

7 Appendices

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← *Green Patch is a fantastic place to take the family when visiting Booderee National Park for the day or to camp. One of the many locals that you will see on the lawns around Green Patch is the swamp wallaby.*
Photo: June Andersen

Appendix A: Agency Resourcing Statement 2011–12

The Agency Resourcing Statement was introduced to Portfolio Budget Statements in 2008–09 to provide information about the various funding sources that the Director of National Parks may draw upon during the year.

The Director of National Parks is required to publish the Agency Resourcing Statement in the annual report that reconciles to cash reserves in the financial statements.

	Actual available appropriation \$'000	Payments made \$'000	Balance remaining \$'000
Opening balance/Reserves at bank	41,540	-	41,540
REVENUE FROM GOVERNMENT			
Ordinary annual services¹			
Outcome 1	-	-	-
Total ordinary annual services	-	-	-
Other services			
<i>Non-operating</i>	-	-	-
Total other services	-	-	-
Total annual appropriations	-	-	-
Payments from related entities²			
Amounts from the portfolio department	41,485	41,485	-
Total	41,485	41,485	-
Total funds from Government	41,485	41,485	-
FUNDS FROM OTHER SOURCES			
Interest	1,629	1,629	-
Sale of goods and services	17,956	17,956	-
Other	2,313	164	2,149
Total	21,898	19,749	2,149
Total net resourcing for DNP	104,923	61,234	43,689

All figures are GST exclusive.

As per the *Environment Protection and Biodiversity Conservation Act 1999* Section 514S, DSEWPac is directly appropriated the Director of National Parks (DNP) appropriations, which is then allocated to the DNP by the Secretary.

- 1 Appropriation Bill (No.1) 2011–12
- 2 Funding provided by a Government body that is not specified within the annual appropriation bills as a payment to the CAC Act body (for example, a fee for service from an FMA Act agency paid to a CAC act body would appear here and may be explained within this footnote, as would a payment to a third agency's special appropriation).

Appendix B: Portfolio Budget Statements reporting 2011–12

KEY RESULT AREA 1—NATURAL HERITAGE MANAGEMENT

PBS Target—Viable populations of selected significant species maintained

- Park managers have nominated 37 species across the six terrestrial reserves to determine whether viable populations of selected significant species have been maintained in those reserves. Of the selected species, the populations of 3 species are increasing; 16 species are remaining steady; 8 species are falling; 1 species is likely to be extinct; 2 species may be locally extinct; and population data are deficient for 7 species.

Booderee National Park

Species	EPBC Act status	Monitoring	Actions	Trend
Eastern bristlebird <i>Dasyornis brachypterus</i>	Endangered	Monitoring program for distribution and abundance in place since 2004.	Controlling fox populations and preserving suitable bristlebird habitat.	<p>▲ Numbers rising</p> <p>Numbers continue to steadily increase in burnt sites since the last major wildfire in 2003 and remain steady in unburnt sites.</p>
Sooty oystercatcher <i>Haematopus fuliginosus</i>	No	Monitoring program for distribution and abundance in place since 2004.	Controlling fox populations and protecting Bowen Island nesting sites. Public education programs.	<p>► Numbers steady</p> <p>Numbers have been stable for the life of the monitoring program. Ongoing nesting activity has been observed.</p>
Pied oystercatcher <i>Haematopus longirostris</i>	No	Monitoring program for distribution and abundance in place since 2004.	Controlling fox populations. Working with other land management agencies to control threats posed by vehicles. Public education programs.	<p>► Numbers steady</p> <p>Numbers have been stable for the life of the monitoring program.</p>
Little penguin <i>Eudyptula minor</i>	Marine	Irregular counts of beach landings. Irregular monitoring of chick mortality.	Maintained native plantings to re-establish penguin nesting habitat on Bowen Island. Control of invasive kikuyu grass in nesting habitat.	<p>► Numbers steady</p> <p>This is a stable and very healthy population displaying exceptionally high breeding success.</p>

Species	EPBC Act status	Monitoring	Actions	Trend
Long-nosed bandicoot <i>Perameles nasuta</i>	No	Monitoring program for bandicoots and primary food source (invertebrates) in place since 2003.	Controlling fox populations.	► Numbers steady Populations peaked in 2005–06 before declining in 2008–09. Numbers increased in 2010 and are now steady. This is typical of documented trends in recovering bandicoot populations.
Green and golden bell frog <i>Litoria aurea</i>	Vulnerable	Call back monitoring of breeding sites since 1996. PhD research project on all frogs has been underway since 2007.	No action being undertaken.	Presumed to be locally extinct Not positively detected in the park for seven years. Likely to be locally extinct, despite little change to habitat or hydrology. Viable populations nearby.
Giant burrowing frog <i>Heleioporus australiacus</i>	Vulnerable	Call back monitoring of breeding sites since 1996. PhD research project on all frogs has been underway since 2007.	No action being undertaken.	► Numbers steady Numbers were stable for the life of the monitoring program. Regular monitoring has ceased.
Common brushtail possum <i>Trichosurus vulpecula</i>	No	Monitoring programs for distribution and abundance in place since 2003.	Controlling fox populations.	▼ Numbers falling Populations increased after intensive fox baiting was implemented but have now started to decline.
Hooded plover <i>Thinornis rubricollis</i>	Marine	Monitoring program in place since 2004.	Controlling fox populations. Working with other land management agencies to control threats posed by vehicles. Public education programs.	► Numbers steady Numbers have been stable for the life of the monitoring program.
Greater glider <i>Petauroides volans</i>	No	Monitoring program in place since 2003 via ANU researchers.	Targeted research into reasons for decline and possible re-introduction.	May be locally extinct Numbers declined strongly in early 2000s and the species has not been detected in the park since 2007.
Eastern chestnut mouse <i>Pseudomys gracilicaudatus</i>	No	PhD research project commenced in 2008.	Controlling fox populations. Protecting habitat from fire.	▼ Numbers falling Population peaked in 2008–09 and is continuing to decline.

Christmas Island National Park

Species	EPBC Act status	Monitoring	Actions	Trend
Christmas Island pipistrelle <i>Pipistrellus murrayi</i>	Critically Endangered	Opportunistic monitoring of pipistrelle call activity but established program no longer conducted.	–	Presumed to be extinct The pipistrelle is likely to be extinct.
Native reptiles (blue-tailed skink <i>Cryptoblepharus egeriae</i> , Lister's gecko <i>Lepidodactylus listeri</i> and forest skink <i>Emoia nativitatis</i>)	No (except for Lister's gecko listed as Vulnerable)	Surveys of native reptile fauna conducted as part of broader island-wide biennial biodiversity monitoring (island-wide survey or IWS) as well as targeted monitoring.	The on-island captive breeding program for native reptiles established in 2009 was expanded in 2010–11. Off-island populations of Lister's gecko and blue-tailed skink were established at Taronga Zoo. Assessment of disease threats completed and assessments of other threatening processes (invasive species) continued. Christmas Island Reptile Advisory Panel established to provide scientific advice for the management of reptiles.	▼ Numbers falling Reptile species are continuing to undergo a rapid population decline in the wild. However, captive populations of Lister's gecko and blue-tailed skinks are being maintained or increasing. Forest skinks have not bred in captivity and may be extinct in the wild.
Red crab <i>Gecarcoidea natalis</i>	No	Biennial monitoring (IWS) of burrow counts to determine distribution and density. Survey has used consistent methodology since 2001. Most recent IWS was conducted in 2011. An independent scientific study monitoring the off-target impacts of Fipronil baiting, published in 2011, showed that Fipronil did not have off-target impacts.	Continued crazy ant management program including completion of IWS in 2011 and continuation of indirect biological control research project. Aerial baiting is being planned and will be conducted in mid to late 2012. Australian Government announcement in 2011 of \$4m to continue management of crazy ant and other invasive species. Continued red crab management program including traffic management, road infrastructure development and education. Crazy Ant Scientific Advisory Panel continued to provide advice for the management of crazy ants.	► Numbers steady (possible slight decline) Population numbers appear to have declined from 2001 to 2009. However, an analysis of data collected from the 2011 IWS indicates a slight recovery since the 2009 IWS of between 3% and 8%.

Species	EPBC Act status	Monitoring	Actions	Trend
Abbott's booby <i>Papasula abbotti</i>	Endangered; Marine; Migratory	Aerial nest count survey last conducted in 2009 and distribution mapped in 2009 through the IWS, but the results were inconclusive. However, mapping undertaken as part of the 2011 IWS showed that distribution (nest occupancy) across the island was relatively stable from 2009 to 2011. External researcher is investigating aspects of population ecology, particularly demographics. Initial results suggest low reproduction success in recent years due to intense rains in 2010.	Continuation of the Christmas Island Mine-site to Forest Rehabilitation Program, which focuses on the rehabilitation of Abbott's booby nesting habitat.	? Data deficient Trend is currently unknown but short-term data, which should be used with caution, suggest the nest occupancy rate was relatively stable from 2009 to 2011.

Kakadu National Park

Species	EPBC Act status	Monitoring ¹	Actions	Trend
Northern quoll <i>Dasyurus hallucatus</i>	Endangered	Biodiversity Hotspot Surveys and targeted monitoring at the East Alligator Ranger Station where a remnant population persists, albeit in low numbers. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality. Off-shore species relocation program conducted in conjunction with NT government agencies. Release program in place for captive bred 'toad smart' quolls trained to avoid toads, with monitoring of survival rates.	► Numbers steady Significant population decline occurred following the arrival of cane toads. The remaining population is low but stable. Reports of sightings throughout the park are received periodically. A number of captive-bred 'toad-smart' quolls are surviving and reproducing.

¹ The full floristic and fauna survey of the park's 132 permanent fire plots was the initiative that first identified the small mammal decline across Australia's Top End. These surveys are conducted five-yearly and the survey scheduled for 2012–13 provides the next opportunity to gauge the status of many of these threatened species.

Species	EPBC Act status	Monitoring ¹	Actions	Trend
Northern brown bandicoot <i>Isodon macrourus</i>	No	Biodiversity Hotspot Surveys. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality.	▼Numbers falling Population declining consistent with pattern of small mammal decline across northern Australia.
Northern brushtail possum <i>Trichosurus arnhemensis</i>	No	Biodiversity Hotspot Surveys. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality.	▼Numbers falling Population declining consistent with pattern of small mammal decline across northern Australia.
Brush-tailed rabbit-rat <i>Conilurus penicillatus</i>	Vulnerable	Biodiversity Hotspot Surveys and targeted monitoring at the Mardugal Campground. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality. Sightings in new areas are followed up with targeted surveys.	▼Numbers falling Population declining consistent with pattern of small mammal decline across northern Australia.
Black-footed tree-rat <i>Mesembriomys gouldii</i>	No	Biodiversity Hotspot Surveys. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality.	▼Numbers falling Population declining consistent with pattern of small mammal decline across northern Australia.
Pale field rat <i>Rattus tunneyi</i>	No	Biodiversity Hotspot Surveys. Incidental sighting database records any sightings or road kills. Next five-year full floristic and fauna survey commences in 2012–13.	Landscape unit-based fire management to improve habitat quality.	▼Numbers falling Population declining consistent with pattern of small mammal decline across northern Australia.
Flatback turtle <i>Natator depressus</i>	Vulnerable; Marine; Migratory	Continuation of yearly survey and capture program (annual survey since 1995).	–	►Numbers steady Monitoring shows population is steady.



Species	EPBC Act status	Monitoring ¹	Actions	Trend
Estuarine crocodile <i>Crocodylus porosus</i>	Marine; Migratory	Continuation of survey and capture program that has been underway since 1979. Satellite tracking project has been underway since 2005.	–	► Numbers steady Crocodile populations in East Alligator River and South Alligator River are healthy and beginning to plateau. Crocodile population in West Alligator River is still increasing. Further information is required to determine population dynamics in the Wildman River.

Norfolk Island National Park

Species	EPBC Act status	Monitoring	Actions	Trend
Green parrot <i>Cyanoramphus cookii</i>	Endangered; Migratory	Annual monitoring of assisted breeding nesting sites throughout breeding season (October to June). Monitoring commenced in the 1980s and birth-rate data collected since 1986. Monitoring focus is now moving from individual species to multiple species and ecosystem health. 2010 survey indicated species may have recovered past endangered threshold but an island-wide survey is needed to improve the accuracy of this estimate before any change to conservation status is considered.	Active feral animal control (rats, cats, crimson rosellas) through most of their habitat.	► Numbers steady Current population estimate of 240 individuals (Dutson, 2010). 300% increase over the past decade (approx). Probably stable at present and not likely to increase further until more habitat is available.

Species	EPBC Act status	Monitoring	Actions	Trend
Norfolk Island morepork (boobook) owl <i>Ninox novaeseelandiae undulata</i>	Endangered; Migratory	Artificial nesting boxes are monitored annually to record breeding activity (October to January). Breeding recorded in one nest box this year. Monitoring focus is now moving from individual species to multiple species and ecosystem health.	Active monitoring of owl nest sites. Rodent and cat control focused around known breeding nests.	► Numbers steady Current population estimate of 40 individuals. In the mid-1980s there was only one bird, so there has been a historic increase in population numbers.
Golden whistler <i>Pachycephala pectoralis xanthoprocta</i>	Vulnerable	No monitoring program at present. 2010 survey suggested numbers may be increasing though it should remain categorised as vulnerable.	Weed and feral animal control.	? Data deficient Current population estimate of 2,200 mature individuals (Dutson, 2010). Insufficient data to estimate trend.
Pacific robin <i>Petroica multicolor multicolor</i>	Vulnerable	No monitoring program at present. 2010 survey did not include population estimate due to bias in data.	Weed and feral animal control.	? Data deficient May be gradual decline that is continuing but too little data to confirm trend. Appears to be a high rate of fledgling success but a low rate of adult male survival (Dutson, 2010).
Wedge-tailed shearwater <i>Ardenna pacifica</i>	Marine; Migratory	No monitoring program at present.	Weed and feral animal control.	? Data deficient Unable to determine. No trends at present.

Pulu Keeling National Park

Species	EPBC Act status	Monitoring	Actions	Trend
Red-footed booby <i>Sula sula</i>	Marine; Migratory	Annual fauna survey conducted since 1985. However, monitoring was not undertaken in 2011 due to access issues.	Community education and compliance activities.	► Numbers steady Analysis of data indicates population remains steady at around 30,000 breeding pairs.
Cocos buff-banded rail <i>Gallirallus philippensis andrewsi</i>	Endangered	Monitoring commenced in late 1999. Monitoring now included in the IWS (so far, conducted in 2009 and 2012).	In collaboration with the Cocos Islands Shire and scientists, translocation of a small population (in accordance with the recovery plan) is being planned for 2012–13.	► Numbers steady Most recent monitoring results estimated the current population at approximately 1,000 individuals.



Uluru–Kata Tjuta National Park²

Species	EPBC Act status	Monitoring	Actions	Trend
<i>Tjakura</i> —great desert skink <i>Liopholis kintorei</i>	Vulnerable	15th annual <i>tjakura</i> survey (Feb–Mar 2012) identified 93 active burrows.	Continued fire management to improve habitat quality. Continued predator monitoring. Feral strategy finalised and acted upon—cat trapping programs successful but unable to effectively trap foxes.	<p>► Numbers steady</p> <p>The number of <i>tjakura</i> burrows in 2012 is not significantly different from 2011 numbers.</p>
Mala—rufous hare-wallaby <i>Lagorchestes hirsutus</i>	Endangered	Annual mala survey undertaken in September 2011. 70 individuals were caught and the mark-recapture population estimate was 214 animals (95% confidence limits 168–282).	Continued active management within the 170-hectare predator-proof enclosure, such as mosaic burning (20% regeneration to 80% mature spinifex) and supplementary feeding. Daily inspection of enclosure fence.	<p>▲ Numbers rising</p> <p>The number of mala is increasing within the predator-proof enclosure. Further research will begin in 2012 to help ascertain when mala have reached their carrying capacity within the enclosure. UKTNP now has the largest known population of mainland mala in existence and as such is extremely important to the species' ongoing survival.</p>
<i>Murtja</i> —brush-tailed mulgara <i>Dasyercus blythi</i>	No ²	Active mulgara burrows, fresh scats and feed diggings found in large numbers across all 21 survey quadrats in the habitat area. 23 individuals were trapped and a new population was discovered in the east of the park.	Continued fire management to improve habitat quality. Continued predator monitoring. Feral strategy finalised and acted upon—cat trapping programs successful but unable to effectively trap foxes.	<p>▲ Numbers rising</p> <p>A significant increase in the mulgara population detected in 2012 as compared to 2011 and 2010.</p>

² Current EPBC Act listings for two species of mulgara may not accurately reflect their correct conservation status due to taxonomic confusion between the two species.

Species	EPBC Act status	Monitoring	Actions	Trend
<i>Itjariitjari</i> — southern marsupial mole <i>Notoryctes typhlops</i>	Endangered	None	Currently determining habitat preferences and distribution across the park. Future studies will involve trench surveying.	? Data deficient Marsupial mole signs (tracks/pop holes) found in all 8 spinifex habitat types in 2010 surveys—surface habitat preferences apparent but unable to conclude from the data how those sites differed statistically in respect to the number of signs that occurred at each site. Currently analysing and publishing the results.
Common wallaroo or euro <i>Macropus robustus</i>	No	Initial survey began in May 2010 and is continuing, utilising surveillance cameras at four waterholes at the base of Uluru. Two of the waterholes are accessible to tourists and two are not.	Currently determining habitat preferences and visitor influences on existing populations.	? Data deficient No baseline data or trends to date. Although the number of euros captured on camera has been low, incidental information recorded regarding potential predators, particularly feral foxes and cats and reptiles such as the perentie (<i>Varanus giganteus</i>), will be very useful in guiding future management decisions.
Striated grasswren <i>Amytornis striatus</i>	No	Biannual monitoring (next monitoring to be conducted in September 2012).	Continued active fire management to reduce large-scale habitat loss from wildfire. Planned future research will aim at quantifying the exact size of the species' habitat, population size and key habitat elements to inform future management.	? Data deficient Monitoring in 2010 located 5 pairs in a small area of complex spinifex in the south of the park. This is the largest number recorded since initial surveys in 1992; however, birds are unable to be located at any other sites in the park, suggesting this part of the park provides key habitat elements.
Rare plant survey	No	Three-year baseline study and annual monitoring of 15 prioritised plants completed in 2010.	Individual management actions for each species, including fire management regimes, erosion control and camel control.	► Numbers steady Numbers stable for most species. Further monitoring of 5 species will include studies to understand fire tolerances and factors that influence juvenile recruitment rates in the rarer species.



PBS Target—No net increase in distribution/abundance of significant invasive species

- Park managers have nominated 24 significant invasive species across the six terrestrial reserves to identify changes in overall distribution and abundance. Of the selected species, the populations of 12 species are increasing; 3 species are remaining steady; 3 species are falling; and population data are deficient for 6 species.

Booderee National Park

Species	Monitoring	Actions	Trend
European red fox <i>Vulpes vulpes</i>	Utilising fauna surveillance cameras, fox bait take and sand plot monitoring to monitor residual fox population.	Continue to undertake fox control activities with an emphasis on removing residual, bait-shy individual foxes and introducing alternative fox control methods.	▲ Numbers rising Numbers increased in 2011–12, possibly due to an exceptionally productive season as numbers are up across the Shoalhaven Region. Fox numbers nevertheless remain very low and alternative fox control techniques are effective in controlling residual foxes.
Bitou bush <i>Chrysanthemoides monilifera</i>	Aerial survey undertaken. Density and distribution mapped and recorded on GIS. Annual aerial spray efficacy mapped and recorded on GIS. Post treatment enclosure trials to assess vegetation recovery.	125 ha aerially sprayed in June 2012, with further spraying of 48 ha using splatter guns and 45 ha using ground spraying. No burning conducted in 2012. Ground application of herbicide followed by spot burning is the more prevalent strategy with decreasing aerial application as bitou density reduces.	▼ Numbers falling 90% reduction in the area of high density infestation and 75% reduction in the area of medium density infestation between 2004 and 2012. Effective aerial treatment undertaken this year. Post treatment recovery of native plant species is slow due to high levels of preferential grazing by native species.

Christmas Island National Park

Species	Monitoring	Actions	Trend
Yellow crazy ant <i>Anoplolepis gracilipes</i>	Biennial biodiversity IWS to determine supercolony distribution. The survey has used consistent methodology since 2001. A survey was completed in 2009 and a further survey was completed in 2011.	Undertook 2011 IWS, which underpins control program. Prepared for aerial baiting program to be conducted later in 2012. Continued to fund research by La Trobe University into biological control. Completed a study on the off-target species impacts of Fipronil bait.	▲ Numbers rising Significant decline in supercolony numbers occurred in 2002 after successful aerial baiting program followed by slow increase in supercolonies. Aerial baiting program conducted in 2009 with 784 ha supercolonies baited. Ongoing monitoring indicates aerial baiting has been successful in reducing ant numbers in former supercolonies. However, based on the results from the 2011 IWS, new supercolonies are emerging with about 600 ha mapped.

Christmas Island National Park continued

Species	Monitoring	Actions	Trend
False curry bush <i>Clausena excavata</i>	Survey conducted as part of 2011 IWS.	No specific control work has been undertaken.	? Data deficient No baseline data to date so no trend can be detected. The risk of increasing numbers and distribution under intact rainforest canopy would be of significant concern.
Siam weed <i>Chromolaena odorata</i>	Siam weed was first detected on Christmas Island in 2010 but it is only known to be in one small location. Monitoring of roadsides commenced and has continued and was surveyed as part of 2011 IWS.	Control of the only known infestation continues (as seeds stored in the soil continued to germinate). Currently being contained to this infestation site.	▼ Numbers falling (for known infestation) Trend is declining but it is possible that, despite monitoring, there are other undetected infestations that may be increasing.
Feral cat <i>Felis catus</i>	Determining feral cat numbers is extremely difficult.	Collaborative island-wide cat control commenced with the introduction of new Shire of Christmas Island by-laws, de-sexing of all pet cats and control of cats in settled areas. This work is supported by Australian Government agencies, the Shire and Phosphate Resources Ltd and has resulted in the removal of over 300 feral cats since the program commenced in mid-2011.	? Data deficient (possible decline) Little baseline data to date so no trend can be accurately detected. Until recent control efforts, anecdotal evidence suggested that numbers appeared to be rising. However, current efforts have removed a significant part of the feral cat population.

Kakadu National Park

Species	Monitoring	Actions	Trend
Mimosa <i>Mimosa pigra</i>	Mimosa stands have been mapped and there is an annual monitoring program.	Integrated eradication program conducted.	► Numbers steady Under control, virtually absent from the park.
Para grass <i>Brachiaria mutica</i>	Ongoing monitoring as part of integrated weed program. Species is subject to several current research projects.	Treated in a number of strategic areas; opportunistic control elsewhere.	▲ Numbers rising The range of this species is increasing.
Gamba grass <i>Andropogon gayanus</i>	Ongoing monitoring as part of integrated weed program.	Eradication program conducted.	► Numbers steady Under control within the park, but a large infestation is advancing towards the park's southern boundary and presents a high risk to the park.

Kakadu National Park continued

Species	Monitoring	Actions	Trend
Mission grass <i>Pennisetum polystachion</i>	Ongoing monitoring as part of integrated weed program.	Treated in a number of strategic areas; opportunistic control elsewhere.	▲ Numbers rising The range of this species is increasing.
Olive hymenachne <i>Hymenachne amplexicaulis</i>	Ongoing monitoring as part of integrated weed program. Species is subject to several current research projects.	Systematic control at a number of key locations; opportunistic control elsewhere.	▲ Numbers rising The range of this species is increasing.
Salvinia <i>Salvinia molesta</i>	Ongoing monitoring as part of integrated weed program.	Introduction of biological control agent and minor mechanical and chemical control in key sites.	► Numbers steady Extent of infestations varies greatly between locations and over time.
Water buffalo <i>Bubalus bubalis</i>	Incidental sightings database maintained.	Limited control program implemented in May–June 2012 with 75 buffalo seen and 47 shot. Program was limited to approximately 1/3 of the park, primarily in the northern wetland areas. Some southern sections of the park, which have the greatest number of buffalo, could not be included. Ongoing opportunistic control.	▲ Numbers rising Numbers are increasing.
Feral pig <i>Sus scrofa</i>	Incidental sightings database maintained.	Limited control program implemented in May–June 2012 with 1,389 pigs seen and 1,065 shot. Program was limited to approximately 1/3 of the park, primarily in the northern wetland areas. Ongoing opportunistic control.	▲ Numbers rising Numbers are increasing.

Norfolk Island National Park

Species	Monitoring	Actions	Trend
Black rat <i>Rattus rattus</i>	Monthly survey of presence/absence of rats. Trapping and baiting program provides an indication of presence/absence.	Over 1,000 bait stations are set through the park and baited each month. Snap traps are also set in some areas. Predation by rodents is listed as a priority threatening process under the Norfolk Island Region Threatened Species Recovery Plan.	? Data deficient Interesting results from a change in bait (previous bait had been in place for 12 years). Initial very high bait take, which began to settle after seven months. Too early to be able to assess impacts on rat populations.

Norfolk Island Park continued

Species	Monitoring	Actions	Trend
Feral cat <i>Felis catus</i>	Trapping program provides a presence/absence indication. Continued gut analysis to determine prey composition (e.g. rats, native birds).	Cat trapping occurs every second month. Predation by feral cats is listed as a priority threatening process under the Norfolk Island Region Threatened Species Recovery Plan.	? Data deficient Unable to quantify population size. Uncertain whether rodent control program in park is impacting on feral cat numbers in the park.
Red guava <i>Psidium cattleianum</i>	Monitoring program recently commenced.	Completed weed control in 4 of the 19 coups identified in the rehabilitation strategy; 4 ha weeds controlled. Invasion of habitat by exotic weeds is listed as a priority threatening process under the Norfolk Island Region Threatened Species Recovery Plan.	? Data deficient Unable to determine. No trends at present.
African olive <i>Olea europaea africana</i>	Monitoring program recently commenced.	Completed weed control in 4 of the 19 coups identified in the rehabilitation strategy; 4 ha weeds controlled. Invasion of habitat by exotic weeds is listed as a priority threatening process under the Norfolk Island Region Threatened Species Recovery Plan.	? Data deficient Unable to determine. No trends at present.

Pulu Keeling National Park

Species	Monitoring	Actions	Trend
Yellow crazy ant <i>Anoplolepis gracilipes</i>	Monitoring included in the IWS (so far completed in 2009 and 2012).	Continued monitoring program and planning for control programs. Revised quarantine protocols to control access.	▲ Numbers rising Colonies fairly widespread, with some sites recorded at supercolony density. Analysis of the results of 2012 IWS will provide further baseline data.
Coral berry <i>Rivina humilis</i>	Ongoing mapping activities. IWS completed in 2012.	Coral berry treated with herbicide as part of trial to devise suitable long-term control measures. Revised quarantine protocols to control access.	▼ Numbers falling Increased distribution and density observed in western part of the park over recent years. Analysis of the results of 2012 IWS will provide an indication of trends following control program, although densities have been reduced in controlled areas.



Uluru–Kata Tjuta National Park

Species	Monitoring	Actions	Trend
Buffel grass <i>Cenchrus ciliaris</i>	Monitoring of native biodiversity following buffel removal around Uluru.	Final round of contracted buffel control program completed in October 2011. Ongoing control actions will be carried out opportunistically by rangers when possible. Trial study to determine the effects of fire and spraying on buffel conducted in 2011 but proved unsuccessful; trial will be repeated in 2012.	▲ Numbers rising A high rainfall year and failure of control trials has seen buffel grass distribution and density increase.
Feral cat <i>Felis catus</i>	UKTNP Vertebrate Pest Monitoring Plan activated. This involves a combination of track monitoring and remote surveillance cameras.	Continued cat trapping program.	▲ Numbers rising Despite successful cat trapping activities, numbers across the whole park continue to rise. This rise in numbers is due to the favourable conditions experienced in the previous 12 months and the subsequent boom in small mammal numbers.
European wild rabbit <i>Oryctolagus cuniculus</i>	Monitoring prioritised to the mala enclosure and involves active burrow counts.	Phostoxin used to treat and re-treat warrens in the mala enclosure. Rabbit burrow numbers decreased from more than 200 burrows to 30.	▼ Numbers falling in the mala paddock ▲ Numbers rising in the remainder of the park Rabbit numbers have increased across the park as a result of extremely good conditions in the past 12 months. Rabbit control work in the mala enclosure has been prioritised over the rest of the park due to the negative impact rabbits have on mala populations.
European red fox <i>Vulpes vulpes</i>	UKTNP Vertebrate Pest Monitoring Plan activated. This involves a combination of track monitoring and remote surveillance cameras.	Continued fox trapping program.	▲ Numbers rising Fox trapping activities have been unsuccessful and numbers across the whole park continue to rise. This rise in numbers is due to the favourable conditions experienced in the previous 12 months and the subsequent boom in small mammal numbers.

KEY RESULT AREA 3—JOINT MANAGEMENT AND WORKING WITH INDIGENOUS COMMUNITIES

PBS Target—Five per cent increase in numbers of Indigenous staff and/or contractors directly or indirectly providing park services (jointly managed parks only)

- Overall the number of directly employed Indigenous staff declined slightly throughout the year in the jointly managed parks. The overall number of Parks Australia staff has also declined.
- The number of Indigenous staff engaged as intermittent and irregular employees and contractors to provide services at Kakadu National Park has increased slightly.^{PBS}
- The Kakadu Indigenous Ranger Program, funded by Working on Country, also provides resources allowing Kakadu to host 11.5 community rangers in park related employment.
- Anangu participation in flexible employment at Uluru–Kata Tjuta National Park through the Mutitjulu Community Ranger program has declined due in part to the cessation of funding for two workforce development coordinators (previously funded by the Department of Education, Employment and Workplace Relations).
- The number of Indigenous staff directly employed at Booderee National Park remained stable.
- In its 2011 annual report, WBACC Contracting Services reported that it employed 14 full time, 4 permanent part time and up to 10 casual staff to deliver services to Booderee National Park.

KEY RESULT AREA 4—USE AND APPRECIATION OF PROTECTED AREAS

PBS Target—Visitor satisfaction levels greater than 95 per cent

- Visitor surveys were undertaken at Norfolk Island and Uluru–Kata Tjuta national parks and the Australian National Botanic Gardens, with high overall satisfaction levels recorded from respondents (Norfolk Island—100 per cent, Uluru–Kata Tjuta—96 per cent, Australian National Botanic Gardens—93 per cent).

KEY RESULT AREA 6—BUSINESS MANAGEMENT

PBS Target—Five per cent reduction in number of risks identified in risk watch lists as ‘extreme’, ‘very high’ or ‘high’

- There was no net reduction in the number of extreme, very high or high risks in risk watch lists in 2011–12.
- The Director has participated in the Comcover Risk Management Benchmarking Scheme since 2002–03. In 2011–12, the Director scored 7.9 out of a possible 10 compared to an average score for all Australian Government agencies of 6.6. For the past seven years, the Director has consistently scored above the average for all agencies.

PBS Target—No major injuries to staff, contractors, volunteers and visitors relating to an undertaking of the Director of National Parks

- Parks staff and contractors sustained two major injuries. Two park visitors died (a drowning of a rock fisherman in Christmas Island National park and a missing person in Kakadu National Park, presumed by police to be due to crocodile attack) and there were four major injuries to visitors.

PBS Target—Three new actions implemented which produce significant reduction in greenhouse gas emissions

- A significant decrease in total energy consumption by parks and reserves was recorded in 2011–12, confirming the trend of recent years. This represented an 11.9 per cent reduction in the volume of CO₂ emissions from stationary sources compared to the average over the past three years and a 10.2 per cent reduction for transport sources.
- Replacement of two diesel-powered generators in the South Alligator District of Kakadu National Park with more efficient systems that require less fuel resulted in a saving of approximately 85 litres of diesel fuel per day, reducing CO₂ emissions by over 83 tonnes per annum.
- Booderee National Park's ongoing program of improvements at Bristol Point campground continued with the installation of instantaneous gas hot water heaters, energy efficient lights and a second solar inverter.
- Although more labour intensive, the move to fertilise newly planted trees by hand instead of using large diesel-powered machinery for the Christmas Island Mine-site to Forest Rehabilitation program reduced both fuel costs and the quantity of fertiliser wasted. Targeting fertiliser specifically to newly planted trees, rather than blanketing the area, limits weed growth and subsequent competition. By fertilising the forest rehabilitation site in this way, less vehicle fuel and chemicals are used and staff time spent on weed control is also reduced.

KEY RESULT AREA 7—BIODIVERSITY KNOWLEDGE MANAGEMENT

PBS Target—Five per cent increase in website unique users and publications accessed

- The Parks Australia websites and blog (parksaustralia.gov.au and kakadu.com.au) received 757,527 visits (an average of 2,081 visits a day) in the 2011–12 financial year. This was a 27 per cent increase in visitation on the prior year; this strong growth was boosted by increased social media initiatives, rich media content and more material that met the Government Web Content Accessibility Guidelines 2.0.

Appendix C: Ecologically sustainable development and environmental performance

Section 516A of the EPBC Act requires Australian Government organisations to include in their annual reports details of the organisation's contribution to ecologically sustainable development as well as the environmental performance of the organisation. Section 516A also promotes development of a framework that integrates environmental, economic and social considerations and helps improve the environmental performance and ecologically sustainable development of Australian Government agencies.

The following is a summary of activities by the Director of National Parks in 2011–12 in accordance with section 516A of the EPBC Act.

1. How the activities of the organisation, and the administration of legislation by the organisation, accord with the principles of sustainable development (section 516A(6)(a))

The following activities accord with the principles of integrating environmental, social and economic considerations:

- ensuring the long-term sustainability of biodiversity in Commonwealth terrestrial reserves by managing biodiversity in accordance with management plans prepared under the EPBC Act. The EPBC Act explicitly recognises the principles of ecologically sustainable development
- managing Commonwealth reserves in consultation with boards of management and advisory committees
- undertaking monitoring and assessment programs for plants and animals within the reserves
- undertaking compliance operations resulting in detection and fines against illegal activities in the reserves
- working with traditional owners to implement traditional management and use of resources
- establishing criteria for preparing tourism master plans which provide for safe and memorable visitor experiences, while improving benefits to local communities and ensuring the environmental values of Commonwealth reserves are not affected.

The following activities accord with the principles of ecologically sustainable development, especially by employing or promoting the use of the precautionary principle:

- making decisions that comply with the EPBC Act (sections 324–390A) and in accordance with decision making and environmental impact assessment procedures for works and new developments in Commonwealth reserves
- adapting management approaches to take account of the Parks Australia Climate Change Strategy.

The following activities accord with the principles of ecologically sustainable development by aiming to promote conservation of the environment for the benefit of future generations:

- promoting enjoyment and understanding of protected areas and their conservation objectives as set out in management plans for each reserve
- working with traditional owners to ensure traditional knowledge about management and use of the land is incorporated into park management activities and that opportunities are created for young Indigenous people to learn about and contribute to park management.

For a summary of activities undertaken in 2011–12 refer to Chapter 4 of this annual report under KRA 3—Joint management and working with Indigenous communities and KRA 4—Use and appreciation of protected areas.

The following activities accord with the principles of ecologically sustainable development by ensuring that conservation of biological diversity and ecological integrity is a fundamental consideration in decision making:

- Commonwealth reserves are managed in accordance with management plans established under the EPBC Act and with IUCN Protected Area Categories which have as their primary purpose the long-term conservation of nature
- management plans set out clear decision-making and environmental assessment procedures for works and new proposals in Commonwealth reserves to ensure the conservation of biological diversity and ecological integrity.

For a summary of activities undertaken in 2011–12 refer to Chapter 4 of this annual report under KRA 1—Natural heritage management.

The following activities accord with the principles of ecologically sustainable development by aiming to improve valuation, pricing and incentive mechanisms:

- tour operator workshops and tour guide accreditation aim to improve the quality and consistency of visitor experiences
- entry and park use fees at heavily visited reserves will ensure visitors contribute to the cost of park management.

2. How the outcomes specified in the relevant Appropriations Act contribute to ecologically sustainable development (section 516A(6)(b))

The Director of National Parks' key outcome as identified in the 2011–12 Sustainability, Environment, Water, Population and Communities Portfolio Budget Statements is the conservation and appreciation of Commonwealth reserves through the provision of safe visitor access, the control of invasive species and working with stakeholders and neighbours. The Portfolio Budget Statements describe this outcome as follows:

The conservation and appreciation of natural and cultural values of Commonwealth reserves through best practice management of nationally significant assets, working with traditional owners and stakeholders, providing appropriate recreation and tourism and improving understanding of the values of reserves.

Activities undertaken during 2011–12 to achieve this outcome are described in Chapter 4 of this annual report and the *State of the Parks Report* at www.environment.gov.au/parks/publications/annual/11-12.

3. Effect of the organisation's activities on the environment (section 516A(6)(c))

The Director is responsible for managing Australia's Commonwealth reserves. Three of these reserves are managed jointly with their Indigenous owners.

Potential large-scale threats to the reserves are managed by statutory protective mechanisms and decision-making and assessment processes set out in management plans. The Director manages commercial activities (such as tourism and camping) within reserves through the EPBC Act and the EPBC Regulations and in accordance with the management plan for each reserve.

4. Measures being taken by the organisation to minimise the impact of its activities on the environment (section 516A(6)(d))

The Director maintains a strong commitment to continuous improvement in environmental performance. The Director conducts environmental audits of operations to maximise efficient use of resources, reduce waste, and build environmental awareness among its employees and volunteers.

Each management plan identifies actions to reduce the ecological impact of the reserve's operations. Office paper, toner cartridges and organic waste are recycled and office machines (photocopiers and printers) are automatically programmed to save power. Printers are programmed to produce duplex documents to reduce paper use.

Climate change strategies, including actions to reduce greenhouse gas emissions, are in place for six of seven Commonwealth terrestrial reserves; a climate change strategy was prepared for Uluru-Kata Tjuta National Park during 2011–12 and has received support from the park's Board of Management.

For a summary of activities undertaken in 2011–12 refer to Chapter 4 of this annual report under KRA 6—Business management.

5. Mechanisms for reviewing and increasing the effectiveness of these measures (section 516A(6)(e))

In accordance with the Australian Government's policy on energy efficiency in government operations, the Director reports on annual energy performance through the Online System for Comprehensive Activity Reporting (OSCAR). Public reporting provides a number of benefits to the Director including:

- increasing awareness of energy and greenhouse issues
- measuring relative performance
- providing a benchmarking tool
- tracking changes over time
- identifying high-intensity areas
- encouraging improvement through transparency.

Close analysis of the OSCAR reporting will help the Director determine how to most effectively adopt energy performance measures to meet the Director's needs and the government's revised energy intensity targets.

A summary of environmental performance related to energy use is provided in Tables C1 and C2, for paper consumption in Table C3 and for water use in Table C4.

Environmental performance

The environmental performance of Parks Australia's metropolitan (Canberra and Darwin) office-based staff is included in the environmental performance report for the Department of Sustainability, Environment, Water, Population and Communities. This report covers Parks Australia's operations in the following locations:

- Kakadu National Park
- Uluru–Kata Tjuta National Park
- Territory of Christmas Island (Christmas Island National Park)
- Territory of Cocos (Keeling) Islands (Pulu Keeling National Park)
- Jervis Bay Territory (Booderee National Park)
- Territory of Norfolk Island
- Australian National Botanic Gardens (ANBG).

Operational requirements at each site, such as electricity, transport, developing new infrastructure and managing waste, contribute to the carbon footprint. Some properties have specialised needs—for example the ANBG maintains climate-controlled conditions in many of its glasshouses. The remote location of some reserves limits opportunities to reduce their environmental impact.

Reserve management activities such as revegetation projects and fire and pest management may also have implications for the carbon cycle. Conserving biodiversity is a primary objective for all reserves and careful management of the use of fire and vegetation can help reduce greenhouse gas emissions. However, reliable indicators are not yet available to measure the contribution that Parks Australia's biodiversity management activities make to cutting emissions.

Environmental performance—energy use

Management plans and climate change strategies are in place or in preparation for all sites to ensure environmental, economic and social objectives and considerations are outlined and integrated. These include provisions designed to minimise energy consumption across park operations and may include:

- reducing greenhouse gas emissions from park operational activities (such as energy use, transport and waste management) to 10 per cent below 2007–08 levels by mid-2015
- developing environmental management plans identifying actions to reduce the carbon footprint of park operations and the level of carbon emission reductions associated with each mitigation action

- changing existing electric hot water systems to solar hot water, instantaneous gas or heat pumps as replacement becomes necessary
- installing energy efficient light fixtures and light-controlling devices (such as motion sensors) in all park facilities
- replacing older vehicles with more efficient vehicles.

A significant decrease in total energy consumption by parks and reserves was recorded in 2011–12, confirming the trend of recent years. This represented an 11.9 per cent reduction in the volume of CO₂ emissions from stationary sources compared to the average over the past three years and a 10.2 per cent reduction for transport sources (Tables C1 and C2).

Kakadu and Uluru–Kata Tjuta national parks rely on diesel power generation as they are not on an electricity grid. However, consistent with a three-year energy audit completed in 2009–10, Kakadu National Park has commenced replacing its diesel-powered generators with more efficient systems that require less fuel. During 2011–12, two electricity generators were replaced in the South Alligator District, resulting in a saving of approximately 85 litres of diesel fuel per day and reducing CO₂ emissions by over 83 tonnes per annum. Uluru–Kata Tjuta National Park is also undertaking a program of generator engine rebuilds that will ensure equipment is operating at optimal performance levels.

The ANBG is also limited in its ability to reduce energy consumption due to its requirements for maintaining plant and herbarium specimens under very specific conditions. The ANBG continues to aim for a 10 per cent offset in its energy use and in 2011–12 purchased 115,118 kilowatt hours of GreenPower (approximately 11 per cent of purchased electricity). The ANBG has commenced Stage 2 of recommended works from an energy audit to replace the heating, ventilation and air-conditioning system in one of its buildings to deliver electricity savings in 2012–13. The ANBG is also continuing to introduce more electric vehicles to support horticultural operations and in 2011–12 introduced an electric powered people mover for public tours. ANBG transport energy use has increased, primarily as a result of an increase in off-road usage of 4WD vehicles for fieldwork supporting the Alpine Research Project.

Parks and reserves continue to implement and undertake a range of actions to improve energy use. Although these actions may not result in a significant reduction in greenhouse gas emissions, they do reflect the efforts being made to improve operations, including in areas that are remote and therefore provide limited opportunities for large impact changes. Actions and improvements include:

- the application of special reflective paint on the roof of the Bowali Visitor Centre and the administration building in Kakadu National Park to lower the surface temperature and ensure more efficient use of the air-conditioning system
- Booderee National Park's ongoing program of improvements at Bristol Point campground continued with the installation of instantaneous gas hot water heaters, energy efficient lights and a second solar inverter
- the move to fertilise newly planted trees by hand instead of using large diesel-powered machinery for the Christmas Island Mine-site to Forest Rehabilitation program. Although this is more labour intensive, the change reduces fuel costs and the quantity of fertiliser



wasted. Targeting fertiliser specifically to newly planted trees, rather than blanketing the area, limits weed growth and subsequent competition. By fertilising the forest rehabilitation site in this way, less vehicle fuel and chemicals are used and staff time spent on weed control is also reduced.

Parks staff continue to make a conscious effort to minimise business-related travel, while recognising that face-to-face contact and visits to remote locations are sometimes necessary, particularly for the three parks that are managed jointly with their Indigenous owners. Parks Australia increasingly uses alternatives to air travel such as tele-and videoconferencing.

Table C1: DNP terrestrial reserves greenhouse gas emissions 2008–12
—stationary energy use

	2008–09 (tonnes of CO ₂ e)	2009–10 (tonnes of CO ₂ e)	2010–11 (tonnes of CO ₂ e)	Annual average 2008–11 (tonnes of CO ₂ e)	2011–12 (tonnes of CO ₂ e)	% change compared with average
Australian National Botanic Gardens	1,630.5	1,233.3	1,262.1	1,375.3	1,287.3	-6.4
Booderee National Park	274.6	178.0	159.2	203.9	146.2	-28.3
Christmas Island National Park	44.0	48.8	47.7	46.8	65.6	40.0
Kakadu National Park	1,346.3	1,263.9	1,177.3	1,260.5	903.6	-28.3
Norfolk Island National Park and Botanic Garden	6.3	5.3	3.3	5.0	3.1	-37.5
Pulu Keeling National Park	16.6	14.8	13.0	14.8	10.1	-31.7
Uluru–Kata Tjuta National Park	1,391.5	1,265.3	1,165.1	1,274.0	1,265.8	-0.6
Total	4,709.8	4,009.4	3,821.6	4,180.3	3,681.7	-11.9

Table C2: DNP terrestrial reserves greenhouse gas emissions 2008–12
—transport energy use

	2008–09 (tonnes of CO ₂ e)	2009–10 (tonnes of CO ₂ e)	2010–11 (tonnes of CO ₂ e)	Annual average 2008–11 (tonnes of CO ₂ e)	2011–12 (tonnes of CO ₂ e)	% change compared with average
Australian National Botanic Gardens	32.2	25	23.3	26.8	32.4	20.7
Booderee National Park	101.2	73.1	68.5	80.9	63.5	-21.5
Christmas Island National Park	75.8	82.9	83.5	80.7	80.4	-0.4
Kakadu National Park	445.0	761.3	571.9	592.7	520.4	-12.2
Norfolk Island National Park and Botanic Garden	22.0	17.5	12.8	17.4	10.7	-38.6
Pulu Keeling National Park	5.6	3.4	2.8	3.9	4.3	9.3
Uluru–Kata Tjuta National Park	126.7	171.7	133.8	144.1	138.1	-4.1
Total	808.5	1,134.8	896.6	946.7	849.8	-10.2

Environmental performance—waste

Obtaining accurate measurements of greenhouse emissions from waste remains challenging and estimates were not available for all reserves.

The Director adopts environmental best practice principles for resource use and management of waste products. Management plans are in place or in preparation for all sites including provisions to minimise waste production across park operations and may include:

- establishing guidelines to formalise waste reduction strategies into standard park practices (such as reducing consumption, double-sided printing, recycling)
- sourcing consumable items such as office paper from renewable sources
- where possible, providing recycling facilities to visitors or promoting 'rubbish bin free' sites that encourage the public to take their waste home for recycling
- for island sites such as Norfolk Island, arranging for mainland recycling of consumables such as used printer cartridges.

Ongoing efforts are focused on providing web-based visitor and interpretative materials, which will further reduce printing and paper consumption. Paper usage increased slightly (4 per cent) in 2011–12 compared with the previous reporting year and declined by 14 per cent compared with the average use of the previous three years (see Table C3). Several reserves use 100 per cent post-consumer recycled paper for printing. In 2011–12, Parks Australia purchased an average of 4.0 reams of paper per employee (excluding metropolitan office-based staff). This slight increase from the 2010–11 figure (3.7) reflects the bulk purchasing patterns of remote parks. Parks and reserves remain well under the departmental target of 10 reams per employee per year. Over time, technology upgrades at all locations will provide more opportunities to print double-sided, thereby reducing paper wastage further.

Access to regional recycling facilities is gradually improving for remote locations such as Kakadu and Uluru–Kata Tjuta national parks and external territories. Basic recycling facilities are now available on Norfolk Island and office paper is obtained from renewable sources when available. Kakadu National Park is participating in a regional recycling and resource recovery program and is continuing its recycling programs in and around offices for paper, glass and aluminium. Uluru–Kata Tjuta National Park is operating the Mutitjulu waste site facility in line with the *Waste Management Guidelines for Small Communities in the Northern Territory—Working Towards Best Practice 2009* and has engaged the services of an appropriate service provider to manage the site. Recycling facilities continue to be available in all ANBG offices and onsite facilities, including composting of organic kitchen waste. The ANBG is a 'rubbish bin free' site for the public; visitors are encouraged to take home their waste for recycling. In 2011–12 approximately 500 cubic metres of plant material was recycled as mulch and used onsite.

Table C3: DNP terrestrial reserves paper consumption 2008–12—reams of paper

	Reams of paper 2008–09 (reams/ person)	Reams of paper 2009–10 (reams/ person)	Reams of paper 2010–11 (reams/ person)	Average reams of paper 2008–11	Reams of paper 2011–12 (reams/ person)	% change compared with average
Australian National Botanic Gardens	240 (3.9)	300 (5.0)	320 (5.5)	287	282 (4.8)	-2
Booderee National Park	400 (13.0)	60 (2.1)	45 (1.8)	168	56 (2.1)	-67
Christmas Island National Park	50 (1.8)	50 (1.4)	50 (1.8)	50	50 (1.9)	0
Kakadu National Park	211 (3.1)	378 (5.6)	227 (3.3)	272	366 (6.3)	35
Norfolk Island National Park and Botanic Garden	65 (18.6)	45 (9.0)	40 (8.0)	50	37 (7.4)	-26
Pulu Keeling National Park	4 (2.0)	3 (1.5)	4 (2.0)	4	4 (2.0)	9
Uluṛu–Kata Tjuṛa National Park	304 (7.2)	82 (2.1)	140 (3.5)	175	66 (108)	-62
Total	1,274	918	826 (3.7)	1,006	861 (4.0)	-14

Environmental performance—water

Protecting water quality is a high priority for Parks Australia. Management plans are in place or in preparation for all sites including provisions designed to ensure water use is minimised and water quality maintained and may include:

- auditing water use in Commonwealth reserves and implementing actions to provide efficiencies and improvements
- implementing water-saving initiatives such as rainwater harvesting, water recycling, the use of water saving devices and upgrading water reticulation infrastructure
- providing information to visitors on how to protect water quality.

The quality of surface water, groundwater and water holes in reserves is monitored regularly and activities in each reserve must not interrupt the natural flow of water. The capacity to measure water consumption at each reserve is improving but consistent data are not yet available. This year the historical data in Table C4 for Booderee have been updated to reflect the availability of more accurate park-wide reporting of water use, including campgrounds.

The 18 per cent increase in water use recorded across the reserves in 2011–12 was due largely to fluctuations in climatic conditions, particularly in Uluṛu–Kata Tjuṛa and Kakadu, which experienced drier conditions this year after a particularly wet year in 2010–11. Kakadu housing was also occupied at higher levels during the year.

Since 2011, the ANBG has been extracting non-potable water from Lake Burley Griffin for irrigation requirements. In addition, the ANBG continues to use water-saving initiatives such as soil sensors, water-saving irrigation components and priority watering, recycling of water from catchment ponds and use of mulch to reduce evaporation. Norfolk Island

National Park operates entirely on harvested rainwater; new tanks with a larger capacity have been installed for the office and the newly constructed information centre. Uluru–Kata Tjuta National Park has commenced a process to develop and implement a new and improved water management system for the Mutitjulu community and the park headquarters precinct. This will ensure the quality of drinking water is acceptable and improved data collection to enable the park to better monitor usage.

Parks and reserves continue to upgrade water infrastructure and institute savings where possible. Activities range from upgraded water reticulation infrastructure at Cave Beach in Booderee National Park to modified watering regimes at the Christmas Island Mine-site to Forest Rehabilitation program nursery.

Table C4: DNP terrestrial reserves—water consumption 2008–12

	2008–09 (kL)	2009–10 (kL)	2010–11 (kL)	2011–12 (kL)
Australian National Botanic Gardens	165,965	172,431	122,178 ^(a)	128,368 ^(a)
Booderee National Park ^(b)	9,551	10,680	10,525	8,480
Christmas Island National Park	not recorded	13,242	8,148	9,473
Kakadu National Park	not recorded	82,452	40,923	53,507
Norfolk Island National Park and Botanic Garden ^(c)	not applicable	not applicable	not applicable	not applicable
Pulu Keeling National Park	52	54	18	14
Uluru–Kata Tjuta National Park	72,855	40,995	50,430	74,782
Total	not applicable	319,854	232,222	274,624

(a) The ANBG non-potable water extraction project was completed during 2010–11. In 2011–12 potable water usage was 57,483 kL and non-potable was 70,885 kL.

(b) Booderee National Park previously reported water use at the park depot only. Now that park-wide data are available, the table has been updated.

(c) Norfolk Island National Park operates entirely on harvested rainwater.

Appendix D: Compliance index

This annual report has been prepared in accordance with the *Commonwealth Authorities (Annual Reporting) Orders 2011*.

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Glossary and shortened forms

Anangu	Western Desert Aboriginal person or people (generally those Aboriginal people with traditional affiliations to the Uluru–Kata Tjuta National Park)
ANAO	Australian National Audit Office
ANBG	Australian National Botanic Gardens
Benthic	Marine organisms that live on, in or near the ocean floor
Bininj	Traditional owners of Aboriginal land and traditional owners of other land in Kakadu National Park, and other Aboriginals entitled to enter upon or use or occupy the Park in accordance with Aboriginal tradition governing the rights of that Aboriginal or group of Aboriginals with respect to the Park
CAC Act	<i>Commonwealth Authorities and Companies Act 1997</i>
Cetaceans	Whales, porpoises and dolphins
China–Australia Migratory Birds Agreement (CAMBA)	Agreement between the Government of Australia and the Government of the People’s Republic of China for the Protection of Migratory Birds and their Environment
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EEZ	Exclusive Economic Zone
Endemic	(Of a taxonomic group) confined to a given region
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FOI Act	<i>Freedom of Information Act 1982</i>
GIS	Geographic information system
GPS	Global positioning system
IBRA	Interim Biogeographic Regionalisation for Australia
IMCRA	Integrated Marine and Coastal Regionalisation for Australia
IUCN	International Union for the Conservation of Nature
Japan–Australia Migratory Birds Agreement (JAMBA)	Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment
Korea–Australia Migratory Birds Agreement (ROKAMBA)	Agreement between the Government of Australia and Republic of Korea for the Protection of Migratory Birds
KRA	Key result area
Migratory Species (Bonn) Convention	Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979)
MoU Box area	An area within Australian waters covered by a Memorandum of Understanding with Indonesia that includes Ashmore Reef and Cartier Island and is open to traditional Indonesian fishers
Pelagic	Species or activities that normally live or occur near the ocean surface or the water column
Seamounts	Large cone-shaped remnants of extinct volcanoes rising from the ocean floor
Terrestrial	Relating to the land or land-dwelling
UNESCO	United Nations Educational, Scientific and Cultural Organization
Wetlands (Ramsar) Convention	Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, 1971)
World Heritage Convention	Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris, 1972)



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