserve *)
				Bankstown	East Hills Park * Near Boomerang Reserve *
Spiked Rice-flower <i>Pimelea spicata</i>	Endangered/Endangered ROTAP: 3ECi	- In both the Cumberland Plain and Illawarra environments this species is found on well-structured clay soils - On the inland Cumberland Plain sites it is associated with Grey Box and Ironbark - In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a more well developed shrub and grass understorey. This species has not been recorded within any of the vegetation communities that occur within the study area as part of the CMA	- Loss of habitat to urban development - High frequency fire - Habitat modification such as mowing, grazing, weed invasion, rubbish dumping or urban runoff	Bankstown	Near Beatty Reserve* Park along Prospect Creek (56/10012) *

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
		vegetation mapping project. However predicted habitat model for this species includes study area as having potential habitat (Steller & Bryant 2004). The location of the record for this species is within this modeled habitat area.			
Sydney Plains Greenhood <i>Pterostylis saxicola</i>	Endangered/Endangered ROTAP: Recommend 2E	<p>- Most commonly found growing in small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines. The vegetation communities above the shelves where <i>Pterostylis saxicola</i> occurs are sclerophyll forest or woodland on shale/sandstone transition soils or shale soils.</p> <p>This species has not been recorded within any of the vegetation communities that occur within the study area as part of the CMA vegetation mapping project. However a predicted habitat model for this species includes study area as having potential habitat (Steller & Bryant 2004). The location of the record for this species is within this modeled habitat area.</p>	<ul style="list-style-type: none"> - Habitat loss due to clearing for development - Habitat degradation associated with unrestricted access and grazing - Unauthorised collection - Weed invasion - Inappropriate fire regimes - Vulnerable to local extinction, due to its extremely small population size and restricted distribution 	Bankstown	Lambeth Reserve*
Coast Groundsel	Endangered/ -	- Coast Groundsel grows on primary dunes This species has not been recorded within	- Potential habitat loss as land is cleared for coastal developments	Sutherland	Towra Point Nature Reserve^

Species	Conservation Status (NSW/Federal)	Habit / Habitat	Threats	Local Government Area (LGA) where occurs	Location of record
<i>Senecio spathulatus</i>		any of the vegetation communities that occur within the study area as part of the CMA vegetation mapping project.	<ul style="list-style-type: none"> - Off-road driving - Bitou Bush (<i>Chrysanthemoides monilifera</i>) may invade Coast Groundsel habitat and smother the species - Excessive pedestrian trampling may cause erosion of dunes and loss of Coast Groundsel habitat 		
Magenta Lilly Pilly <i>Syzygium paniculatum</i>	Endangered/Vulnerable ROTAP: 3Vci	<ul style="list-style-type: none"> - On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. - On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities. <p>Known to occur within Coastal Freshwater Swamp Forest which occurs within the study area (CMA vegetation mapping project)</p>	<ul style="list-style-type: none"> - Potential threat by frequent fire due to being a rainforest plant and is therefore likely that it has not evolved to cope - Loss of habitat through clearing for residential development - Grazing and trampling of habitat by grazing stock - Invasion by weed species of habitat, particularly by Lantana 	Sutherland	Near Woollooware Bay* Towa Point Nature Reserve*

Note: *Tetradlea neglecta* (ROTAP 3RC) has been recorded at Poulton Park, Kogarah LGA. This species is located within an area of vegetation that may be affected by rising sea levels, invasive species and human activities. (*pers. comm.* Kogarah LGA 22 June 2010)

Table 8.22 Threatened fauna species from National Parks and Wildlife Service Atlas Search and Department of the Environment, Water, Heritage and the Arts Protected Matters Search that are likely to occur within the study area.

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
Fish			
Black Cod <i>Epinephelus daemelli</i>	V/-	n/a	Yes – juvenile Black Cod have been recorded around rocky shores in estuaries (I&I NSW 2007b). There is a recommendation by Williams <i>et al</i> (2004) for the management of this species.
Macquarie Perch <i>Macquaria australasica</i>	E/E	n/a	Unlikely – outside natural distribution. (Note: Recorded in 2008 upstream near Campbelltown for the first time in over 100 years(Media Release 2008))
Australian Grayling <i>Prototroctes maraena</i>	-/V	n/a	Yes – due to diadromous nature migrating between rivers, their estuaries and coastal seas (Backhouse <i>et al</i> 2008).
Reptiles and Amphibians			
Green Turtle <i>Chelonia mydas</i>	V/V, Migratory ^{Mr} & LMS	Yes	Yes – recorded in 2007 at Taren Point. Species older than five to ten years are recorded as settling in shallow benthic foraging habitats, including inshore seagrass beds (DEWHA 2010b).
Giant Burrowing Frog	V/V	No	Unlikely – preference for sandstone ridgetop habitat and broader upland valleys (NSW NPWS 2001b).

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
<i>Heleioporus australiacus</i>			
Green and Golden Bell Frog <i>Litoria aurea</i>	E/V	Yes	Yes – 17 records for this species within the study area (Georges River Warwick Farm, Prospect Creek, Lieutenant Cantello Reserve along Georges River and Williams Creek, Kurnell). These locations are where known populations occur including those thought to be probably extinct (Holsworthy, Liverpool) (DEWHA 2010b). The population at Kurnell occurs within freshwater swamps. This species is found in marshes, dams and stream-sides with a preference for those vegetated with bulrushes (<i>Typha sp.</i>) or spikerushes (<i>Eleocharis sp.</i>) (DECCW 2005). Highly disturbed habitats are not avoided by this species in the Greater Sydney region (DECCW 2005).
Red-crowned Toadlet <i>Pseudophryne australis</i>	VI-	Yes	Yes – recorded in 2005 in Georges River National Park. This species inhabits open forests mostly on Hawkesbury and Narrabeen Sandstones (DECCW 2005).
Avifauna			
Australasian Bittern <i>Botaurus poiciloptilus</i>	VI-	Yes	Yes – recorded in Woollooware Bay from 1981 to 2006. This species has a preference for permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha spp.</i>) and spikerushes (<i>Eleocharis spp.</i>) (DECCWc) though is also found in non freshwater areas with reedbeds and other

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
			vegetation including cumbungi, lignum and sedges (Australian Museum 2008).
Bush Stone-curlew <i>Burhinus grallarius</i>	E/-	Yes	Yes – along Riparian vegetation area where open forest and woodland occurs.
Striated Fieldwren <i>Calamanthus fuliginosus</i>	VI/-	Yes	Yes – recorded in 1975 in Towra Point Nature Reserve. Habitat includes swampy, coastal heathlands, tussocky grasslands, low shrubby vegetation and the edges of swamps (DECCW 2005).
Great Knot <i>Calidris tenuirostris</i>	VI Migratory ^w & LMS*	Yes	Yes – recorded at Towra Point Nature Reserve between 1982 to 1985. Habitat includes sheltered, coastal habitats with large, intertidal mudflats or sandflats, including bays and estuaries which are found within the study area (DECCW 2005).
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>	VI/-	Yes	Yes – this species was recorded during the winter of 1991 in Kyle Bay. This species is found in winter in lower altitudes in open eucalypt forests and woodlands which occur within the study area (DECCW 2005).
Greater Sand Plover, Large Sand Plover <i>Charadrius leschenaultii</i>	VI Migratory ^w & LMS	Yes	Yes – in habits sheltered sandy, shelly or muddy beaches or estuaries that have larger intertidal mudflats or sandbanks (DECCW 2005).
Lesser Sand Plover, Mongolian Plover <i>Charadrius mongolus</i>	VI Migratory ^w & LMS	Yes	Yes – this species has been recorded within Towra Point Nature Reserve. Inhabiting estuaries with large intertidal sandflats or mudflats (DECCW 2005).

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
Wandering Albatross <i>Diomedea exulans</i> (sensu lato)	E/V & Migratory ^{Mb} & LMS	Yes	Yes for foraging as this species spends most of their time in flight (DECCW 2005). Species recorded in 1965, potentially flying over Botany Bay.
Black-necked Stork <i>Ephippiorhynchus asiaticus</i>	E/-	Yes	Yes – this species is occasionally found inhabiting intertidal shorelines, mangrove margins and estuaries (DECCW 2005).
Sooty Oystercatcher <i>Haematopus fuliginosus</i>	VI/-	Yes	Yes – this species has been recorded between 1987 and 1994 near Woollooware Bay. This species is known to inhabit muddy estuaries (DECCW 2005).
Pied Oystercatcher <i>Haematopus longirostris</i>	VI/-	Yes	Yes – this species has been recorded between 1981 and 2008 mainly in eastern part of the study area. Locations include Georges River near Illawong (opposite Lime Kiln Bay entrance), Woollooware Bay (between Taren Point and Shell Point) and Towra Point Nature Reserve. This species has a preference for intertidal flats of inlets and bays (DECCW 2005).
Swift Parrot <i>Lathamus discolor</i>	E/ E & LMS*	Yes	Yes – this species was recorded in 2004 in Sylvania. Outside of the breeding season this species migrates to the Australian south-east mainland and occurs where eucalypts flower profusely (DECCW 2005).
Broad-billed Sandpiper <i>Limicola falcinellus</i>	VI Migratory ^W & LMS*	Yes	Yes – this species is known to occur in estuarine sandflats and mudflats and saltmarshes which are found within the study area (DECCW 2005).

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
Square-tailed Kite <i>Lophoictinia Isura</i>	VI-	Yes	Yes – this species has been recorded near Oatley Park between 1992 and 2003. This species inhabits a range of timbered habitats including dry woodlands and open forest with a preference for watercourses (DECCW 2005).
Black-chinned Honeyeater (eastern subspecies) <i>Melithreptus gularis gularis</i>	VI-	Yes	Yes – this species has been recorded at various locations within the study area between 1999 and 2007 including within the Georges River National Park at Picnic Point and Thomas Moore park near Liverpool Weir. Open forest and woodlands within the study area are considered to provide potential habitat for this species (DECCW 2005).
Orange-bellied Parrot <i>Neophema chrysogaster</i>	CE/ CE, Migratory ^T & LMS*	No	Yes at the eastern extent of the study area. This species over winters on the mainland usually within three kilometres of the coast in sheltered coastal habitats including estuaries, coastal dunes and saltmarshes and favouring spits (DECCW 2005).
Powerful Owl <i>Ninox strenua</i>	VI-	Yes	Yes – this species has been recorded at various locations upstream of Oatley between 1996 and 2007. Locations include Oatley, including Oatley Park, Georges River near Illawong (opposite Lime Kiln Bay entrance), Georges River National Park (opposite Picnic Point), Little Salt Pan Creek and Salt Pan Creek. This species inhabits a range of habitats including woodlands and open sclerophyll forest (DECCW 2005).

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
Blue-billed Duck <i>Oxyura australis</i>	VI-	Yes	Yes – this species was recorded in 1990 to the west of Towra Point Nature Reserve. This species inhabits large permanent wetlands and swamps that have dense aquatic vegetation (DECCW 2005).
Osprey <i>Pandion haliaetus</i>	VI-	Yes	Yes – this species has been recorded between 2007 and 2008 at various locations including Salt Pan Creek, Georges River near Illawong (opposite Lime Kiln Bay entrance), Lugarno, near Lime Kiln Bay entrance and Hurstville Bay, Illawong. This species particularly favours the mouths of large rivers, lakes and lagoons feeding on fish over clear, open water (DECCW 2005). This species breeds usually within one kilometre of the sea (DECCW 2005) and therefore breeding habitat is less likely.
Gould's Petrel <i>Pterodroma leucoptera leucoptera</i>	VI E & Migratory ^{Mb}	No	Yes – this species breeds on Cabbage Tree Island and Boondelbah Island, both near Port Stephens (DECCW 2005). Non breeding activity is unknown, though this species is a known marine species for the Sydney Metro area (DECCW 2005).
Australian Painted Snipe <i>Rostratula australis</i> (also <i>Rostratula benghalensis australis</i>)	E/IV	No	Yes – this species has been recorded at Woolooware Bay (1977) and is known to utilise saltmarsh and occasionally brackish wetlands (DEWHA 2010b).
Little Tern <i>Sterna albifrons</i>	E/Migratory ^{Mb} & LMS	Yes	Yes – this species has been recorded over 1150 times from 1981 to 2007 within the study area. These records are located around Botany Bay including at Botany Bay

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
			near confluence with Cooks River, Sandringham Bay and predominantly at Towra Point Nature Reserve. A breeding population is located at Towra Spit Island within Towra Point Nature Reserve. Habitat includes harbours, rivers and inlets with nests in low dunes or on sandy beaches just above the high tide mark (DECCW 2005).
Masked Owl <i>Tyto novaehollandiae</i>	VI-	Yes	Yes – this species has been recorded within Towra Point Nature Reserve in 2006. This species inhabits dry eucalypt forests and woodlands from sea level to 1100m (DECCW 2005).
Regent Honeyeater <i>Xanthomyza Phrygia</i> <i>Anthochaera phrygia</i>	E/E & Migratory ^T	Yes	Yes – recorded between 1977 and 1992 throughout the study area including near Kelso Beach Reserve, Mirambeena Regional Park along Prospect Creek, Lugarno and near Towra Point Nature Reserve. This species is found within dry open forest and woodland, particularly Box-Ironbark woodland and riparian forests of River Sheoak (DECCW 2005).
Terek Sandpiper <i>Xenus cinereus</i>	V/Migratory ^W & LMS*	Yes	Yes – this species has been recorded on the Eastern side of Woollooware Bay from 1984 to 1988. This species is known to inhabit estuaries with a preference for mudbanks and sandflats near mangroves (DECCW 2005).
Mammals			

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
New Zealand Fur-seal <i>Arctocephalus forsteri</i>	V/LMS	No	Yes – potential foraging habitat only as rocky island habitat not present within study area.
Australian Fur-seal <i>Arctocephalus pusillus doriferus</i>	VI-	Yes	Yes – this species has been recorded on the eastern edge of Botany Bay at Brighton-Le-Sands in 1980. Key habitat is not considered to be present with the study area potentially containing foraging habitat.
Large-eared Pied Bat, Large Pied Bat <i>Chalinolobus dwyeri</i>	V/V	No	Unlikely – roosts in caves, cliff crevices, old mine workings and disused Fairy Wren (<i>Hirundo ariel</i>) mud nests (DECCW 2005). Foraging habitat is potentially available outside of the study area near these features.
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) <i>Dasyurus maculatus maculatus</i> (SE mainland population) <i>Dasyurus maculatus</i>	V/E	No	Yes – found within a wide range of habitats including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline (DECCW 2005).
Dugong <i>Dugong dugon</i>	E/Migratory ^{Mm} & LMS	Yes	Yes – this species was recorded in 1992 at Towra Point Nature Reserve. This species is known to inhabit estuarine areas including creeks and is associated with seagrass beds particular with their preferred <i>Halophila</i> species (DEWHA 2010b). However although this species is found within wide shallow protected bays and mangrove channels only incidental sightings occur in NSW (DECCW 2005).

Species	Conservation Status (NSW/Federal)	Recent Records in NPWS Atlas*	Potential Habitat within study area
Southern Brown Bandicoot (eastern) <i>Isodon obesulus obesulus</i>	E/E	No	Yes – this species inhabits a wide range of habitats including heathland, swamp habitat, open forest, dry sclerophyll forest with heathy understorey and grasslands (DEWHA 2010a). Potential foraging habitat is considered available within the riparian vegetation area.
Eastern Freetail-bat <i>Mormopterus norfolkensis</i>	VI/-	Yes	Yes – this species has been recorded at Salt Pan Creek in 2008. It inhabits dry sclerophyll forest and woodland (DECCW 2005).
Koala <i>Phascolarctos cinereus</i>	VI/-	Yes – 12 records	Yes- this species has been recorded within the study area from 1994 to 2006. Records are from Williams Creek near Holsworthy Sewage Treatment Plant and along and near Deadmans Creek in Holsworthy Military Reserve. This species inhabits eucalypt woodlands and forests (DECCW 2005).
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	V/V	Yes	Yes – this species has been recorded throughout the study area from 1995 to 2005 in Towra Point Nature Reserve, Georges River Bridge near Blakehurst, Hurstville Bay and Salt Pan Creek. A breeding colony is located along Cabramatta Creek and foraging habitat is considered to occur within the study area.
Greater Broad-nosed Bat <i>Scoteanax rueppellii</i>	VI/-	Yes	Yes – potentially foraging habitat is considered to occur within the study areas. This species inhabits a range of habitats from woodland to moist and dry eucalypt forest and rainforest (DECCW 2005).

* Recent records include those in the NPWS Atlas database that occur from 1960. NSW Conservation Status: listed under the *Threatened Species Conservation Act 1995* or *Fisheries Management Act 1994* for aquatic species, Federal Conservation Status: listed under the *Environment Protection and Biodiversity Conservation Act 1999*. PE: Presumed Extinct; CE: Critically Endangered; E: Endangered; V: Vulnerable; CD: Conservation Dependent; Migratory^{Mb}: Migratory Marine Birds; Migratory^{Mr}: Migratory Marine Reptiles; Migratory^{Mm}: Migratory Marine Mammals; Migratory^{Ms}: Migratory Marine Sharks; Migratory^T: Migratory Terrestrial Birds; Migratory^W: Migratory Wetland Birds; LMS: Listed Marine Species – listed; LMS*: Listed Marine Species – listed overfly marine area. Species from NSW National Parks and Wildlife Service (2010) database search and Department of the Environment, Water, Heritage and the Arts Protected Matters Search (2010a).