

Appendix 4: Summary for lowland native grassland sites in the ACT

Introduction

This appendix is a summary of each of the 49 lowland native grassland sites in the ACT. Comments with respect to 'Current Threatening Process' and 'Actions' are based on information Dr Ken Hodgkinson provided in his independent assessment of sites, discussions with officers of Australian Government agencies, and also with those officers from the ACT Department of Territory and Municipal Services who were involved in a roundtable discussion held on 10 October 2008.

Under Current Threatening Process the condition of each site is presented as good (**G**), approaching a critical (**AC**) threshold, or in a critical (**C**) condition. All lowland native grassland sites need ongoing adaptive management, including those sites considered to be in good (**G**) condition, in order to maintain an optimum vegetation cover that provides habitat and maintains species diversity, and to control threats including weeds and physical disturbance. Sites identified as being in a critical (**C**) condition or approaching a critical (**AC**) threshold need immediate action.

The information on the condition of a site is relevant at the time of the assessment and therefore may change with changing conditions.

In the report, *Table 5: Site assessment for threatening processes and condition for lowland native grasslands sites in the ACT* is based on the information in this appendix. The location of each site is shown in Appendix 3.

Majura Valley

Majura Training Area (MA01)

Conservation Category 1: Core Conservation Site.

Size: 126.6 hectares of lowland native grassland (113.7 hectares Natural Temperate Grassland) contiguous with grassland within the Air Services Beacon (MA02), the Canberra International Airport (MA03), 'Malcolm Vale' (MA04) and with extensive areas of woodland and forest within the training area to the east.

Comments: National Land. This site contains populations of Button Wrinklewort, Grassland Earless Dragon, Golden Sun Moth, Perunga Grasshopper and Striped Legless Lizard. A fence was erected in 2008 to exclude kangaroos and reduce the extreme pressure of their grazing on the grassland; however, this has transferred the pressure to the surrounding endangered Yellow Box-Red Gum Grassy Woodland, which will be to the detriment of this ecosystem. The site is one of only a few that has a large contiguous link between the natural grassland and woodland upslope. The site has not yet recovered from the extreme grazing pressure from kangaroos.

A potential northern access road (*see* Canberra International Airport below) may affect this site, depending on the location of the road. Consideration is also being given to a potential east-west Kowen link road that may affect this site. In the current proposals for the Majura Parkway this link is not included and it is strongly recommended that the ACT Government commit to ensuring that any future east-west roads do not sever or adversely affect the Grassland Earless Dragon or the Natural Temperate Grassland areas on this site.

The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly Department of the Environment) signed a memorandum of understanding on 7 September 1998. It appears that this memorandum of understanding was reviewed and revised schedules prepared in October 2001.

Current Threatening Processes: Parts of this site were at a critical (C) threshold due to overgrazing by kangaroos. A kangaroo management fence was erected and the site is recovering. Minor ongoing management of weeds is needed.

Action: Allow for recovery of grassland vegetation following kangaroo removal. Reduce kangaroo grazing pressure on unfenced Majura Training Area (containing Yellow Box-Red Gum Grassy Woodland) and abutting areas.

Review and update the existing memorandum of understanding and ensure it is implemented. Retain all Natural Temperate Grassland and ensure connectivity with other lowland native grassland areas so species such as the Grassland Earless Dragon have the opportunity to thrive. Any future roads (or other developments) should therefore be located outside the Natural Temperate Grassland area and continuity should be retained between this area and other lowland grassland communities.

Air Services Beacon (MA02)

Conservation Category 1: Core Conservation Site.

Size: 10.7 hectares Natural Temperate Grassland surrounded on three sides by the Majura Training Area (MA01).

Comments: National Land. This site contains populations of Grassland Earless Dragon, Golden Sun Moth, Perunga Grasshopper and Striped Legless Lizard.

Current Threatening Process: Nil. This site is in good (G) condition. Recent kangaroo grazing has reduced the previously heavy grass canopy cover (the kangaroos have now been removed as a result of the exclusion fence around the Majura Training Area). Given the importance of this site, it would be appropriate to develop a memorandum of understanding between the ACT Government and relevant Australian Government agencies, focused on fostering an overt cooperative approach to protecting the grassland.

Action: Develop a memorandum of understanding with Air Services Australia and ensure it is implemented.

Canberra International Airport (MA03)

Conservation Category 1: Core Conservation Site.

Size: 203.6 hectares of lowland native grassland (73.6 hectares Natural Temperate Grassland) and is contiguous with lowland native grassland at Majura Training Area (MA01) and 'Malcolm Vale' (MA04).

Comments: National Land. The site provides habitat for the Grassland Earless Dragon, Golden Sun Moth and Perunga Grasshopper.

Current Threatening Process: This site is in good (G) condition. Some weed invasion is being controlled. A potential northern access road could fragment the currently contiguous

Natural Temperate Grassland area. There has been a steady loss of areas of core habitat for Grassland Earless Dragon to development of taxiways and extension of runways, and erection of the Brand Depot complex.

Given the importance of this site, it would be appropriate to develop a memorandum of understanding between the ACT Government and the Canberra International Airport, focused on fostering an overt cooperative approach to protecting the grassland, particularly the Natural Temperate Grassland and identified threatened species habitat.

Action: ACT Government to have discussions with the Australian Government and the Canberra Airport Group for a more optimal location for the proposed northern access road to prevent fragmentation of the Natural Temperate Grassland. Develop a memorandum of understanding with the Canberra Airport Group and ensure it is implemented.

'Malcolm Vale' (MA04)

Conservation Category 2: Complementary Conservation Site.

Size: 155.4 hectares native pasture that is contiguous with the Majura Training Area (MA01) and the Canberra International Airport (MA03).

Comments: National Land. This site provides habitat for the Grassland Earless Dragon.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos and weed invasion. Part of the site could be affected by a potential northern access road and could also be affected by a potential east-west Kowen road; *see also* Majura Training Area (MA01).

The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly the Department of the Environment) signed a memorandum of understanding on 7 September 1998.

Action: Reduce grazing pressure and control weeds. Review and update existing memorandum of understanding and ensure it is implemented.

Campbell Park (MA05)

Conservation Category 1: Core Conservation Site.

Size: 11.7 hectares Natural Temperate Grassland. Contiguous with native pasture to the east and north (Majura West) and with woodland to the east (Mount Ainslie Nature Reserve).

Comments: National Land. This site is habitat for the Button Wrinklewort, Grassland Earless Dragon, Striped Legless Lizard, Golden Sun Moth and Perunga Grasshopper.

The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly the Department of the Environment) signed a memorandum of understanding on 7 September 1998. There was no evidence that the memorandum of understanding was implemented over the past years, however, staff advise that there is cooperation between the agencies.

Current Threatening Process: Nil. This site is in good (G) condition. However, if the threatening processes, particularly grazing, that adversely affect the adjoining lands are not

controlled, they may adversely affect this site. Given the importance of this site for the Grassland Earless Dragon, if these threatening processes are not effectively controlled, strategically placed kangaroo management fencing should be erected on this site and on parts of Majura West (MA06). There is either an existing or disused rubbish tip on this site. Some ecologists were of the opinion that its use should cease and it should be rehabilitated. Information regarding whether the tip was still used could not be secured. The Department of Defence was made aware of this issue.

Action: Ensure adequate groundcover is maintained and weeds controlled. Given the importance of this site for the Grassland Earless Dragon, if these threatening processes are not effectively controlled, strategically placed kangaroo management fencing should be erected on this site and on parts of Majura West (MA06). Review and update the existing memorandum of understanding and ensure it is implemented.

Majura West (MA06)

Conservation Category 1: Core Conservation Site.

Size: 133.3 hectares native pasture. This site is contiguous with the Campbell Park (MA05) grasslands and with woodland within the Mount Ainslie Nature Reserve.

Comments: Territory Land. This site contains populations of the Grassland Earless Dragon. The area is subject to an agistment licence.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos, rabbits and stock.

Action: Reduce grazing pressure. If stock are removed and the grassland does not respond, and kangaroo numbers are not reduced, strategically placed kangaroo management fencing should be used on this site and at Campbell Park (MA05) to protect the habitat of the Grassland Earless Dragon.

Jerrabomberra Valley

Mugga Mugga Homestead (JE01)

Conservation Category 2: Complementary Conservation Site.

Size: 15.1 hectares Natural Temperate Grassland with adjacent native woodland and grassland separated by roads and neighbouring an olive grove to the south.

Comments: Territory Land. The site is part of the historical homestead of Mugga Mugga managed by ACT Historical Places. Parks Conservation and Lands within the Department of Territory and Municipal Services has provided conservation objectives and a management action spreadsheet.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Ensure periodic stock rotation to allow for natural regeneration.

'Callum Brae' (JE02)

Conservation Category 1: Core Conservation Site.

Size: 162.7 hectares native pasture, contiguous with woodland to the west (Callum Brae Nature Reserve) with native pasture and Natural Temperate Grassland to the south (West Jerrabomberra Nature Reserve).

Comments: Territory Land. Part of the site is managed under a rural lease with a Land Management Agreement. The site contains Grassland Earless Dragon, Golden Sun Moth and Perunga Grasshopper, and is an important area for maintaining habitat connectivity with the West Jerrabomberra Nature Reserve. In 2004 the Conservator of Flora and Fauna placed Conservator's Directions over part of this site under section 60 of the *Nature Conservation Act 1980* (ACT) for the protection of grassland sites and threatened species on this leasehold land. These Directions were superseded by a land management agreement.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor canopy cover.

Jerrabomberra West Reserve (JE03)

Conservation Category 1: Core Conservation Site.

Size: 116.9 hectares lowland native grassland (115.2 hectares Natural Temperate Grassland) that is contiguous with Callum Brae (JE02) to the north and woodland to the east.

Comments: Territory Land. This site contains Golden Sun Moth, Grassland Earless Dragon and Pink-tailed Worm Lizard (*Aprasia parapulchella*). The reserve was gazetted in March 2008. The Department of Territory and Municipal Services has undertaken extensive weed control in the site. Management is guided by a management actions spreadsheet. The site has on its eastern boundary a 3-hectare lease by the Model Aircraft Club.

Current Threatening Process: Nil. This site is in good (G) condition, although Model Aircraft Club ingress into the reserve is a potential issue.

Action: Weed control, monitor kangaroo population and canopy cover.

Woods Lane (JE04)

Conservation Category 2: Complementary Conservation Site.

Size: 10.3 hectares of Natural Temperate Grassland. Part of a habitat corridor between the Letchworth lowland native grassland and the Queanbeyan Nature Reserve to the east in New South Wales, separated by the railway line and the proposed Jerrabomberra East Reserve (JE05) to the west.

Comments: Territory Land. Button Wrinklewort occurs in the lane, and is part of a larger population extending from Letchworth and the Queanbeyan Nature Reserve to the east and HMAS Harman to the west. The Department of Territory and Municipal Services maintains the roadside. The southern area is disturbed, as a result of vehicular traffic and dumping some years ago. There are no site-specific requirements governing management of this grassland site, other than general mowing guidelines. Conservation signs have been erected and the areas with the Button Wrinklewort are not mown intensively.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Prioritise site for resurvey, and review boundaries of the lowland native grassland in the roadside. Take measures to prevent further physical disturbance.

Jerrabomberra East Reserve (JE05) (proposed)

Conservation Category 1: Core Conservation Site.

Size: 72 hectares lowland native grassland (62 hectares Natural Temperate Grassland). The site is contiguous with other lowland native grassland in Harman Bonshaw, the Alexander Maconochie Prison site and Woods Lane, which forms a corridor with grasslands in New South Wales.

Comments: Territory Land. The proposed nature reserve contains the endangered Grassland Earless Dragon, Golden Sun Moth and the vulnerable Perunga Grasshopper. It is expected that this reserve will be created in the near future through a variation to the Territory Plan. In 2004 the Conservator of Flora and Fauna has placed Conservator's Directions over part of the site under section 60 of the *Nature Conservation Act 1980* (ACT) for the protection of grassland sites and threatened species on this leasehold land. These Directions were superseded by a land management agreement.

Current Threatening Process: This site is approaching a critical threshold (AC) due to overgrazing by kangaroos.

Action: Ensure grazing pressure by kangaroos is reduced.

Harman Bonshaw South (JE06)

Conservation Category 1: Core Conservation Site.

Size: 105.7 hectares native pasture that is contiguous with Harman Bonshaw North and the proposed East Jerrabomberra Nature Reserve.

Comments: National and Territory Land. In 2004 the Conservator of Flora and Fauna has placed Conservator's Directions over part of the site under section 60 of the *Nature Conservation Act 1980* (ACT) for the protection of grassland sites and threatened species on this leasehold land. These Directions were superseded by a land management agreement.

The site is habitat for the Grassland Earless Dragon. The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly Department of the Environment) signed a memorandum of understanding on 7 September 1998.

Current Threatening Process: Approaching a critical (AC) threshold in terms of weed invasion (Serrated Tussock, Chilean Needlegrass, thistles, St John's Wort).

Action: Undertake weed control. Review and update existing memorandum of understanding and ensure it is implemented.

Harman Bonshaw North (JE07)

Conservation Category 1: Core Conservation Site.

Size: 114.6 hectares lowland native grassland (46.3 hectares Natural Temperate Grassland) that is contiguous with Harman Bonshaw South and the proposed East Jerrabomberra Nature Reserve.

Comments: National and Territory Land. The site is habitat for the Grassland Earless Dragon and the Button Wrinklewort. In 2004 the Conservator of Flora and Fauna has placed Conservator's Directions over part of the site under section 60 of the *Nature Conservation Act 1980* (ACT) for the protection of grassland sites and threatened species on this leasehold land. These Directions were superseded by a land management agreement. The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly Department of the Environment) signed a memorandum of understanding on 7 September 1998.

Current Threatening Process: Approaching a critical (AC) threshold from weeds.

Action: Undertake weed control. Review and update existing memorandum of understanding and ensure it is implemented.

'Cookanalla' (JE08)

Conservation Category 2: Complementary Conservation Site.

Size: 81.5 hectares native pasture that forms a wildlife corridor (particularly important for the Grassland Earless Dragon) with Harman-Bonshaw and further south and east to Tharwa Road.

Comments: Territory Land. The site is habitat for the Grassland Earless Dragon. In 2004 the Conservator of Flora and Fauna has placed Conservator's Directions over part of the site under section 60 of the *Nature Conservation Act 1980* (ACT) for the protection of grassland sites and threatened species on this leasehold land. These Directions were superseded by a land management agreement, which is due for review by August 2009.

Current Threatening Process: Approaching a critical (AC) threshold from abundant weeds and thistles that occur densely over the site and a population of Boxthorn is located on the hill. The thistles are symptomatic of persistent high grazing pressure from sheep and rabbits.

Action: Reduce grazing pressure and undertake weed control. Enforce conditions in the Land Management Agreement.

AMTECH (JE09)

Conservation Category 2: Complementary Conservation Site.

Size: 18 hectares Natural Temperate Grassland within a larger area of lowland native grassland and modified grassland. Before the extension of Hindmarsh Drive the site was contiguous with 'Cookanalla' (JE08), but it is now isolated.

Comments: Territory Land. This grassland site is within the Advanced Manufacturing Technology Estate. The western end of the estate was developed in 1993. The Grassland Earless Dragon was formerly found on the site, but a survey in 2007-08 failed to locate any

animals.¹³¹ The loss of the Grassland Earless Dragon population may be a result of ongoing drought conditions, as the habitat characteristics remain suitable for the species.¹³² The prospect of the area being re-populated naturally under better conditions is not favourable due to the likely barrier effect of Hindmarsh Drive. The site is grazed under licence as required for control of biomass to a level suitable for the Grassland Earless Dragon.

Current Threatening Process: This site is in good (G) condition. It is questionable as to whether this site is appropriately classified as its ecological values may have changed.

Action: Prioritise site for reassessment for the Grassland Earless Dragon and vegetation when seasonal conditions improve. Resolve future use of the site.

Tennant Street, Fyshwick (JE10)

Conservation Category 2: Complementary Conservation Site.

Size: 0.3 hectares Natural Temperate Grassland within a matrix of disturbed lowland native grassland that is contiguous with Molonglo River, which contains primarily exotic vegetation.

Comments: Territory Land. The site contains a population of Button Wrinklewort. The site has been identified for retention within a corridor linking Tennant Street and Molonglo River, if the remainder of the site is developed.

Current Threatening Process: This site is in good (G) condition. Weeds (Serrated Tussock, Sweet Briar and Barley Grass) are at moderate densities at the site. Grazing from rabbits and kangaroos is a problem but the site is not approaching any critical thresholds.

Action: Ensure site is managed for conservation values within its future use as a low-key recreation area.

Gungahlin

Mulanggari Nature Reserve (GU01)

Conservation Category 1: Core Conservation Site.

Size: 68.5 hectares lowland native grassland (58.6 hectares Natural Temperate Grassland) isolated by roads and urban development.

Comments: Territory Land. The site contains populations of Golden Sun Moth, Perunga Grasshopper and Striped Legless Lizard. Management is guided by a management actions spreadsheet; no current management problems.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor canopy cover and undertake routine weed control. Monitor kangaroo population.

¹³¹ David Hogg Pty Ltd, Eastern Broadacre Planning Study, Assessment of Ecological Opportunities and Constraints, June 2008.

¹³² David Hogg Pty Ltd, Eastern Broadacre Planning Study, Assessment of Ecological Opportunities and Constraints, June 2008.

Gungahlin Nature Reserve (GU02)

Conservation Category 1: Core Conservation Site.

Size: 187.3 hectares lowland native grassland (42 hectares Natural Temperate Grassland) contiguous with Yellow Box–Red Gum Grassy Woodland and forest (Gungahlin Hill), and a small degraded patch of Snow Gum–Candlebark Tablelands Woodland within the reserve.

Comments: Territory Land with populations of Striped Legless Lizard, Keys Matchstick Grasshopper (*Keyacris scurra*) and Perunga Grasshopper. Broadcast Australia has a 99-year lease over about 21 hectares in the Reserve and Print Handicapped Radio of the ACT has a 99-year lease over about 5 hectares. Grazing by livestock occurs under an agistment licence over the site for conservation purposes, guided by a management actions spreadsheet. Under a cooperative arrangement Parks Conservation and Lands also manages the lowland native grassland in the two leases in the same way. Broadcast Australia is implementing good conservation practices, including washing of mowers used to reduce grass growth on the boundaries to minimise weed spread. The perimeter fences around the Broadcast Australia site enclose about 25 kangaroos; the fence has been opened on several occasions to remove the kangaroos. Chilean Needle Grass is widespread adjacent to the buildings, and is in danger of spreading within the grassland.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor canopy cover and undertake routine weed control.

Crace Nature Reserve (GU03)

Conservation Category 1: Core Conservation Site.

Size: 136 hectares lowland native grassland (61.5 hectares Natural Temperate Grassland endangered ecological community) isolated by roads and urban development.

Comments: This is National and Territory Land; there is a rural lease over 30 hectares of the reserve. The site contains Striped Legless Lizard and Button Wrinklewort. Grazing by livestock occurs under an agistment licence over the entire site for conservation purposes, in accordance with a management actions spreadsheet.

The site includes 50 hectares of Commonwealth land used by the Department of Defence. Defence is currently in discussions with the ACT Government about selling the Commonwealth land; it is programmed for disposal in 2008–09.

This site is subject to a memorandum of understanding, a rural lease, and an agistment licence. The ACT Government, the Department of Defence and the Department of the Environment, Water, Heritage and the Arts (formerly the Department of the Environment) signed the memorandum of understanding on 7 September 1998. The rural Land Management Agreement attached to the lease is older than five years and therefore overdue for review. The agistment licence provides for grazing to be undertaken for conservation purposes only, in compliance with licence conditions.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos, rabbits and cattle, and from weed invasion. The site contains a high component of Chilean Needle Grass. A rabbit control program was recently implemented.

Action: Reduce grazing pressure by kangaroos, rabbits and cattle. Review the existing memorandum of understanding and ensure it is implemented. Review the Land Management Agreement conditions for the leased portion of the site to incorporate conditions to protect the lowland native grassland.

North Mitchell (GU04)

Conservation Category 2: Complementary Conservation Site.

Size: 16 hectares (14.8 hectares Natural Temperate Grassland) recently isolated site.

Comments: This Territory Land contains a grassland site that supports the vulnerable Striped Legless Lizard. No site-specific requirements are in place for managing this site.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor canopy cover and undertake routine weed control.

Mitchell (GU05)

Conservation Category 3: Landscape and Urban Site.

Size: 1.6 hectares Natural Temperate Grassland, adjacent to a small degraded patch of native pasture, otherwise enclosed by industrial sites within Mitchell.

Comments: This Territory Land, located in the General Industrial zone, contains a grassland site supporting the endangered Golden Sun Moth. The zoning is not compatible with the protection and survival of the Natural Temperate Grassland and the Golden Sun Moth. A decision needs to be made as to whether this site is to be retained, and therefore zoned differently. No site-specific requirements are in place for managing this grassland site.

Current Threatening Process: This site is in good (G) condition.

Action: Monitor.

Canberra Riding Club (GU06)

Conservation Category 3: Landscape and Urban Site.

Size: 0.3 hectares degraded Natural Temperate Grassland within a lease of 13.9 hectares.

Comments: Territory Land. The Canberra Riding Club's lease of 13.92 hectares includes 0.3 of a hectare of Natural Temperate Grassland. This grassland site has a botanical significance rating of 4 (the lowest rating for Natural Temperate Grassland), contains no threatened species and is in the lowest conservation category. It is small and isolated from other grassland sites.

Current Threatening Process: Approaching a critical (AC) threshold from overgrazing by horses.

Action: Prioritise site for reassessment as its ecological value may have changed.

Wells Station Road (GU07)

Conservation Category 3: Landscape and Urban Site.

Size: 0.2 hectares Natural Temperate Grassland along the old gravel track leading to Wells Station. The surrounding area is identified for residential development.

Comments: Territory Land.

Current Threatening Process: Approaching a critical (AC) threshold from weeds including Plantago, African Lovegrass, Chilean Needle Grass and Paspalum, which are in high densities and outcompeting the native plant species.

Action: Prioritise site for reassessment as its ecological value may have changed.

Nicholls (GU08)

Conservation Category 3: Landscape and Urban Site.

Size: 0.3 hectares Natural Temperate Grassland within primarily Phalaris-dominated grassland next to Ginninderra Creek.

Comments: Territory Land.

Current Threatening Process: Approaching a critical (AC) threshold from weeds invasion by St John's Wort, Chilean Needle Grass, Paspalum and Phalaris.

Action: Prioritise site for reassessment as its ecological value may have changed.

Belconnen

Ginninderra Experimental Station (BE01)

Conservation Category 2: Complementary Conservation Site.

Size: 19.4 hectares (18.9 hectares Natural Temperate Grassland) contiguous with other areas of native pasture and exotic vegetation.

Comments: This National Land is subject to a memorandum of understanding with the ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts and the CSIRO. There was no evidence that the memorandum of understanding was implemented over the past years, however, staff advise that the agencies are cooperating.

Maintenance of lowland native grassland involves minor weed control and ensuring that no stock is permitted on that part of the property when the grass is in seed, as agreed at on-site meetings with the ACT Government.

Current Threatening Process: At critical (C) threshold due to grazing pressure by kangaroos.

Action: Reduce the grazing pressure from kangaroos. Review and update the existing memorandum of understanding and ensure it is implemented.

Dunlop Nature Reserve (BE02)

Conservation Category 1: Core Conservation Site.

Size: 120 hectares (82 hectares Natural Temperate Grassland) contiguous with other areas of native pasture, exotic vegetation and Yellow Box–Red Gum Grassy Woodland.

Comments: This is Territory Land and an agistment licence permits grazing by livestock for conservation management purposes and fuel control in accordance with the site management actions spreadsheet. This site is a high priority for fuel mitigation for neighbouring suburbs, so there is a need to balance grazing and fuel loading.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos, sheep and rabbits.

Action: Reduce the grazing pressure. Review licence conditions to incorporate conditions that protect these grassland sites.

'Jarramlee' (BE03)

Conservation Category 2: Complementary Conservation Site.

Size: 52 hectares Natural Temperate Grassland contiguous with other areas of native pasture and exotic vegetation.

Comments: Territory Land.

Current Threatening Process: At a critical (C) threshold from overgrazing by rabbits, kangaroos and stock.

Action: Reduce grazing pressure.

Umbagog Park South, Florey (BE04(a))

Conservation Category 1: Core Conservation Site.

Size: 2.8 hectares Natural Temperate Grassland contiguous with other areas of native pasture and exotic vegetation, including Umbagog Park North, Florey (BE04(b)).

Comments: This Territory Land has a high diversity of native species. Successfully burned previously, the site has a low weed infestation, with exception of Chilean Needle Grass and African Love Grass on the boundaries.

Current Threatening Process: Approaching a critical (AC) threshold from African Lovegrass along the bicycle path and high biomass of Kangaroo Grass.

Action: Reduce canopy cover and consider for inclusion in an ecological burn program.

Umbagog Park North, Florey (BE04(b))

Conservation Category 1: Core Conservation Site.

Size: 12 hectares (6 hectares Natural Temperate Grassland) contiguous with other areas of native pasture and exotic vegetation including Umbagog Park South, Florey (BE04(a)).

Comments: This Territory Land is a low priority site, as it comprises small isolated patches of Natural Temperate Grassland.

Current Threatening Process: Approaching a critical (AC) threshold from Chilean Needle Grass and overgrowth of Kangaroo Grass.

Action: Reduce canopy cover, consider for inclusion in an ecological burn program and prevent further incursion of Chilean Needle Grass.

Evatt Powerlines (BE05)

Conservation Category 3: Landscape and Urban Site.

Size: 1.1 hectares Natural Temperate Grassland with other areas of native pasture and exotic vegetation.

Comments: This small area of Territory Land is an ungrazed site that has a high level of usage. Previously part burned. North Belconnen Landcare Group is undertaking a trial for treatment of Chilean Needle Grass.

Current Threatening Process: This site is in good (G) condition; there is minor weed invasion from Phalaris and Chilean Needle Grass.

Action: Reduce canopy cover, consider for inclusion in an ecological burn program and prevent further invasion of Chilean Needle Grass.

Lake Ginninderra (BE06)

Conservation Category 2: Complementary Conservation Site.

Size: 1.9 hectares Natural Temperate Grassland, isolated site.

Comments: Territory Land. One small area of Wallaby Grass-dominated grassland by the bicycle path supports a population of Golden Sun Moth. This area is mown. The rest of the grassland has been previously burned.

Current Threatening Process: This site is in good (G) condition. Some physical disturbance in the form of erosion associated with an informal track from the bicycle path to the top of the hill.

Action: Prevent access to the informal track and revegetate.

Lawson Territory (BE07)

Conservation Category 3: Landscape and Urban Site.

Size: 59.2 hectares lowland native grassland (3.3 hectares Natural Temperate Grassland) contiguous with the Belconnen Naval Transmission Station.

Comments: This Territory Land is the only grassland site that is in a residential zone identified for development. The site is grazed under an agistment licence and is habitat for the Golden Sun Moth.

Current Threatening Process: Approaching a critical (AC) threshold from weed invasion from Serrated Tussock and thistles and overgrazing from stock.

Action: Control weeds along the northern boundary so they do not adversely affect Lawson Commonwealth – Belconnen Naval Transmission Station (BE08(a)). While overgrazed it is not recommended that this be addressed as the land is to be redeveloped for residential purposes. In future planning, ensure a sufficient buffer between the reserve and the suburb to support long-term survival of the Golden Sun Moth.

Lawson Commonwealth – Belconnen Naval Transmission Station (BE08(a))

Conservation Category 1: Core Conservation Site.

Size: 94 hectares Natural Temperate Grassland, contiguous with Lawson Territory (BE07).

Comments: This National Land is subject to a memorandum of understanding between the ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts and the Department of Defence. The site is enclosed by a high-security fence and consists of grassland supporting populations of Golden Sun Moth, Ginninderra Peppercross and the Perunga Grasshopper. The Commissioner, in a separate report,¹³³ made recommendations for this site (*see* Appendixes 1 and 2).

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos.

Action: Implement the Commissioner's recommendations for this site.

Lawson Commonwealth – East (BE08(b))

Conservation Category 1: Core Conservation Site.

Size: 26.3 hectares Natural Temperate Grassland.

Comments: This National Land is to the east of the fenced transmitting station, adjacent to Baldwin Drive. This grassland supports a population of the Striped Legless Lizard. The site is subject to a memorandum of understanding between the ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts, and the Department of Defence. The boundaries of the grassland area were unclear.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Given the overall context of this site, it seems to lend itself to a land use that integrates conservation values with development. An offset should be required if areas of grassland are developed.

Kaleen East Paddocks (BE09)

Conservation Category 3: Landscape and Urban Site.

Size: 28.2 hectares lowland native grassland (including 4 hectares Natural Temperate Grassland) contiguous with other areas of degraded native pasture and exotic vegetation.

¹³³ Dr Maxine Cooper, 26 February 2008, *Report on Belconnen Naval Transmission Station Site as part of the Investigations into ACT Lowland Grasslands*, Commissioner for Sustainability and the Environment (*see* Appendix 1).

Comments: This Territory Land is a grassland site that is part of a horse holding paddock, and is fenced off separately. Site management is governed by a contract between the Territory and Capital Weed Control Pty Limited. Under the contract Capital Weed Control provides services for complete management of the paddock, which includes:

- sustainable agricultural management including protection of areas of significant conservation values, as identified by the Territory
- weed and pest control.

The contract provides that the Territory measure Capital Weed Control's performance against, among other things, the extent to which management of areas identified as being of significant conservation value are maintained in accordance with management plans developed by Parks Conservation and Lands. Capital Weed Control, in consultation with Parks Conservation and Lands, prepared a site-specific management statement for this site.

An integrated land management issue was evident at this site. While weed growth was carefully controlled in the horse paddock, in the abutting roadside one of the main sources of weeds was an exceptionally large Firethorn bush that is clearly the source of this weed in the horse paddock. Parks Conservation and Lands was notified and subsequently treated the bush.

Current Threatening Process: Nil. This site is in good (G) condition; there are minor weeds including Serrated Tussock and woody shrubs.

Action: Control weeds maintain optimal canopy cover. Foster integrated land management practices across the various areas within Parks Conservation and Lands. Prioritise for reassessment of the site's ecological values as they were not obvious at the time of inspection.

Caswell Drive (BE10)

Conservation Category 1: Core Conservation Site.

Size: 4.8 hectares of Natural Temperate Grassland contiguous with other areas of native pasture, Snow-Gum Woodland, Yellow Box-Red Gum Grassy Woodland and forest.

Comments: This small site, located between Caswell Drive and William Hovell Drive, is contiguous with the Aranda Bushland. Kangaroos are a major issue on the site. As a result, this is a hotspot for motor vehicle accidents involving kangaroos.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos.

Action: Reduce the number of kangaroos and control rabbits. Given the size and location of this site it may be necessary to reduce the number of kangaroos on land in the vicinity, rather than concentrating only on this site.

Glenloch Interchange (BE11)

Conservation Category 1: Core Conservation Site.

Size: 2.2 hectares of Natural Temperate Grassland site that contains a small remnant Snow Gum-Candlebark Tableland Woodland, otherwise isolated by roads.

Comments: This small site is benefiting from the new road as it is isolated from Black Mountain and Aranda Bushland and therefore currently protected from high grazing pressure from kangaroos.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor for increases in canopy cover and weed invasion; consider for inclusion in an ecological burn program.

Kama South (BE12)

Conservation Category 1: Core Conservation Site.

Size: 38.5 hectares Natural Temperate Grassland endangered ecological community, contiguous with areas of Yellow Box–Red Gum Grassy Woodland.

Comments: This is a recently identified site and is proposed for reservation. The Molonglo Valley has not previously been identified as an area that supported natural grassland, but recent investigations have found that before European settlement such grassland would have occurred extensively along the southern side of the river. Only 38.5 hectares remains of a much larger area that would have been present before European settlement. There are isolated weedy areas of Serrated Tussock, thistles and St John's Wort. It is currently used as an agistment area, with grazing being undertaken for conservation purposes only.

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor for increases in canopy cover and weed invasion; consider for inclusion in an ecological burn program.

Evatt Footbridge

Conservation Category: Yet to be assessed – included following a submission from the North Belconnen Landcare Group.

Size: less than 1 hectare, contiguous with other areas of native pasture and exotic vegetation.

Comments: This site has been fenced off to exclude it from mowing and is weeded and 'managed' by the North Belconnen Landcare Group.

Current Threatening Process: Nil.

Action: Assess site for inclusion as a lowland native grassland site.

Central Canberra/Tuggeranong

CSIRO Headquarters (CC01)

Conservation Category 2: Complementary Conservation Site.

Size: 3 hectares Natural Temperate Grassland, isolated from other patches of native grassland.

Comments: This grassland site includes both National and Territory Land. The grassland site contains the endangered Golden Sun Moth. The National Land is managed by the

CSIRO and there is a memorandum of understanding between the ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts and the CSIRO, which was signed on 7 September 1998.

A management plan, prepared by CSIRO, ensures no mowing occurs within the grassland area. Kangaroos are migrating from Mount Ainslie so are difficult to control.

Current Threatening Process: At a critical (C) threshold from overgrazing by kangaroos. The steep slope predisposes this site to active and serious soil erosion, especially from the informal pedestrian and vehicular tracks that cross the site.

Action: While there is a need to reduce grazing pressure by kangaroos, given the urban context, this is likely to be best achieved by reducing numbers strategically across the region. There is also a need to control pedestrian and vehicular access to prevent erosion. Review existing memorandum of understanding and ensure it is implemented.

Constitution Avenue, Reid (CC02)

Conservation Category 2: Complementary Conservation Site.

Size: 0.7 hectares Natural Temperate Grassland contiguous with other areas of exotic grassland.

Comments: The grassland site is vacant unleased Territory Land; the entire site is a Designated Area and contains the endangered Golden Sun Moth.

Current Threatening Process: Approaching a critical (AC) threshold from high grass cover. Chilean Needle Grass surrounds the area of Natural Temperate Grassland but a physical mulch barrier is impeding invasion into the grassland.

Action: Consider for inclusion in an ecological burn program.

St John's Church, Reid (CC03)

Conservation Category 2: Complementary Conservation Site.

Size: 0.9 hectares Natural Temperate Grassland, isolated.

Comments: This very small site provides habitat for the Golden Sun Moth. The church community is actively trying to protect the grassland and Golden Sun Moth. They propose to erect interpretative signage about the grassland.

Current Threatening Process: Nil. This site is in good (G) condition; there is some minor weed invasion by Chilean Needle Grass, Paspalum and African Lovegrass and extension of a car park.

Action: Parks Conservation and Lands help the lessee prepare a long-term conservation management strategy to guide implementation of conservation management strategy.

Australia Centre for Christianity and Culture, Barton (CC04)

Conservation Category 1: Core Conservation Site.

Size: 1.9 hectares Natural Temperate Grassland, isolated.

Comments: This site covers National and some Territory Land and has a botanical significance rating of 1 (the highest and only site in Canberra with this rating), and provides habitat for the Button Wrinklewort and Golden Sun Moth. This site consists of two leases occupied by the Australian Centre for Christianity and Culture and St Mark's National Theological Centre. Both leases require development of a conservation management plan to protect the Natural Temperate Grassland. Parks Conservation and Lands, in consultation with the lessees, has developed a draft Conservation Management Plan and Specifications for the site.¹³⁴

Current Threatening Process: Approaching a critical (AC) threshold from canopy closure and associated loss of forbs.

Action: Undertake ecological burn in 2009 (the site is scheduled in the Bushfire Operational Plan 2008–09 for a conservation burn in autumn 2009). Develop a memorandum of understanding for the National component of this site and ensure it is implemented. The lessee should finalise the draft Conservation Management Plan and Specifications in consultation with the Department of Territory and Municipal Services and the National Capital Authority.

York Park, Barton (CC05)

Conservation Category 2: Complementary Conservation Site.

Size: 0.4 hectares of Natural Temperate Grassland, isolated.

Comments: This site is National Land managed by the Australian Government Department of Finance. The grassland site contains a population of Golden Sun Moth. The Department of Finance has a draft maintenance plan dated December 2007 that deals with weed management, biomass management and other associated matters relating to the site. (The National Capital Authority managed the site previously, and was subject to a memorandum of understanding with the ACT Government. Weeds are being actively managed.)

Current Threatening Process: Approaching a critical (AC) threshold from weed invasion, including Chilean Needle Grass, Prickly Lettuce, Plantago, Paspalum, Brome Grass and Cocksfoot.

Action: As this is one of few remaining Natural Temperate Grassland sites within urban Canberra, ensure the site is retained and maintains its ecological integrity in future development planning. Review and update existing memorandum of understanding and ensure it is implemented.

Yarramundi Reach (CC06)

Conservation Category 2: Complementary Conservation Site.

Size: 21.1 hectares of Natural Temperate Grassland contiguous with other areas of primarily exotic vegetation.

Comments: This site is National Land and provides habitat for the Golden Sun Moth and the Striped Legless Lizard. In the 1980s it was recognised as one of the most diverse and

¹³⁴ Pers. comm., Sarah Sharp, Parks Conservation and Lands.

'important' grasslands in the Territory, but has become increasingly invaded by weeds, particularly Chilean Needle Grass, significantly reducing the area of Natural Temperate Grassland remaining. Most of the site was burnt in December 2001 in a wildfire. The ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts and the National Capital Authority signed a memorandum of understanding on 7 September 1998.

Current Threatening Process: Approaching a critical (AC) threshold from weeds, especially Chilean Needle Grass actively spreading over much of the site, and along the lower bicycle path verges.

Action: Control invasions of weeds and consider including in an ecological burn program. Review existing memorandum of understanding and ensure it is implemented.

Lady Denman Drive (CC07)

Conservation Category 2: Complementary Conservation Site.

Size: Several patches of grassland, totalling 0.4 hectares Natural Temperate Grassland within a roadside of primarily exotic vegetation.

Comments: This site is part National Land and provides habitat for the Golden Sun Moth. The ACT Government, the Australian Government Department of the Environment, Water, Heritage and the Arts and the National Capital Authority signed a memorandum of understanding 7 September 1998.

Current Threatening Process: Approaching a critical (AC) threshold from too close and too frequent mowing and weed invasion, especially Chilean Needle Grass.

Action: Review mowing practices and control weeds. Review existing memorandum of understanding and ensure it is implemented.

Dudley Street, Yarralumla (CC08)

Conservation Category 2: Complementary Conservation Site.

Size: 2.2 hectares including 1.5 hectares Natural Temperate Grassland surrounded by weedy exotic grassland.

Comments: This Territory Land contains the Golden Sun Moth. The northern portion of the site is mown regularly; the southern portion is seldom mown, and occasionally burnt. Part of the site was burnt in spring 2008 to reduce overgrowth of Kangaroo Grass.

Current Threatening Process: Approaching a critical (AC) threshold from Chilean Needle Grass and mowing, which is too close and too frequent.

Action: Review mowing regime.

Guilfoyle Street, Yarralumla (CC09)

Conservation Category 2: Complementary Conservation Site.

Size: 0.8 hectares Natural Temperate Grassland within a 2-hectare site of disturbed native pasture.

Comments: This Territory Land contains a single Button Wrinklewort plant. The site is identified for potential development of an embassy.

Current Threatening Process: Approaching a critical (AC) threshold from close and frequent mowing, which is threatening survival of native grasses and forbs, preventing plant regeneration and spreading Chilean Needle Grass throughout the site.

Action: Modify mowing practices. Determine the long-term use of site and if developed ensure development occurs in a way that protects the grassland.

Novar Street, Yarralumla (CC10)

Conservation Category 3: Landscape and Urban Site.

Size: 0.2 hectares Natural Temperate Grassland surrounded by exotic/weedy grassland.

Comments: Territory Land.

Current Threatening Process: Approaching a critical (AC) threshold from the close and frequent mowing which is preventing plant regeneration of native grasses and forbs.

Action: Reassess site as its ecological value may have changed.

Black Street, Yarralumla (CC11)

Conservation Category 2: Complementary Conservation Sites.

Size: 3.6 hectares Natural Temperate Grassland surrounded by exotic/weedy grassland.

Comments: This Territory Land supports a population of the Golden Sun Moth. The site was recently mown, after a long period un-mown.

Current Threatening Process: Approaching a critical (AC) threshold from close mowing which will threaten survival of Kangaroo Grass and native forbs, preventing plant regeneration.

Action: Review mowing regime.

Isabella Pond, Monash (TU01)

Conservation Category 1: Core Conservation Site.

Size: 1.2 hectares Natural Temperate Grassland surrounded by exotic/weedy grassland.

Comments: This Territory Land contains the only remaining Natural Temperate Grassland site in the Tuggeranong Valley. The site has been previously burnt for ecological purposes, and was burnt in spring 2008 as part of the Bushfire Operational Plan 2008–09.¹³⁵

Current Threatening Process: Nil. This site is in good (G) condition.

Action: Monitor canopy cover and species diversity.

¹³⁵ Pers. comm., Sarah Sharp, Parks Conservation and Lands.